MCFC

Egyptian Journal of Breastfeeding

Volume (5) April 2012

Theme of current issue

A Rights Approach to Maternity Protection

Issued by the Mother-Child Friendly Care Association

MCFC-Egyptian Journal of Breastfeeding (EJB)
Volume (5) May, 2012
Theme: ***A rights approach to maternity protection***

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 should not exceed a total of 4. **Abstracts** should not exceed 250 words, 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, Methods, Findings 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 30. 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://owl.english.purdue.edu/.*

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INTRODUCING THE EGYPTIAN
MOTHER-CHILD FRIENDLY CARE ASSOCIATION (MCFC)

Mission Statement

The purpose of MCFC is to promote ***updated, coherent, continuous, friendly health, parenting and nutritional care services*** to children, mothers and caretakers; decreasing their suffering from disease and disability from misinformation, malpractice and risky behavior to achieve optimum health, physical & emotional growth for the development of communities at large.

Values and Principles

- Quality; our focus is on the people we serve (babies, children, mothers, mothers to be, their families and communities) and we will strive for excellence through continuous improvement. We are committed to working with sincerity, devotion, perseverance, transparency and loyality to our mission based on evidence based practice.
- **Vision Statement**

  The MCFC vision is that all children are offered the best safe, healthy, nurturing start in life from conception and birth and cared for according to their needs throughout their life cycle.

رسالة جمعية أصدقاء رعاية الأم والطفل

هدفنا نشر خدمات الرعاية الصحية والغذائيةً والتربوية المتكاملة والحديثة في مجال الأمومة والطفولة للتقليل من الأمراض والإعاقات والوفيات التي تسببها الممارسات الخاطئة والمعلومات المضللة والسلوك الخطأ والخطر وذلك من أجل الحفاظ على وحماية صحة الأطفال ونموهم البدني والنفسي وتنمية المجتمعات ككل.

القيم والمبادئ

غايتنا الجودة- نحن نعمل جاهدين من أجل الوصول إلى التميز في خدمة الأم والطفل من خلال التحسين المستمر للخدمات والمعلومات والممارسات.

- كما نلتزم في أداء عملنا بالجدية والإخلاص والمثابرة والأمانة والتفاني مع تقديم ما يدعمه الطب المسند.

رؤيتنا هى

إتاحة البداية الآمنة والصحية للطفل من أول الحمل والولادة، وتوفير الرعاية لكل طفل طبقاً لاحتياجاته في كل أطوار الحياة.

Who are we?

MCFC is a not-for-profit, non-governmental organization that seeks to make a difference in the lives of mothers and babies by promoting optimum practices related to nutrition, nurturing, parenting, feeding and health care and to make *mother and child friendly care* the norm in our society.

MCFC was established in 2010 by a group of enthusiastic supporters of motherhood and parenthood. The founders include a group of Egyptians with varying professional background including pediatricians, neonatologists, obstetricians, psychiatrists, public health, MCH medical and nursing professionals, nutritionists, dentists, engineers, specialists in marketing, finance, quality, economists, and social workers, who are dedicated to become the Friends of all mothers and children by advocating for their rights and supporting their needs.

Most of them have received Gold Standard certification in lactation management through the International Board Lactation Consultant Examiners (IBLCE), qualifications in nutrition and quality management and are thereby dedicated and commited to breastfeeding support.

من نحن؟

جمعية أصدقاء رعاية الأم والطفل هي جمعية أهلية لا تستهدف الربح، تسعى إلى إحداث تغيير إيجابي في حياة الأمهات والأطفال من خلال تشجيع الممارسات المثلى المتعلقة بتغذية ورعاية وتربية الأطفال. كما أنها تعمل على تعديل الممارسات المتبعة في المجتمع لتكون آمنة وصديقة للأمهات والأطفال .

وقد تم تأسيس الجمعية في عام 2010 بأيدي مجموعة من المؤيدين المتحمسين للأمومة والأبوة. وتضم قائمة المؤسسين مجموعة من المصريين ذوي خلفيات مهنية متنوعة. فمنا أطباء الأطفال وحديثي الولادة، وأطباء التوليد، وأطباء نفسيين، وتخصصات الصحة العامة، وأطباء وتمريض صحة الأم والطفل، وأخصائيو التغذية العلاجية، وأطباء الأسنان والمهندسين والمتخصصين في الأعمال التجارية والتسويق، الجودة، والتمويل، والاقتصاديين والتربويين والأخصائيين الاجتماعيين، وكلنا نكرس الجهود لنصبح أصدقاءً للأم والطفل من خلال الدعوة لحقوقهما ودعم احتياجاتهما.

ومعظمنا قد تلقى شهادة المعيار الذهبي في مجال إدارة الرضاعة من خلال الهيئة الدولية الممتحنين لمجلس استشاريي الرضاعة الطبيعية، ومنا المؤهلون في مجالات التغذية وإدارة الجودة، ونحن نلتزم بتعزيز الرضاعة الطبيعية وحمايتها ودعمها.

Why are we here?

The rationale for building volunteer groups who wish to contribute to change and to the 'betterment' of lives of others, comes in response to the global and evidence that indicates that working to increase the awareness and education of communities is key to economic development.

Effective strategies for reduction in maternal and infant mortality and morbidity rates is achieved in most cases by information, communication education (IEC), training, counseling, media, internet, mobile and similar IT channels to target child care takers.

MCFC hopes to contribute to making the lives of mothers and children and their families, satisfying, agreeable and fulfilling. Since these make the foundations for development in any society, the enhancement of their needs and demands are predictors of an economically and functionally productive future for our nation. This ensures peace, security and justice for sustainable development.

Tender, loving care when communicated with congruence, transparency and sincerity is highly contagious and radically effective in transforming the lives of both those who give and receive it.

لماذا نحن هنا؟

إن الغرض من العمل الاجتماعي التطوعي هو المساهمة في إحداث التغيير إلى "الأفضل" في حياة الآخرين، والعرفان لله بتفضله على عباده بالعلم، والاستجابة للاحتياج العالمي الذي تناولته العديد من الهيئات والجمعيات الدولية والعلمية مشيرةً بالأدلة العلمية إلى أن العمل على زيادة التوعية والتثقيف في المجتمعات هو مفتاح التنمية الاقتصادية.

وقد كان للتوعية دور هام فى خفض معدلات وفيات الأمهات والأطفال الرضع، بالإضافة إلى أن زيادة الطلب على التعليم والتدريب المستمرللعاملين بالصحة، وخلق كوادر متخصصة تقوم بتقديم المشورة، وغيرها من التدخلات المماثلة تؤثر تأثيراً بالفاعلى تحسين رعاية الأطفال.

وتأمل **جمعية أصدقاء رعاية الأم والطفل** في أن تسهم في تلبية احتياجات الأمهات والأطفال وأسرهم، باعتبارهم القاعدة الأساسية للتنمية في أي مجتمع، وتعزيزاً للتنمية الاقتصادية وضماناً للسلام والأمن والأمان والعدالة الاجتماعية من أجل التنمية المستدامة للأمة. ومن ثم فإن الرعاية العطوفة الودودة عندما تتصف بالشفافية والإخلاص والجدية فإنها تؤثر بفعالية في إحداث التغيير المطلوب ومن هذا المنطلق جاءت تسمية الجمعية *بالجمعية الصديقة للأم والطفل*.

What are we doing?

We are here to listen to mothers with babies, children and their families, communities and leaders … from voices of the past, present and future.

MCFC encourages innovative strategies for promoting, protecting and supporting healthy nurturing styles for mothers and their children and families beginning by breastfeeding as the best start in life.

The dimensions of activities vary from health education to training, community sensitization, raising awareness, identifying and advocating towards the unmet needs of women and children for achieving developmental lifestyles.

MCFC produces educational and training material, e-newsletters, conduct professional training workshops, awareness seminars, public forums, scientific conferences, media campaigns and online awareness activities.

MCFC conducts field surveys and scientific research to identify needs, problems and best solutions, test interventions and use the results to advocate for women and child rights.

MCFC networks with other national and international organizations both governmental and non governmental ones through joint interventions including seminars, conferences, production of IEC material and research to exchange experiences, unite missions, improve outcomes.

ما هى أنشطتنا؟

نحن هنا من أجل الاستماع إلى أمهات الرضع والأطفال الأكبر سناً، ولأسرهم والمجتمع المحيط بهم، والقادة والعاملين بالصحة والحكومة... من أصوات الماضي والحاضر والمستقبل.

تشجع **جمعية أصدقاء رعاية الأم و الطفل** استراتيجيات مبتكرة لتعزيز وحماية ودعم أساليب الرعاية الصحية للأمهات والأطفال وعائلاتهم انطلاقاً من الرضاعة الطبيعية كأفضل بداية للحياة.

تشمل أبعاد أنشطة التثقيف الصحي توعية المجتمع، وتدريب القادة، والدعوة لحقوق المرأة والطفل من أجل تحقيق أنماط حياتية تكفل التنمية.

تتولى **جمعية أصدقاء رعاية الأم و الطفل** وضع مواد تعليمية وتدريبية، ونشر دوريات علمية وإخبارية، وتنظيم حلقات عمل للتدريب المهني وحلقات للتوعية ومنتديات عامة، ومؤتمرات علمية وحملات إعلامية وأنشطة توعية على الانترنت.

كما تقوم **جمعية أصدقاء رعاية الأم و الطفل** بإجراء المسوحات الميدانية والبحوث العلمية لتحديد الاحتياجات والمشاكل ووضع الحلول المثلى، واختبار وتطبيق التدخلات بالطرق العلمية واستغلال النتائج للمطالبة بحقوق المرأة والطفل من المهد إلى الكبر (مروراً بكافة أطوار الحياة).

تتواصل **جمعية أصدقاء رعاية الأم و الطفل** مع غيرها من المنظمات الحكومية وغير الحكومية والدولية بالندوات والمؤتمرات والمواد التعليمية والعلمية والإعلامية والبحوث لتبادل الخبرات وتوحيد الأهداف، وتحسين الناتج.

MCFC experts provide health care and social support to mothers and families throughout their childbearing and child birthing and rearing experience.

MCFC aims to give technical support services to mothers and children with special needs, and families in emergency situations, poverty, orphaned children, children with malnutrition, chronic disease or disability.

MCFC addresses all of the above by utilizing the state of art communication methods for achieving friendly care.

Where do we work?

Everywhere there is a need or demand for providing ***mother baby friendly care*** including:

- Hospitals, maternal and child health unit services, clinics
- Social clubs and Public facilities
- Other NGOs; national or international
- Day care nurseries
- Schools and educational institutes, universities

How can you help us achieve it?

Join us now! Share with your ideas, your expertise or even with your resources or contacts. Become an advocate to our mission in your community by making it mother and baby friendly i.e. providing them with state of art services and information and advocating for maternity rights.

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يقوم خبراء **جمعية أصدقاء رعاية الأم الطفل** بتوفير الرعاية الصحية والدعم الاجتماعي للأمهات والأسر أثناء الحمل والولادة و مابعد الولادة وإرشادهن في رعاية وتنشئة أطفالهن.

كما تعمل الجمعية على إعطاء خدمات الدعم الفني للأمهات والأطفال ذوي الاحتياجات الخاصة، والأسر في حالات الطوارئ، والفقر، والأطفال اليتامى، والأطفال الذين يعانون من سوء التغذية، والأمراض المزمنة أو الإعاقة.

تتناول **جمعية أصدقاء رعاية الأم والطفل** كل ما سبق من خلال الاستفادة من وسائل الاتصال الحديثة والمؤثرة باختلاف طبيعتها لتحقيق الرعاية الصديقة للأم والطفل.

أين نعمل؟

في كل مكان وفي أي مكان تكون هناك حاجة أو طلب لتوفير الرعاية الصديقة للأم والطفل بما في ذلك:

- المستشفيات ووحدات الرعاية الصحية والعيادات
- الأندية الاجتماعية والمرافق العامة
- المنظمات غير الحكومية الأخرى، محلية أو دولية
- مراكز رعاية الطفل
- حضانات الرعاية النهارية
- المدارس والمعاهد التعليمية والجامعات

كيف يمكن أن تساعدنا على تحقيق هدفنا؟

يمكنك الإنضمام إلينا الآن! بأفكارك و خبراتك أو بأن تصبح داعياً لمهمتنا في منطقتك بتقديم خدمات الرعاية الصديقة للأم والطفل من خلال توصيل معلومات حديثة و تصحيح الممارسات الخطأ والدعوة إلى حقوق الأمومة في كل مكان.

كيف يمكنك التواصل معنا؟

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Section I: Editorial articles

I.1. Early Parenting and Child's Brain Development

The Editors

The strengthening of children's relationships with their parents can have a positive impact on children's learning and their performance in school and in life. When parents understand the connection between the ways they talk, play with and touch their young children and their children's growth and development, they can enhance their child's intelligence.

Today, many children: eat more processed rather than natural foods; are exposed to environmental pollutants and hazards; are raised in single-parent households with fewer resources; have less opportunity for outdoor play because of safety concerns; are exposed to increased levels of violence, drugs and medications.

The first three years of life are critical to a child's brain development. Billions of brain cells are formed in the first months of fetal life. Neurobiologist Peter Huttenlocher[(1)] of the University of Chicago describes the process of measuring brain growth during fetal development as "counting snowflakes in a blizzard or drops of water in a torrential rainstorm." At its peak, the embryo is generating brain cells at a rate of 250,000 a minute.

Learning occurs through connections among brain cells. A single brain cell can connect with as many as 15,000 other cells. Between birth and eight months of age, the number of connections increases from about 50 trillion to 1,000 trillion. This over-production ensures that the brain can adapt to any environment in which the child lives. The connections that are reinforced remain while others disappear. As a result, the biological brain of a one-year-old more closely resembles an adult's brain than that of a newborn. In fact, neurobiologist Harry Chugani[(2)] of Wayne State University says that the experiences of the first year are capable of completely changing our personality.

The connections among brain cells are called synapses, and they link up to form neural pathways or "learning maps." Experience creates these learning maps. It is during the first three years of life that most synapses are produced. The

number of synapses increases until about age three, and then holds steady through about age ten. After age ten, synapses that are not used often are eliminated. Experiences that are repeated often--whether positive or negative--have a great impact on how the brain is wired. Repeated, daily actions and interactions have the most potential for affecting a child's life.

In terms of developing literacy skills, nothing is more important for young children than regular, daily experiences of face-to-face interactions as being breastfed, touched and comforted, and later read to, talked to and listened to effectively. It may seem odd to a parent that simply describing what she is doing aloud to her baby as she dresses him is linked to his literacy development, but it is true. Teaching parents about the effect of repeated, positive interactions is key for helping parents understand how ordinary experiences become nourishing food for the child's brain.

During the early years of life, the child's brain is being customized to match his or her daily experiences. The nature of sensory experiences has a great impact on brain development and, subsequently, on behavior and learning. "Crawl time," or opportunities to safely explore the environment, for example, has links to school readiness by providing the physical experience of using one's body to learn about the properties of objects. The famous child psychologist Piaget linked this type of tactile experience to thinking and the development of thought processes. Yet, today, many children spend considerable time strapped into baby seats, swings or car seats, which restricts their movement and waking time for movement.

Visual experiences affect the development of the brain's visual pathways. Much of one's vision develops during the first year of life, with a major growth spurt at age two to four months. Exposure to a variety of stimulating inputs, including early skin contact with mother and eye-to-eye contact while breastfeeding. Later the child’s handling objects and learning about their shapes, colors, weights and movement, affects visual development. Many researchers warn against using television as visual stimulation. It is a poor substitute for direct experience and loving interaction, and may be too visually stressful for some young children.

During the first year of life, the auditory centers of the brain are stimulated by the repeated sounds children hear. Babies

listen to words even though they cannot speak, and so it is important that adults talk with babies often using different vocabulary especially during feeding. This is important for later language development, particularly the understanding of syntax, vocabulary and meaning. In an important longitudinal study of language development and learning, Hart and Risley[3] carefully analyzed the language development of children from their first birthday up until age three. They discovered vast differences between children reared in poverty and those from working class and middle class families. The differences in language development were not rooted in the type of physical care the children received at home, but in the quantity and variety of language to which they were exposed. By the time the children were three, many children of the more affluent families had larger vocabularies than the parents of the higher poverty families. Reading to babies after a breastfeed even before they speak is a helpful strategy for stimulating their auditory centers in the brain and making neural connections between reading and pleasure. Children who know and use a wide range of words by age five are likely to be better readers.

Although not directly related to brain development, a common risk factor during this critical window of language learning is ear infections. In order to learn language children must hear well, so repeated ear infections may interfere with speech and language. It is important for parents to avoid feeding bottles and teats as these predispose to ear infections. They must follow them up after medical treatment of ear infections, and assess their children's hearing.

Early in pregnancy, the brain's cortex is formed. Exposure to drugs, chemicals, radiation, nicotine, and cocaine may have more harmful and long-lasting effects on children's development than previously thought.

The nature of children's attachment to their primary caregivers also affects brain development. Researchers already know about the importance of secure attachments, through early skin contact with their mother and rooming-in, on later cognitive and emotional development. Now they are seeing the effects of maternal depression on the child's capacity to regulate emotion and seek out stimulation. The period between six and eighteen months is a time for stabilizing attachment and emotional regulation. Discocntinuation

of breastfeeding at this time predisposes mothers to depression and child to behaviour disorders as a result of insecure attachment. Depressed mothers have difficulty providing optimal levels of stimulation and positive emotional interactions. Depressed mothers exert inattentive behavior and babies are more avertive to contact. When this type of inattentiveness by mothers continues, babies learn that their responses do not matter. Consequently, they have high degrees of anxiety, which they may try to alleviate through "self-soothing" rather than reaching out to others [(4)].

If maternal depression persists it is predictive of a child's behavioral problems and lower cognitive ability during the preschool years. The positive side to this research is that when maternal depression is recognized and treated by the time a child is six months old, there are no lasting effects. Coninued breastfeeding for two years or more, secures attachment and decreases behavioural disorders in children.

The quality of attachment in the first year of life between children and their primary caregivers is linked to social competence and emotional well being and, therefore, school success. Early and repeated exposure to stress or violence can also cause the brain to reorganize so as to increase receptor sites for alertness to chemicals [(5)] which, in turn, is linked to impulsivity and aggression. When children's distress is handled consistently with prompt, warm attention, they are more likely to form secure attachments to their primary caregivers. They will develop the neural connections that help them to eventually self-regulate when faced with strong emotions or discomfort. Responsive caregivers can teach these children how to recover and calm themselves when bombarded by stimuli. Highly sensitive children without such responsive caregivers have a difficult time recovering from distress.

The primary developmental task of infancy is to develop a strong and trusting attachment to one's primary caretaker. Through secure attachments, infants learn the rhythmical, reciprocal exchanges between child and adult that form the basis for all later communication. Hence the importance of advocating for extending maternity leave of 6 months or up to 2 or 3 years, paid in part to assist parents living in poverty to be with their children at such a vulnerable stage in their development.

Because cognitive development and learning acquired in infancy have a

tremendous impact on later literacy, child IQ will benefit greatly which is an important investment for economic growth of nations.

In summary, the increasing public awareness of how early brain development affects children's learning is creating new levels of enthusiasm and support for high-quality infant and toddler care. One of the effects of welfare reform is that there are greater numbers of infants and toddlers requiring care because their parents are working. These children, who are predominately from disadvantaged backgrounds, deserve settings that will adequately stimulate their senses and support their close attachment to parents. Promoting continued breastfeeding for two years or more by enacting maternity protection laws is one such intervention that can secure attachments and promote emotional and intellectual development in such children on the long run.

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تعزيز نمو وتطور المخ بالوالدية المبكرة

إن الركائز الأساسية التي تؤدي إلى التنمية والتربية الصحيحة للطفل تقوم على تقوية الروابط العاطفية بين الطفل والقائمين على رعايته من خلال توثيق التواصل الآمن والمستقر والمتوازن بين الأطفال والكبار لأنه يشكل أساس التعاملات الحالية والمستقبلية ، ولذلك تعد فترة المهد والرضاعة من الفترات الحرجة للنموالذهني وبالأخص للمواليد المبتسرين فهم يمثلون تحدياً لأمهاتهم وللقائمين على رعايتهم حيث يصعب تهدئتهم والتعامل معهم.

وقد بدأ نشر أبحاث الدماغ على نطاق واسع في عهد قريب نسبياً. والعاملون في حقل التربية هم في حاجة ماسّة إلى التدريب والخبرة للعمل مع مرحلة ما قبل الروضة - لتعلم المهارات الجديدة وتحديث مناهج العمل مع الأطفال الرضع والأطفال الصغار، وذلك لأن الاستراتيجيات والأنشطة والافتراضات حول التعلم قد تطورت واختلفت. ولأن النمو المعرفي والتعلم المكتسب في الطفولة له تأثير هائل على القدرة على القراءة والكتابة في وقت لاحق، فسوف تعود الفائدة العظيمة على الأطفال الصغار عند تدريب القائمين على التربية ومقدمي الرعاية تدريبا جيداً ومتطوراً على ما يستجد في مجال تعليم وتربية ورعاية الأطفال في مرحلة الطفولة المبكرة.

إن زيادة الوعي العام حول كيفية نمو المخ في الطفولة المبكرة يؤثر على تعلم الأطفال ويؤدي لخلق مستويات جديدة من التحفيز ورفع تقدير الذات ومن ثم يرتفع بمستوى رعاية الرضع وصغار الأطفال.

ومن أهم التحديات التي تواجه إصلاح نظام الرعاية الاجتماعية هو انشغال الوالدين بالعمل - فهؤلاء الأطفال الذين هم في الغالب من الفئات المحرومة يستحقون رعاية خاصة، ولذلك يجب حض المسئولين على الاهتمام بتوفير الخبرات وتدريب القائمين بالرعاية على كيفية رفع فاعلية التواصل بين هؤلاء الأطفال ووالديهم وتوثيق الروابط بينهم برغم الوقت المحدود الذي يقضونه معهم. ولذلك يبقى أهم الأهداف أن تشجع الأمهات العاملات على مواصلة الرضاعة لعامين كاملين، لأن الرضاعة مدخل مؤثر يعمل على توثيق العلاقات والروابط الأسرية وبالتالي يمهد للنمو والتطور العاطفي والذهني الأمثل مع تقليل ومنع الاضطرابات النفسية والسلوكية، ولا يتم ذلك إلا بتعديل أجازة الأمومة إلى 6 شهور مدفوعة الأجر ومدّها إلى سنتين مع إعفاء الأم من دفع التأمينات لكي يتسنى لها التواجد مع طفلها ورعايته بالطريقة التي تؤمّن نموه الذهني على النحو الأقصى، ويتحقق من ذلك الأثر المنشود على التطور ونماء الاقتصاد ومستقبل الدولة.

I.2. Nurturing Emotional Intelligence

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Emotional intelligence (EI) refers to the ability to perceive, control, and evaluate emotions. It is an inborn characteristic and can be learned and strengthened. It starts strengthening from the time the infant recognizes his mother and while breastfed.

EI describes an ability or capacity to perceive, assess, and manage the emotions of one's self, and of others. EQ, or Emotional Quotient, is the capacity to understand oneself, to appreciate one's feelings, fears and motivations. It develops from the moment the child is born and is affected by the perinatal practices, where separation from the mother is detrimental and triggers increase in brain cortisol with its damaging effects on emotional development and insecurity.

The earliest roots of emotional intelligence can be traced to Charles Darwin's work on the importance of emotional expression for survival and, second, adaptation [(1)].

A number of testing instruments have been developed to measure emotional intelligence. All present a mix of self-report and situations related to various aspects of emotional reaction and how a person feels about the other people in his social circle.

Emotional Quotient (EQ) is promoted by securing mother infant attachments from birth.

In contrast, Intelligence Quotient (IQ) defines the level of intelligence a child possesses to understand, interpret and implement his knowledge in varied situations leading to his or her growth.

Emotional intelligence helps in developing emotional self-awareness and is a learnt process through continued mother infant interactions. This allows the child to understand his feelings and express them. It also empowers the child to handle emotions appropriately, and to handle stress and upsetting or conflicting feelings. It also deals with self motivation, encourages empathy, and other social skills.

Parents today realize that it is not only their children's intelligence quotient (IQ) that is crucial for their development but also their emotional quotient.

Emotional Intelligence Quotient is important for a child not only to understand himself, but also helps him to understand the feelings and emotions of others.

A child with a high emotional quotient will become more responsible and respectful. He will have an increased ability to show empathy, and find it easier to develop self restraint. On the other hand, a child with a low emotional intelligence will often feel helpless and devastated. A reaction that develops when the child is separated from the mother or deprived of being close and cuddled by the care taker.

If a child receives very little emotional support in the early years by being deproved of breastfeeding or separated from mother by long working hours, s/he will be vulnerable to peer pressures, worries, and anxiety. A child may deal with his anxiety and fear by hiding it under a facade of being tough. This could lead to his turning into a bully, or

becoming an under-achiever suffering from low motivation.

Understanding and nurturing through breastfeeding enhances your child's emotional quotient by allowing continuous observation of your child. Ascertain the feelings that are behind the behavior and encouraging the child to try to explain his feelings even through crying and responding with soothing sounds and cuddling (skin to skin) promotes brain centers and brain neurotransmitters (oxytocin) responsible for love, attachment, security and dealing with stress. Breastfeeding mothers intuitively help their child to express their feelings[(2)].

Developing your child's emotional quotient starts with teaching him to understand his feelings. One way to do this is to describe your own feelings to your child, helping your child to classify feelings. It also gives the child a label to name the feeling. Using words such as 'I' and 'you' will help to give focus to feelings. For example, "It looks like you are frustrated with that math problem".

Give your child a framework of limits that he must adhere to. This will help ensure that he builds self control, and does not allow his feelings to always determine his actions. Introduce him to activity books that are specially written to help build a child's EQ. Try to think up exercises that will help your child learn to wait for things. These exercises will also teach him how to handle disappointment, and how to persevere with a challenge. Remember that the challenges and exercises need to be designed keeping in mind the child's age group. What may be challenging to a younger child may be too easy for an older one.

An Intelligence Quotient score remains more or less the same throughout a person's life. On the other hand, an **Emotional Quotient score** can be increased as a person can be taught how to understand and deal with others feelings. It grows as the attachment with the mother grows with breastfeeding and the longer the brestfeeding duration.

An IQ-oriented person will focus more on facts to convince a person while an EQ-oriented person will use emotions and his cognitive abilities to appeal to a person's feelings and reasoning. EQ is more important in gaining success and happiness in your life.

A high EQ is demonstrated by tolerance, empathy and compassion for others, the ability to verbalize feelings and the resilience to bounce back from emotional upsets.

Children with high EQ have more confidence and trust in them stimulate the mind due to the use of classical music, nursery rhymes and brightly colored objects.

Research shows that EQ matters more for a child’s success and happiness than IQ and the first opportunities to shape emotional intelligence are in the earliest years, It very much begins from the days of breast feeding, skin to skin contact, holding for breastfeeding, singing while feeding, speak to infant while changing and feeding are the first step for the infant to feel secure emotionally by the warmth of his mother contact and continuous adenines of breastfeeding.

Historical background of EI

In the 1900s, even though traditional definitions of intelligence emphasized cognitive aspects such as memory and problem-solving, several influential researchers in the intelligence field of study had begun to recognize the importance of the non-cognitive aspects. For instance, as early as 1920, E.L. Thorndike used the term social intelligence to describe the skill of understanding and managing other people [(3)]. Similarly, in 1940 David Wechsler described the influence of non-intellective factors on intelligent behavior, and further argued that our models of intelligence would not be

complete until we could adequately describe these factors[1].

In 1983, Howard Gardner's Frames of Mind: The Theory of Multiple Intelligences[4] introduced the idea of multiple intelligences which included both interpersonal intelligence (the capacity to understand the intentions, and desires of other people) and intrapersonal intelligence (the capacity to understand oneself, to appreciate one's feelings, fears and motivations). In Gardner's view, traditional types of intelligence, such as IQ, fail to fully explain cognitive ability [5].

The first use of the term "emotional intelligence" is usually attributed to Wayne Payne's doctoral thesis, "A Study of Emotion: Developing Emotional Intelligence" in 1985[6]. However, prior to this, the term "emotional intelligence" had appeared in Leaner [7], Salovey and Mayer[8] and others [9].

To conclude EI is a vitally important aspect of development, yet often neglected by physicians who tend to separate mothers from babies and promote bottle feeding and politicians who undermine maternity protection issues. It is closely linked to social and personal development acquired by closeness to the mother and breastfeeding.

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تعزيز الذكاء العاطفى

الذكاء العاطفي يشير إلى القدرة على الإدراك والسيطرة على العواطف والمشاعر والانفعالات وتقييمها، وهو سمة فطرية يمكن الاستفادة منها وتعزيزها. ويبدأ التعزيز من بداية تعرف الطفل بوالدته وبدء الرضاعة الطبيعية. والذكاء العاطفى يوصف بالقدرة على الإدراك والتقدير والتعامل مع العواطف والأحاسيس الداخلية، وهو القدرة على فهم الذات، وتقدير مشاعر الغير والمخاوف والدوافع. وهو يتطور من لحظة ولادة الطفل ويتأثر بممارسات فترة ما حول الولادة، حيث أن الفصل عن الأم يسبب ضرراً بالغاً على النمو العاطفي ويسبب انعدام مراكز الأمان وتحمل ضغوط الحياة والاستقرار والتوازن.

إن تقديم الرعاية النفسية المثلى للطفل من خلال الرضاعة الطبيعية يؤمن لطفلك التبادل العاطفي من خلال توفير المراقبة والتواصل المستمر معه وتأكيد المشاعر التي تكمن وراء السلوك، كما تتيح الفرصة للطفل للتعبير عن مشاعره - ولو من خلال البكاء - والاستجابة له بالأصوات المهدئة والاحتضان (بملامسة الجلد للجلد) لتعزيز مراكز المخ والموصلات العصبية في الدماغ المسؤولة عن المحبة والارتباط القوى والإحساس بالأمان، فينضج مستقبلاً الاستعداد الفطري للتعامل مع ضغوط الحياة. وإجمالاً فالرضاعة الطبيعية تساعد الأطفال بشكل طبيعي على التعبير عن مشاعرهم و بالتالي تساعد على تطور الذكاء العاطفي لديهم.

إن اختبارات العاطفة تظل ثابتة طوال حياة الشخص بخلاف درجة الذكاء العاطفي التي يمكن تطويرها. ومقارنة بالذكاء الذهني فإن الذكاء العاطفي هو الأكثر أهمية للحصول على النجاح والسعادة في حياتك، ويتجلى في التسامح والتعاطف مع الآخرين، والقدرة على التعبير عن المشاعر والمرونة والقدرة على الارتداد من الاضطرابات العاطفية.

وهؤلاء الأطفال الذين ينمو ذكاؤهم العاطفي من خلال الرضاعة المستمرة لعامين يحصلون على مزيد من الطمأنينة والثقة بالنفس والتنبيه والتحفيز لمراكز المخ بأصوات ورائحة وتعبيرات أمهاتهم مع الأغاني والألعاب والأشياء ذات الألوان الزاهية. ولا يتحقق هذا المستوى من الرعاية الصديقة للطفل إلا بتعديل قوانين المرأة العاملة المرضع بمنحها إجازة مدفوعة الأجر لمدة 6 شهور مع إعفائها من سداد التأمينات في حالة طلبها أجازة بدون أجر لمدة عامين أو أكثر، مع الحفاظ على درجتها في العمل وتسهيل حصولها على العمل لنصف الوقت أو العمل بالمنزل بأجر حتى لا تفصل عن طفلها ولا تحرم من مزاولة تنمية الذكاء العاطفى لطفلها.

I.3. Effects of Breastfeeding on Cognitive Function

The effect of breastfeeding on cognitive function has been examined in many studies, and the results show a consistent pattern with a small but significant positive effect with increasing differences as the child gets older.
In most studies from industrialized countries breastfeeding is more prevalent among mothers with high education and high social status, and most studies find a positive association between intelligence and education as well as socio-economic status. Consequently, it is essential that studies comparing indicators of brain development in breastfed and non breastfed infants control for potential confounders such as maternal education, family socio-economic status and, if possible, maternal intelligence[1].

In the coming review the most important meta-analysis and critical reviews will be discussed together with a few recent important papers.

Anderson *et al*.,[2] performed the only meta-analysis. They identified 20 studies which met three inclusion criteria: 1) comparing predominantly breastfed with predominantly formula-fed subjects; 2) using a widely applied test of cognitive development yielding a single score; and 3) testing subjects between infancy and adolescence. The included studies assessed cognitive development at ages between six months and 15 years. The unadjusted benefit of breastfeeding was 5.3 IQ-points, and after adjustment for appropriate covariates the increment was still 3.16 IQ-points and highly significant. In addition, the effect was supported by a significant dose-response effect with better cognitive development with increased duration of breastfeeding. For infants only breastfed for 4-7 weeks there was no effect, whereas for children breastfed for more than 28 weeks the effect was 2.9 IQ-points. All the estimated effects, except the 4-7 week category, were significant ($p<0.001$), when compared to infants not breastfed. In an analysis by category of birthweight Anderson *et al.*,[2] found that the effect of breastfeeding was significantly larger in low birthweight children (5.2 IQ-points) compared to normal birthweight children (2.7 IQ-points).

It has been hypothesised that the positive effect of breastfeeding on mental development could be explained by long-chain polyunsaturated fatty acid (LCPUFA) in breast-milk, which are not present in infant formulas. This dependence of the effect on birthweight supports the LCPUFA hypothesis, since preterm infants are born with a low LCPUFA status and therefore more dependent on LCPUFA-supply.

Twenty four studies about breastfeeding and mental development were included in a "critical evaluation" by Drane and Logemann[1] who found a 2 to 5 IQ-point advantage of breastfeeding for term infants and an 8 IQ-point advantage for low birthweight infants. Other studies showed that extending breastfeeding for longer period into the second year can increase the IQ scores, while IQ scores continue to have an effect into later life [4,5,6].

A more recent "critical review" by Jain *et al.,* [7] included 40 studies. Twenty-seven (68%) of these studies concluded that breastfeeding promoted intelligence. They only found two studies that included fullterm infants and fulfilled all their quality criteria. One of these showed an effect of 3.8 IQ-points and the other showed an effect of 5 IQ-points that was reduced to 4.6 IQ-points after adjustment for confounders.

In a large study from Australia 1450 children were tested at the age of 6 years with a verbal cognitive IQ test and 1375 from the same cohort were tested at the age of 8 years with a non-verbal subtest. There was a highly significant association between

breastfeeding and verbal cognitive ability in an adjusted model, while there was no association with the non verbal subtest. Interestingly they found a significant and strongest effect with breastfeeding when mothers ***were highly educated***.

The behaviour of the mother can influence the cognitive development of the infant. In studies of the association between breastfeeding and cognitive performance in the offspring behaviour can be either a confounder or a mediator. If the behaviour of the mother leads to both an increased duration of breastfeeding and a better cognitive development through support and stimulation of the child it is a confounder of the association between breastfeeding and cognitive development. However, breastfeeding may affect the behaviour of the mother through a hormonal influence (e.g. oxytocin and prolactin) and through bonding due to breastfeeding, and if this leads to maternal behaviour that stimulates the cognitive behaviour of the infant, such an effect is mediated by breastfeeding. In an interesting study of preterm infants Feldman and co-workers found that the mothers of infants receiving the most breast-milk during their admission in neonatal departments were also more affectionate and had lower maternal depression scores at 37 weeks gestational age[8].

At 6 months corrected age those receiving more breast-milk also showed better behavioural scores. In their paper Feldman *et al.*, [8] also review the literature that shows the relation between breastfeeding and maternal behaviour on child's cognitive development. Other studies have shown a temporal impairment in memory and attention during lactation. It is likely that this effect is caused by oxytocin because oxytocin delivered by nasal spray to adult men caused a short-term selective amnesic effect. Heinrichs *et al.*,[9] refer to other studies showing impaired cognitive performance in the presence of improved social memory or social behaviour. Thus it is suggested that this effect may isolate the mother from distracting stimuli during lactation and focus maternal attention on interaction with the infant. Such a change in behaviour may stimulate cognitive behaviour in the infants.

Impact on Economic Development: The effect of breastfeeding on cognitive development will have a large impact at the population level. Drane and Logemann[1] calculated that a 5 IQ-point shift of the population upward to a mean of 100 would result in a decrease from 26% to 16% of children with an IQ less than 85. The estimated cost of special education in the US could be reduced from $4.5 billion to $3.9 billion if the percentage of children that were predominantly breastfed at four months was increased from 20% to 50%.

Already, in Egypt the country is subsidizing infant milk formula for an equivalent of 300,000 million pounds, which is the equivalent to 30% the amount the government would pay for a full salary (based on GNP per capita income of 2,420) to the breastfeeding mothers in the workforce for 6 months (given the birth rate of 1.9 million live births per year).

It is concluded that allowing mothers extended maternity leave up to two years to be in close proximity with baby enhances the effect of breastfeeding on cognitive development. Moreover the economic benefits to the country far exceeds the cost of paid maternity leave for 6 months and giving her unpaid maternity leave for 2 years without added burden of paying social insurance.

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كيف تعزز الرضاعة الطبيعية نمو المخ و ما العائد الإقتصادى

أوضحت دراسات عديدة تأثير الرضاعة الطبيعية على وظيفة الإدراك، وأظهرت النتائج وجود علاقة إيجابية هامة ذات نمط ثابت. وقد أكدت معظم الدراسات وجود علاقة إيجابية بين الذكاء ودرجة تعليم الأم ومستواها الاجتماعى والاقتصادي، وبالتالي فقد بات من الضروري أن تأخذ دراسات المقارنة تعليم الأم في الاعتبار، وكذلك الحالة الاجتماعية والاقتصادية للأسرة، و اختبار نسبة ذكاء الأمهات إن أمكن. وبعد تحليل 40 دراسة أثبتت سبع وعشرون منها (68٪) أن الرضاعة الطبيعية تؤثر على معدل الذكاء برفعه بنسبة 3.8 نقاط، وأظهرت أخرى فارق 5 نقاط، كما أظهرت دراسة أخرى كبيرة أجريت على1450 طفل بأستراليا بين سن 6 و 8 سنوات أن هناك ارتباط وثيق للغاية بين الرضاعة الطبيعية والقدرة المعرفية اللفظية، ومن المثير للاهتمام أنهم وجدوا أعلى تفاعل متوافقاً مع أعلى درجة تعليم للأم. ويمكن تفسير ذلك بسلوك الأم الذي يؤثر على النمو المعرفي للطفل ومع زيادة مدة الرضاعة الطبيعية وتواجد الأم مع الطفل أو على مقربة منه في السنة الأولى من العمر الذي يؤدي إلى تحسين نموه المعرفي من خلال التواصل والدعم والتحفيز المستمر.

و بالتحليل الاقتصادي وجد أن 5 نقاط فى درجة الذكاء يمكن أن تحول السكان إلى متوسط ذكاء قدره 100 نقطة. ويمكن خفض التكلفة المقدرة للتعليم الخاص في الولايات المتحدة من 4.5 مليار دولار إلى 3.9 مليار دولار إذا تمت زيادة النسبة المئوية للأطفال الحاصلين على رضاعة طبيعية في الأربعة أشهرالأولى من 20٪ إلى 50٪.

وفي مصر تنفق الدولة أكثر من 300000 مليون دولاراً على دعم الألبان الصناعية، وهذا يفوق أضعافاً مضاعفة الرقم المتوقع أن تنفقه الدولة على إضافة 3 شهور إجازة مدفوعة الأجر، بفرض أن كل هؤلاء الأمهات المرضعات يعملن -أى مليون سيدة من مجموع 2 مليون من نسبة المواليد- وبموجب متوسط دخل يصل إلى 2400 دولاراً، مما يعادل قرابة 10% أو أقل من تكلفة دعم الألبان الصناعية وبذلك يكون استثماراً للدولة على المدى القريب البعيد.

I.4. Legislative Challenges to Maternity Protection

"The promotion of breastfeeding must not be seen as an excuse to exclude women from the labour force. The burden should no longer fall on women to choose between breastfeeding and work. The burden is on society to facilitate breastfeeding and indeed child care".

James Grant, Executive Director of UNICEF.

More and more women of child-bearing age are working outside the household, in work that keeps them far from home for long hours with rigid regimes. Increasingly, women are seeing themselves and being viewed by society as independent economic units responsible for their own economic survival and well-being. In 1990, 828 million women were officially estimated to be economically active in the labour force.

In fact, the actual figures for women at work are far higher.

The majority of workers are also parents; women's dual role as workers and mothers needs to be viewed in its entirety. Society must respect and accommodate women's productive and reproductive roles. Child bearing is a biological function that only women can assume. Yet, society denies most women maternity benefits. Maternity benefits are basic human rights for women. Women who are employed are entitled to paid maternity leave because it is a health measure to protect mothers and infants in late pregnancy and the early post-natal period. Maternity leave is essential to allow a mother to recover from birth, breastfeed her infant and give her the opportunity to spend time nurturing her young child to help the child adjust to a new environment. Paid maternity leave guarantees a continuing source of income; employment security gives her the guarantee of returning to the same job following delivery.

Women who receive maternity leave are more likely to remain in the workforce: this has economic benefits for employers; and social benefits for women, families and society.

Traditional societies recognised the need for pregnant women and women who had recently given birth to benefit from additional social support. In many societies, the extended family provided a six-week period of rest and seclusion, or at least, help with household chores, for women who had given birth. For example, in Africa, the woman's mother-in-law looked after her and her baby in many societies for one to six months. This ensured that mother and baby bonded and breastfeeding became well established and maintained. In

addition, the mother would be relieved of her normal household chores and she would be given special foods.

Increasing urbanisation and dislocation of the extended family have weakened these mechanisms of social support to enable mother and baby to rest and recover together. Maternity legislation has been introduced in some countries as a step towards replacing these social traditions.

The International Labour Organization (ILO) regulates a wide range of international and labour issues through standards that are contained in Conventions and recommendations adopted by the International Labour Conference. Conventions are like international treaties; once ratified, they create specific, binding obligations.

The 1919 Convention Number 3 of the International Labour Office provides international standards on maternity protection for women employed in industry and commerce; it calls for 12 weeks of maternity leave with cash benefits and prohibition of dismissal and one hour per day for breastfeeding breaks. In 1952, this was revised to include women workers at home and provide for higher protection: 14 weeks maternity leave, higher cash benefits including remunerated breastfeeding breaks and more employment security. Two Recommendations, one from 1921 (Number 12) and one from 1958 (Number 110) extended the scope of the protected group of women workers to women employed in agriculture and on plantations. The 1979 Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) states "Parties shall prohibit, subject to the imposition of sanctions, dismissal on the grounds of pregnancy or maternity leave ... shall introduce maternity leave with pay or with comparable social benefits without loss of former employment, seniority and social allowances".

Convention No. 183 has been ratified to date by 22 ILO Member States, and a total of 77 countries have ratified at least one of the three ILO maternity protection Conventions including No. 3 (1919) and No. 103 (1952). One of the major challenges is to ensure that other member States ratify Convention No. 183 in a timely fashion and implement its provisions broadly.

Ratifying Maternity Protection Laws within the Country

Ratification of convention No. 183 is one challenge but, another challenge is the strengthening of already exisiting country legislation. Though practically all countries have

maternity protection laws, these are often weak and do not include all of the provisions of C183. When drafting country legislation, an important issue is viewing C183 provisions as minimal, and aiming for the broader protection suggested in Recommendation No. 191 – or even beyond. Moreover, many countries need to ensure the implementation of their maternity protection legislation by installing monitoring bodies and mechanisms.

Still another challenge is the knowledge and commitment of all stakeholders at country, local and workplace level to ensure implementation of maternity protection laws and instruments. This requires disseminating information about the importance and benefits of maternity protection to all sectors of society, advocacy and capacity building to heighten awareness.

Yet another challenge relates to extending maternity protection beyond the "basics". In addition to maternity leave, paternity leave, parental leave, annual and sick leave policies are all important. Moreover, working parents everywhere need access to affordable and quality childcare.

A "model" framework for a strong maternity protection law

A strong law should be based on C183 provisions, but should also aim for more and for better. It should include all of the following dimensions:

1. Scope

According to C183, all employed women, including those in atypical forms of dependent work should, in principle, be covered by maternity protection (Art. 2(1). C183 does permit some limitations to the scope of entitlements as long as they are justified and temporary.

"Atypical work" includes a broad range of work arrangements, such as part-time, casual and seasonal work, job sharing, fixed-term contracts, temporary agency work, home-based work and remote working. It is opposed to the historically considered "typical" norm – a full-time guaranteed regular income job.

But in reality, many categories of female workers are explicitly excluded from the scope of legislation. For example, women the informal economy such as domestic workers, homeworkers, self-employed or own-account workers; or female members of the employer's family or women working in family undertakings, casual or temporary workers, agricultural workers, workers in the armed forces and/or police, managers/business executives, workers earning over a

certain ceiling, apprentices, workers in small enterprises…

A strong law will therefore include all or a majority of female workers, be they part of the formal or the informal economy.

2. Maternity leave

In view of the physiological demands associated with pregnancy and childbirth, it is mother's right to safeguard her health and that of her child through a legislated maternity leave of adequate length.

C183 stipulates a minimum of 14 weeks of leave, 6 of which must be taken immediately following confinement. Recommendation No. 191 suggests that this period be of at least 18 weeks. The Convention also establishes a right to additional leave in case of illness, complications or risks of complication arising out of pregnancy. The European Union is currently discussing a maternity leave of 20 weeks. Breastfeeding advocates recommend at least 24 weeks so that mothers can follow WHO recommendations regarding exclusive breastfeeding for 6 months.

C183 provides for a compulsory leave of 6 weeks after the birth of the child, during which the mother is not allowed to work. This is to protect her from being pressured to return to work during the immediate postnatal period, which could be detrimental to her health and that of her newborn child. The rest of the leave can be taken when she chooses.

A strong law will therefore entitle women workers to 24 weeks of maternity leave. The 6 weeks following birth should be compulsory leave.

3. **Cash and medical benefits**

Cash benefits are intended to replace all or a portion of the income lost due to the interruption of work as many families face increasing poverty. Without a paid leave, many women would not be able to take any leave at all.

C183 provides that the cash benefits be at a level ensuring the woman can maintain herself and her child in proper conditions of health and with a suitable standard of living. The amount cannot be not less than 2/3 of her previous or insured earnings; R191 recommends 100% of the salary. The European Union directive entitles women to 100% of their salary.

C183 also requires that the qualifying conditions for cash benefits, be met by a large majority of employed women. Where women do not meet the qualifying conditions for cash benefits, they

must be entitled to adequate benefits out of social assistance funds.

Moreover, benefits should be provided through social insurance or public funds or in a manner determined by national law and practice to protect women from discrimination in the labour market, which is more likely when employers bear solely and directly the costs of maternity.

C183 also provides for medical benefits, including pre-natal, childbirth and post-natal care as well as hospitalisation, transportation and medication when necessary (Article 6).

A strong law will therefore include cash benefits, paid by the State amounting to 100% of the worker's salary for the whole period of leave.

It will also include the payment of all medical costs related to the entire period of maternity (pre-natal, confinement, post-natal).

4. **Health protection at the workplace**

Workplaces need to be safe for all men and women workers, at all stages of their life cycle. For example, exposure to certain chemicals or to radiation, physically demanding work, such as heavy lifting, high/low temperatures, irregular or long working hours or even night work and overtime all have potentially negative effects on the health of pregnant and breastfeeding women and their foetuses or babies.

C183 recognizes that pregnant or nursing women shall not be obliged to perform work prejudicial to their health or that of their child, or work where an assessment has established a significant risk to their health (Article 3).

R191 provides for adaptations in the pregnant or breastfeeding woman's working conditions in order to reduce particular workplace risks. Measures to be taken include eliminating the risk, adapting the working conditions, transferring to another safer post without loss of pay, or paid leave if such a transfer is not feasible.

A strong law will therefore include detailed provisions regarding the health and safety of men and women of reproductive age, as well as specific measures protecting the health of mothers and babies – including transfer to another post if necessary.

5. **Employment protection and non-discrimination**

Job protection means that pregnant women and new mothers are guaranteed that they will not lose their job as a result of being pregnant, absent on maternity leave or because they have just had a child. This is essential for preventing maternity from being a source of discrimination against women in employment. Pregnancy and maternity leave should have no adverse effects on women's employment or on their entitlements under the employment contract, in particular, those linked to seniority (such as paid annual leave) or to length of service (such as retirement benefits).

C183 provides for employment security prohibiting dismissal during pregnancy, maternity leave and a period of time after return to work. It also ensure the right to return to the same job or an equivalent one with the same pay upon return to work. In the event of dismissal, the burden of proof is on the employer to prove that the reasons for dismissal are unrelated to pregnancy or childbirth and its consequences, or nursing. This strengthens women's employment security.

A strong law will include provisions guaranteeing the woman's right to return to her job after leave, without loss of professional privileges such as salary, seniority, etc.

A strong law will include non-discriminatory measures including prohibition of dismissal during the entire period of maternity (burden of proof on the employer). Regarding access to employment, young women will not be asked specific questions related to their situation or family plans.

6. **Breastfeeding at work**

The right to breastfeed a child after returning to work is an important part of maternity protection, as it has major benefits for the health of the mother and of her child. The World Health Organization (WHO) recommends exclusive breastfeeding of babies for 6 months, and continued breastfeeding with appropriate complementary foods for up to 2 years or more. As maternity leave periods typically expire before the child's sixth month, provisions to enable women to continue breastfeeding upon return to work are important to meet international recommendations and are in the best health interests of mother and child. Close to 100 countries in the world provide breastfeeding breaks, but for various periods of time and duration.

C183 entitles women to one or more daily breaks or a reduction of hours of work for breastfeeding. Breaks or reduction of working hours shall be counted as working time and remunerated accordingly. The length and numbers of breaks are to be determined by national law or practice (Article 10), but generally amount to two periods of 30 minutes per working day. R191 recommends also shortening the working day by one hour for breastfeeding mothers. There is no mention of the period during which these breaks should be allowed.

A strong law will therefore include at least two 30-minute paid breastfeeding breaks, other than rest and lunch breaks, for breastfeeding mothers. Another alternative can be shorter workdays for these mothers. The breaks should be allowed for as long as the mother breastfeeds her child, and should be flexible, in order to adapt to the child's needs as it grows.

A strong law will also include breastfeeding facilities at the workplace for mothers who continue to breastfeed after the end of their maternity leave.

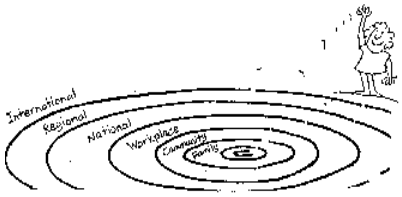
Elisabet Helsing, formerly of the WHO regional office for Europe stated that "*If society hinders the optimal breastfeeding by mothers who work outside the home, society needs to change, not women".* This change will come about only if we mobilise action for change.

Advocating towards maternity protection at work:

Actions

Maternity protection measures concern all of us. Whether you are a mother-to-be, or a husband, sister, brother, grandmother or grandfather of a mother-to-be, the protection of working women concerns YOU. Wherever you work, you can act to bring about changes to enable and support all mothers to breastfeed!

- If you are having a baby, or hoping and planning to have a baby, do you know your maternity rights?
- If your wife, sister or daughter is having a baby, would you help her stand up for her maternity rights?
- If you are an employer, would you grant her the rights she is entitled to?
- If you are a trade union member, would you work to improve maternity leave provisions?



- **Throw the stone**

The stone represents the minimum requirements to enable women to work and breastfeed. We must throw the stone in and create the ripples of social support to change society. YOU can throw the stone to create the ripples and help to shape the laws to protect women's rights to maternity protection:

- **At family level** - share child care and support measures for parental leave.
- **At community level** - create community creches and breastfeeding counselling services.
- **At workplace level** - take maternity leave if you have it or mobilise support to instate maternity leave; advocate nurseries and breastfeeding facilities in the workplace.
- **At national** governmental level - ratify the ILO Conventions, enact and enforce adequate maternity leave legislation.
- **At regional level** - -support maternity leave provisions in countries in your region and adopt supranational directives (such as the European Community Directive) which are binding on member states.

Existing provisions

Many countries have laws and regulations concerning maternity leave. The nature and scope of their provisions vary greatly: laws relating exclusively to maternity protection, laws on female labour, labour codes, laws on conditions of employment in certain sectors of the economy, social security laws and labour ordinances or regulations. In spite of these provisions, many women do not have maternity protection because these provisions mainly cover women who are employed in the formal sector[1]. Also, there is very little information available about the enforcement of these provisions. There are some reports that often women do not take full advantage of maternity protection laws and regulations because they themselves are not aware of them.

Conclusion

Maternity protection can be attained at the global, national and local level. But the national level is central. However one must not forget that designing, adopting and voting a law is only the first step towards change. What is then necessary is to implement the law, the measure or the new provision and see that women truly benefit from the improvements provided – their rights.

Adapted from Alison Linnecar*, and Virginia Yee**, *Formerly, Geneva Infant Feeding Association, **Clearinghouse on Infant Feeding and Maternal Nutrition with the assistance of Elaine Petit-Cote.

News highlights on MP

In April 2012 the ILO published the "Maternity Protection Resource Package. From Aspiration to Reality for All", which results from its collaboration with the ILO International Training Centre, UNICEF, WHO, UNFPA, UN Women and IBFAN-GIFA. Available at the ILO Conditions of Work and Employment Branch website (http://www.ilo.org/travail)

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التحديات التشريعية لحماية الأم المرضع العاملة

كثير من الأمهات يضطررن إلى الخروج للعمل مما يبقيهن بعيداً عن أطفالهن الرضع لساعات طويلة، تحت أنظمة صارمة لا تراعي احتياجهن لتنمية الدخل. فالمجتمع يعتبرالمرأة وحدة اقتصادية مستقلة ومسؤولة عن سد احتياجاتها، وقد أوضحت التقديرات الرسمية لعام 1990 أن 828 مليون امرأة يقمن بدور اقتصادي فعّال في القوى العاملة، مع الأخذ في الاعتبار أن العمل غير مدفوع الأجر مثل زراعة الكفاف والأعمال المنزلية ورعاية الأطفال لا تؤخذ في الحسبان في التقديرات المشار إليها، فالأرقام الفعلية للمرأة العاملة أعلى من ذلك بكثير.

في عام 1919 أعلن مكتب العمل الدولي المعايير الدولية لحماية الأمومة بالنسبة للعاملات في قطاعات الصناعة والتجارة، فأصدر توصياته بإجازة مدفوعة الأجر للأم العاملة لمدة 12 أسبوعاً وبحظر فصلها من الخدمة وبمنحها ساعة واحدة يومياً للرضاعة الطبيعية. وفي عام 1952، تم توسعة النطاق لتشمل هذه المعايير النساء العاملات من المنازل أيضاً، وأمّنت المعايير حماية أكبر: 14 أسبوعاً إجازة وضع مدفوعة الأجر ومكافآت نقدية أعلى ومزيداً من تأمينات العمل .

وفي 1985أظهرت دراسة أجرتها منظمة العمل الدولية عن التشريعات الوطنية لمستحقّات الأمومة في 127 دولة أن متوسط إجازة الوضع في العالم كان ما بين 12 و 14 أسبوعاً وأن ما يقرب من 25٪ من البلدان أقل من هذا المتوسط، وكثير منها من البلدان النامية.

وقد أوصى مكتب العمل الدولي في عام 2000 و 2001 بمنح الأم العاملة إجازة مدفوعة الأجر لمدة 18 أسبوعا على أن يكون 14 هو الحد الأدنى لحماية حقوق الأم المرضعة العاملة.

وعلى الرغم من هذه صدورالأحكام والتشريعات الوطنية، فإن العديد من النساء لاتتمتع أمومتهن بهذه الحماية لأن الأحكام تغطي العاملات بالقطاع الرسمي الحكومي فقط وليس القطاع الخاص، إلى جانب ذلك فالمعلومات المتاحة عن فاعلية التطبيق لهذه التوصيات محدودة جداً. وهناك بعض التقارير تدل على أن المرأة لا تستفيد استفادة كاملة من هذه القوانين لعدم المعرفة بها من الأساس. وتقول إليزابيث هيلسنغ من مكتب منظمة الصحة العالمية الإقليمي بأوروبا :"إذا كان المجتمع يعوق الأمهات اللاتي يعملن خارج المنزل عن الرضاعة الطبيعية المثلى ، فإن المجتمع هو من يحتاج إلى تغيير، وليس المرأة". وهذا التغيير هو حلم يتحقق فقط إذا حشدنا الجهود للعمل من أجله.

I.4. Payment of Maternity leave: Call for Action!

A central issue in the debate concerning maternity leave is who should pay for it and how. A common argument against paid maternity leave is that it is costly to the employer. To estimate the true cost of maternity leave, employers need to consider the cost of alternatives, for example, the cost of replacing the employee. Studies show that often it is far less expensive to support leave than to replace an employee.

A review of 26 countries in the region North Africa, the Middle East and Central and Far East Asia show that in the majority of countries (69%) the wages are paid by the employer figure (1). Employer-funded maternity leave is likely to increase retention of skilled staff, encourage employer investment in human capital and bring productivity and staff morale as well as facilitate an expansion in the national skills base. Unfortunately, it could also create disincentive to employ women of child bearing age, increase casualisation of the workforce and create difficulties for small business.

Ideally, the cost for maternity leave or benefits should not be shared between the government, employers and individuals, but rather by government alone, and mothers should not be paying social insurance, but rather employers should cover this as is the case for other leaves of duty. Government funding would ensure that maternity benefits are available to lower-paid women as well as more highly paid women. But it would involve increase in government spending.

Each employer and country needs to review their policies and find the best mechanism to ensure universal access to maternity benefits such benefits must reach the employed and unemployed. To achieve this, it is likely that legislation will be needed to issue the mandate and ensure compliance. Legislation is important but will have little or no impact if the necessary resources for implementation are not available.

Governments can take a lead in acknowledging that child care is the responsibility of society as a whole. They can then encourage attitudes on the part of men and employers that ensure that they too take on their share of the task, both in the home and at the workplace.

Maternity Protection - A Call for Action

- Review the policies regarding maternity leave at your workplace.
- Review the laws in your country: are there provisions for maternity leave? who does it cover? what are your entitlements?
- Summarise the information regarding ILO Conventions and CEDAW Convention in non-technical language to help others understand the provisions.
- Learn about what your colleagues and employers think. What are likely resistance points if you pursue maternity leave?
- Has your government ratified the most recent ILO Convention on maternity protection, the Convention on the Elimination of all Forms of Discrimination Against Women? Has it signed the World Summit for Children Declaration? If not, then why not?
- Research maternity legislation in other countries: if the provisions are better than in your country, how did women manage to achieve them? How long did it take? Who pays for maternity leave?
- Estimate the cost of maternity leave in your place of employment and convince employers that it is worthwhile to provide maternity benefits.
- Produce information describing the measures of maternity protection in your country. Use straightforward language and

illustrations to inform women of their entitlements and how to claim them.

- Inform employers of the advantages of protecting women workers, and of providing workplace nurseries with support and facilities for breastfeeding.
- Organise debates and meetings to discuss the issue so that all sides can air their positions and build consensus.
- Organise training sessions for employers on the importance of optimal breastfeeding and provisions for women workers to breastfeed their babies.
- Mobilise community action to lobby for maternity benefits.
- Monitor your local situation: if there are laws concerning maternity protection measures in your country, are they enforced? If not, why not? Are there sanctions against employers who break the rules?
- Publicise the results of your monitoring: support good employers and identify bad ones. Involve mother-friendly employers, such as the head of a Swiss bank who said: "***By providing a creche for my employees, I keep well-trained, reliable and motivated female workers on my staff and the creche in fact pays for itself by saving on training and recruitment costs.***"
- Mobilise support among decision-makers and employees' representatives to support mother-friendly work-place initiatives.
- Reach out to the legal community and policy makers to gain their support and assistance in drafting legislation.
- Share your ideas and concerns with trade union leaders, Mosque and church leaders, and community leaders and publicise the issue in the media.

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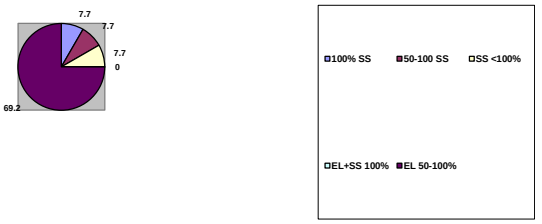

Figure (1): Comparing the source of funding for maternity leave in countries of the Middle East (ME), North Africa (NA), Gulf countries and countries in Central and South East Asia with Islamic based constitutional regimes.

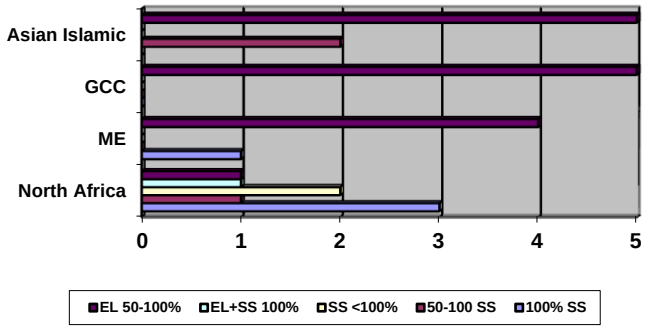

Figure (2): Comparing the percent wages received during maternity leave and source of funding in countries of North Africa*, Middle East**, Gulf council*** and Islamic countries in the Far East and South East Asia****.

EL: Employment liability

***North African** countries include Egypt, Sudan, Djibouti, Libya Arab Jamahirya, Tunisia, Algeria, and Morocco.

****Middle East** (ME) countries include Jordon, Syria, Lebanon, Yemen, Iraq, West Bank and Gaza.

*****Gulf Council countries** (GCC) include Kingdom of Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates and Sultanate of Oman.

******East Europe, Far East and South East Asia** countries include Turkey, Pakistan, Iran, Afghanistan, Bangladesh, Malaysia, and Indonesia.

دفع تكلفة إجازة الوضع : نداء للعمل

يبقى الجدل قائماً حول إجازة الوضع - من الذي يجب أن يتحمل تكلفتها، وكيف؟ والحجة الشائعة ضد إجازة الوضع مدفوعة الأجر كونها مكلفة لصاحب العمل، ولتقدير الكلفة الحقيقية لهذه الإجازة فإن أرباب العمل في حاجة إلى حساب تكلفة البدائل، على سبيل المثال- تكلفة استبدال العمالة، والدراسات تشير إلى أن إجازة الوضع غالباً ما تكون أقل تكلفة بكثير. وجدير بالإشارة إلى أن إجازة الوضع سيكون لها تأثير بسيط على حياة المرأة العاملة في أستراليا، ويقدر أن حوالي 2.8٪ فقط من مجموع القوى العاملة مؤهلة للاستفادة من إجازة الوضع سنوياً. من الناحية المثالية، **ينبغي تقاسم** التكاليف للحصول على إجازة أمومة أو المنافع بين أصحاب العمل والحكومة **والأفراد. فعلى** كل صاحب عمل وحكومة إعادة النظر في سياساتها وإيجاد أفضل آلية لضمان حصول الجميع على مستحقات الأمومة. ويمكن للحكومات أن تأخذ بزمام المبادرة بالاعتراف بأن رعاية الرضع هي مسؤولية المجتمع ككل.

حماية الأمومة ـ نداء للعمل

- تقدير تكلفة إجازة الأمومة في مكان عملك وإقناع أرباب العمل بالعائد المادى والمعنوى على المدى القريب و البعيد من توفير استحقاقات الأمومة.
- إجراء دراسة مقارنة عن استحقاقات الأمومة في الشركات الأخرى والمنظمات غير الحكومية أو المنظمات. ونشر النتائج!
- تجميع المعلومات عن الوضع الراهن لحماية الأمومة في بلدكم ومن ثم توصيل هذه المعلومات باستخدم اللغة المباشرة والرسوم التوضيحية لتوعية المرأة عن مستحقاتها وكيفية المطالبة بها.
- إبلاغ أصحاب العمل عن مزايا حماية العاملات، وتوفير دور الحضانة في أماكن العمل التى توفر الدعم والإمكانيات وتهيىء البيئة للرضاعة الطبيعية (خصوصية الرضاعة – جهاز شفط اللبن – ثلاجات لتخزين اللبن – مواد توعية).
- تنظيم المناقشات والاجتماعات حول هذه المسألة لتوحيد فكر جميع الاطراف التى يمكن ان تساهم فى التغييرلتحسين الوضع لتلك الفئة.
- تشجيع تنظيمات نسائية تقوم بالتوعية عن الأحكام و التشريعات الخاصة بالأمومة في أماكن عملهن.
- وضع آليات ونماذج لتسهيل جمع المعلومات.
- تنظيم دورات تدريبية لأصحاب العمل عن أهمية الرضاعة الطبيعية المثلى والأحكام الخاصة بالأمهات العاملات لإرضاع أطفالهن رضاعة طبيعية.
- الوصول إلى الأوساط القانونية وواضعي السياسات للحصول على الدعم والمساعدة في صياغة التشريعات.
- توعية العمال وأصحاب العمل بكيفية تحسين ساعات العمل وشروط السلامة للأمهات المرضعات وإمكانية تحسين ظروف العمل للوالدات وإمكانية تمديد إجازة الأمومة وتمهيد الطريق لتوفير إجازة الأبوة لرعاية طفل مريض.
- تبادل المعلومات مع الجهات المعنية عن استحقاقات الأمومة وتطوير شبكة التواصل مع الأفراد والمؤسسات المعنية بوضع آليات لتبادل المعلومات والعمل معا.
- تبادل الأفكار عن استحقاقات الأمومة مع زعماء النقابات التجارية، وأئمة المساجد والكنائس وقادة المجتمعات المحلية لتفعيل التغيير.
- نشر هذه القضية عبر وسائل الإعلام كالصحافة والإذاعة واللقائات التلفزيونية والنت.

1.5. Paternity Leave: A neglected Issue …by fathers for fathers!

The Editors

Donald MacIntyre, a British journalist admitted that since becoming a father, he had realized how important dads are to their children! Nothing can prepare a person for what it's like - fatherhood isn't always an innate skill and many dads don't have the support needed to play their role in the family.

Minister Beverley Hughes said: "All children need active and engaged fathers and we must do all we can to make sure dads get the support they need to get involved". It's a good thing that dads are different than moms—kids need them to be! In many families, moms might send a message that they know the "right" ways to do things with the children and may have taken over most of their care. But children need fathers' styles too. So fathers can be sure to carve out plenty of time with their offspring. All children need to learn from their dads—about the world, how language works, how dad interacts with others, and how he accomplishes things. Dads can build on their interests, skills, and personalities to help their children grow and learn. That's good for Kids.

Paternity leave versus Parental leave in Europe

Employed new fathers in the UK are entitled to at least two weeks' paternity leave at the birth of their child. Some employers offer longer or more flexible deals than the legal minimum, but they cannot go below it. Paternity leave was introduced to the UK in 2003, and was long overdue! There's a minimum of 2 weeks off work, paid at a minimum of just over a £110 a week. This may not be much, but it's something.

In Scandinavia, **parental leave** is quite a long period and it is covered by the State for both father and mother. The duration of leave for the mother ranges from six months to ten months and even up to eighteen months in Sweden[(2)]. Paternity leave, which is part of parental leave, is shorter, lasting three weeks in Finland and Iceland and two weeks in other Scandinavian countries. Presently, in Denmark, paternity leave as such has been abolished; nevertheless the father shares parental leave with the mother according to their mutual agreement. The time period of such an agreement varies among the countries.

In principle only one parent at a time stays home on parental leave taking care of the child while the other goes to work or study. However it is normal for the other parent to take regular annual leave and stay at home with the other during this period.

Paternity benefits in these countries also depend on the length of time the father has been in full employment. In Finland, a father

living together with the mother of the child is entitled to parental leave and benefits regardless of the mother's position in the labor market. In Sweden even if the father does not live with the mother he is also entitled to parental benefit if their child lives in Sweden and the parents have shared custody. These forms of leave are part of the Social Insurance scheme; therefore earnings related compensation is paid during the leave period. Indeed these fathers receive a once a life compensation that will be an investment to their lives and the lives of those that will carry them in their hard times.

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أجازة لحديثى الأباء: قضية مهمشة ...
من الأباء للأباء

يقول الوزير البريطانى بيفرلي هيوز: "جميع الأطفال يحتاجون لحضور آبائهم الفعّال في تربيتهم وعلينا أن نبذل قصارى الجهد للتأكد من أن الآباء ينالون الدعم الذي يحتاجونه للقيام بدورهم كآباء". وكون الآباء مختلفين عن الأمهات هو شيء جيد وحقيقة الأمر أن الأطفال في حاجة لهذا الاختلاف! وفي كثير من الأسر، تبث الأمهات برسالة مفادها أنهن يعرفن الأسلوب "الصحيح" للقيام بالأشياء مع الأطفال ولكن الأطفال بحاجة إلى أساليب الآباء أيضاً، وعلى الآباء استقطاع مساحة كبيرة من وقتهم لقضائها مع أبنائهم، فكل طفل يحتاج لأن يتعرف مع أبيه على العالم من حوله، وكيف يستخدم الأب اللغة، وكيف يتفاعل مع الآخرين، وكيف ينجزالمهام. ويمكن للأب أيضاً أن يطوّر من شخصيته واهتماماته ومهاراته ليساعد طفله على النضج والتعلم، وهذا أمر في مصلحة الأطفال.

ففي فنلندا يحق للآباء الاستفادة من إجازة الأبوة بصرف النظر عن موقف الأم من العمل. وفي السويد يحق للأب الاستفادة من أجازة الوضع حتى وإن لم يكن يعيش مع الأم على أن يتقاسما هذه الأجازة معاً. وهذه الأشكال من الإجازات مدفوعة الأجر هي جزء من نظام التأمين الاجتماعي، وبالتالي تدفع مستحقاته خلال فترة الإجازة. وفي الواقع يحصل هؤلاء الآباء على هذا التعويض مرة واحدة في حياتهم في الوقت الذي تعد استثماراً للمستقبل عندما يتقدمون في السن ويحتاجون لمن يرعاهم، فيكون الأبناء حينئذ أكثر امتناناً وعطاءً مقارنة بالأبناء الذين حرموا من الرضاعة ومن توثيق علاقتهم مع آبائهم في هذه الفترة.

وقد أدركت هذه الدول الناضجة اقتصادياً المكاسب المستقبلية العائدة عليها من رعاية الأبناء الذين سهر عليهم في الصغر أباؤهم بفضل إجازة الأبوة - لآبائهم المسنين، وأثر ذلك على تخفيض الأعباء المستقبلية للإنفاق القومي على الرعاية الصحية للمسنين، بل وللأطفال أنفسهم الذين رضعوا رضاعة طبيعية (كأطفال وفيما بعد كبالغين) وكذلك لأمهاتهم نظراً لحمايتهم من كثير من الأمراض المزمنة.

I.6. Progress in Maternity Protection in earound the Arab Region

Many of the countries in the Eastern Mediterranean EMRO region are influenced by the Islamic laws in their constitution. The Islamic Sharae urges all women to breastfeed for two whole years. However the current maternity leave in many countries where Islam is commonly referred to into the legislative acts is very poor. We have looked into the status of 26 such countries and categorized them according to their region into North African, Middle East, Gulf area and East and Far East Asia, with Turkey representing East Europe.

Among the 13 Middle Eastern countries, all calculate benefits based on prior earnings. Two of these 13 countries meet the ILO standards. Iran has recently announced extending paid maternity leave to 24 weeks (if breastfeeding) and two-thirds of prior earnings. Syria provides for 120 days and 100 per cent of earnings (for the first child). Nearly all of the remaining countries provide 100 per cent of earnings but do so for fewer than 14 weeks.

Unfortunately majority of countries in the sample of 26 countries examined (57.7%) still adopt maternity leave for 6-8 weeks, which is completely unfriendly to breastfeeding support and child health as shown in figure (1). Only 3.9% have 16 weeks or over maternity paid leave. Even the affluent and developed countries in these regions have not considered extending the maternity leave after release of WHA Global strategy infant and young child feeding resolution urging countries to adopt the six months exclusive breastfeeding in 2002[(2)]. This is shown in figure (2).

In Egypt mothers are entitled to two years of unpaid leave. But the click is that they still have to pay their monthly social insurance. So it is unpaid leave that they have to pay to earn! For poor societies this represents an economic burden and women prefer to go back to work rather than pay or lose their job. This makes many women who are working to support their families choose to discontinue breastfeeding to go back to work. Such laws are not Islamic Sharae friendly (or any other religious book or human rights' friendly) as they do not serve to protect the rights of women and children to social welfare in this vulnerable period of their family's life.

Convention, No 183 (2000) of the International Labor Organization (ILO) from 14 to 24 weeks to support and protect exclusive breastfeeding in the first 6 months. The **minimum of 24 weeks of paid maternity leave** as well as the right to one paid breastfeeding break daily or reduction of work by one hour per day has had a significant effect on promoting longer duration of breastfeeding with better health outcomes for babies and mothers [(2)]. However for mothers without insurance, working outside governmental institutions, there is as yet no paid maternity leave or right to breastfeeding breaks.

The ILO recommendations also state that maternity leave payments should be at least two-thirds of previous earnings. This is adhered to completely by government institutions in all provinces of Egypt and other countries we studied.

Why working mothers have lower rates of continued breastfeeding into the second year:

Many studies have shown that working women can continue to breastfeed once informed of the benefits of exclusive breastfeeding and taught the skills necessary to maintain lactation when separated from their baby. However many of these mothers will not continue to breastfeed for two complete years [(3)].

The current low rates of exclusive breastfeeding of up to 30% among breastfeeding mothers in the EMRO region demonstrate the need to educate mothers, while the extension of paid maternity leave might be more important to encourage these mothers to breastfeed for longer[(4)].

The lower breastfeeding continuity rates are coincident with the high indices of malnutrition (stunting and wasting) in most of the countries included in our survey with high mortality rates namely Djibouti, Yemen, Palestine, Iraq, Sudan, Egypt, Pakistan, Afghanistan, the Emirates and Morocco. Mortality rates in these countries are 8 times those in the remaining countries in the region. The high poverty rate in these countries endowed by conflict, war and famines make the women seek work at the expense of the ill health and malnourishment of their children, by depriving them of breastfeeding. This hinders progress towards achievement of the Millennium Development Goals (MDGs). Hence there is an urgency for improving maternity labor laws for investing in an important economic resource, mother's milk, breastfeeding and mother's care. Improving women status in these countries can decrease poverty status, inequity, malnutrition and child mortality.

Laws that ignore the rights of women to paid maternity leave for six months and support her mission to breastfeed for two years are neither developmentally nor economically friendly, since they add to the economic burden of reduced Quality Adjusted Life Years (QALYS) for both the mother and her child and increase the Disability Adjusted Life Years (DALYS). They increase poverty, disempowered women, place children at higher risk of mortality and poor nutrition as well as increase the risk of non communicable diseases to the mother and her child in the long term. Hence they are not compatible with Millennium Development Goals (MDGs) 1, 2, 4, 5 and 6.

Economic development in Islam was founded on the support of the needy especially women and children. Economic growth in Islam is based on social equity and giving individuals irrespective of race, color, gender or faith their equitable rights as providers in the community. Breastfeeding women work 24 hours a day for 24 months and produce tons of milk equivalent to over 154 kilograms of powder milk and energy equivalent to milk factories that produce the same amount, in addition to reducing the unnecessary ambulatory inelastic costs of care incurred when these babies become repeatedly acutely sick. Moreover it raises the wealth of nations by increasing the trade offs of the highly specialized role these mothers play (as suppliers) for their babies (as consumers) and between the changing content in human milk (product/goods) with the changing growth and variations in the needs (market) of these babies. In economic terms this creates a non-economically viable situation in which gains are pertinent to all ends.

To become an economically viable model, be supportive of economic growth and development and to increase social welfare and meet the essence of the MDGs, breastfeeding women should be awarded 24 months of fully paid maternity leave. In case of not breastfeeding, mothers should be supported either to return to lactation or pay another woman who will breastfeed her child, after the necessary proof is provided and is documented by the health authorities as safe and feasible. The society has divorced breastfeeding women's rights as far back as nature can remember. As in subsistence societies, women traditionally receive their trade off in food, shelter and security. In modern societies which use monetary trade offs for efficient and equitable compensation, women as resources must be repaid and instituted their rights to produce in an

efficient economic model, *only then will the wealth of nations prosper and flourish*.

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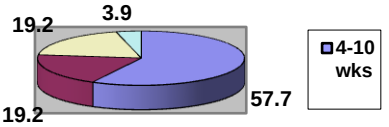

Figure (1) Distribution of Maternity paid leave by duration in North Africa, Middle East, Gulf council and Islamic countries in the Far East and South East Asia

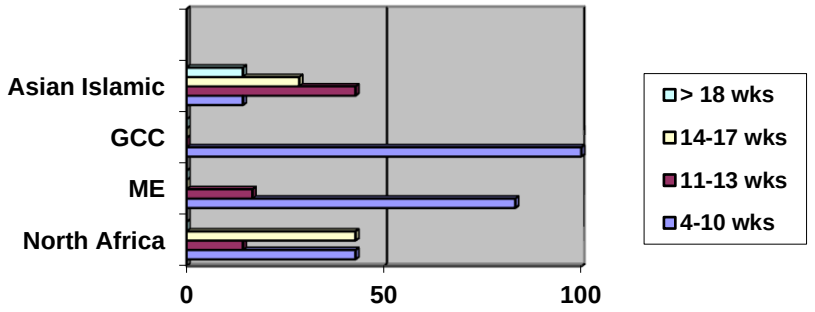

Figure (2): Distribution of paid maternity leave by duration in countries of the EMRO region and Islamic countries in the Far East and South East Asia.

North African countries include Egypt, Sudan, Djibouti, Libya Arab Jamahirya, Tunisia, Algeria, and Morocco.
Middle East (ME) countries include Jordon, Syria, Lebanon, Yemen, Iraq, West Bank and Gaza.
Gulf Council countries (GCC) include Kingdom of Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates and Sultanate of Oman.
East Europe, Far East and South East Asia countries include Turkey, Pakistan, Iran, Afghanistan, Bangladesh, Malaysia, and Indonesia.

Review of maternity leave national legislations in 26 countries from 5 different regions:

Region	Country	Length of leave	% wages	Source of funding
North Africa	Algeria	14 weeks	100%	Social Security
	Djoubouti	14 weeks	100%	Mixed (50% SS 50% EL)
	Egypt	3 months	100%	Mixed (75% SS 25% EL)
	Libyan Arab Jamahiriya	50 days	50% (100% self-employed)	Employer Liability (SS for self employed)
	Morocco	14 weeks	67%	Social Security
	Sudan	8 weeks	100%	Employer Liability
	Tunisia	30 days	67%	Social Security
Middle East	Jordan	10 weeks	100%	Employer Liability
	Iraq	62 days	100%	Social Security
	Lebanon	7 weeks	100%	Employer Liability
	Syrian Arab Republic	120 days	100%	Employer Liability
	West Bank & Gaza	70 days	100%	Employer Liability
	Yemen	60 days	100%	Employer Liability
East Europe	Turkey	112 days	67%	Social Security
Gulf GCC	Bahrain	60 days	100%	Employer Liability
	Kuwait	70 days	100%	Employer Liability
	Qatar	50 days	100%	Employer Liability
	Oman	42 days	75%	Employer Liability
	Saudi Arabia	10 weeks	50%-100%	Employer Liability
	United Arab Emirates	45 days	100%	Employer Liability
Central & South East Asia	Afghanistan	90 days	100%	Employer Liability
	Bangladesh	16 weeks	100%	Employer Liability
	Indonesia	3 months	100%	Employer Liability
	Iran	24 weeks	67%	Social Security
	Malaysia	60 days	100%	Employer Liability
	Pakistan	12 weeks	100%	Employer Liability

تطور العمل فى تشريعات حماية الأمومة بالعالم العربى

تحث الشريعة الإسلامية جميع النساء على أن يتممن الرضاعة الطبيعية لمدة عامين كاملين للحصول على الفائدة الكاملة من الرضاعة بحيث لا يضار الطفل أو الأم - غير أن قوانين العمل الحالية للمرأة في مصر وبلدان إسلامية أخرى لا تسمح لها للحصول على إجازة أمومة مدفوعة الأجر ***إلا لمدة تتراوح من 8 الى 12 أسبوعا*** فقط. ففي مصر يحق للأمهات إجازة غير مدفوعة الأجر لمدة عامين ولكن مع دفع التأمينات الاجتماعية شهريا. ولذلك فهى إجازة تدفع ثمنها الأم للحصول عليها وبالنسبة للمجتمعات الفقيرة فهذا يمثل عبئا اقتصاديا عليهن فيفضلون العودة الى العمل بدلا من دفع التأمينات فتضطر النساء العودة الى العمل لإعالة أسرهم فتتوقف عن الرضاعة الطبيعية و هذا إهدار لاقتصاديات البلاد فمثل هذه القوانين لا تتفق مع الشريعة الإسلامية الصديقة (أو أي كتب سماوية أخرى) وتتنافى مع حقوق الإنسان لأنها لا تعمل على حماية حقوق النساء والأطفال بل وتعرضهم للخطر.

و قد قامت دولة إيران وهى دولة تمتثل بتشاريع الدين و بما أثبته العلم بمنح السيدة الأم المرضع 6 شهور كاملة مدفوعة الأجر متمشياً مع قرارات منظمة الصحة العالمية لسنة 2001و 2002 بوجوب الرضاعة المطلقة (بدون أية إضافات) من لبن الأم لمدة 6 شهور كاملة و أن هذا ضمان لصحة و حياة الطفل.

ونأمل أن يكون ذلك مثالاً يحتذى به و تمتد تقيع إجازة مدفوعة الأجرلمدة 6 شهور الى باقى البلدان بالإقليم حتى تستطيع هذه البلاد مواجهة تحديات التغلب على الفقر و سوء التغذية للأطفال و الأمهات ووفيات الأطفال التى تعانى منها بشدة قرابة نصف دول إقليم الشرق المتوسط.

Section II

Original Research Studies

FADS2 Gene Expression of Intelligence in Exclusively Breastmilk Fed Preterms

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Abstract

Introduction: Breastfeeding is important for brain development and was shown by many workers to result in higher scores intelligent quotient (IQ). However, the exact mechanism whereby Breastfeeding influences cognitive development remains unclear.

Objective: To study the expression of genetic code FADS2 linked to the cognitive function in relation to the mode of feeding.

Methodology: The study comprised 30 low birth weight (LBW) infants of 32 to 34 weeks gestation age inclduing 15 exclusively breastfed and 15 fed infant milk formula IMF selected from the neonatal intensive care unit (NICU) in Talkha central hospital in Dakahlia governorate. Blood samples were drawn at birth and at 12 weeks of life and FADS2 gene expression-was measured using real time PCR.

Results: FADS2 gene expression demostrated a significant increase from birth to 3 months, with a ten fold rise in breastfed group compared to a two fold rise in the artificially fed group at $P< 0.001$. There was a significant positive correlation between education of the mother and IQ of the child in artificially fed group.

Conclusion: Breast milk influences gene expression. The higher FADS2 expression observed in the breastfed group may be used to predict higher IQ scores in the breastfed preterm. The mammary gland could well be an organ that stipulates and regulates genetic expression in the newborn.

Introduction

Breast milk provides optimal nutrition for a growing infant, with compositional changes that are adapted to the changing needs of the infant. Human milk contains adequate minerals and nutrients for the first six months of life[(1)]**.** Children's intellectual development has been shown to be influenced by both genetic inheritance and environmental experiences. Breastfeeding is one of the earliest postnatal experiences and is important for brain development. Breastfed children especially when preterm were shown by many workers to attain higher intelligent quotients (IQ) scores than

children fed on other milks. The higher IQ linked with breastfeeding and intelligence is linked to the high concentration of long chain polyunsaturated fatty acids as docosahexaenoic acid (D.H.A) and arachidonic acid (A.A). Also it contains cholesterol, amino acids as taurine and also lactose which is broken in the body to glucose and galactose, the latter is important for the formation of galactolipids for the myelination process in the nervous system and the former is important source of energy for the brain. All are important nutrients which play an essential role in brain and central system tissue growth an development early in life [(2,3)].

Xie and Innis [(4)] have provided recent evidence that genetic variation in FADS1 and FADS2 influence maternal plasma and erythrocyte phospholipid levels of (n-6) and (n-3) fatty acids during pregnancy and levels of saturated, monounsaturated, and (n-6) and (n-3) fatty acids in breast milk during lactation. Other studies have shown an association between the IQ and the genetic variant in FADS2, a gene involved in the genetic control of fatty acid pathway [(5,6)]. The relationship between breastfeeding and this latter gene on the cognitive function of children has not been fully verified. Hence, the aim of this study is to compare the FADS2 gene expression in preterm exposed to mother's milk in the early months of life with those exposed to infant milk formula.

Subjects and methods

This is a retrospective cross sectional case-control study including 30 preterms whose gestational age range from 32 to 34 weeks, attending the neonatal intensive care unit (NICU) of Talkha central hospital where they were followed up to for 12 weeks age . They were divided into two groups: group I: included 15 preterm babies aged 32-34weeks fed exclusively on breast milk (intervention group) and group II: included 15 preterm babies aged 32-34 weeks fed artificial formula (control group). Ethical considerations included consent from the hospital and from parents with explanation of the procedure and its outcome to the family.

Anthropometric assessment included measurements of weight-for-age (W/A) length-for-age (L/A) and head circumference-for-age (HC/A). Blood samples were drawn at birth and at 3 months for all babies. Laboratory investigations included full blood picture for hemoglobin and blood indices and another sample was sent to the Molecular Genetics unit in Benha Faculty of Medicine for measuring FADS2 gene expression for the all groups at birth and then after 3 months. Both groups were tested for blood indices at the age of three months.

Statistical analysis of the collected data was done by using the excel program and the statistical package for social science (SPSS, program) version 16. To test the normality of data distribution K-S (Kolmogorov-Smirnov) test was done. The description of the data done in form of mean (+/-) standard deviation (SD) for quantitative data. The analysis of the data was done to test statistical significant difference between groups using one-way ANOVA test to compare more than two groups, followed by Post Hoc test LSD (least significant difference) for inter groups comparisons. For quantitative date, student t-test was using to compare between two groups. Chi square test was using for qualitative data. Correlation coefficient was done to detect association between variables. After analysis a probability p value $p > 0.05$ was considered insignificant while $p < 0.05$ was considered significant and $P<0.01$, <0.001 and <0.0001 were considered highly significant.

Results

Our results revealed that there was no statistical significant difference between breastfed group and artificially fed group as regard age and sex of the child, hence both groups were matched for age and sex. Also there was no statistical significant difference in the mean age of mothers between breastfed group and artificially fed group. As regard education of the mother there was no statistical significant difference in breastfed group when compared to the artificially fed group indicating that the control and intervention groups were a homogenous group with similar background from Dakahliya governorate. Anthropometric measurements of our studied groups showed a significant increment in the mean value of weight gain in breastfed group when compared to the non breastfed group at $P<0.05$ and $P<0.01$ respectively, but no statistically significant differences as regard length and head circumference (Table 1). The red cell count, hemoglobin and mean corpuscular volume at 3 months of age were significantly higher in the breastfed group at $P<0.05$ (Table 2).

Gene expression: FADS2 gene expression showed no significant difference at birth with a highly significant increase of FADS2 gene expression to tenfold at 3 months of age in the exclusively breastfed groups of babies compared to the non breastfed group as shown in table 3 and the attached gel plates in figures 1 and 2.

Discussion

Nutrition can affect the brain throughout the life cycle, with profound implications for mental health and degenerative disease. Cognition refers to the mental processes involved in acquiring knowledge and the integration of these processes into responses such as learning, attention, memory, intelligence and consciousness [(5)].

The increase in genetic expression FADS2 noted in this study over the first 3 months, in the exclusively breastfed group of babies that was not seen in the non breastfed fed indicates that the mammary gland is affected by practices related to early feeding which in turn influence gene expression. Xie and Innis [(4)] showed that FADS1 and FADS2 influenced the fatty acids of pregnant women and suggested that genetic variation among women may influence maternal-to-infant transfer of fatty acids during pregnancy and in lactation will, via breast milk, influence fatty acid nutrition of the breast-fed infant. This suggests that FADS2 genes may be primed during pregnancy through the mammary gland. This function probably continues during lactation and influences the genes in the newborn. Hence the mother supplies these fatty acids for the growing fetus, but after birth these FA are supplied through the mammary gland. Hence when the newborn is severed from this important regulatory organ, it is also deprived of the source that regulates gene expression. In this case the baby's suckling at the breast is what probably controls the feed back mechanism.

The effect of breastfeeding on brain development has been examined in many studies, especially two aspects of brain development, cognitive development and the development of visual acuity[(7,8)]. There are a number of studies, which indicate that the feeding mode during early childhood has a long-term effect on cognitive development [(8,9)]. Moreover, Lucas et al., [(10)] found that infants who have been fed breast milk through a nasogastric tube early in life had higher intelligence quotient, at 7 to 8 years of age compared to formula fed one.

Many workers have explained the higher intelligent quotient (IQ) shown in breastfed as linked to the high content of long chain polyunsaturated fatty acids; linoliec acid, α linoliec acid; arachidonic acid and docosahexaenoic acid in human milk. These

fatty acids are the major fatty acids and are of major importance for the development of the brain and nervous system [11,12,13].

The significant role played by the mammary gland on the gene function is shown by the absence of any such an effect on the group of babies who were not suckling at the breast. Also although the artificially fed group in our study received milk formula supplemented with polyunsaturated free fatty acids yet this did not influence their gene expression or function. Other workers found no differences in development between the breast-fed and artificially fed groups fed supplemented LCPUFA but studies were done over a short period[14].

Moreover it indicates that the mammary gland (MG) plays an important role not only in nourishing the baby but also in regulating their genetic information. Rodriguez-Cruz et al., in 2011 [15] showed that the expression of desaturases in MG was significantly higher (12.3-fold for FADS1 and 41.2-fold for FADS2) during the late pregnancy and throughout lactation (31.7-fold for FADS1 and 67.1-fold higher for FADS2) than in non pregnant rats. Accordingly, a higher content of LC-PUFAs was found in lactating MG than in non-pregnant rats. Results suggest that MG participates from late pregnancy and throughout lactation by expressing desaturases and elongases as a mechanism involved in LC-PUFAs synthesis.

Children who are breastfed were shown to have superior neurodevelopment outcomes and the duration of breastfeeding also affect a child's intelligence [16,17]. The effect on the IQ of babies who continue to breastfeed for a longer duration cannot be explained by the mere presence of the long chain fatty acids per say, but are related to the extent of genetic expression. The term metabolic imprinting describes the process whereby cells have a biological memory for nutritional influence that can be passed on to daughter cells through mitotic cell division [15]. This could be the mechanism whereby the MG exerts its effect on FADS2 expression in the neonate and thus potentiating their ability to produce PUFA throughout their life even after weaning[16].

Studies have shown that IQ differences between the early exclusively breastfed, particularly the preterm ones, remain and continue to increase with age [17,18]. This indicates the potentiated effect induced by the process of enhancement of gene expression on later brain development.

In our study we tried to encourage increased interaction between mother and baby by encouraging skin to skin care and increasing visitation hours of mothers in the unit [19,20,21]. This could explain the significantly higher response in FADS2 expression in our group of breastfed babies. Epigenetics refers to stable alterations in gene expression that arise during development and cell proliferation and are subsequently retained through mitosis [22,23]. The interaction between genes and the environment may be the difference between emotional intelligence and IQ tests. This probably indicates the importance of external stimuli for development of the genes. Hence, it is important to keep mothers with babies together, especially in the early period of life, by implementing regimens such as continuous skin-to-skin care or Kangaroo mother care as these regimens enhance mother infant interactions and have been shown to have significant positive effects on child development.

While such epigenetic changes in the genome are heritable but do not involve mutations of the DNA itself, DNA methylation is accepted as one of the most important underlying biological mechanisms regulating the metabolic imprinting process

[22]. DNA methylation is a post replication process by which cytosine nucleotides in CpG sequences are methylated to 5-methylcytosine, forming gene-specific methylation patterns[23]. DNA methylation might be responsible for the stable maintenance of a particular gene expression pattern through mitotic cell division[24]. Nutrition research has recently emphasized the role of diet in DNA methylation and effects on stable epigenetic changes. Restricted feeding during early phases of development causes metabolic imprinting that leads to increased susceptibility to cardiovascular disease in later life [25], increased insulin sensitivity as an adaptive response[26], or decreased longivity[27]. The hormonal milieu present during pregnancy results in lasting changes in the pattern of gene expression in the mammary gland, leading to permanent changes in cell fate that determine the subsequent proliferative response of the gland [28]. These hormonally induced persistent changes in gene expression may be mediated by epigenetic alterations in DNA methylation status of promoter sequences [17].

The pattern of growth among our groups was different, with a significantly higher growth rate in weight gain, head circumferences and blood indices in the exclusively breastfed at 3 months of age. This indicates that the growth and development in early infancy are interlinked and are affected by mother infant interaction, infant feeding practices and the effects of genetic imprinting, genetic expression in a bidirectional manner, in which each enhances the other in a continuous cycle of feed-back for meeting the needs for optimal early and later development[29,30]. Moreover recent studies[32] have shown that depressive symptoms in mothers were inversely associated with concentrations of PUFA in breastmilk. This supports the role of the mammary gland in influencing PUFA levels and thereby enhancing genetic expression as early on in pregnancy. Hence enhancing mother infant interactions can reverse postpartum depression by improving PUFA levels, which in turn enhances gene expression controlling these fatty acids. Depressive symptoms were significantly lowered in mothers who were encouraged to do more skin to skin care[33]. Hence the mother benefits from the enhanced genetic expression probably by the interlink between FADS2 expression, PUFA and postpartum depression [34].

In conclusion tissue availability of polyunsaturated fatty acids (PUFAs) are strongly linked to the extent of genetic expression entailed by the mammary gland during lactation. Dietary intake and metabolic turnover of these fatty acids have a major impact on human development and health. Strong associations are present between variants in the human genes fatty acid desaturase 1 (FADS1, encoding Delta-5 desaturase) and fatty acid desaturase 2 (FADS2, encoding Delta-6 desaturase) and blood levels of PUFAs and long-chain PUFAs (LC-PUFAs). The most significant associations and the highest proportion of genetically explained variability implies the need for more extensive studies to show the significance and outcome of such findings [35]. However, our study demonstrates clear evidence of the importance of early exclusive breastfeeding in the early period of critical development of the preterm for both the baby and the mother.

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Table (1): Comparing mean weight increments in grams in the preterm exclusively breastfed (group I) with non breastfed preterms (group II) from birth to 12 weeks

Age in weeks	Group I			Group ll			P
	Mean ± SD		Growth rate grams\week	Mean ± SD		Growth rate grams\week	
At Birth	2160	±220		1900	±140		0.05<
2	2640	±220	240	2270	±190	185	0.001<
4	3270	±250	315	2590	±290	160	0.001<
6	3900	±0.31	157	3380	±290	197	0.001<
8	4550	±220	162	4040	±410	165	0.001<

36. P>0.05 : non significant , P<0.05 : significant & P<0.001 : highly significant

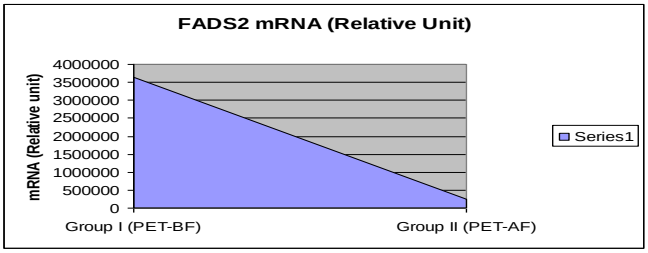

Figure (1): Diagrammatic representation of the FADS2 mRNA in the preterm breastfed (group I) and the preterm non breastfed (group II).

Table (2): Comparison of laboratory parameters in breastfed and artificially-fed groups at 3 months of age

	Breast fed (N=60)		**Artificially fed (N=60)**		**T**	**P**
	Mean	**± SD**	**Mean**	**± SD**		
RBC(×10)6	4.5167	0.32995	4.3767	0.22351	2.721	0.008**
MCV(fl)	79.4667	2.58724	78.4167	2.66358	2.19	0.03*
MCH(pg)	24.85	1.102	24.8167	1.15702	0.162	0.872
Hb(g/dl)	12.2767	0.40058	12.05	0.40021	3.101	0.002**
WBC(×10)3	7.69	2.43204	7.125	1.72731	1.467	0.145
Platelets(×10)3	272.75	57.95253	277.85	49.05612	0.520	0.604

Table (3): Comparing the FADS2 mRNA values (Relative Unit) in mean and standard deviation in the preterm exclusive breastfed and non breastfed groups at birth and at three months of age

Groups FADS2 mRNA (Relative Unit)	Group I Preterm fed Exclusive Breast N= 15	Group II Preterm fed Artificial Breast N= 15	t	p
	Mean ± SD			
At birth	200842.1 ± 84258.3 (No. =30)			>0.05
12 weeks	3638425.1± 7235470.8	245244.2 ±94237.4		<0.001

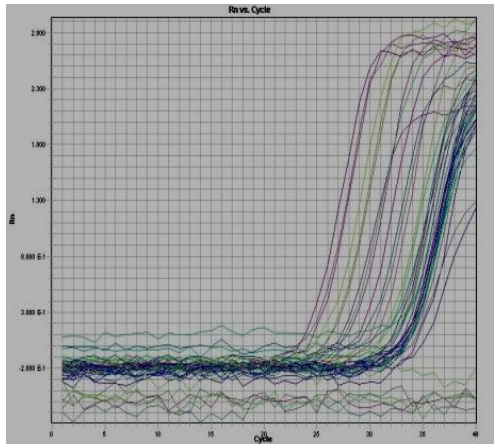

Figure (2) : Graphic representation of post-run amplification plots of group I and group II for FADS2 mRNA as selected target detector and GAPDH mRNA as housekeeping detector (endogenous controls) ΔRn: Dye fluorescence as a function of cycle number.

تأثر التعبير الجيني "فادأس2" الخاص بإنماء المخ بنمط التغذية في الأطفال المبتسرين

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المقدمة: تبين العديد من الدراسات أن الرضاعة الطبيعية مهمة لنمو المخ وتؤدي إلى درجات أعلى فى حاصل الذكاء. ومع ذلك، فإن الآلية التى تجعل الرضاعة الطبيعية تؤثر على التطور المعرفي لا يزال غير واضح.

الهدف: دراسة تغييرات التعبير عن الشفرة الوراثية FADS2 و تأثره بنمط التغذية.

المنهجية: شملت الدراسة 30 طفل مبتسر يتراوح أعمارهم الحملية من 32 إلى 34 أسبوعا و يتضمنون 15 يتغذون بالرضاعة الطبيعية وحدها و 15 بلبن صناعى تم اختيارهم من وحدة العناية المركزة لحديثي الولادة في المستشفى المركزي بطلخا في محافظة الدقهلية. وتم أخذ عينات دم عند الولادة، وبعد 12 أسبوعا من العمر لقياس التعبير عن الجينات (FADS2).

النتائج: أوضحت الدراسة تضاعف إرتفاع في التعبير الجيني (FADS2) من الولادة الى 3 شهور في مجموعة الرضع من لبن الأم وصل الى عشر مرات بالمقارنة بالمجموعة التى تغذت على اللبن الصناعى وكان معدل نمو الرضع طبيعياً ضعف مثيلهم على اللبن الصناعى في ال 4 أسابيع الأولى من العمر،

الخلاصة: الاقتصار على الرضاعة الطبيعية تؤثر إيجابياً على إرتفاع التعبير الجيني. تعرض الرضع الى الألبان الصناعية فى المهد له تأثير سلبي على التعبير الجيني. قد يكون للغدة اللبنية دور فى التحكم فى التعبير الجيني في حديثي الولادة الذين يرضعون رضاعة طبيعية. في حين يحرم الذين لا يرضعون رضاعة طبيعية من هذا الجهاز الهام الضروري لإستكمال نموهم.

Early Exposure to Cow's Based Infant Milk Formula and Intellectual Development of Children at 5 Years of Age

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Abstract

Background: The practice of feeding processed foods in early infancy has been shown to influence the intellectual capacities of the brain in its early period of critical development. However it is not clear whether the deprivation from mother's milk or the exposure to these foods is the underlying cause especially with the poorly developed blood brain barrier.

Aim: To assess the effects of early exposure to processed foods on the growth and development of children and attained intelligent quotient (IQ) at five years of age.

Methods: We studied 90 children aged 3 to 5 years divided into 33 with a history of exposure to processed milks in early 6 months of their life versus 57 who were exclusively breastfed for 3-6 months. All were assessed for growth (weight, length and head circumference) and nutritional status (blood indices) and IQ scores using the revised Wechsler Intelligence Scale for children (WISC-R).

Findings: Children who were exposed to processed milks in the early months of life had lower blood indices, gave a history of rickets, were significantly overweight and had significantly lower IQ scores compared to those who were not exposed to such foods early in life. The IQ scores correlated positively with their mother's level of education and negatively with their social class.

Conclusions: Introduction of processed milks and other foods early in life can be detrimental to the growth and development of children later in life. Feeding neonates and infants only human milk is the safest food that can be fed to babies in the early critical period of their brain development.

Introduction

Human milk is nature's gift free, natural and ideal for meeting all the needs of these vulnerable creatures in a critical period of their life. However, pressure of the marketing practices and poorly guided mothers who lack confidence in their motherly abilities, cause them to resort to foods and milks that are industrialized and marketed to satiety the greed of profit making companies. These processed foods are increasingly being recognized as unsuitable for growing children. Exposure of children very early in their life begins with infant formula milks, that are marketed to consumers as being suitable for these newborn and infants. Neonates and infants are particularly vulnerable to these products because of the immaturity and incomplete development of their neurological and immune systems [(1)]. This makes them susceptible to neurological insults and poor development of their brain and immune systems that are interlinked with each other and with their future health status and growth and development [(2,3)].

Since the mother's practices and mother's milk shape the future of her children, emphasis on the support of mothers to exclusively breastfeed from birth and to

continue to breastfeed exclusively in the first six months of life has been repeatedly emphasized and documented by evidence based research [4,5].

The decades of suffering and poor survival linked to bottle feeding has lead to the international consensus that all mothers should be supported to initiate breastfeeding immediately at birth and to continue exclusively on mother's milk for 6 months and up to two years with other foods[5]. More recently the American Academy of breastfeeding has recommended that infants in the first year of life should not be exposed to cow's milk or any artificial cow based milks, because of the unprecedented and long term effects on the development of the immune system [6].

Several studies have shown the effect of early replacement of breastmilk with other processed milks on their later cognitive and intellectual development of children as measured by the intelligent quotient (IQ). The IQ of children varies from 3 points up to 12 points and the gap increases as the child grows older. Hence deprivation of these infants from mother's milk and the unique interactions of learning that accompany this process are predisposing factors [7,8].

However, other factors such as the content of formula and of the water, early exposure to the heavy metals and contaminants in these products and the accompanying utensils used in feeding as the bottle and nipple are all culminating factors that need to be investigated [9].

In Egypt particularly in Dakhlaia where a considerable practice of offering early infant milk formula (IMF). Also water is contaminated with heavy metals that can injure the brain. The effects of such early practices on brain development later in life needs to be studied.

Hence our aim is to study the effects of early feeding of infant milk formula cow's based milks (CBM) on the IQ developmental scores of children at the age of five years in a group of well cared for Egyptian middle class children living in the regionally located areas, free of pollution.

Subjects and Methods

This study included 90 children aged between 3 to 5 years. They were divided into two groups according to type of feeding into (group I) which included 57 healthy children who were exclusively breastfed for up to 3-6 months and (group II) which included 33 healthy children who were fed CBM in the first 3-6 months of life. Logistic consents were taken from the targeted nurseries in Mansoura City of Dakhlia. Also the interviewed mothers were informed of the details of the study and the tests that their children will be exposed to and consented to enroll in the study. They were also informed of the results of their child's IQ after completion of the study. Privacy and secrecy of the results were ensured. All the studied groups were subjected to **complete history taking including; personal history of the child; antenatal, natal and postnatal history; feeding history and thorough physical examination** including anthropometric measurements for weight, height and head circumference and physical examination to detect any signs of nutritional deficiency and finally complete systemic examination to exclude any chronic illness. Laboratory investigations included hemoglobin count and blood cell indices to detect anemia. Assessment of the cognition by

measuring the IQ was done using Wechsler Intelligence Scale for children – Revised (WISC-R) [10,11]. Also social IQ was assessed.

Statistical analysis was done using the ANOVA for comparing groups using the T-test of significance for discrete data and chi-square for qualitative data (frequency distribution).

Results

There was a significant difference between children who were exposed in early life to processed infant milk formula (IMF) (group II) versus group who breastfed exclusively in the first 3-6 months of life (Group I), as regards to a documented history of rickets of life at P<0.05 (Table 1). Also, there was a significant difference in the developmental milestones between both groups with a delay among those fed processed infant milk fed at P<0.05 (Table 2).

There was a significant difference in red cell indices and hemoglobin (Hb) between both groups but they were within the normal ranges. But there with no significant difference as regard the mean corpuscular hemoglobin (MCH) and platelets between the groups at P>0.05 (Table 3).

There was a significantly higher IQ among the breast-fed group as compared to those exposed to processed infant milk in early life at P<0.05 (Table 4).

IQ differences between group I and II was significantly higher in both the low socioeconomic standard subgroups at P<0.05 (table 6) and the moderate socioeconomic standard subgroups at P<0.05 (table 7).

Discussion

In the present study the processed IMF fed group gave a significant history of rickets but not the breastfed group. This indicates that vitamin D deficiency was commoner in the former children, either acquired from the poor stores in their mother and poor content or bioavailability from IMF as compared to breast milk. Babies absorb 67 percent of the calcium in human milk as compared to only 25 percent of that in cow's milk and have a higher bioavailability of vitamin D despite its low content in human milk [12]. In contrast other workers found that exclusively breastfed infants and their mothers are vitamin D deficient [13]. This may reflect poor exposure of both mother and child to ultraviolet rays necessary for conversion of vitamin D to its active form. The relationship between vitamin D and cognitive development in early life has been reported by several workers. McCann and Ames [14,15] point out that evidence for vitamin D's involvement in brain function includes the wide distribution of vitamin D receptors throughout the brain. They also discuss vitamin D's ability to affect proteins in the brain known to be directly involved in learning and memory, motor control, and possibly even maternal and social behavior. The review also discusses studies in both humans and animals that present suggestive though not definitive evidence of cognitive or behavioral consequences of vitamin D inadequacy [16].

We also found a significantly lower red cell count, mean corpuscular volumes and Hb in the artificially fed group as compared to the breastfed group. Cow's based milk are known to be iron deficient and even after supplementation, absorption is poor compared to those exclusively breastfed in the early months of life. Many workers have reported that exclusive breastfeeding up to six months and continual of breastfeeding

after this contributes towards an increase in hemoglobin concentration[17,18,19]. Many studies in humans have examined possible linkages between iron deficiency (without anemia) and concurrent or subsequent cognitive or behavioral outcomes; most of these studies have been thoroughly reviewed. Although concurrent effects may reflect neurochemical changes resulting from iron deficiency at the time of testing, demonstration that a permanent developmental change has occurred requires evidence of effects in formerly iron-deficient children[20,21,22,23].

As regards to developmental milestones we noticed a significant delay in motor development in the artificially fed group when compared to the breast fed group (P< 0.01). Heikkila et al.,[24] reported that the proportion of infants who mastered the developmental milestones increased with duration and exclusivity of breastfeeding. Infants who had never been breastfed were 50% more likely to have gross motor delays than infants who had been breastfed exclusively for at least 4 months. Also Worobey[25] reported that breastfed infants showed greater motor activity than formula fed and he concluded that breastfed infants and those who received formulas show different speeds in physical growth. Moreover, Lucas et al.,[26] found that there is evidence of enhanced motor skill development among preterm infants who were breast fed. Dewey et al., [27] who found that infants who only received breast milk for the first 6 months of life crawled sooner and were more likely to walk by 12 months of age than infants who received solid foods starting at 4 months of age.

As regards to language development we noticed a significant delay in artificially fed group when compared to breast fed group (P< 0.01). Docosahexaenoic (DHA) which is present in varying amounts in human milk, might influence the development of visual acuity and neural pathways associated with the progression of language acquisition by term-infants[28]**.** Michaelsen et al.**,**[29] suggested that children who are not breastfed may receive less attention and stimulation by their mother. They recommend that mothers who have not breastfed should be encouraged to interact with their babies to the same extent as those who have, so as to facilitate bonding and to stimulate the infant languages and psychosocial development.

Finally the IQ of the breastfed group was significantly higher than the IMF fed group (P< 0.001). This clearly indicates the potential value of both breastfeeding and human milk on brain development. In contrast, children who are not breastfed may have poorer neurodevelopmental outcomes. Moreover the longer the duration of breastfeeding the more its positive effects on the child's intelligence and behavioural and emotional outcomes [30].

There are three substances in human milk which may explain the association between human milk feeding versus other milks regarding higher scores on intelligence tests. These include two fatty acids that are associated with the development of nerve cells, retina and the brain and are present in breast milk but are absent in infant formula and cow's milk. These, docosahexaenoic acid (DHA) and arachidonic acid (ARA), have been shown to improve eyesight in infants and young children. The third is

lactose and is the source of galactose which is essential in the production of the galactolipid including cerebroside. These galactolipids are essential to CNS development. The amount of lactose in the milk of a species and the relative size of the brain varies and is the highest in human milk [(31)].

These data come in concordance with Kramer[(30)] *who* found in the largest randomized trial conducted in the area of human lactation of 13,889 infants born at hospitals and polyclinics and followed up in 2002-2005. Those who had been born in hospitals and polyclinics receiving breastfeeding promotion had IQs that were 2.9-7.5 points higher. This data provided strong evidence that prolonged and exclusive breastfeeding improves children's cognitive development.

This is consistent with Anderson et al.,[(32)] who reported that there was increase in the cognitive development score of breastfed, compared with formula fed which ranged from 5 to 6 points. After adjustment of social and family factors, the difference declined to 3.16 points, but remained significant. The groups deriving the greatest benefit from breastfeeding were children born prematurely, when both structural and functional immaturity is evident. Thence fatty acids present in breast milk but not in formulae are necessary for completion of brain development.

In the present study there was a significant increase in the IQ of the child with increase in socioeconomic standard. Gale and Marty [(33)] investigated the relation between method of feeding in infancy and adult intelligence they found that breastfeeding was not linked with socioeconomic standard. They followed up 994 men and women. The study participants who had been exclusively breast fed gained higher scores on the I.Q. test than those who had been exclusively bottle fed or fed with both breast and bottle, but this was not linked with social class. The differences were because their group was not associated with economic deprivation, illiteracy, poverty and undernutrition. Other studies carried out in India, who had similar settings to ours have reported an association between social class, poverty and undernutriton on the IQ of children under five of age [(12)].

In our study we found that the level of education of the mothers had an augmentative effect on the difference in the IQ between breastfed and artificially fed. It appears that these babies gain a stronger ability to learn from their mothers who breastfeed them, so they become better learners. While on the other hand the parenting abilities of mothers are more mature which endows them with more skills and abilities in teaching and communicating with their breastfed child, probably because of the bonding through breastfeeidng which enahnces their parental skills of tolerance, patience and endurance. Again Smith et al.,[(34)] reported that children from economically disadvantaged families have poorer academic achievement, social skills and cognitive functioning than children who are not from economically disadvantaged families.

In conclusion our study agrees with many other studies conducted in developed countries that show superior attainment in those breastfed. Our study shows that this is also true for developing countries and

becomes more obvious with higher social class and maternal education. In addition our study shows that those exposed to cow's milk based processed milk, so called *infant milk formula*, had lower IQ scores that persisted and did not catch-up or heal, indicating the permenancy, irreversable damage and long lasting effects of early improper infant feeding practices on cognitive development and social intelligence. Enhancing early mother infant interactions and avoidance of processed foods given early in life is recommended in order to safeguard the growth and development of our children.

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Table (1): Comparing reporting a history of rickets in under five children who were breast-fed exclusively (group I) versus those who were fed milk formula (groups II)

	Breast fed (N=57)		**Processed infant milk fed (N=33)**		***X²***	***P***
	NO.	**%**	**NO.**	**%**		
History of rickets	*3*	*(5.3%)*	*7*	*(21.2%)*	*8.1*	*0.02**

Table (2): Comparison between Breast-fed and Processed infant milk -fed groups of under five aged children as regards their early developmental milestones

		Breast fed (N=57)		**Infant milk fed (N=33)**		***X²***	***P***
		NO.	%	NO.	%		
Developmental milestones *Gross motor, fine motor, social and language development*	*Normal*	*56*	*(98.2%)*	*20*	*(90.9%)*	*22.6*	*<0.001****
	delayed motor	*1*	*(1.7%)*	*10*	*(30.3 %)*		
	delayed language	*0*	*(0%)*	*3*	*(9.1%)*		

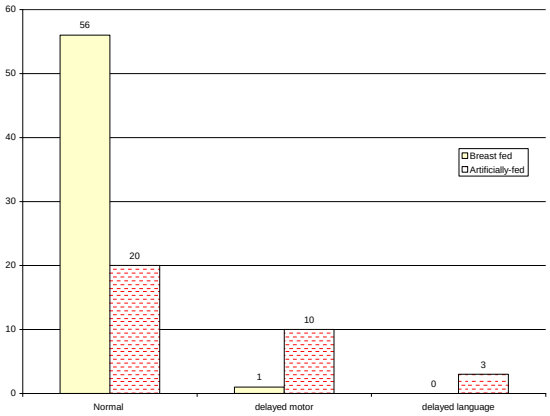

Figure (1): Comparison of the developmental milestones between breastfed group and processed infant milk fed group.

Table (3): Comparing current status of blood indices of under-five children who were breast-fed (group I) with those who received processed milks (group II) in their early infancy

	Group I (N=57)		Group II (N=33)		*T*	*P*
	Mean	*± SD*	*Mean*	*± SD*		
RBC (×10)6	***4.57***	***0.30***	***4.40***	***0.27***	***2.67***	***0.009*****
MCV (fl)	***79.49***	***2.06***	***77.94***	***3.33***	***2.74***	***0.008*****
MCH (pg)	***24.88***	***1.14***	***24.79***	***0.99***	***0.38***	***0.71***
Hb (g/dl)	***12.33***	***0.41***	***12.07***	***0.42***	***2.82***	***0.006*****
WBC(×10)3	***7.94***	***2.25***	***6.99***	***1.73***	***2.09***	***0.04****
Platelets(×10)3	***270.63***	***56.89***	***273.48***	***52.16***	***-0.24***	***0.81***

Table (4): Comparing the mean percent Intelligent Quotient (IQ) in the children who were exclusively breast-fed (group I) and those who were fed processed milks in early infancy

	Group I (N=57)		Group II (N=33)		*t*	*P*
	Mean	*± SD*	*Mean*	*± SD*		
IQ%	*99.74*	*10.29*	*88.58*	*8.87*	*5.209*	*<0.001****

تأثير التعرض المبكر للألبان المعالجة صناعياً على ذكاء الاطفال في سن الخمس سنوات بالدقهلية

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المقدمة: يولد الأطفال بدماغ غير ناضج و قد أوضحت أبحاث متعددة خطورة ممارسة إدخال الألبان والأغذية المصنعة في مرحلة الطفولة المبكرة المخ فى المراحل المبكرة من نموه و لكننا لا نعلم إذا كان الحرمان من لبن الأم أم التعرض لهذه الألبان هى السبب فى ذلك .

الهدف: تقييم آثار التعرض في وقت مبكر إلى الأغذية المصنعة على نمو وتطور الأطفال بقياس حاصل الذكاء في الأطفال البالغين خمس سنوات من العمر الذين رضعوا رضاعة طبيعية مطلقة فى الشهور 3-6 الأولى من عمرهم و مقارنتهم بذوويهم الذين تعرضوا الى الألبان الصناغية فى نفس الفترة.

الطرق البحثية: قمنا بدراسة 90 طفلا تتراوح أعمارهم بين 3 إلى 5 سنوات مقسمة إلى 33 الذين تعرضوا للألبان المعالجة صناعياً في الأشهر الأولى من حياتهم مقابل 57 الذين حصلوا على رضاعة طبيعية مطلقة لمدة 3 الى 6 شهور من العمر. وتم تقييم نموهم (الوزن والطول ومحيط الرأس)، والحالة التغذوية (مؤشرات الدم) ودرجات معدل الذكاء باستخدام مقياس الذكاء وكسلر المنقح للأطفال (WISC-R).

النتائج: أظهرت النتائج أن الأطفال الذين تعرضوا للألبان المعالجة صناعياً في الأشهر الأولى من حياتهم لديهم مؤشرات للأنيميا الغذائية، و كان تعرضهم الكساح أكثر، و كانوا يعانون من البدانة بشكل ملحوظ، كما كان معدل ذكائهم أقل بكثير مقارنة مع أولئك الذين لم يتعرضوا لمثل هذه الأغذية في وقت مبكر في الحياة. وقد إرتبط الذكاء ارتباطا إيجابيا مع مستوى تعليم الأم وسلبا مع الطبقته الاجتماعية.

الخلاصة: إن إدخال الألبان والأغذية المعالجة صناعياً في وقت مبكر في الحياة يمكن أن تكون ضارة علي نمو وتطور الأطفال في وقت لاحق من حياتهم و لذلك ننصح بتغذية الأطفال حديثي الولادة والرضع من لبن الأم فقط فى الشهور الأولى من حياتهم كغذاء آمن للأطفال الرضع في هذه الفترة الحرجة من نمو وتطور الدماغ.

Role of Colostral Interleukin 1β in Breast milk and Neonatal Hyperbilibinemia

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Abstract

Background: Physiological jaundice is common in breastfed babies and is attributed to inadequate breastfeeding. However the mechanism underlying its pathogenesis is not clear.

Aim: To investigate the possible relationship between neonatal jaundice and levels of interleukin I **β** in the colostrum of their nursing mothers.

Methodology: Blood samples from 60 neonates were drawn for the measurement of total serum bilirubin (TSB) with simultaneous expression of colostrum samples from their mother for measuring Interleukin-1**β** and full clinical assessment of the pair.

Findings: Level of IL1**β** in breast milk was significantly higher in the group with neonatal jaundice and was positively correlated with TSB levels and mother age at $P<0.05$. IL-1 **β** was inversely correlated with Apgar score at one minute gestational age and birth weight.

Conclusion: Hyperbilirubinemia in the neonate is associated with immuno-modulatory changes in human milk related to breastfeeding intensity. This may be of neuro-protective and developmental significance, enhancing the immune functions of the brain.

Introduction

Neonatal hyperbilirubinemia in the breastfed newborns is most commonly attributed to inadequate breastfeeding. However the mechanism underlying the occurrence of such a condition is poorly understood [1,2].

Intestinal absorption is a key step in the enterohepatic circulation of bilirubin because bilirubin is more easily absorbed from the intestine than are bilirubin glucuronides. Increased intestinal absorption of bilirubin facilitated by breast milk rich in B-glucuronidase or via some other mechanisms such as delayed passage of meconium could explain hyperbilirubinenia among breastfed abies. The establishment of a population of intestinal bacteria that converts bilirubin glucuronides to various urobilinoids reduces the availability of bilirubin for intestinal absorption, as well as casein hydrolysates that inhibit B-glucuronidase in the intestine currently appear to another likely mechanism that explains neonatal jaundice associated with breastfeeding [3].

Inhibition of hepatic excretion of bilirubin could explain the jaundice associated with human milk consumption, and early studies suggested that exposure to acquired cholestatic injury such as drugs, hormones, proinflamatory cytokines, or biliary obstruction or destruction results in an altered expression and function of hepatic uptake and excretory systems, changes that may maintain and contribute to cholestasis and jaundice[4]. Cytokines as interleukin-1 β (IL-1 β) has been shown to have cholestatic effect believed to result from the expression of genes that normally mediated the hepatic uptake, metabolism, and biliary excretion of

bile salts and various non bile salt organic anions such as bilirubin [5].

Human milk is an important source of bioactive substances including hormones, growth factors, and immunologic factors such as cytokines. However, the functional significance of cytokines in human milk remains largely unknown [6]. Although cytokines are known to play a critical role both in the function of hepatic uptake and excretory systems and in the enterohepatic circulation, yet little is known about the determinants and significance of their presence within the breast milk of mothers feeding neonates and their associations with neonatal jaundice [7,8]. Hence the aim of this study is to investigate the possible relationship between neonatal jaundice and levels of interleukin I **β** in the colostrum of their nursing mothers.

Subjects and Methods

This is a cross-sectional study that was carried out with sixty neonates and their mothers. These cases were collected from the post-operative wards of Gynaecology and Obstetrics department and neonatal intensive care unit (NICU) in Tokh Central Hospital from December 2010 to April 2011. The neonates and their mothers were classified according to the presence of neonatal jaundice into two groups:

- Group 1 this was the control group and included **thirty** healthy breastfeeding neonates without neonatal jaundice and their lactating mothers.

- **Group II** this group included **thirty** breastfeeding neonates presenting with jaundice and their lactating mothers.

Women were asked to participate in the study during the antepartum period. The women received verbal and written information about the aim and structure of the study. Only healthy women aged 18 years or more, who were exclusively breastfeeding were included in the study. Exclusion criteria included: History of taking anti inflammatory drugs, complicated gestation, delivery and puerperium. Also any history of any form of serious illness as cardiac disease, neurological or hepatic disorder or cancer or febrile illness, were excluded from the study.

Neonates in this study were characteristically asymptomatic jaundiced babies 28-42 weeks gestational age, with a history of jaundice within 1-3 days after delivery and bilirubin {level>5 mg\dl}. Neonates were excluded from the study if they manifested signs of septicemia or respiratory distress or presented with congenital anomalies or any serious illness.

All neonates were subjected to the following:

1-Assessment of weight at birth weighed on standardized weight scales in the nude to the nearest gram. The Apgar score at 1 and 5 minutes was recorded and any procedures of drugs were recorded in addition to a full clinical exam to exclude any abnormality. .

2- The studied neonates were classified according to the level of jaundice into two groups (groups I and II) depending on total serum bilirubin (TSB), using a cut off for TSB of 5 mg/dl which manifests clinical jaundice. So that group II were those with TSB level more than 5 mg/dl and the group I (controls) were those with TSB less than 5mg/dl [7] .

3- Blood samples were drawn from neonates on the third postpartum day for TSB measurement and at the same time of milk samples collection from their mothers.

Data collected from the mothers by direct interviewing included age, parity health status and any hereditary disease or special medications that could influence bilirubin levels.

Collection and processing of milk specimens: breast milk samples were collected on the third post- partum day (+/- 12h) of non complicated deliveries. All mothers were able to provide milk at blood sampling time. Colostral milk samples were collected in 1ml sterile plastic tubes and temporally stored at **-22** degree celesius.

Samples were thawed and centrifuged for 10 min at **4** degree celesius, after which the lipid layer and cellular elements were removed.
The aqueous fraction was used for measuring colostral milk IL1B level by ELIZA technique, using commercially available kits.

Statistical Analysis: The collected data was revised, coded, tabulated and computerized using Statistical package for Social Science (SPSS 15.0.1 for windows; SPSS Inc, Chicago, IL, 2001). Data was presented and suitable analysis was done according to the type of data obtained for each parameter.
Results are expressed as; mean, standard deviation (SD) and range for numerical data. Data were presented as frequency distribution and percentage for non-numerical data. Results of groups were compared by; independent-samples (T) Test, Correlation analysis (using Pearson's method), and Chi-Square test. The cut off of the probability test of significance was les than 0.05.

Results

There was no statistical difference between both study groups regarding mother age, parity, neonatal weight, neonatal GA, neonatal sex and apgar score at 5 min as shown in table (1).

IL1β level in-breast milk was higher in group II than group I and this difference was highly statistically significant (68.17 ± 94.413 pg/ml) versus (14.53 ± 17.324 pg/ml) at p =0.003) as shown in figure (1).

There was a highly statistically significant difference between group I and group II regarding level of **neonatal TSB** where it was higher in group II than group I (8.010±1.9904 mg/dl) versus (4.163±0.5957 mg/dl) at p=0.001).

There was a statistically significance difference between group I and group II regarding **Apgar score at 1 min** where it was higher in group I than group II (5.90±1.322) versus (4.83±1.877). (p<0.05=0.014)
There was a significant positive correlation between the level of IL1β in breast milk and TSB in neonates (r= 0.390, p= 0.031) in group II "cases" and (r= 0.329, p= 0.049) in group I "controls".

There was a significant positive correlation between the level of IL1β in breast milk and mother age (r= 0.400, p= 0.029) in group II "cases" and (r= 0.271, p= 0.036) in group I "controls.

Also we found a significant inverse correlation between the level of IL1β in group I "controls" in breast milk and Apgar score at 1min (r= -0.395, p= 0.031) in group II "cases" and (r= -0.523, p= 0.003).
There was a highly significant positive correlation between neonatal TSB and IL1 β (r = 0.371, p =0.004).
There was a highly significant positive correlation between neonatal TSB and mother age (r =0,411, p =0.001). Also there was a significant inverse correlation between neonatal TSB and neonatal GA (r = - 0.341, p = 0.008).
There was a significant inverse correlation between neonatal TSB and Apgar score at one minute (r = -0.261, p =0.044).

Discussion

Our study clearly indicated that the level of bilirubin and IL-1 β was higher in infants who were of lower gestational age, lower weight at birth and whose mothers were older. Suggested underlying factors for these findings include delayed or inadequate breastfeeding predisposing to dehydration due to insufficient milk transfer to the neonates and consequent inhibition of hepatic excretion of bilirubin and increased intestinal absorption of bilirubin [(2,8)].

Other workers reported higher concentration of IL 1β in the colostrum of lactating mothers whose babies were jaundiced [(9,10)].

Goldman et al.[11] reported similar findings and explained such findings by suggesting that the mammary gland immunologic function may be influenced by the neonatal development. The identification of elevated ILI β concentration in colostrum of mothers with jaundiced infants offers support to this hypothesis.

Several workers reported that the older mothers were considered strongest predictors of hyperbilirubinemia[10,12]. In addition, in our study sample, hyperbilirubinemia and higher IL-1 β was significantly correlated with lower Apgar scores and lower birth weight. This is in agreement with other workers who reported that the incidence of jaundice was high in infants with low Apgar scores[13,14]. Still others reported no significant association between jaundice and low Apgar scores [15].

Saito[16] reported that maternal age, race, weight, maternal fever, infections, pre-eclampsia, maternal hypertension, organ system dysfunction and fetal distress can alter the level of IL1β in lactating mothers. Such findings can be explained by the ability of enterocytes to express proinflamatory cytokines, and that this response is up-regulated by inflammatory stimuli such as endotoxin and IL1β [17,18].

By far strongest predictors of hyperbilirubinemia were lower gestational age, as prematurity is considered a risk factor in incidence of neonatal hyperbilirubinemia, explained by the strong correlation between decreasing gestational age and increasing risk for significant hyperbilirubinemia[10,19]. This may be due to the decrease in both hepatic bilirubin conjugation capacity and the activity of uridine diphosphate glucuronyl transferase enzyme[20, 21,22,23,24].

On the other hand, contradictory findings by other workers suggest that premature and small-for-dates neonates may be protected from jaundice as hepatic glucuronyl transferase is prematurely developed in small-for dates infants and that early maturation of liver enzymes may prepare small-for-dates infants for premature delivery [25,26].

Our study clearly indicates that there is a strong association between IL1β and hyperbilirubinemia. The mammary gland acts as an immune organ whereby decrease in the intensity of breastfeeding causes the mammary gland to increase secretion of IL1 β in the milk which in turn increases bilirubin. Hence the IL-1 could represent an immune reaction triggered by the same factors that result in hyperbilirubinemia, in this case breastfeeding intensity. This may be caused by poor or infrequent suckling, ineffective evacuation of the mammary gland acini, which in turn increase in inflammatory responses in the mammary gland[28,29,30,31]. This response can be exaggerated in operative delivery and infant separation from the mother due to prematurity or maternal disease as inadequate breastfeeding is closely linked with such conditions and are usually associated with neonatal hyperbilirbinemia. In addition IL1β has been shown to have a cholestatic effect believed to result from the expression of genes that normally mediate the hepatic uptake, metabolism, and biliary excretion of bile salts and various non bile salt organic anions such as bilirubin [32].

On the other hand IL1 β was shown to induce the expression of genes associated with endothelial permeability and new vessel formation through vascular endothelial growth factors and conversely down-regulates gravin/SSeCKS, a potent maturation and stability factor for the blood brain barrier (BBB)[26,27]. The brain is now seen as an immunologically active organ in direct communication with the immune and

endocrine systems. These immune functions are a striking example of the integrated connections between the brain and the body. Thus, systemic inflammatory reactions and responses can influence brain function[28,29].

An emerging concept as yet not fully explored is the potential for cytokines, in their role as peripheral inflammatory mediators, to directly or indirectly affect cognition. Cytokines mediate cellular mechanisms subserving cognition (e.g., cholinergic and dopaminergic pathways) and can modulate neuronal and glial cell function to facilitate neuronal regeneration or neurodegeneration[30,31].

Interleukin-1 is also shown to be capable of neurotrophic and neurotoxic actions, IL-1 is thought to be central to central nervous system (CNS) inflammatory modulation in response to CNS injury or systemic insult and has been implicated in activities as diverse as fever, sleep, and neuroimmuno-endocrine modulation[32,33].

On the other hand binding of cytokines to endothelial receptors in the brain vasculature with subsequent release of other mediators (e.g., endothelial cell adhesion molecules, chemokines, nitric oxide and prostaglandins) leads to impairment of BBB integrity[34,35].

More recently, direct stimulation of vagal sensory nerve activity by IL-1 has been demonstrated. Moreover data show that the majority of intravenously (IV) infused radiolabeled IL-1α can be found on brain endothelial cells, or on the surface and pinocytotic vesicles of the brain endothelia shortly after injection effects. The effect of IFNs on neurons starts very early during brain development, where they regulate neuronal migration and differentiation. In vitro and in vivo studies showed the modulating effect of IFNs on the production of prolactin. [36,37]

Thus high IL1β in human milk when ingested by the neonate may pass to the blood and exert effects on the brain and in particular the BBB; which may be protective against degeneration or assisting regeneration or development of the BBB thus protecting the brain from being damaged by the high TSB [38]. On the other hand, if complicated by septicemia or anoxia, these cytokines may increase the permeability of the BBB and probably increase the predisposition to kernicterus[39,40].

In conclusion our study clearly indicates that the presence of IL1 in human milk is strongly linked to the intensity of breastfeeding practices. The decreased frequency of feeds and duration of a feed interferes with complete emptying of the acini and triggers the secretion of IL1 in the human milk which in turn have cholestatic effects and this further increases the bilirubin levels. Cytokines, on the other hand migrate to the brain where they attach to the endothelial cells of the BBB, inducing its development and maturation. While on the other hand in sick babies with septicemia, the release of endogenous inflammatory factors by the endotoxins may damage the BBB. This explains why healthy babies with high bilirubin levels are protected against kernicterus, while sick babies even at much lower levels of bilirubin may develop kernicterus.

Breastfeeding practices, when optimal, could reverse the high IL1β. On the other hand decreased breastfeeding frequency, scheduled feeding or deprivation of the night feeds especially when associated with delayed initiation of breastfeeding could result in the increased secretion of IL1β in human milk by the mammary gland. Whereas the latter could be revered by increasing the frequency of breastfeeding and encouraging night feeding which consequently decrease bilirubin levels.

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Table (1) : ***Comparison between both study groups regarding different quantitative variables***

Item	Group I (non jaundiced) (controls) (n=30) Mean +/- Std	Group II (jaundiced) (cases) (n=30) Mean +/- Std	t	p	sig
neonate GA (weeks)	38.93 ± 1.639	38.40 ± 1.163	1.454	.151	NS
Sex: Male Female	17 (56.7%) 13 (43.3%)	14 (46.7%) 16 (53.3%)	.601	.438	Ns
neonate wt (Kg)	2.47 ± 1.907	2.37 ±1.299	.237	.813	NS
Apgar score 1 min	5.90±1.322	4.83± 1.877	2.545	.014	S
Apgar core 5 min	3.138 ±0.4861	3.105 ± 0.5414	.251	.803	NS
Mother age (years)	24.80±3.566	26.77±5.008	-1.752	.085	NS

Parity	2.47 ± 1.907	2.37± 1.299	.237	.813	NS
Total serum bilirubin (mg/dl)	4.163 ±0.5957	8.010 ± 1.9904	10.141	.0001	HS
IL1B in breast milk (pg/ml)	14.53± 17.324	68.17± 94.413	-3.060	0.003	HS

Table (2): Correlations of IL1β to the other variables in group II (cases); jaundiced neonates and their mothers

		mother age (years)	Parity	Wt	GA	Apgar 1 min	Apgar 5 min	TSB
IL1β in breast milk (pg/ml)	r	.364	.084	-.082	-.019	-.395	-.248	.329
	p-value	.048	.658	.665	.919	.031	.186	.049
	Sig.	S	NS	NS	NS	S	NS	S

Table (3) : Correlations of IL1β to the other variables in the groupI (controls); non jaundiced neonates and their mothers

		mother age	Parity	neonate wt	GA	Apgar 1 min	Apgar 5 min	TSB
IL1β in breast milk (pg/ml)	r	.400	-.180	.287	.159	-.523	-.324	.390
	p-value	.029	.341	.124	.402	.031	.081	.031
	Sig.	S	NS	NS	NS	HS	NS	S

Tab (4): Correlations of neonatal total serum bilirubin (TSB) to the other variables in all neonates in both groups under study

		mother age	Parity	IL1β in milk (pg/ml)	neonate wt (kg)	neonate GA	Apgar 1 min	Apgar 5 min
TSB	R	.411	.002	.371	-.047	-.341	-.261	.003
	p-value	.001	.986	.004	.723	.008	.044	.983
	Sig.	HS	NS	HS	NS	HS	S	NS

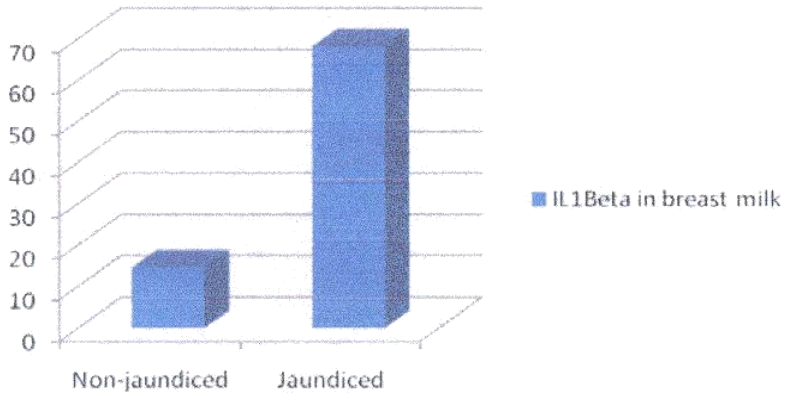

Figure (1): Comparison of level of IL1β in breast milk of in jaundiced and non-jaundiced groups.

العلاقة بين وجود مادة الإنترلوكين واحد بيتا فى لبن الأم و الصفراء (اليرقان) الوليدية

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الخلفية: يتعرض الأطفال و بالأخص الذين يرضعون طبيعياً فى الأيام الأولى من حياتهم الى اليرقان نتيجة لإرتفاع فى نسبة البليروبين بالدم ويعزى ذلك إلى عدم كفاية الرضاعة على ثدى لأم بالرغم من ذلك فإن آلية حدوث هذا المرض غير واضحة حتى الآن.

الهدف: ويهدف هذا البحث إلى دراسة العلاقة المحتملة بين مرض الصفراء (اليرقان) الوليدية ومستوى مادة الانترلوكين واحد بيتا فى لبن المسمار (السرسوب) لأمهاتهم.

طرق البحث: تضمنت الدراسة 60 رضيع حديثى الولادة وامهاتهم حيث تم قياس مادة البليروبين الكلى فى دم الأطفال وفى نفس الوقت قياس مستوى مادة الانترلوكين واحد بيتا فى لبن المسمار لأمهاتهم. مع إجراء الفحص الطبى الشامل لكلا من الأطفال وأمهاتهم.

النتائج: أوضحت الدراسة أن مستوى مادة الأنترلوكين واحد بيتا كان أعلى فى الأطفال الذين ترتفع لديهم مادة البليروبين وهناك تناسباً طردياً بين مستوى مادة الإنترلوكين واحد بيتا فى لبن الأم مع مستوى مادة البليروبين الكلى فى الأطفال وأيضا مع عمر الأم، بينما تتناسب عكسياً مع مقياس أبجر للطفل عن دقيقة واحدة، ومع العمر الرحمى للطفل وأيضاً مع وزن الطفل عند الولادة.

الخلاصة: إن زيادة مستوى مادة البليروبين (الصفراء) فى المواليد يكون مصاحباً لتكيف فى مكونات لبن الأم معتمداً على قوة عملية الإرضاع وربما يكون ذلك مفيداً لنمو المخ وحمايته وتعزيز للوظائف المناعية فى الأطفال.

Investigating the Significance of Epidermal Growth Factor in Maternal Colostrum

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Abstract

Introduction: The significance of epidermal growth factor (EGF) in human milk, in relation to subsequent infant growth is controversial. **Aim:** To examine the significance of EGF level present in maternal milk of preterm, full term newborns. **Methods:** The levels of EGF were measured in human colostrum of 60 mothers, 30 of preterm babies and 30 with full term babies. It was also measured in 10 commercial infant milk formulas using commercially available ELISA kits. The infants were followed up at age three months of age to assess their growth increment rates. **Results:** The level of EGF in maternal colostrum was significantly higher in the milk of mothers with preterms (181.25 ng/ml) than in those of the full term group (115.04 ng/ml) at $P<0.05$ and undetectable in artificial formulas. EGF content was negatively correlated with gestational age but not with postnatal incremental growth rates. **Conclusion:** Levels of EGF influence intrauterine growth more than postnatal growth. Intensive breastfeeding practices are recommended in order to maintain the high intrauterine growth rates postnatally for achieving optimal growth and development especially in preterm babies.

Introduction

Breast milk is a complex biological fluid that provides infants with both nutritional and non-nutritional factors [(1)]. These milk components interact synergistically with each other and their environment (the infant's gut) at a biomolecular level with the final result being that breast milk feeds and protects the newborn [(2)].

The beneficial effects of human milk extend to the feeding of premature infants, because their nutrition support must be designed to compensate for metabolic and gastrointestinal immaturity, immunologic compromise and maternal psychosocial conditions [(3)].

Human breast milk contains various growth factors, which might participate in many biological functions in infants [(4)]. One of these factors is epidermal growth factor (EGF) which plays an important role in fetal or postnatal intestinal growth and development [(5)]. Although EGF is present in many human body fluids including plasma, saliva, urine, amniotic fluid, and milk yet its significance in human milk is not clear. It has been postulated to be responsible for proliferation and differentiation of many tissues and stimulation of DNA synthesis in the gastrointestinal tract [(6)]. However the extent to the effect of this on the growing infant requires further investigation. Hence

the aim of this study is to examine the significance of the presence of EGF in human milk and how this relates to the growth and development of these babies.

Methods

The present study included 60 apparently healthy mothers of newborns delivered at Benha university hospital and Shibin-Elkom teaching Hospital. Exclusion criteria included mothers who suffered from any clinically chronic illness or mothers with perinatal problems as pre-eclampsia, acute natal or postnatal problems. Also newborn infants with congenital anomalies, small for gestational age (SGA), low for gestational age (LGA) and intrauterine growth retardation (IUGR), or any neonatal disease interferes with the normal growth pattern were excluded from the study.

The mothers were randomly selected and divided into two age and sex matched groups according to the gestational age into: Group I *(preterm group)* which included 30 mothers of preterm infants (<37 weeks of gestation), and Group II which included 30 mothers with full term newborns (>37 weeks of gestation). The newborns of mothers of both groups were included, these groups were further subdivided according to type of feeding into three sub groups: group (a): exclusive breastfeeding**, group(b):** exclusive formula feeding (cow's milk-based infant formula) **and group(c)**: mixed feeding on both human and formula milk.

Thorough history was taken from all the mothers, with special emphasis on age, date of last menstrual period, any drug intake, fetal conditions, conditions of labour and delivery and acute natal complications. The newborns were subjected to complete physical examination including: general examination. Assessment of their maturity was done using the new Ballard score and Apgar score at one and five minutes and complete systemic examination.

Anthropometric measurements: Measurement of weight (to the nearest gram), length (to the nearest mm) and head circumference (occipital frontal diameter to the nearest mm) were performed by standard methods and using standardized equipment at birth and at follow-up; at three months of age. The increment in weight length, and head circumference was assessed irrespective of gestational age.

Specimen Collection: Sample of one millimeter of colostrum were collected from each mother, during the first 1-5 days postpartum into a sterile plain tube and stored at -20°C until their assay for EGF. The milk samples from different artificial formula were also collected.

Determination of EGF in Colostrum: The quantitative determination of EGF was done using the commercially available Enzyme Linked Immuno Sorbent Assay (ELISA) kit supplied by Ray Biotech, Inc. Standards and samples were drawn by a pipette into the wells. The EGF present in samples was bound to the wells by the immobilized antibody. The wells were then washed and biotinylated anti-human EGF antibody was added. After washing away unbound biotinylated antibody, HRP-conjugated streptavidin was pipetted to the wells. The wells were again washed, a TMB substrate solution added to the wells and the color developed in proportion to the amount of EGF bound. When the Stop Solution changed its color from blue to yellow, then the intensity of the color was measured at 450 nm.

Statistical analysis was performed Using Microsoft Excel 2003 and SPSS v18.0 for Microsoft Windows 7. Comparative analysis between means was done using unpaired student t-test, one way analysis of variance (ANOVA) and Chi-square test for frequency of distribution. Correlation statistics was done using Pearson correlation coefficient between parametric data. The P value, probability of chance, which indicates significance was used with a cut off of $P \leq 0.05$ and was highly significant when $P \leq 0.01$.

Results

Maternal age, infant gender, order of birth and Apgar score mean values showed no statistical significant difference among the preterm and full term groups.

Table 1 shows highly significant higher Level of EGF in maternal colostrums of preterm group than full term groups. EGF was undetectable in artificial formulas.

The Preterm group and full term group were comparable and showed significant differences regarding their initial anthropometric measurements for weight, length and head circumference. The mean of weight, length and head circumference in preterm group was 2020 grams, 43.1 cms and 31.2 cms respectively. Their mean gestational age was 35 weeks, which indicates they were small for gestational age (SGA). While the full term group had a mean weight of 3130 gms, mean length of 49.1cms and head circumference mean of 35.04 cms. The difference was significant at $P<0.05$. At 3 months of age there was no significant difference in weight, length and head circumference percent increment between the different subgroups by type of feeding (exclusive breastfeeding, mixed feeding and exclusive formula feeding) in both full term and preterm groups, as shown in table (2). EGF content in maternal colostrum of preterm infants and full term was negatively correlated with the gestational age (in weeks) of LBW and FT neonates as shown in figures 1 and 2 respectively at $P<0.05$. Meanwhile, there was no correlation between the level of EGF and other variables including the anthropometric measurements (weight, length and head circumference).

Discussion

Our study shows that EGF levels were statistically significantly higher in milk of mothers with preterm babies than that of full term ones with a mean value of 181.25ng/ml in the preterm group, and 115.04 in the full term group. This is in agreement with other workers who reported that, compared with women delivering at full-term, mothers of premature infants produced milk containing higher concentrations of EGF [7,8,9].

Kobata et al.,[4] conducted a study in which they measured concentrations of three major growth factors, including EGF, in early human milk versus late milk of full term babies and reported that their concentrations were significantly higher in early than in the late milk.

Our study revealed that EGF content in maternal colostrum of both preterm and full term infants was found to be negatively correlated with gestational age in weeks of neonates. This is in agreement with other workers who reported that EGF content increased following premature delivery and there was a negative correlation between EGF content in human colostrum and neonatal gestational age [8].

Meanwhile, there was no correlation between the level of EGF and percent increments of anthropometric measurements of weight, length and head circumference in both groups of preterm and full term ones. However other workers showed a negative correlation between EGF level and birth weight in preterm babies with mean gestational age 32.6 weeks and mean weight 2296 gms**,** i.e. who were appropriate for gestational age (AGA). This contradicts with our findings and maybe explained by the lower birth-weight (2020 gms) for gestational age (35 weeks) indicating a problem restricting their growth and development. This is supported by the findings of Oslislo et al.,[6] who reported that the high concentrations of EGF in the colostrum of mothers correlated with GA in the AGA but not with the SGA, as long as they did not have a growth problem. Our study shows that EGF is undetectable in infant formula and these data is concordant with the findings of other workers [8;10,11,12]**.**

Our study also showed no significant difference in weight, length and head circumference percent increment in the first three months of age between the different groups whether exclusively breastfeeding, mixed feeding or exclusive formula feeding in both the full term and preterm babies. Other workers reported that infants breastfed exclusively had somewhat greater weight gain in the first 3 months than do bottle-fed or mixed-fed infants [12,13,14,15]. Lucas et al., [16] reported that increases in length and head circumference remain the same for breastfed and formula-fed infants. While Dewey, [17] reported that breast-fed infants generally exhibit a different pattern of growth than formula-fed infants with rapid weight gain of the breast-fed in the early weeks than that of the formula-fed infants, but with no significant differences in linear growth or growth in head circumference thereafter.

Ziegler [18] reported that during the first 6-8 weeks of life there is little difference in growth (gain in weight and length) between breast- and formula-fed infants. However, from about 2 months of age to the end of the first year of life formula-fed infants gain weight and length more rapidly than breast-fed infants. It is presently agreed that the increased gain weight in the formual fed leads to overweight and obesity [19].

Numerous studies have documented differences in the growth patterns of breast-fed and formula-fed infants, although there is variability across studies regarding the specific growth outcomes measured and the age intervals during which differences by feeding mode are evident. Some of the variability in findings is due to the different criteria used to define feeding groups, in particular the duration and exclusivity of breastfeeding [20].

Also there are no randomized controlled trials to determine whether feeding preterm or low birth weight infants with formula milk versus maternal breast milk affects growth, development, or other clinically important outcomes. However, maternal milk remains the default choice of nutrition for feeding preterm or low birth weight infants because of its putative non-nutrient advantages including their immunological or other factor related advantages [21,22].

The absence of correlation between EGF and subsequent growth rates could be explained by the changing role of EGF in extrauterine life. Placental function affects mammary gland function by some feed back mechanism. Investigators have shown that uteroplacental insufficiency causing IUGR may also alter postnatal growth through its effect on the mammary gland. Hence the latter may act as an immune-endocrine organ producing immune and growth factors during gestation and influencing fetal growth and development. Maternal progesterone treatment following uteroplacental insufficiency was shown to improve postnatal growth by rescuing the mammary impairment [24]. After delivery of the placenta the mammary gland functions take over placental functions in producing growth factors [25,26]. However the function of EGF changes postnatally to become more focused on stimulating the proliferation of intestinal cells and the formation of the mucosal barrier [27]. In other words the EGF functions become focused on the development of the immunological system, which is a priority for the highly susceptible preterm baby,

rather than to linear growth. Hence their levels would not be expected to correlate with growth as much as they would in protecting the immature gastrointestinal tract, as shown by the reduced incidence of necrotizing enterocolitis in preterms fed on mother's milk compared to those fed formula [(28)].

We conclude that the EGF content is higher in colostrum from mothers of preterm infants compared to mothers of full term infants and it is undetectable in artificial formulas. This was not correlated with their subsequent growth rates although it correlated negatively with the gestational age in both preterm and full term babies, indicating that EGF probably has a growth promoting effect in intrauterine life but not after birth on postnatal growth.

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Table (1) Comparing the Epidermal Growth Factor (EGF) levels in preterm and fullterm colostrum milk

Levels in maternal colostrum	***Maturity***				***T-test***	***P value***	***Sig.***
	Preterm		***Fullterm***				
	Mean	***SD***	***Mean***	***SD***			
EGF in ng/mL	181.25	34.51	115.04	19.91	-9.101	<.001	H.S.

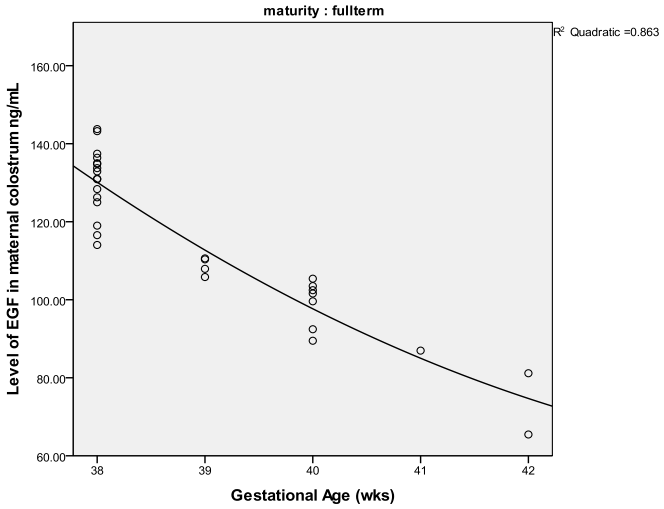

Figure (1): Regression analysis correlating the Epidermal Growth Factor levels in maternal colostrum with the gestational age in weeks of full term group under study.

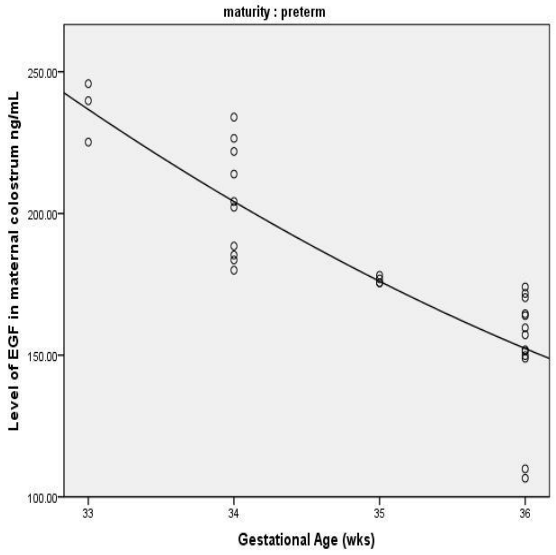

Figure (2): Regression analysis correlating the Epidermal Growth Factor levels in maternal colostrum with the gestational age in weeks in preterm group under study.

Table (2) Comparison between different types of feeding in preterm and full term feeding groups as regard anthropometric measure increment percentage in the three months of age

Percentage incremental growth over 3 months		*Groups by mode of feeding*						*Test value*	*P value*	*Sig.*
		Exclusively breast fed group		*Mixed fed group*		*Formula fed group*				
		**M*	**SD*	*M*	*S D*	*M*	*SD*			
W/A	*PT	103.60	8.89	107.96	13.81	117.23	16.14	2.743	.082	N.S
	*FT	76.75	8.11	78.90	9.33	72.74	11.14	1.060	.360	N.S
L/A	PT	23.91	2.01	24.45	5.97	23.99	3.01	.051	.950	N.S
	FT	19.45	1.22	19.32	1.71	18.99	.81	.337	.717	N.S
HC/A	PT	18.73	1.09	20.49	4.14	19.65	2.96	.858	.435	N.S
	FT	15.93	.96	16.51	1.62	16.76	1.63	.870	.431	N.S

*PT:preterm *FT: full term *M: Mean *SD: Standard DeviationW/A: weightor age, L/A: length for age, HC/A: head circumference for age

أهميةعامل النمو البشروى فى لبـن الأم

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قسم طب الأطفال كلية الطب جامعة بنها و قسم الكيمياء الباثولوجيا – كلية الطب – جامعة بنها

الخلفية: إن فائدة عامل النمو البشروى فى لبن الأم وعلاقته بنمو الأطفال ما زالت مثيرة للجدل.

الهدف : يستهدف البحث التعرف على وظائف عامل النمو البشروى الموجود فى لبن الأم وعلاقته بالعمر الرحمى للأطفال المبتسرين أو مكتملى النمو.

طرق البحث: قمنا بإختيار 60 طفل حديثى الولادة (30 طفل مبتسر و30 مكتملى النمو) و بعد إستخراج لبن الأم (اللبأ) فى اليوم الثانى تم قياس مستوى عامل النمو البشرى فيه بطريقة الإليزا (ELISA) مع متابعة معدل نمو أطفال هؤلاء الأمهات حتى عمر 3 أشهر. كما تم قياسة فى عشرة عينات لألبان صناعية مشتقة من اللبن البقرى ومستخدمة على نطاق واسع فى جمهورية مصر العربية.

النتائج : أوضحت الدراسة أن مستوى عامل النمو البشروى فى اللبأ كان أعلى فى أمهات الأطفال المبتسرين منه في أمهات الأطفال مكتملى النمو بينما لم يوجد فى أى من عينات الألبان الصناعية.

كما اتضح أن مستوى عامل النمو البشروى تناسب عكسياً مع العمر الرحمى للطفل، ولكن لا علاقة له بزيادة معدل النمو بعد الولادة.

الخلاصة : نستنتج من الدراسة أن مستوى عامل النمو البشروى يؤثر على نمو الجنين داخل الرحم أكثر من معدل نموه بعد الولادة ولذلك يوصى بتعزيز الرضاعة الطبيعية للمحافظة على معدل النمو العالى داخل الرحم بعد الولادة وصولاً إلى النمو والتطور الأمثل للأطفال وخاصة المبتسرين.

Marketing Practices that Gear Health Staff Practices towards Formula Feeding in Egypt

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Abstract

Background: Marketing practices that violate the International code for marketing of Breastmilk substitutes (ICMBMS) undermine breastfeeding practices. In Egypt such practices are known to target health staff working in neonatal intensive units (NICUs) that are replacing newborn nurseries.

Aim: to study the marketing practices and violations to the code and how this influences knowledge, attitudes and practices (KAP) of staff working in these NICUs.

Methodology: A representative sample of 61 public and private NICUs with high flow that were selected from the three governorates of Dakhalia, Sharkia and Damitta in Lower Egypt (LE). All NICUs were examined for the violations to the code by interviewing a total number of 90 staff (30) from each governorate. The KAP of 270 staff working in these NICUs**. Findings:** Knowledge of hazards ranged from 83% for allergy and 71% for gastroenteritis to a low of 30% for SDS and 44% for blindness with a mean score of was 54.78 percent highest code violation for marketing were present in Dakhalia NICUs mostly for Nestle product followed by Nutricia and Wyeth and least for Milupa at $p<0.000$. Promotion by Weyth company was highest in Damitta at $p<0.02$. Nutricia was highest in Dakhalia NICUs at $p<0.03$.

Conclusions: Aggressive marketing practices that violate the international code continue to invade our NICUs in Egypt with the determination of underming breastfeeding practices. This is actually a violation of the rights children and is an ethical issue that deserves attention by our government and of the international audience.

Introduction

The International Code of Marketing of Breastmilk Substitutes (ICMBMS) was prepared by the World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF) after a process of widespread consultation with governments, the infant feeding industry. It is a unique and indispensable tool to protect and promote breastfeeding - an equally unique but threatened practice - and to ensure that marketing of breastmilk substitutes, feeding bottles and teats is appropriate. The Code was adopted by the World Health Assembly (WHA) in 1981 as a "minimum requirement" to protect infant health and is to be implemented "in its entirety" [(1)]. Although less binding than a treaty or a convention, the International Code is an international public health recommendation that needs to be respected and adopted by governments to regulate the marketing of breastmilk substitutes [(1)].

It is weaker than the ideal and some definitions and articles are open to interpretation. The industry has used

imaginative methods to circumvent certain elements [(2)]. Marketing practices that violate the International code its subsequent resolutions continue to occur. Our major concern are those included under articles 6 and 7 in the code that address the health facility and health worker. Article 6.1 states that no facility of a health care system should be used for the purpose of promoting infant formula or other products within the scope of this Code. This Code does not, however, preclude the dissemination of information to health professionals. Article 7.3 states that no financial or material inducements to promote products within the scope of this Code should be offered by manufacturers or distributors to health workers or members of their families, nor should these be accepted by health workers or members of their families. Also article 7.5 states that manufacturers and distributors of products within the scope of this Code should disclose to the institution to which a recipient health worker is affiliated any contribution made to him or on his behalf for fellowships, study tours, research grants, attendance at professional conferences, or the like.

Our aim in the present study is to monitor implementation of the code in a sample of neonatal intensive care units (NICUs) in Egypt to identify violations to articles 4 and 5 and assess the impact of such practices on the KAP of health workers towards the these products and their effects on those highly vulnerable population of newborns who are presumably receiving optimal care in NICUs.

Subjects and Methods

This is a descriptive cross-sectional observation study that was conducted in 61 NICUs (38 private and 23 public) from three governorates in Lower Egypt namely in Damitta, Sharkia and Dakhlia. The NICUs were selected randomly with a focus of choosing those with highest number of beds (incubators) and high admission rates, as well representing different health sectors (public governomental, private and teaching facilities). Questionnaires were designed to interview staff about their knowledge, attitude and practices towards infant feeding practices, with emphasis on their knowledge of the benefits of breastfeeding and hazards of formula feeding. We prepared check lists for possible violations to the International Code of Marketing of Breast milk Substitutes. We then interviewed 90 physicians from the NICUs representing attending doctors present at time of visit. We also interviewed them about the activity of infant milk formula companies in the unit and any personal interaction with them. The data was collected, computerized and analyzed by statistical methods including the Fisher test for paired discrete data for comparing more than one group and Chi-square for comparing frequencies expressed as percentages. The cut off for statistical significance was $P<0.05$.

Results

The 61 NICUs represented 23(37.7%) from the Ministry of Health public facilities and 38 (62.3%) represented the private sector. The proportion of private in Dakhlia was 0.71 compared to 0.29 public. In Sharkia 0.68 were private and 0/28 were public, in Damitta 0.44 were private and 0.56 were public. None of the hospitals were Baby friendly or had any policy prohibiting advertisements to breast milk substitutes**.**

Table (1) and figure (1) show that marketing practices for promotion infant milk formula practices were significantly higher in Sharkia for furniture and pens at $p<0.000$. They were significantly higher in Damitta for calendars and pens at $p<0.000$. Whereas in Dakhalia it was

significantly higher for watches, sponsors of vacations for doctors families and ceiling fans at $p<0.02$ as compared to the other two places. Companies also supplied air conditioning equipment to doctor's private practice equally in all 3 governorates.

Table (2) demonstrates the knowledge of NICU staff about hazards of formula. Knowledge of hazards ranged from 83% for allergy and 71% for gastroenteritis to a low of 30% for SDS and 44% for blindness with a mean score of was 54.78 percent.

Table (3) and figure (3) show that code violations were significantly higher in Dakhalia NICUs for the posters, calendars and gifts that were used as advertisement in the health facility to promote Infant milk formula products of the companies at $p<0.11$, 0.01, 0.03 respectively.

Table (4) and figure (4) show that the highest code violation for marketing were present in Dakhalia NICUs mostly for Nestle product followed by Nutricia and Wyeth and least for Milupa at $p<0.000$. Promotion by Weyth company was highest in Damitta at $p<0.02$. Nutricia was highest in Dakhalia NICUs at $p<0.03$.

Discussion

Marketing practices of companies that produce and distribute IMF are shown to be aggressive in all the NICUs visited. However they were significantly higher in Sharkia in the form of donations of furniture to the health facility and distributing free gifts to staff as pens. In Damitta violations were in the form of free gifts of calendars and pens distributed to staff. In Dakhalia violations to the code were significantly higher in the form of distribution of gifts of expensive watches to staff and ceiling fans to health facilities. Also these companies were ferociously indulging in the sponsorship of conferences and vacations for doctors' families.

Our study showed that most of the staff knew the hazards of these products to the infant health and their knowledge ranged from 40 to 80% to most of the recently evidence based health hazards caused by IMF feeding. The promotion of breastfeeding is a high priority for most pediatricians, yet many, are obligated by the aggressive marketing practices these companies practice with them to assist infant formula milk companies (IFMCs) in their marketing, thereby undermining breastfeeding.

Scientific evidence from developing and developed countries show increased risk of mortality and morbidity from diarrhea, respiratory infection, neonatal sepsis, necrotizing enterocolitis and other severe illness in NICUs [4,5,6,7]. This has called for action by the international community to control the marketing of infant milk formula in an attempt to reduce its unnecessary consumption. The adoption of the International Code of marketing of breast milk substitutes by the World Health Assembly (WHA) in 1981 by 118 countries (WHO, 1981) has subsequently lead to an additional 18 WHA that urge countries to protect and promote breastfeeding [8].

However this has not put a stop to the aggressive marketing practices that have been reported in several countries [9]. In the Philippines, unimpeded marketing has been blamed for the high formula usage [10]. In a study by Sobel et al., (2012) showed that $260 million dollars was spent on formula and an excess of $88 million on medical expenditure associated with formula feeding.

In 2003, formula–buying families with young children spent an aggregate of $149.3 million on medical care compared to $56.6 million by non-formula buying families. From 2003 to 2009, infant formula value growth increased by 5.1% per year, this indicates that the economic burden from infant milk formula rose to $400 million [(11)].

A survey for infant milk formula status in Egypt conducted by Abul-Fadl [(12)] showed that the main problem in Egypt was the low cost (subsidized formula) available without prescription in the market that encourages mothers to purchase it and give it in the beginning to "help" with her milk. This was found to lead to high rates of early cessation of breastfeeding. Exclusive breastfeeding rates in Egypt fall from a high initiation rate of 97% falling steeply to 54% by 3-4 months of age [(13)]. These rates remained steady for a decade or more, until in 2008 when the Ministry of Health announced that all subsidized IMF will be dispensed through the health centers and dispensed only by prescription. This decreased the national expenditure of infant milk formula by one half to one third. Still IMF is available in the market at a high cost which is equivalent to 8-10 times the price of subsidized formula. The average out-of-pocket expenditure of IMF from the market would be equivalent to the annual per capita income of a middle class family in Egypt. This does not include the medical expenditures for formula feeding and costs that result from lost wages from caring from those children, lost earning from companies having to hire replacements during absenteeism. It does not include the added cost of increased risk of death, chronic disease as diabetes, childhood obesity, and maternal cancer [(14-18)].

In our study, IMF companies also supplied free equipment as air conditionings in doctor's private office equally in all 3 governorates. The visited hospitals displayed posters, calendars, clocks and stickers with product brands in the NICUs. These give the impression that the health care system endorses the products. Increasingly companies donate materials which only have their company name. This may be a concession to the International Code but is nonetheless a way of using the health care facility for promotion.

The WHO Code on Marketing of Breast milk Substitutes is intended to be adopted as a minimum requirement by all governments and aims to protect infant health by preventing inappropriate marketing of breast milk substitutes.

Code violations were significantly higher in Dakhalia NICUs for the posters, calendars and gifts that were used as advertisement in the health facility to promote infant milk formula products of the companies at $p<0.11$, 0.01, 0.03 respectively this was in agreement with Taylor [(19)] study who showed that 97 out of 370 (26%) mothers in Bangkok reported receiving free samples of breast milk substitutes, infant formula, bottles, or teats compared with only 1 out of 385 mothers in Dhaka. Across the four cities from 3 out of 40 (8%) to 20 out of 40 (50%) health facilities had received free samples which were not being used for research or professional evaluation; from 2 out of 123 (2%) to 21 out of 119 (18%) health workers had received gifts from companies involved in the manufacturing or distribution of breast milk substitutes. From 6 out of 40 (15%) to 22 out of 39 (56%) health facilities

information that violated the code had been provided by companies and was available to staff. Many companies give gifts of calendars, posters, pens, notepads and growth charts bearing company logos and often brand names or pictures of products. For example, Milupa entered the baby food market in Mauritius in November 1993 and built support amongst health professionals through a series of meetings at a 5-star hotel. Also Nestlé organized a conference on a cruise liner for Brazilian pediatricians in 1993. SMA, part of Wyeth, distributed the above card at the May 1997 conference of the Royal College of Midwives in the UK. It offered midwives beauty products if they meet with an SMA representative and the chance to win a £100 prize if they provide details of mother classes held at their place of work and a work contact address and telephone number.

The effects of such marketing practices are shown in the attitude of NICU staff towards formula feeding that showed that 44% of staff in Sharkia, 50% of staff in Damitta and 55% of staff in Dakhalia NICUs are convinced with the prescription of IMF. While 39% of staff in Sharkia, 55% of staff in Damitta and 55% of staff in Dakhalia NICUs agree that IMF is an ideal substitute for preterms.

In our study the highest rate of violations to the code of marketing for IMF were present in Dakhalia NICUs mostly by the Nestle Company for its products. This was followed by Nutricia and Wyeth companies and least for Milupa at $p<0.000$. Marketing practices by Weyth Company was highest in Damitta at $p<0.02$. Nutricia Company marketing practices was highest in Dakhalia NICUs at $p<0.03$.

The above are clear violations to article 6.1 that states that no facility of a health care system should be used for the purpose of promoting infant formula or other products within the scope of this Code and article 7.3 that states that no financial or material inducements to promote products within the scope of this Code should be offered by manufacturers or distributors to health workers or members of their families in the form of attendance at professional conferences, or the like (gifts or otherwise) [(1)].

Ironically these are all international companies yet they have superseded the violations by local companies. This indicates the level of ethics that these companies have to the International Code of MBMS, which they have all signed in the World Health Assembly meeting in the presence of all the countries of the world to abide to its requirements and subsequent amendments in the WHA meetings that followed over the years. These are really sad and devastating findings! These companies that have taken the global responsibility to produce products that are presumably made to save the life of helpless human babies, yet they fail to keep their oath and consensus to abide by the code. What truth can there be in the safety of their products, if they cannot abide by their agreement? Our study leaves us in a haze in face of the international corruption and hidden war of market terrorism directed to babies and driven by the community health workers illiteracy of the intention of these marketing tactics and their poor knowledge of the code.

Government leniency and lack of strict monitoring by the departments in the Ministry of health (MoH) responsible for protecting consumers from such practices may also be an underlying factor for encouraging such violations inside our public and private health facilities. Such marketing practices influence the mother's decision to feed her baby formula and place pressure and obligation on our staff to prescribe IMF, as shown in our study by the trend towards these mothers to shift towards formula feeding by the age of 15 weeks.

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Table (1): Comparing of the type of marketing practices used by Infant milk formula (IMF) companies' representative

	Sharkia No.=80		Damitta No.= 100		Dakhalia No.= 90		X2	P value
	N	%	N	%	N	%		
Furniture	50	63*	30	30	25	28	26.77	0.000
Pens	65	81	70	70	33*	37	39.9	0.000
Calendars	40	50	95*	95	50	56	52.2	0.000
Watches	30	38	45	45	38	42	1.4	0.49
Sponsors vacations	20	25	15	15	40*	44	20.9	0.000
Ceiling fans	15	19	20	20	35*	39	11.85	0.02
Airconditons	30	38	25	25	28	31	3.27	0.19

* = group significant differ than other 2 groups.

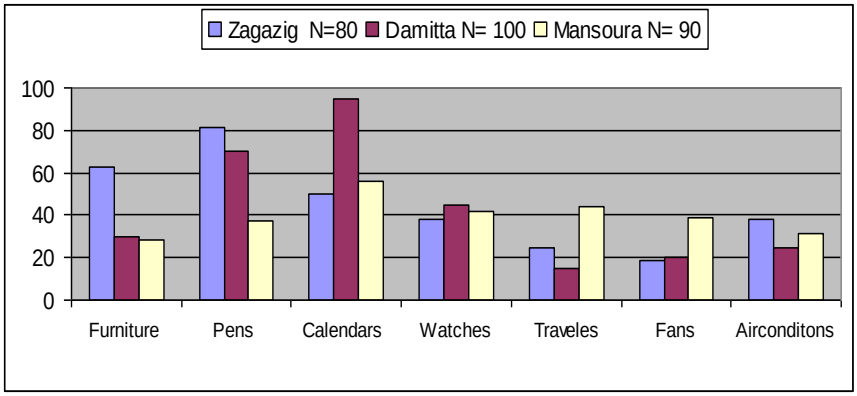

Figure (1**)**: Comparing type of marketing practices used by infant milk formula company representatives.

Table (2): Comparing the knowledge of neonatal intensive care units staff about hazards of formula.

Knowledge of staff N=270	**Yes**		**No**	
	N	**%**	**N**	**%**
1- Infant milk formula (IMF) decrease intelligence quotient (IQ) up to 11%	165	61	105	39
2- IMF lead to preterm death	135	50	135	50
3- IMF lead to preterm blindness	120	44	150	56
4- IMF lead to necrotizing enterocolitis (NEC)	160	59	110	41
5- IMF lead to preterm recurrent gastroenteritis	192	71	78	29
6- IMF lead to preterm deafness	121	45	149	55
7- IMF lead to preterm eczema and allergy	225	83	95	35
8- IMF lead to preterm physical and mental retardation	133	49	137	51
9- IMF lead to preterm sudden infant death syndrome (ISDS)according to international statistics	85	31	235	87
Mean score for knowledge of hazards		57.8		45.22

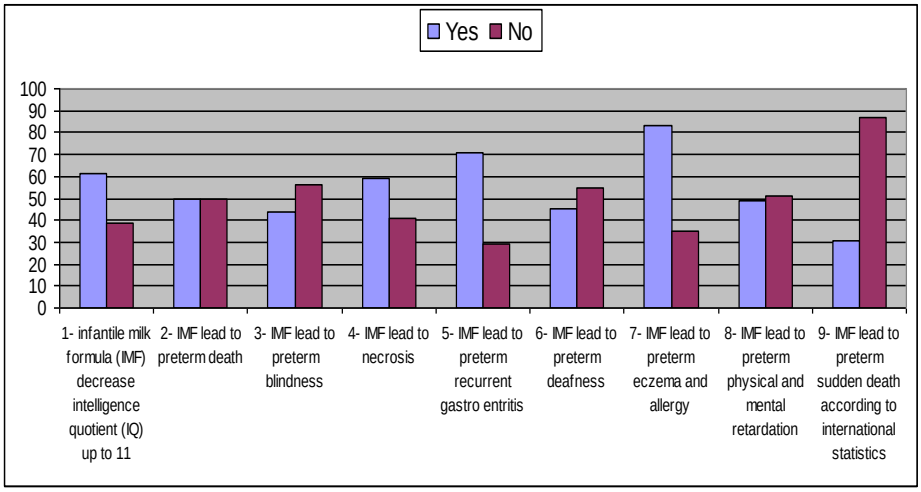

Figure (2**)**: Percent knowledge of health practitioners about the hazards of milk formula..

Table (3): Comparing of the violation to the code in form of gifts to staff in the neonatal intensive care units by governorate under study

Problems	Sharkia N=30		Damitta N= 30		Dakhalia N= 30		X2	P value
	N	%	N	%	N	%		
Posters	16	53.3	11	36.7	19	63.3	4.36	0.11
Calendars	14	46.7	13	43.3	23*	76.7	8.19	0.01
Gifts	12	40.0*	11	36.7	20*	66.7	6.5	0.03

* significantly higher than other 2 groups at P<0.05

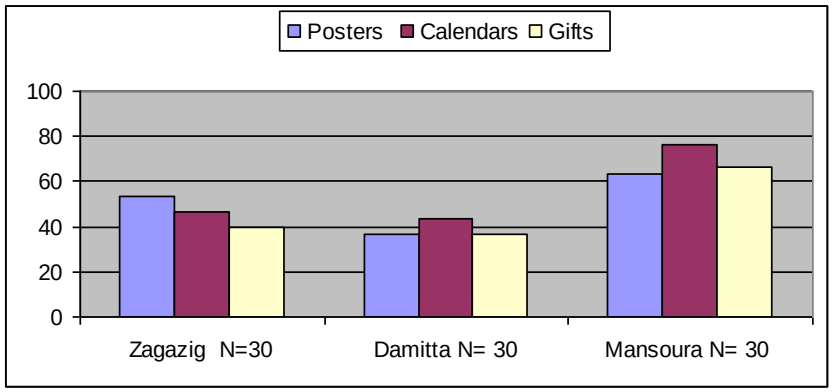

Figure (3): Comparing the violations to the code as by gifts to staff in the intensive care units of the governorates under study.

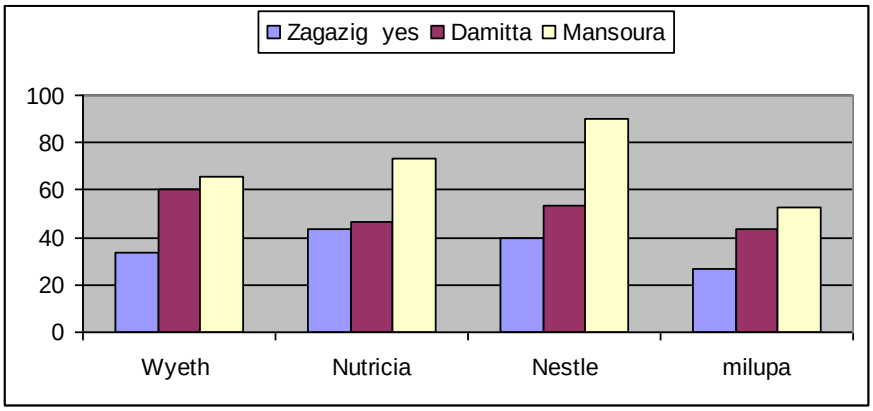

Figure (3): Comparing the violations to the code by company in the intensive care units of the governorates under study.

Table (4): Comparing of the the violations to the code by company in neonatal intensive care units of the governorates under study

Problems	Sharkia yes		Damitta Yes		Dakhalia yes		X2	P value
	N	%	N	%	N	%		
Wyeth	10	33.3	18	60.0	20	66*	7.5	0.02
Nutricia	13	43.3	14	46.7	22	73*	6.54	0.03
Nestle	12**	40.0	17	53.7	27	90**	16.54	0.000
Milupa	8	26.7	13	43.3	16	53	4.5	0.10

*Dakhalia significant differ than 2 groups, **Sharkia and Dakhlia are significantly higher than Damitta at P<0.05.

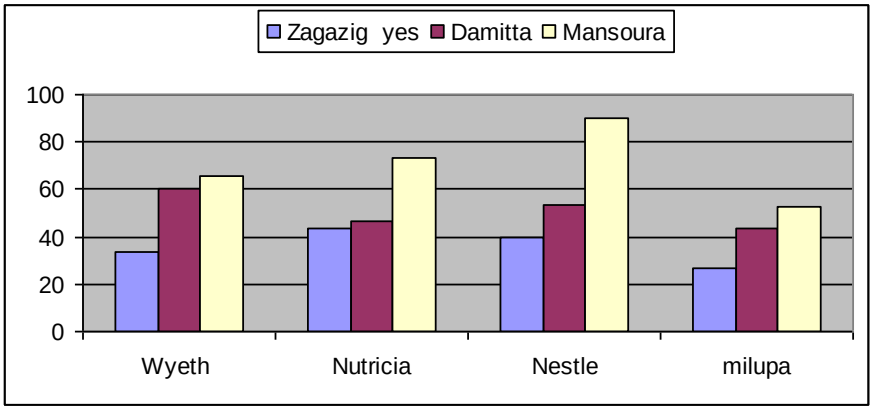

Figure (4): Comparing the marketing violation observed in neonatal intensive care units by company.

تأثير االتسويق على ممارسات العاملين الصحيين تجاه الألبان الصناعية

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***قسم طب الأطفال بكلية طب بنها – جامعة بنها**

المقدمة: لاشك أن ممارسات تسويق الالبان الصناعية تقوم بمخالفة المدونة الدولية لتسويق بدائل لبن الام داخل الحضانات فى مصر. ففى مصر مثل هذه الممارسات التى تقوم بمخالفة المدونة الدولية لتسويق بدائل لبن الام تؤثر سلبياً على معرفة واتجاهات وممارسات لدى الاطباء الذين يعملون فى هذه الحضانات.

الهدف: دراسة ممارسات التسويق للالبان الصناعيه ومدى إلتزام الشركات المنتجة للألبان بالمدونة الدولية لتسويق بدائل لبن الام وتاثير الممارسات بمخالفة المدونة على اتجاهات ومعرفة وممارسات الاطباء الذين يعملون فى هذه الحضانات.

الاساليب: تم اختيار عينة تمثيلية من 61 حضانه من 3 محافظات داخل مصر هى الزقازيق والدقهليه ودمياط وتم جمع معلومات عن مدى انتهاك المدونة الدولية لتسويق بدائل لبن الام وذلك من خلال اجراء مقابلات مع عدد 90 طبيباً يعملون فى هذه الحضانات.

النتائج: لوحظ ان نسبة 83% من الاطباء لديهم معرفة بمدى خطورة الالبان الصناعية فى الاصابة بالحساسية وان 71% لديهم معرفة بمدى خطورة الالبان الصناعية فى الاصابة بالنزلات المعوية وان30% لديهم معرفة بمدى خطورة الالبان الصناعية فى زيادة معدل الوفاة المفاجئة للاطفال وان 44% لديهم معرفة بمدى خطورة الالبان الصناعية فى الاصابة بفقدان البصر وقد لوحظ ان معدل المخالفات التى تمت بالنسبة لشركات الالبان الصناعية كانت شركة نستله والتى توجد بنسبة عالية فى الدقهلية يليها شركة نترشيا وويث واخيرا شركة ميلوبا .

وقد وجد ان شركة ويث تحتل المرتبة الاولى فى انتهاك المدونة الدولية لتسويق بدائل لبن الام فى دمياط .

الخلاصة: بالرغم من التحذيرات الدولية من عدم الدعاية لاستخدام الالبان الصناعية فى المنشآت الصحية وبالأخص حديثى الولادة و المبتسرين الذين هم فى أشد الحاجة الى لبن الأم حيث تؤدى هذه الدعاية الى مواصله استخدام الالبان الصناعية داخل الحضانات مع التقليل من اهمية الرضاعة الطبيعية مما يعرض حياة الأطفال الى الخطر وهذا يشكل انتهاكا صارخا لحقوق الاطفال المرضى وقليل الوزن داخل الحضانات الذين هم فى أشد الحاجة الى لبن الأم فهى مسالة أخلاقية و إنسانية تستحق الإهتمام من حكومتنا والتدخل الدولى لمنع هذه الممارسات محاكمة تلك الشركات الدولية.

Health and Economic Implications of Not Practicing Exclusive Breastmilk feeding in Neonatal Intensive Care Units

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Abstract

Background: High neonatal mortality rates (NMR) impede reduction of global infant mortality rates (IMR) for achievement of the millennium development goals (MDGs). Suboptimal neonatal feeding practices may be a cause but requires in-depth verification. **Aim**: To study infant feeding practices in neonatal intensive care units (NICUs) and identify factors associated with poor feeding practices in these NICUs.

Methods: A survey was conducted for 900 neonates selected from the governorates of Dakhlia, Damitta and Sharkia. Data was collected for neonates' feeding practices, growth and health outcomes and overall cost entailed by the NICUs.

Findings: Infant milk formula (IMF) was the predominant feeding practice in Dakhalia (Dakhlia) governorate. This was associated with significantly higher rates of sepsis, diarrhea with distention pending necrotizing enterocolitis (NEC) and eczema in the non breastfed groups. Many of these babies tended to shift to IMF after 15 weeks. Dakhalia NICUs showed the highest rates of IMF feeding practices and highest out-of-pocket expenditure on medical care of babiesadmitted to NICUs.

Conclusion: The high rates of artificial feeding are associated with increased morbidity and higher out-of-pocket expenditure in Egyptian NICUs. Changing infant feeding practices by supporting exclusive expressed breast milk in NICUs by increasing awareness of staff and parents is needed to face the rise in NMR in Egypt**.**

Introduction

Over one third of the global 7.6 million deaths of children under age 5 in the year 2010 occur in the neonatal period. Of these 64·0% (4·879 million) were attributable to infectious causes and 40·3% (3·072 million) occurred in neonates. Preterm birth complications (14·1%) intrapartum-related complications (9·4%), and sepsis or meningitis (5·2%) were the leading causes of neonatal death [(1)].

Between 2000 and 2010, the global burden of deaths in children younger than 5 years decreased by 2 million, of which pneumonia, measles, and diarrhoea contributed the most to the overall reduction mostly due to breastfeeding promotion efforts. However neonatal mortality in the first two days is 50% of overall neonatal morality. Declines over the last three decades have been slower than declines in postneonatal or early child (1 to 5 years) mortality. In order to achieve the Millennium Development Goal (MDG) target of a two thirds reduction in under-five mortality from 1990 to 2015 [(2,3)]**.** Almost all (99%) neonatal deaths arise in low-income and middle-income countries, yet most

epidemiological and other research focuses on the 1% of deaths in rich countries. The highest numbers of neonatal deaths are in sub-Saharan Africa [3].

In the Egypt nearly 12 percent of babies are born preterm. Although NMR in Egypt is 16 per 1000 live births (TLB) and IMR is 25 TLB, yet among the very small baies NMR is 39.4 and IMR is 53.8 TLB [3]. Such high mortality rates in these babies are attributable to feeding practices that have been shown to influence neonatal outcomes. Moreover, the World Bank reports a rise in NMR to 21 in Egypt, with a slight change in IMR with NMR accounting for 80% instead of 50% of IMR. Many countries have shown that reversal to breastmilk has contributed significantly to the reduction in IMR[1]. An Egyptian survey in 2002 for LBW showed that deaths among LBW who were not breastfed were 29.5% for IMF fed compared to 1.5% in breastfed [5]. The extent and underlying reasons for these babies to be deprived of their mother's milk are not clearly defined. Given that sepsis is still the leading cause of mortality in these babies, the differences in health outcomes of LBW neonates according to the feeding modality are not fully documented. Such data is important in order to study the cost effective interventions that can assist the country to reach the MDG for reducing infant mortality in Egypt.

Our aim in the present study is to assess the current feeding modalities among the LBW neonates in a sample of NICUs in 3 governorates in Lower Egypt.

Subjects and Methods

This is a cross sectional observational study conducted to assess practices in 61 NICUs (38 private and 23 public) in three governorates in Lower Egypt namely Sharkia, Dakhlia and Damitta governorates. The selection criteria for the NICUs was based on having a bed capacity of at least 10 and >50% occupancy rate with an overall turn over rate of 30 LBW per month. A representative sample of 5 to 20 neonates (average 14.75) was taken from each NICU irrespective of weight or gestational age or state of illness. Babies who were not on any feeding were excluded. Three hundred babies were taken from each governorate with a total of 900 neonates. All neonates were subjected to assessment of health, medical procedures, growth and feeding history using a check list. Information was taken from the medical records in the NICU by permission. A check list to assess the expenditures within each NICU per baby was done for babies assessed at time of visit. The expenditure included estimated cost by NICU the patient must pay and represented cost of the bed, medications, investigations, hospital stay in days, feeding, milks, care and hospital services. Since this was an out-of-pocket cost, i.e. what the patient is expected to pay; hence the cost in public was partly subsidized by the government and was less than the private. Hence the cumulative cost for each patient over the length of stay was higher in the private than in the public hospitals. The cumulative cost for each patient over the length of his or her stay was estimated and the sum represented the overall cost for each NICU or for the groups under study (by mode of feeding). All the patients were divided according to their mode of feeding into breastfed (exclusively), breastfed (partially), and formula fed (exclusively). The groups were compared in relation to health status, and overall mean cost for each group.

Statistical analysis: collected data was revised, coded, tabulated and computerized using Statistical package for Social Science (SPSS 15.0.1 for windows; SPSS Inc, Chicago, IL, 2001). They were expressed as mean, standard deviation (SD) and range for numerical data and analyzed by and (T) Test. Qualitative data were presented as frequency distribution and analyzed by Chi-square. The cut off of the probability test of significance was les than 0.05.

Results

Of the total 900 neonates: 40.7% were fed exclusively on expressed breast milk (EBM), 36.4% were fed IMF and 22.78% were fed on both breast milk and formula milk. The factors underlying these practices were studied in depth. Table (1) shows that feeding exclusively (IMF) was highest in Dakhalia NICUs and lowest in Sharkia NICUs with a statistically significantly higher difference in Dakhalia governorate NICUs at $p_<$ 0.04. Feeding partial breastmilk feeding was highest in Dameitta NICUs and lowest in Dakhalia NICUs. Feeding EBM was highest in Sharkia and lowest in Dakhalia NICUs. In Sharkia and Damitta about one half were received only expressed breast milk. The difference was statistically significant at $P_<$ 0.001. Table (2) shows that there was a tendency of babies in the NICU to start early with breastmilk and this peaked at 4-5 weeks but then declined and then IMF feeding peaked thereafter at the age 7-15 and >15 weeks of age. This coincided with increase in introduction of mixed feeds to breastfed neonates at 3-4 weeks of age. However, the difference was not significant at $P_>$0.05. **Table (3) shows that m**others who had male babies in NICUs were exerting more effort to come and express milk to their babies, as shown by the significantly higher rates of 286 male neonates who received any expressed breastmilk (31.78 %) compared to the 259 females (28.78%). However there was no statistically significant difference by end mode of feeding at $P_<$0.05. Table (4) shows that neonates who were fed IMF only (deprived of any breast milk) showed a statistically significantly higher rate of exposure to antibiotics and antiepleptic treatment at p<0.0001. **Table (5) shows that n**eonates who were fed IMF only were more exposed to diarrhea, eczema and gastrointestinal distention compared to those on EBM or fed partially on breast-milk. The difference was statistically significant at p<0.04, 0.02 and 0.01 respectively. Although neonates fed EBM had lower rates of respectively diarrhea and fever but the difference was not statistically significant p>0.05. Table (6) shows the total expenditure in Dakhalia NICUs was significantly higher for the Infant milk formula fed group of babies compared to the NICUs of Damitta and Sharkia at P<0.05. While in Sharkia and Damitta the total expenditure was significantly lower for the breast fed and partially breast milk fed groups at p<0.04 and P=0.03. Table (7) shows that there were no significant differences in the mode of feeding in the gestational age from 28 to 38 weeks. However at 38-40 weeks babies who were fed partially on breast milk were significantly higher than those on infant milk formula or on expressed breast milk at P<0.01. Table (8) shows that there was no significant difference in the distribution of cases across the centiles in relation to the mode of feeding at P>0.05. However the majority of cases 88% were below the 50th centile.

Discussion

Our study showed that formula feeding practices were significantly higher in Dakhalia governorate compared to the two other governorates. This could be attributed to the fact that this governorate represents an affluent regional community.

In Sharkia and Damitta about one half received only expressed breast milk, while one quarter received mixed feeding and another one quarter received only IMF at P<0.001. Our study also showed that as babies grew older they tended to go to formula feeding. Initially was no significant differences in the mode of feeding at ages 4-8 weeks. However at after 15 weeks babies shifted to infant milk formula or on expressed breast and formula at p<0.01.

This is in agreement with other workers who found that 'exclusive breastfeeding' rates in the city, suburban and rural areas were 38.0%, 63.4% and 61.0% respectively. By six months of age the 'any breastfeeding' rates had declined from around 97% to 62.8%, 76.9% and 83.6% and the 'exclusive breastfeeding' rates had fallen to 0.2%, 0.5% and 7.2% in city, suburb and rural areas **(6).** There was a tendency of babies in NICUs to be mostly fed either exclusively on breast milk (EBM) or IMF but less were partially

breast fed. However the difference was not significant [6].

In our study it was mostly neonates with lower gestational age (GA) who were more exposed to IMF as shown in the neonates with GA from 28 to 38 weeks. However at 38-40 weeks babies who were fed partially on breast milk were significantly higher than those on IMF or on expressed breast milk and IMF at $p<0.01$. Hence the older the baby the more into was likely to be offered breastmilk. This probably indicates lack of heath staff training in feeding smaller babies or lack of up-to-date guidelines in NICUs that encourage EBM for very small babies from very early stage [7].

Also in our study neonates who were fed IMF only (deprived of any breast milk) showed a statistically significantly higher rate of exposure to antibiotics and antiepleptics at $P<0.0001$. This is in agreement with Hengstermann et al., **[8]** reported that exclusively formula-fed infants were more likely to be hospitalized for any infection as pneumonia and diarrhea and thereby receive more antibiotics compared to exclusively breastfed infants. Infants who did not receive any breast milk were more likely to be hospitalized for any infection as neonatal sepsis, pneumonia and diarrhea than infants who received any breast milk. Also IMF can alter baby's salt balance, which can cause seizures **[9].**

Again in our neonates those who were fed IMF had higher rates of diarrhea, eczema and gastrointestinal distensions compared to those on fed exclusively of partially on expressed breast milk. The difference was statistically significant at $P<0.04$, 0.02 and 0.01 respectively. This is in agreement with other workers who reported increased risk of infection with introduction of IMF. They explained this by the greater likelihood of these foods being contaminated during mixing and/or being fed from a contaminated bottle, as is common in areas of the world without adequate sanitation, refrigeration or a dependable and safe water supply [11,12]. In our study, we expect that NICU staff would be careful with the preparation of IMF, and we would explain the increased risk of infection to be mostly due to the lower immunity of preterms, especially those with lower GA, because of their incomplete development and their deprivation from breastmilk, since the rates were lower when any breastmilk was given (in the partially breastfed group of the study).

Most currently available formula milks are made from cows' milk and contain cows' milk protein, which can cause allergic reactions. Feeding young babies with cows' milk formula instead of breast milk increases the chance that they will become allergic to cows' milk protein [13]**.**

An economic analysis of the costs incurred by the hospital as a result of the differences in the mode of feeding showed that Dakhalia NICUs incurred the highest expenditure and this was related to its highest use of IMF and highest rates of infections and lowest turn over rates related to longer stay and formula feeding practices. Also the ratio of private to public was 2.5:1 in Dakhlia, compared to 2:1 in Sharkia and 1:1 in Damitta. While in Sharkia and Damitta the total expenditure was significantly lower as the rate of breastmilk feeding was significantly higher. This was in agreement with other workers

[14]. They reported that the average costs per infant were $10,179+4,001 within the breastfeeding group and $15,813+18,893 within the formula-feeding group. This does not include the medical expenditures for formula feeding and costs that result from costs to governments for building more health facilities, or health workers time to deal with the added burden of illness [15].

Unfortunately our staff were not convinced with the economic benefits as 55% of staff in Sharkia, 45%of staff in Damitta and 42% of staff in Dakhalia agree that IMF is not costly. Also 49% of staff in Sharkia, 45%of staff in Damitta and 61% of staff in Dakhalia agree that IMF is convenient for mother and her preterm.

There was no significant difference in the distribution of cases across the centiles for weight for age in relation to the mode of feeding at $p>0.05$. However the majority of cases 88% were below the 50^{th} centile. This indicates that preterms fed on mother's expressed milk gain weight well and do not need to be fed formula or fortified milks as argued by other workers [16].

Neonatal deaths account for 41% of child deaths and must be reduced to achieve Millennium Development Goal (MDG) 4 for child survival [17]. Newborn survival is also related to MDG 5 for maternal health as the interventions are closely linked[18]. A major gap is care during the early postnatal period for mothers and babies. Interventions as the Expanded Integrated Baby Friendly Hospital Initaitive that promotes early initiation and continuation of breastfeeding especially sick and LBW neonates at risk of discontinuation of breastfeeding because of lack of trained personnel, hospital policies or prior education of mothers and parents [19,20].

In conclusion preventing deaths in newborn babies by promoting optimal infant feeding practices should be the focus of child survival or safe motherhood programmes[21,22]. While we neglect these challenges, 450 newborn children die every hour, mainly from preventable causes in which industries' ethically indisputable malpractice play a major role, this should be unconscionable in the 21st century[2,8,23,24].

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Table (1): Comparing the mode of feeding in the neonatal intensive care units study by governorate

Site	EBM		IMF		PBM		X2	P value
	N	%	N	%	N	%		
Sharkia N=300	150	50	80	27	70	23	31.1	0.00
Damitta N=300	132	44	88	29	80*	27	55.8*	0.000
Dakhalia N=300	85#	28	160#	53	55	18	6.0	0.04

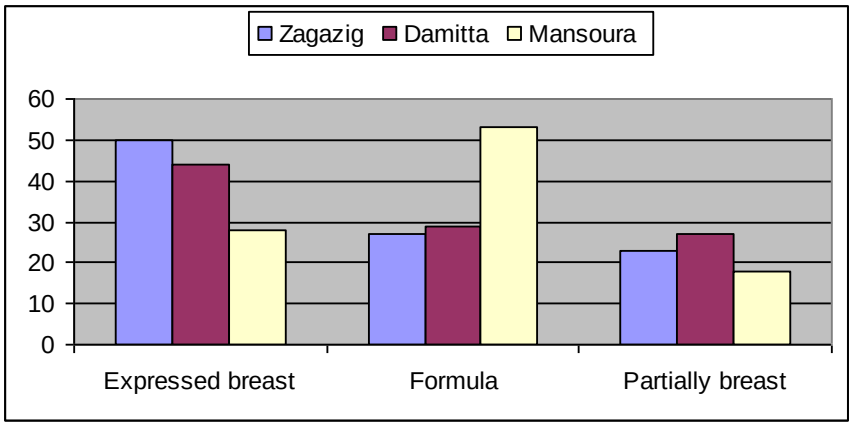

Figure (1): Comparing the mode of feeding in the neonatal intensive care units by governorates.

Table (2): Mode of feeding according to the age.

Age/wks	EBM N=367		IMF N= 328		PBM N= 205		X2	P value
	N	%	N	%	N	%		
0-2 wk N= 118	47	40	48	40	23	20	1.34	0.51
2-3 wk N= 142	59	42	54	38	29	20	0.55	0.75
3-4 wk N=136	51	38	47	35	38	27	2.45	0.29
4-5 wk N= 141	63	45	46	33	32	23	1.29	0.52
5-7 wk N=115	50	43	39	34	26	23	0.47	0.79
7-15wk N=132	53	40	48	36	31	23	0.05	0.97
> 15wk N= 116	44	38	46	40	26	22	0.65	0.72

P value > 0.05 statistically not significant. EBM**:** Expressed breast milk fed group. IMF: infant milk formula fed group. PBM: partially breast milk fed group.

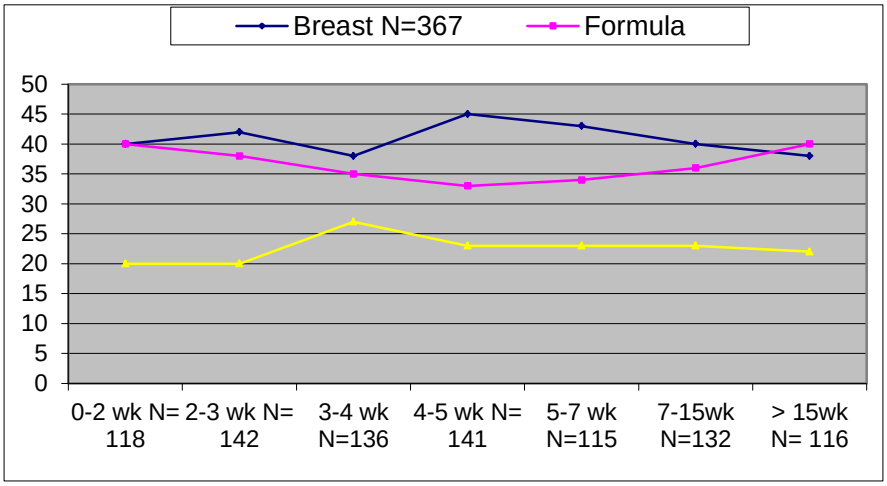

Figure (2): Comparing the changing pattern of practices related to the mode of feeding in neonatal intensive care units under study by the age of the babies.

Table (3): Comparing the mode of feeding according to the sex of the babies understudy.

Age/wks	EBM N=367		IMF N= 328		PBM N= 205	
	N	%	N	%	N	%
Male (484)	169	40	171	35	117	27
Female (416)	171	41	157	38	88	21

X2= 1.27 P value > 0.05 not significant. EBM= Expressed breast milk fed group. IMF= infant milk formula fed group. PBM= partially breast milk fed group.

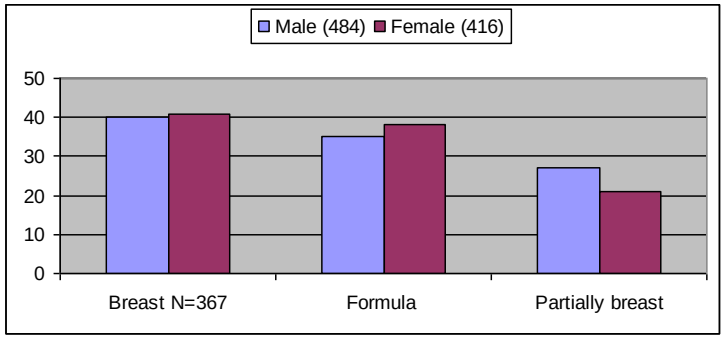

Figure (3): Comparing the mode of feeding according to sex of the babies understudy.

Table (4): Comparing the mode of feeding according to the treatment received by neonatal intensive care units

Age/wks	EBM		IMF		PBM		X2	P value
	N	%	N	%	N	%		
Antibiotic	35	21	75#	27	38	19	39.9	0.000
Blood	33	20	50	19	36	18	0.06	0.97
Total parental feed	28	17	45	16	35	17	0.01	0.99
Antiepileptics	33	20	80#	29	40	19	52.2	0.000
O2 (mask) intermittent	32	18	48	17	37	18	0.36	0.83

P value < 0.05 in formula group. EBM= Expressed breast milk fed group. IMF= infant milk formula fed group. PBM= partially breast milk fed group.

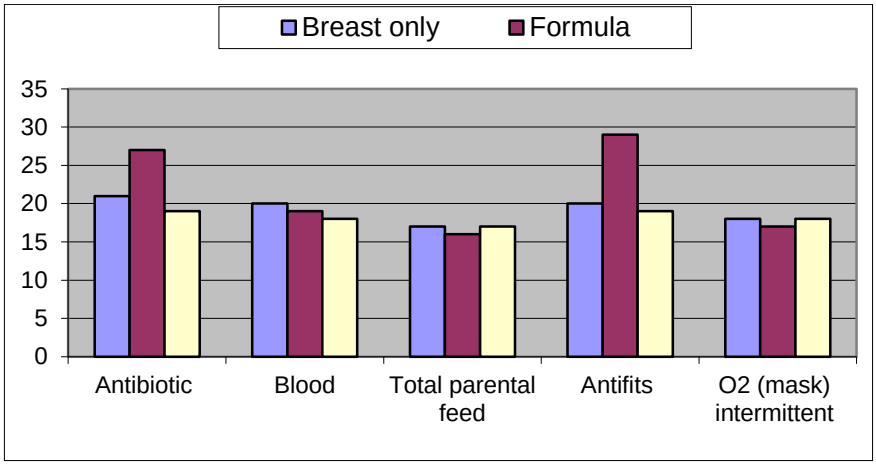

Figure (4): Comparing the mode of feeding according to the treatment received by neonatal intensive care units

Table (5): Comparing the mode of feeding according to the emerging health problems in the neonates in the neonatal intensive care units

Problems	EBM N=367		IMF N= 328		PBM N= 205		X2	P value
	N	%	N	%	N	%		
Distress	48	13	50	15	30	15	0.71	0.71
Diarrhea	45	12	70	21	33	16	1.55	0.04
Eczema	40	11	65	20	40	19	1.55	0.02
Colic	61	17	78	23	33	16	3.27	0.01
Fever	47	13	50	15	29	14	0.88	0.19

P value < 0.05. EBM= Expressed breast milk fed group. IMF= infant milk formula fed group. PBM= partially breast milk fed group.

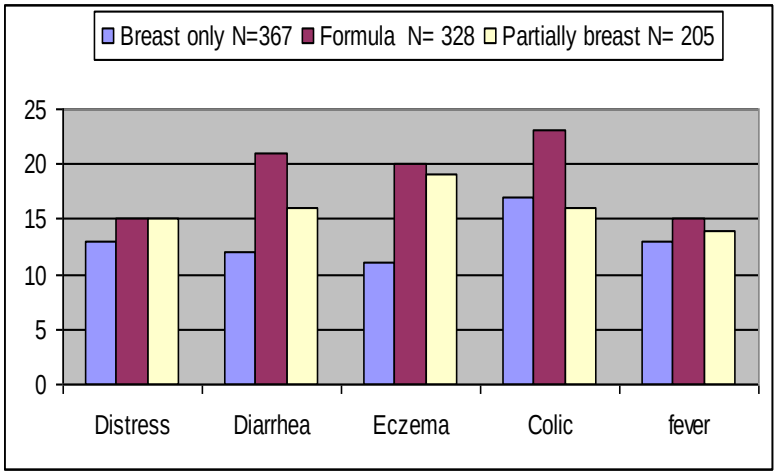

Figure (5): Comparing the mode of feeding according to emerging health problems in neonatal intensive care units.

Table (6) Comparing the mode of feeding according to the total expenditure in Egyptian pounds for babies admitted to the neonatal intensive care units

	EBM	IMF	PBM	F	P
Sharkia	**686.0±102.5#**	**1052±181.0**	**856.0±81.9**	**3.65**	**0.04**
Damitta	**803.0±**	**1101.0±173.6***	**834.0±274.5**	**3.26**	**0.03**
Dakhalia	**831.0±137.4**	**1254.0±187.2**	**815.0±271.8**	**0.08**	**0.92**

 # = p < 0.05 * = P < 0.05, EBM= Expressed breast milk fed group. IMF= infant milk formula fed group. PBM= partially breast milk fed group.

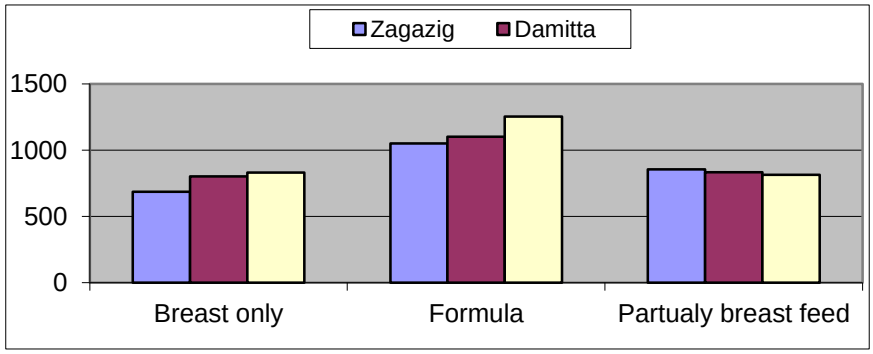

Figure (6): Comparing the mode of feeding according to the total expenditure in Egyptian pounds for babies admitted to the neonatal intensive care units.

العواقب الصحية والإقتصادية لممارسات التغذية الصناعية داخل وحدات الرعاية المركزة للمبتثرين بمحافظات المنوفية و الدقهلية و الزقازيق

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قسم طب الأطفال بكلية طب بنها – جامعة بنها

المقدمة: لا شك ان معدل ارتفاع وفيات الاطفال حديثى الولادة يعوق خفض معدلات الوفاه للاطفال ويعوق اهداف التطورالصحى المرجو فى مصر وقد يكون سبب ذلك هو الممارسات الخاطئة لتغذية الاطفال حديثى الولادة والتى هى دون الحد الامثل ويتطلب ذلك تحقيقا عميقا فى الدراسة

الاهداف: إستهدف البحث دراسة مممارسات تغذية الاطفال حديثى الولادة فى الحضانات وتحديد العوامل المرتبطة بهذه الممارسات التى تؤدى الى ضعف الرضاعة الطبيعية فى الحضانات بمصر.

الاساليب: اجريت دراسة استقصائية على900 من الاطفال حديثى الولادة داخل 40حضانة فى ثلاث محافظات هى الزقازيق –المنصورة –دمياط وتم جمع بيانات عن ممارسات تغذية الاطفال حديثى الولادة مثل معدل النمو وصحة الطفل داخل الحضانة والتكلفة الاجمالية لكل حضانة .

النتائج: لقد لوحظ ان الالبان الصناعية هى السائده فى محافظة المنصورة مما ادى الى زيادة فى معدلات الاصابه بالاسهال و الاكزيما والنزلات المعويه وعسر الهضم المصحوب بلانتفاخ والمغص والمضاعفات العصبية.وان معدلات التكلفة الاجمالية للحضانات اعلى فى محافظة الدقهلية عن باقى المحافظات نتيجة ارتفاع معدلات استخدام الالبان الصناعية فيها.

الخلاصة: ان المعدلات المرتفعة لاستخدام الالبان الصناعية فى حضانات الاطفال حديثى الولادة تكون مصحوبة بارتفاع حالات الاصابة بالامراض مع زيادة فى التكلفة المادية للحضانات التى تعتمد على الالبان الصناعية .

لذلك لابد من تغيير ممارسات تغذية الاطفال حديثى الولادة داخل الحضانات الى الرضاعة الطبيعية بدلا من الالبان الصناعية مع متابعة ودعم استمرارية الرضاعة الطبيعية الخالصة داخل الحضانات والتى تقلل من معدلات الوفاة لدى الاطفال المبتسرين داخل الحضانات فى مصر.

An Intervention for Promoting Kangaroo Mother Care in the Community

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Abstract

Introduction: With the increasing rate of premature births, the increasing cost entailed for caring for these children in incubators is becoming a burden for hospitals. Community based Kangaroo Mother care (CKC) can become a cost effective intervention for reducing cost, increasing turnovers and decreasing costs of hospital care.

Aim: To assess an educational intervention for promoting CKC by teaching mothers to apply it after discharge from the hospital at home and identify factors that facilicate it.

Methods: We designed a simplified illustrative material in CKC and used it to educate 100 mothers with preterm babies on discharge from the hospital. They were followed-up at two weeks after discharge to assess their experience with application of the procedure, their satisfaction, outcome on babies' growth and health and barriers to implementation in those who did not use it. We assessed knowledge, attitudes and practices (KAP) of 140 health workers from the hospital (70) and the community (70) towards CKC.

Findings: Of the 100 mothers only 75 mothers returned to follow-up, of these 25 had exposed their baby to CKC at home (25%) were lost to follow-up) and 25% responded to the CKC education intervention. Higher levels of education, vaginal delivery, husband support, and breastfeeding facilitated CKC. While exposure to cesarean delivery, formula feeding, pacifier use and lack of support were barriers to CKC. Mothers practiced CKC for a mean of 4.34±1.7 hours per day and for a mean duration of 6.04±3.115 days and this resulted in a significant increase in the head circumference, optimal health and increased breastfeeding intensity. The KAP of NICU health workers was significantly higher than community workers.

Conclusions: CKC can be easily applied and accepted by Egyptian communities if they receive information from the health staff about its benefits and how to do it and support from the family to execute it. This can assist LBW babies to achieve optimum growth, health and development.

Introduction

Every year more than 20 million babies are born with low birth weight (LBW), and more than 96 percent of these births occur in developing countries [1,2].Among the highly vulnerable LBW population, the four main causes of death are: (1) hypothermia (the inability to control body temperature); (2) increased risk of and case fatality from infection; (3) feeding difficulties (inappropriate or inadequate feeding) and their consequences, mainly hypoglycemia, inadequate weight gain, and increased risk of infection; and (4) other causes, such as respiratory difficulties, asphyxia and congenital malformation.

In developing countries, which account for 96 percent of all newborn deaths incubators are not widely available. Even in those limited cases where incubators are available in hospitals, many families in developing countries do not seek or have access to care at this level because of cost, lack of transportation, distance and time constraints [3,4].

Moreover, there can be problems with the incubators, such as excess demand (too many preterm/LBW newborns, not enough machines), power shortage, untrained staff, poor maintenance, and lack of replacement parts. In most developing countries at the present time, incubators are neither a realistic nor a reliable

option for protecting vulnerable LBW newborns [5,6].

Evidence shows that premature babies (and term babies too for that matter) are more stable metabolically when they are skin to skin with the mother. Their breathing may be more stable and less distressed, their blood pressures are more normal, they maintain their blood sugars better and their skin temperatures better in Kangaroo Mother Care (KMC) [5,6]. The World Health Organization (WHO) has formally endorsed KMC and published a set of practice guidelines. In 2003, the Cochrane Collaboration conducted a review of KMC; and concluded that KMC can reduce severe illness, infection, breastfeeding problems, maternal dissatisfaction and improve, some outcomes of mother baby bonding[7] compared to incubator care. Furthermore, the mother and baby pair in Kangaroo Mother Care will more likely produce more milk, she will get the baby to the breast earlier and the baby will breastfeed better [8].

Community KMC pilot interventions were evaluated in India, Nepal and Bangaldash. The studies revealed the obstacles and success on outcome of infant health [9,10,11]. In Egypt the KMC is not widely practiced by neonatal hospital staff as there is much resistance [12]. Community KMC entails caring for the baby by KMC after discharge from the hospital, at home. The acceptance of practicing community KMC needs to be assessed in our country especially in rural settings before recommending its formal use. The aim of this study is to assess the acceptance of mothers to community KMC and its safety, as well as the barriers to its implementation.

Subjects and Methods:

This study is a prospective cross-sectional cohort study for assessing the effectiveness of an educational program in Kangaroo mother care (KMC) to mothers with low birth weight (LBW) infants after discharge from the hospital NICUs over one year in 2010 to 2011. It was conducted in Mansoura city of Dakhalia governorate in Egypt. The material was prepared and tested and consisted of a flip chart that explained the benefits of KMC to mothers and how to perform it. KMC was discussed with mothers and fathers or other family members accompanying her (mother or mother-in-law). Mothers who consented were followed up at 2 weeks after discharge. Of the 100 mother infant pairs who received the educational intervention, 75 returned after two weeks. They were divided into two main groups according to compliance with community kangaroo care (CKC) during the first 2 weeks after discharge: Group I (CKC group) included 25 mothers with LBW babies who implemented KMC during the 2 weeks after discharge and Group II **(NCKC) included** 50 mothers with LBW babies who did not comply with the practice of CKC.

At the two weeks follow-up visit: Mothers in group I (CKC) were assessed for their satisfaction using a scoring system of 6 criteria (2 for each) with a maximum score of 12. Barriers to implementation were collected from the NCKC group of mothers. All babies were assessed by anthropometry (weight to nearest gram, supine length and head circumference to nearest mm) before discharge and two weeks after discharge. The health of the mother and baby were also assessed. We assessed knowledge, attitudes and practices (KAP) of 140 health workers from the hospital (70) and the community (70) towards CKC.

Statistical analysis: The data was statistically analyzed using the T-test of significance for mean and standard deviation (SD) for discrete data. Chi-square was used for the qualitative data (percent distribution). A probability cut off of $P<0.05$ was used as the cut off for the level of significance between groups under comparison.

Results

Of the 100 mothers only 75 mothers returned to follow-up, of these 25 had exposed their baby to

KMC at home (25%) and 25 (25%) were lost to follow-up.

Differences in socio demographic data between mothers who responded to applying KMC (group I) and those who did not apply KMC (group II) showed that the former were of a higher education level. The difference was statistically significant at P<0.0001). There were no differences in mother age or occupation and baby sex or gestational age at P>0.05 (Table 1).

There was a borderline statistically significant increase in operative delivery (cesarean section) in Group II compared to Group I groups (P=0.062). But there was no statistical significant difference between Group I and Group II groups as regards causes of premature labour or iron therapy (p>0.05) (Table 2).

Most of the mothers in both groups were breastfeeding exclusively in 68% (group I) and 64% (group II). The commonest supplement was formula that was given to 34% in group I and 34% in group II. It was offered 2-3 times only by bottle not by cup or spoon. Use of pacifiers was significantly higher in the group II (38%) compared to only 4% in group I at P<0.01 as shown in table 3.

Mothers practiced CKC for a mean of 4.34±1.7 hours per day and for a mean duration of 6.04±3.115 days. Support from the husband was significantly high (83%) compared to support from the mother in law (18%). None of the mothers practiced CKC during housework or during sleep (0%). No one other than the mother assisted her with KMC (Figure 1). Mean mother satisfaction score was 11.12±.6658, Median= 11, range 10-12).

Comparing the increment in growth parameter (weight, length, head circumference) and infective episodes in the Group I and Group II at the 2 weeks follow-up visit, showed that there was a significant increase in the head circumference reflecting brain growth in the group I compared to group II (at P<0.01). Also infective episodes were significantly high in group II, while group I reported no health problems during the period of follow-up (Table 4). There was a statistically significant difference between groups I and II in breastfeeding frequency per day (p=0.000) and the duration of each fed (p=0.000).

The commonest reasons for not applying CKC was cold phobia (68%), mother busy with housework chores and child care (40%), lack of family support in 32% and living in the house with others (lack of privacy at home) in 20% (Figure 2).

The knowldge and attitudes of health workers in the hospital towards CKC were statistically significantly higher than those working in the community at P<0.001 (table 5). Practices related to milk expression, storing of human milk, storage and feeding of expressed milk were particularly low among community health workers as compared to hospital based health workers at P<0.001.

Discussion

Our study showed that of the 100 mothers exposed to the educational intervention only 25% responded by applying KMC at home for an average of 4 hours per day for 6 days. All gave a very high satisfaction score. However the 50 mothers who did not apply KMC reported that they were afraid of exposing the baby to cold, or because of the workload and lack of support.

Blind assessment of bonding between mother and infant by using videos in a sub-sample of 488 mother-infant dyads found that bonding improved markedly with KMC, as did neuro-developmental evaluations in infants at higher risk [10,11].

The mothers are empowered when they do skin to skin care. The mother becomes central to the caring team. The skin to skin contact helps the mother and baby to settle into a rhythm of sleeping and waking together called “sleep synchrony” so the

mother gets more sleep. For premature deliveries mothers often have a sense of guilt and anxiety and are prone to post-natal depression. Holding her baby on her chest in Kangaroo Mother Care helps her to feel that she is completing her baby's gestation and that she is giving her child the best possible care. Carrying babies in Kanga-Carriers means that the mother is able to be mobile sooner and can leave the hospital earlier and return to normal daily life sooner (12).

Socio-demographic characteristics of the mothers who responded to the intervention indicated that education played an important role in increasing mother's acceptance to practice KMC. Other workers have studied the factors that lead to resistance of staff and mothers to implementation of KMC. Many solutions were put forward among them where the education and training and awareness components were most prominent. Mothers who are educated are often more responsive to updated evidence based information and are willing to accept new modalities of care [(13)].

Mother's mode of delivery seemed to affect application of KMC, as exposure to operative delivery was more than doubled in mothers who did not respond to the intervention, indicating that normal delivery was an assisting factor in KMC application [(14)].

Our study showed that the KAP of health workers in hospitals was significantly higher than those working in the community. High resistance from staff has been reported by other workers [(15)].

In a study carried out by Lincetto et al. (2000)[(16)] they found that facilitating factors were a KMC national policy, the commitment of health authorities, technical assistance and availability of some funds, and the perception of improved quality of care and survival. The obstacles and constraints were resistance to change by the staff, cultural problems, and managerial difficulties. Out of 32 LBWI (≤1.800 g) admitted in 3 months, survival was 73 per cent in 22 KMC and 20 per cent in 10 non-KMC infants ($p < 0.01$).

Also discharge feeding practices such as offering formula and pacifiers scored higher in the non intervention group, indicating that these were probably most influencial in discouraging mothers to apply the procedure. The dummy seemed to prevent the baby from calling out for its mother thus contributing to de-bonding them from one another [(17,18,19)].

The most significant facilitating factors to CKC was husband support and encouragement and to a lesser extent the mother-in-law. Still the short duration of application was caused by their fear to use it during housework or during sleep and that no other person was willing to do it with her [(20)].

The application of KMC resulted in a significant increase in brain growth in our group who applied it. This has been reported by several other workers [(21,22, 23)]. This could be explained by the effects of skin to skin stimulation of the vagal nerves and brain growth. Also it could be explained by the increased intake of breastmilk by the increased frequency and duration of breastfeeding. Other workers have shown that continuous skin to skin care increased the intake of mother's milk and mother's confidence and ability to breastfeed [(24)].

While the other group (who did not apply it) had significant increased exposure to infections. Other workers have shown that KMC had a significant effect on reducing infective episodes probably also by increasing breastfeeding duration and ensuring exclusive breastfeeding practices [25, 26, 27, 28, 29, 30, 31].

The compelling building of evidence of the safety and benefits of KMC to mothers and babies has caused the World Health Organization (WHO) to recommend KMC as standard care for stable LBW and has produced a guide for health professionals to use in managing these babies [33,34].

A very close relationship exists between KMC and exclusive breastfeeding. Babies grow and develop better with the combined practice of both and it is difficult to assess them apart. Workers have shown that exclusive breast milk feeds to LBW result in a superior weight gain and do not necessitate fortification or supplementation. On the other hand KMC increases and reinforces mother's practice of breastfeeding and augments her milk production [35,36].

In conclusion, encouraging mothers to apply KMC at home resulted in a significant increase in their brain growth and improvement of their health status and mother's ability to breastfeed. However, even after use of the education intervention, many mothers were afraid or could not find time to apply it at home. Such barriers indicate the need to multi-faced educational interventions with repeated hammering of the community with consistent messages from the health team and media.

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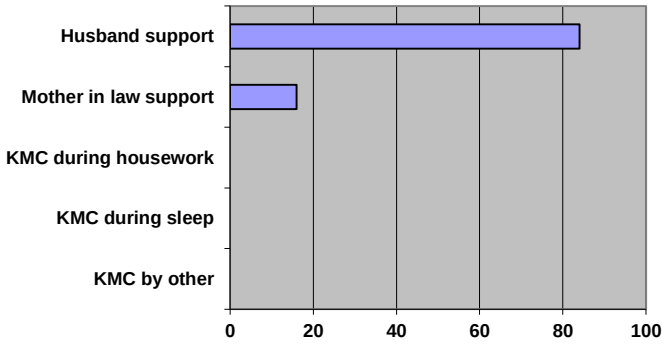

Figure (1): Facilitating factors to Community-Based Kangaroo Care (CKC) implementation in the successful intervention group.

Table (1): Comparing the socio-demographic data of the study groups (group I) who applied KMC and (group II) who did not apply KMC

Variable	Group I (n=25)		Group II (n=50)		T-test	P
Mothers age (Yrs):						
Mean	27.32		25.86		1.169	.246
S.D	4.8624		4.2099			
Gestational age(wks):						
Mean	34.68		34.58		.235	.815
S.D	1.5199		1.8305			
Variable	Group I (n=25)		Group II (n=50)		Chi-Square Test	P
	No.	%	No.	%		
Sex:						
Male (48)	18	72	30	60	1.042	0.444
Female (27)	7	28	20	40		
Level of education:						
Primary (40)	3	12	37	47	28.336	0.000**
Secondary (24)	13	52	11	22		
High (11)	9	36	2	4		
Mothers occupation:						
housewife (69)						
Civil (2)	22	88	47	94		
Teacher (3)	1	4	1	2	2.315	0.510
Other (1)	1	4	2	4		
	1	4	0	0		

Table (2): Comparison of delivery practices in the groups under study (Group I vs Group II)

Methods of delivery:	Group I (CKC) (n=25)		Group II (no CKC) n=50		Chi-Square Test	P
	No	%	No	%		
SVD with anaesthesia	1	4	2	4		
SVD without anaesthesia					7.330	0.062
CS with general anaesth.	12	48	13	26		
CS with spinal anaesth	5	20	26	52		
	7	28	9	18		
Causes of premature labour:						
PROM	4	16	5	10		
Multiple pregnancy	9	36	17	34		
Complication	8	32	13	26	2.023	0.568
Others	4	16	15	30		
Iron therapy:	25	100	50	100		

SVD: spontaneous vaginal delivery, CS: cesaresan section, PROM: premature rupture of membranes.

Table (3) Comparison of feeding pattern in the groups under study

Variable	Group I (n=25)		Group II (n=50)		Chi-Square Test	P
	No	%	No	%		
Supplements given						
Yes	8	32	18	36	0.000	1.000
No	17	68	32	64		
Type: Water	0	0	0	0		
Formula	8	32	17	34	2.541	0.468
Herbal	0	0	1	2		
Frequency: Once	1	4				
Twice	6	24	4	8	0.118	0.801
Thrice	1	4	14	28		
Mode: Cup	0	0	0	0		
Spoon	0	0	0	0		
Bottle	8	32	18	36	6.000	0.015
Pacifiers: Yes	1	4	14	28		
No	24	96	36	72		

Table (4) Comparing the increment in growth parameter (weight, length, head circumference) and infective episodes in the Group I and Group II at the 2 weeks follow-up visit.

Variable	Group I (CKMC) Group (n=25)	Group II (no CKMC) Group (n=50)	T_test	P
Weight gain(gm/day)				
Mean	28.58	27.3	1.190	.230
S.D	5.3793	4.1817		
Length(cm/wk)				
Mean	1.00	0.9		
S.D	0.1768	0.1597	1.23	.220
H.C (cm/wk)				
Mean	0.7	0.5		
S.D	0.1443	0.1702	2.520	0.01**

Variable	Group I(CKMC) Group (n=25)		Group II (no CKMC) Group (n=50)		Chi-Square Test	P
	No	%	No	%		
Infective episodes	0	0	9	18	3.55	0.05

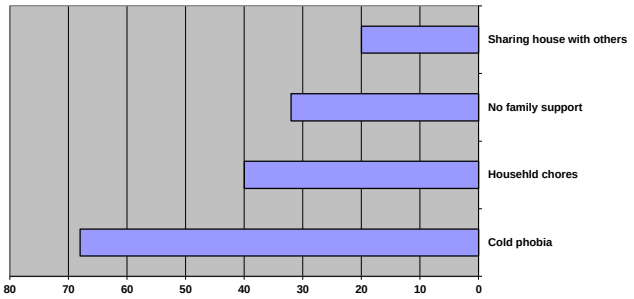

Figure (2): Barriers to Community based Kangaroo Care (CKC) implementation in the group that did not apply it at home.

Table (5): Comparing the mean knowledge and attitude and practice scores towards CKC in the staff working in neonatal intensive care units (NICUs) versus staff in primary health care (PHC)

Variable	NICU staff (no=70)		PHC staff (no=70)		T-test	P
Mean knowledge:	28.8143		23.5		11.301	.000
S.D	2.4334		3.0916			
Mean attitude:	45.5571		35.8714		12.288	.000
S.D	4.2890		5.0099			
Practices	NICUs (no=70)		PHC (no=70)		Chi-square test	P
	No	%	No	%		
Encouraging mothers to practice CMC	35	50	2	2.9	40.005	.000
Encouraging mothers to breastfeed	60	85.7	70	100	10.769	.001
Teaching mothers how to express breast milk	68	97.1	61	87.1	4.834	.055
Teaching mothers to express breast milk 6-8 times/day	64	91.4	54	77.1	5.393	.035
Teaching mothers how to store breast milk	68	97.1	59	84.3	6.869	.017
Teaching mothers how to feed breast milk to her preterm baby by cup	19	27.1	12	17.1	2.03	0.222
Teaching mothers how to train her preterm to go to the breast	65	92.9	42	60	20.974	0.000
Encouraging on demand feeding	67	95.7	69	98.6	1.029	0.620
Cautioning mothers from offering artificial nipples to baby	51	72.9	35	50	7.717	0.009
Avoiding prescribing formula feeds	49	70	32	54.3	8.466	0.006
Supporting breastfeeding during follow-up	67	95.7	51	72.9	13.806	0.000
Teaching mothers at discharge to do CKMC	44	62.9	1	1.4	60.552	.000

تقييم تدخل لتطبيق تقنية عناية المبتسر بطريقة الكنجر فى المجتمع

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قسم طب الأطفال كلية الطب ـ جامعة بنها ـ* **قسم طب الأطفال بكلية الطب ـ جامعة المنصورة**

المقدمة: مع زيادة معدل مواليد الأطفال ناقصى النمو وحاجة هؤلاء الأطفال إلى العناية المركزة فى حضانات مكلفة تزيد من العبىء المادى و البشرى على المستشفيات ولهذا فقد إكتشاف رعاية بتقنية بديلة تسمى "العناية بطريقة الكنجر" تستوجب حمل الأطفال ملاصقين الجلد للجلد على صدور أمهاتهم على مدار ال 24 ساعة و قد طبقت الطريقة فى كثير من المستشفيات بنجاح و لكن ماذا عن رعاية المبتسر بهذه الطريقة بعد الخروج من المستشفى و هل يمكن تطبيقها بالفعل بالمجتمع لتقليل مدة الرعاية بالمستشفى وبالتالى من الإنفاق الصحى.

الهدف: دراسة إستجابة المجتمع لتدخل تثقيفى لتشجيع و تعليم الأمهات كيفية تنفيذ الرعاية بطريقة الكنجر بعد خروجهن من الرعاية المركزة بالمستشفى إلى المنزل و تأثير ذلك على صحة الأطفال.

الطريقة: تم تصميم مادة توضحية بسيطة و ملابس مناسبة عن الرعاية بطريقة الكنجر لتعليم ١٠٠ أم بأطفال مبتسرين وذلك عند خروجهن من المستشفى و متابعتهن بعد أسبوعين من خروجهن لدراسة تجربتهن حول هذه الطريقة وإرتياحيهن لها، و نتائج هذه الطريقة على نمو و صحة الطفل و أيضاً دراسة العوائق التى منعت الأمهات التى لم تنفذ هذه الطريقة ثم دراسة المعرفة، الأتجاهات، الممارسات ل ١٤٠ من الفريق الطبى الذى يعملون بالمستشفيات (70) ووحدات الرعاية الأساسية (70).

النتيجة: أوضحت النتائج أن 25 من ال 75 ام وطفل قمن بتطبيق العناية بطكريقة الكنجر بعد عودتهن الى منازلهن لممدة 6 أيام بمتوسط 4 ساعات يومياً أسفر عن ذلك زيادة فى الوزن و تحسن فى الصحة ذات قيمة إحصائية عالية بالمقارنة بذوويهم الذين لم يطبقن هذه الممارسة ، و قد كان التعليم جامعى، والولادة طبيعية، ومساندة من الزوج، والرضاعة طبيعية المطلقة من المؤثرات الإيجابية لنجاح التدخل ، بينما كانت الولادة القيصرية، التغذيةة الصناعية، واستخدام السكاتة وعدم المساندة من الأهل تعتبر معوقات لهذه الطريقة. وكان حصيلة معرفة واتجاهات و ممارسات الفريق الطبى تجاه العناية بطريقة الكنجر للعاملين بالمستشفيات أعلى إحصائياً بالمقارنة بذوويهم فى وحدات الرعاية الأساسية.

الخلاصة: تنفيذ الرعاية بطريقة الكنجر فى المجتمع ممكنة و متقبلة من المجتمع المصرى اذا توافرت المعلومات و المساندة الكافية من الفريق الطبى و الأهل. فهذه الطريقة تساعد فى زيادة نمو الطفل المبتسر وتحسن صحته ولكنها تحتاج الى توعية مكثفة من قبل العاملين بالمستشفى والرعاية و الإعلام .

إعتقادات خطأ

و ممارسات غير مسندة بالطب الحديث

أ.د/ عزيز كليلات ـ د/شروق الهيثمى ـ أ.د/عزة أبو الفضل

خدعوك فقالوا أن الكثير من الأمهات لا يقدرن على إنتاج اللبن الكافى لإرضاع أطفالهن!
هذا ليس صحيحا بالمرة .....

إن الغالبية العظمى من الأمهات تستطيعن إنتاج الكثير والوفير من اللبن لأطفالهن وما يزيد عن حاجة أطفالهن – *فهذا إطراء و ثراء ورحمة و سنة من سنن الله على عبادة أيشكر أم يكفر فالبشكر يزيد من فيضه* – وبهذا فمن المؤكد أن حالات زيادة اللبن زيادة فوق العادية هو الشائع وقلة اللبن هو النادر! وقد ثبت أن معظم الأطفال الذين يزيدون فى الوزن ببطء أو يخسرون بعض الوزن ,لم يكن ذلك بسبب قلة لبن الام وإنما بسبب أن الطفل لم يتمكن من إخراج اللبن الموجود فى ثدى الام - والسبب الشائع لذلك هو وضع الطفل على الثدى بطريقة خاطئة لا تمكنه من تفريغ الثدى من اللبن - ولذلك فإن تعليم الام كيفية إرضاع طفلها ووضعه على الثدى بطريقة صحيحة بتشجيعه على فتح فمه بإتساع و توجهه من الأسفل حتى يتمكن من أخذ أكبر قدر من الهالة فى فمه مع تشجيع وإمتداح الأم و التعاطف معها و تحويلها الى متخصصين فى إدارة الإرضاع كما أن هناك كثير من المواقع على النت يمكن أن تستخدمها الأم للتعرف على الطريقة المثلى فى الرضاعة (بالصور و أفلام الفديو).

خدعوك فقالوا إنه من الطبيعى للرضاعة الطبيعية أن تكون مؤلمة!
وهذا ايضا غير صحيح على الاطلاق.....

فمع إنه من الشائع أن يحدث للام بعض الآلم البسيطة خلال الأيام الاولى بعد الولادة إلا ان ذلك يكون مؤقتا والمفروض أن يستمر فقط لعدة أيام ولا يمكن ان يكون مؤلما بشدة لدرجة ان تكره الأم الرضاعة.
إن أي ألم شديد ليس طبيعيا وفى أغلب الأحوال يكون بسبب وضع الرضاعة الخاطىء. كما أن أى ألم تشعر به الأم أثناء الرضاعة ولا يتحسن فى خلال ثلاثة او أربعة أيام أو يستمر أكثر من خمسة أو ستة أيام لا يجب اهماله. ٍإن ظهور ألم فى الحلمات بعد ان كانت بداية الرضاعة جيدة لفترة قد يكون بسبب إلتهاب فطرى فى الحلمات ويجب حينئذ علاجه بمضدات الفطريات ويجب ان توجه الأم أن الإقلال من عدد الرضعات لا يمنع أو يقلل من الألم بل قد يزيد منه بسبب تحجر الثدى و المهم هو التأكد من التعلق الصحيح على الثدى.

خدعوك فقالوا انه لا يوجد لبن لدى الأم أو لا يوجد لبن كافى خلال الثلاثة او الاربعة ايام الاولى بعد الولادة!
وهذا ايضا غير صحيح .....

فغالبا ما يكون سبب هذا الاعتقاد هو ان وضع الطفل على الثدى يكون خاطئا ولذلك يكون الطفل غير قادر على الحصول على لبن الأم الموجود بالفعل وعندما تشتكى الأم بذلك فانه من الضرورى جدا توضيح لها أهمية لبن السرسوب و أنه غنى بالمواد المناعية التى تقى طفلها من الأمراض الخطيرة ثم تعليمها الإستيضاع الصحيح بمساعدة و تشجيع رضيعها على إلتقام الهالة و ليس الحلمة وتعليمها كيفية تعصير اللبن فى فم الوليد إذا كان ضعيفاً أو مخدراً حتى يفيق و يستطيع المص بقوة و أن هذا يستغرق بعض الوقت مع بث الثقة فى قدرات الأم

بالتعاطف مع مشاعر الخوف لديها و مدحها ورضعيها ثم توضيح لها أن لبن السرسوب يتدفق ببطىء و بكميات قليلة ليغلف الأمعاء و "يفتحها" و يجهزها لإستقبال اللبن الناضج على الذى ينزل فى اليوم الثالث أو الخامس.

يجب ان يبقى الطفل على الثدى لمدة عشرين دقيقة او عشرة او خمسة عشرة او 7.6 دقيقة على كل ناحية!!!!!!!!

وهذا ايضا خطأ .....

ويجب أن تفرق الام بين البقاء على الثدى وبين الرضاعة من الثدى**!!**

فاذا كان الطفل على الثدى ويبتلع اللبن لمدة ربع او ثلث الساعة على الناحية الاولى فقد لايحتاج ان يرضع من الناحية الاخرى واذا ابتلع من اللبن لمدة دقيقة على الناحية الاولى ثم نام على الثدى أو اصبح يحرك شفتيه بدون بلع وهو على الثدى ,فان هذه ليست رضاعة على الاطلاق ولا يمكن ان يشبع بهذه الطريقة مهما طال بقاؤه على الثدى. ويمكن للطفل ان يرضع بطريقة أفضل اذا كان وضعه وإمساكه بالثدى صحيح. ويمكن تعليم الام طريقة للضغط على الثدى لتتمكن من جعل تدفق اللبن مستمرا حتى يتوقف عن البلع من تلقاء نفسه.لذلك فان القاعدة التى تقول ان الطفل يحصل على 90% من اللبن اول عشرة دقائق خاطئة تماما.

خدعوك فقالوا لا يوجد طريقة لمعرفة ما اذا كان الطفل يشبع من الثدى ام لا!

غير صحيح ....

لا يوجد طريقة سهلة لقياس كمية اللبن التى حصل عليها الطفل من الثدى لذا فإن أفضل طريقة لمعرفة إذا كان الطفل يبتلع فعلا على الثدى هى مشاهدته وهو يبتلع على الثدى لعدد من الدقائق(يفتح الفم فتحة كبيرة – يتوقف - يغلق الفم مع الابتلاع)

خدعوك فقالوا التركيبات الصناعية المسماة بالألبان الصناعية هى تماثل لبن الام!

غير صحيح و خطأ و خطر.....

نفس هذا الادعاء قيل سنة 1900 وقبلها.فالتركيبات الصناعية مروجه على أنها تماثل لبن الام وهذا مفهوم خطأو إدعاء غير صحيح فلبن الأم نسيج حيوى متكامل ولكن البن غذاء مصنع و ليس حتى غذاء بيولوجى طبيعى**!** وفى الاساس التركيبات الصناعية هى نسخ غير دقيق وقائمة على معلومات خاطئة ولا يمكن مقارنتها بلبن الام. فهذه التركيبات لا تحتوى على الاجسام المضادة ولا على خلايا حية ولا الانزيمات ولا هرمونات النماء. وبل بالعكس قد تحتوى على معادن ضارة للرضيع كالومنيوم والمنجنيز والكادميوم والرصاص والحديد بنسب عالية للرضع. وتحتوى على بروتين اكثر من لبن الام يسبب الحساسية و يهاجم مناعة الطفل فتعرضه للأمراض المزمنة كالسكر البولى و السرطان فيما بعد فى حياته. وكما أن لبن الأم يختلف تركيبيته من أول الرضعة عن آخرها. او من اليوم الاول عن اليوم الثلاثين و من سيدة الى أخرى و من طفل الى اخر. إن لبن الام معد ليناسب هذا الطفل بالذات أما التركيبات الصناعية صنعت من لبن البقر وبالتالى فهى لا تناسب إحتيجات نمو دماغ الإنسان ولذلك تنتقص من ذكاء الطفل بنسب عالية تصل الى 10 أو 12 وحدة ذكاء. إن التركيبات الصناعية تنجح فقط فى جعل الاطفال يكتظون ويبدنون ثم يمرضون ولكن لبن الام هو الغذاء الوحيد الذى يناسب الطفل ويجعله ينمو ويتطورو يكبر بسرعة وبصحة.

خدعوك فقالوا أن الأم العاملة لا تستطيع أن ترضع طفلها رضاعة مطلقة لأنها بعيدة عنه ساعات طويلة و يجب إعطاؤه أغذية أخرى !

غير صحيح بالمرة و خطأ و خطر....

إن كل أم تستطيع أن ترضع طفلها رضاعة مطلقة لمدة ستة أشهر حتى إذا كانت أم عاملة و من المهم أن تقوم بتفريغ ثديها من اللبن قبل الذهاب الى العمل و تركه فى كوب نظيف و محكم الغطاء ووضعة فى الثلاجة فى الرف الأول وتعليم من يقوم برعايته أثناء غيابها إعطاؤه إياه بالكوب أو الملعقة و ليس بالببرونة إذا جاع ولا تشبعه حتى يتطلع الى الرضاعة منها حين رجوعها من العمل و من المهم تفريغ الثدى أثناء وجودها بالعمل تفريغاً كاملاً حتى لا يتحجر فيقل إدراره فإن كثرة التفريغ والرضاعة وبالأخص الليلية هو ما يبقى و يزيد من إدرار اللبن و بالأخص للأم العاملة – و فى كل الأحوال فإن إصرار الأم على الإستمرار فى الرضاعة بمعرفة فوائد الرضاعة لها و لرضيعها هو سر نجاحها فى التمكن من الرضاعة المطلقة لمدة 6 شهور كاملة و الإستمرار بها لمدة عامين كاملين أو أكثر مع إدخال الأغذية بعد الشهر السادس – و لكن على الأم أن تمضى وقت كافى مع رضيعها بعد رجوعها من العمل وتحتضنه وتلاعبه وتكلمه وتتحاور معه فإن هذا ينمى من ذكائه و يساعده على الإستقرار والتكامل العاطفى ويقلل من إحساسها بالذنب لتركه و تقوى صلتها به و تنمى علاقتهما معاً....فيالها من أم منتجة فى البيت و العمل معاً

خدعوك فقالوا أن الأب ليس له دور فى دعم ونجاح الرضاعة أو فى رعاية طفله !
وهذا أيضاً غير صحيح بالمرة و العكس هو الأصح.....

إن الأباء قوامون على أبنائهم و قد أثبت العلم دور الأب الفعال فى تنمية ذكاء و تنبه حضور أبنائهم فقد أدى قيام مجموعة من الأباء بالرعاية بالإحتضان بدد الساعات فى النهار الى إرتفاع نسبة ذكاء الأطفال بالمقارنة بالأطفال الذين لم يتعرضوا لهذه الرعاية على الرغم من وجودهم مع أمهاتهم – و كذلك أثبتت كثير من الأبحاث أن نجاح الأم فى مواصلة الرضاعة المطلقة فى الشهور الستة الأولى ثم الإستمرار بها لعامين يكون ورائه أب داعم يشجعها على المواصلة ، ومن ناحية أخرى نجد أن كثير من السيدات التى أدخلن اللبن الصناعى يكون السبب هو إرضاءاً للزوج أو تحت ضغوط الحماه أو لأن الزوج لا يقوم بتشجيعها على الرضاعة – على الرغم من أن الأب يستفيد إستفادة مادية عالية من الرضاعة لأنه يوفر ماله الذى يستهلك فى شراء الألبان ولوزمها من بزازات وأجهزة تعقيم ثم الأدوية و زيارات الطبيب و الدخول الى المستشفى بسبب الأمراض الحادة المتكررة التى تسببها تلك الألبان ، فالمستفيد الأول من الرضاعة المطلقة هو الأب إذا قادته أبويته وحكمته الى ذلك ... **ولذلك تقوم الدول المتقدمة بمنح الأب أجازة رعاية وليد و يطبق ذلك بالسويد فى الغرب و المملكة السعودية فى الشرق.**

حالات سريرية فى إدارة الرضاعة الطبيعية

بقلم الدكتورة/ شروق الهيتمى
إستشارى دولى فى الرضاعة و إخصائى فى المعامل الطبية
و مؤلفة كتاب : دليلك فى الرضاعة

هذه الحالة لأم لثلاثة توائم أوزانهن عند الولادة 2و1800 و1950 كجم.

تقول الأم: لم اكن أعرف أى شيء عن الرضاعة الطبيعية وتصورت أن لبنى قليل جدا.فى البداية استخدمت شفاط للثدى لكن كان غير فعال .

الطفلة التى كان وزنها 2 كجم كانت الطفلة الوحيدة التى تمسك الثدى .الطفلة التى وزنها 1950 رفضت تماما والطفلة الثالثة قبلت الثدى بعد محاولات عديدة مع بكاء شديد.

كانت الأم تحلم ان ترضعهن ولو ثلاثة اشهر لأنها قرأت قصص نجاح فى الرضاعة الطبيعية فتشجعت من قراءتها. وقد قرأت مقالات نشرتها على الانترنت عن أهمية الرضاعة الطبيعية والتقنيات الصحيحة للرضاعة وبكت كثيرا لأنها لم تعرف هذه المعلومات قبل ولادة أطفالها.

كانت أمنيتها أن يتساوى الأطفال فى كل شيء لذلك حاولت بشدة ارضاع الطفلتين الرافضتين للرضاعة.

استشارتنى الأم تليفونيا وطلبت منها زيارة استشارى الرضاعة ولكنها لم تقدر على ذلك وطلبت أن تعرف المعلومات تليفونيا.طلبت منها أن تضع الأطفال الجلد للجلد كثيرا وأن تتوقف عن استخدام زجاجة الرضاعة وأن تعطى اللبن بالكوب ولكنها لم تستطع.

ونصحتها باستخدام بعض الاعشاب والمأكولات المدرة للبن وان تشترى شفاط كهربى قوى وكان طبيبها المعالج قد وصف لها أحد الأدوية المدرة للبن .

وكانت تعطى الطفلة التى ترفض الرضاعة لبنها المشفوط بالشفاط .ولأنها رفضت التوقف عن استعمال الزجاجة,أشرت عليها أن تعطى الزجاجة للطفلة وهى على ثديها المكشوف حتى تتعود الطفلة على وضع الرضاعة وعلى رائحة الأم.وكانت تعرض عليها الثدى مرة أو مرتين فى اليوم.

وقد قرأت مقالة عن وضع الطفل الجلد للجلد فقررت عمل ذلك رغم أن والدتها وهى طبيبة رفضت ذلك بشدة. وبفضل الله,الطفلة التى كانت ترفض نهائيا قبلت الثدى من أول مرة من وضعها الجلد للجلد ورضعت لمدة 15 ثانية وكان هذا حدثا كبيرا بالنسبة للأم وكان هذا بعد مرور شهرين من الرفض التام.ثم أصبحت تقبل الثدى بعدها. وهذه الطفلة استمرت فى الرضاعة من الأم لعدة أشهر بعدها بدون مشاكل.

الطفلة الثانية (*والتى كانت تقبل الثدى بعد بكاء شديد مع عدم الاستقرار على الثدى وكانت الرضاعة مؤلمة للغاية*)

استمرت الام فى محاولة عرض الثدى عليها مرات ومرات وهى تمشى اثناء الرضاعة وحاولت الأم استخدام الكوب ولكن لم تثابر على استخدامه وبفضل الله رضعت هذه الطفلة ايضا.

فأصبح الثلاثة اطفال يرضعون!!!!

تعلمت من هذه الحالة أنه حتى بقليل من الدعم والتشجيع للأم عن طريق الحديث على الهاتف أو ارسال بعض المقالات عن طريق الإنترنت يمكن أن يحدث فرقا كبيرا فى حياة الأم والأطفال.

وتعلمت أيضا المرونة فى اعطاء النصيحة للأم فان رفضت الام اتباع التعليمات بدقة لبعض الظروف الشخصية احاول معها بطرق أخرى تناسبها أكثر.

الى أن كان عمر الاطفال 5 شهور ,طفلتان استمرتا فى الرضاعة مرتين فى اليوم,والثالثة ترضع فقط وهى نائمة.واخبرتنى الام أنها تعلم أن السبب هو زجاجة الرضاعة واللهاية ولكنها لم تقدر على التوقف عن استخدامها.

بعد بضعة اشهر ,تعثرت الرضاعة مرة اخرى واكتفت الام باعطاء لبنها المشفوط ولكنها كانت تشعر بالرضا لأنها ارضعت الأطفال طوال هذا الوقت **وكانت تعلم أن كل يوم فى إرضاع طفلها يزيد من رصيد مناعته وصحته.**

بسم الله الرحمن الرحيم

فتوى حول الرضاعة الطبيعية

رسالة الى الإمام العلامة الدكتور / على جمعة مفتي الديار المصرية بالأزهر

لدعم حقوق الأمومة

لقد كشفت كثير من البحوث العلميَّة عن أضرار كثيرة تترتب على إرضاع الطفل لبنًا غير لبن أمه، وخاصّة تلك الألبان المصنّعة من ألبان الحيوانات التي تتعرض لتغيّرات غذائيّة كثيرة بعضها قد ينقل أمراضًا خطيرة إلى الطفل تظهر آثارها عاجلًا أو آجلًا، وتؤدي إلى كثير من المتاعب النفسيّة والجسميّة للطفل في طفولته وفي نموه، كما أنَّ الأم نفسها تتعرض إلى كثير من الضرر نتيجة احتباس الألبان في جسمها، كما أنَّ الخصال الوراثيَّة حسنة كانت أو غيرها تتعرض لمؤثرات قد تذهب بالمؤثرات الجينيَّة الحسنة التي تؤثر آثارًا إيجابيَّة في صحة الإنسان في الأجيال المتعاقبة؛ لذلك كلّه بدأت الاتجاهات العلميَّة في الغرب وغيره توصي بإرضاع الأم لأبنائها وعدم التفريط بهذه الخصلة الطبيعيَّة لصالح عمل الأم أو انشغلها أو أيّة أسباب أخرى، وأنَّه لابد أن تستمر الأم بإرضاع وليدها عامين كاملين كما حدد الخالق العظيم في قوله تعالى: **(وَالْوَالِدَاتُ يُرْضِعْنَ أَوْلاَدَهُنَّ حَوْلَيْنِ كَامِلَيْنِ لِمَنْ أَرَادَ أَن يُتِمَّ الرَّضَاعَةَ وَعلَى الْمَوْلُودِ لَهُ رِزْقُهُنَّ وَكِسْوَتُهُنَّ بِالْمَعْرُوفِ لاَ تُكَلَّفُ نَفْسٌ إِلاَّ وُسْعَهَا لاَ تُضَآرَّ وَالِدَةٌ بِوَلَدِهَا وَلاَ مَوْلُودٌ لَّهُ بِوَلَدِهِ وَعَلَى الْوَارِثِ مِثْلُ ذَلِكَ فَإِنْ أَرَادَا فِصَالاً عَن تَرَاضٍ مِّنْهُمَا وَتَشَاوُرٍ فَلاَ جُنَاحَ عَلَيْهِمَا وَإِنْ أَرَدتُّمْ أَن تَسْتَرْضِعُواْ أَوْلاَدَكُمْ فَلاَ جُنَاحَ عَلَيْكُمْ إِذَا سَلَّمْتُم مَّآ آتَيْتُم بِالْمَعْرُوفِ وَاتَّقُواْ اللّهَ وَاعْلَمُواْ أَنَّ اللّهَ بِمَا تَعْمَلُونَ بَصِيرٌ) (البقرة:233)** فالضرر الذي يترتب على عدم الإرضاع الطبيعيّ ضرر بالغ الخطورة على الأسرة والمجتمع؛ ولذلك بدأت الأصوات تتعالى في العالم الغربي الذي لم يتأثر بالكتاب ولا السنة بضرورة توفير كل ما يلزم للمرأة للتفرغ لإرضاع وليدها، والعناية بمستواها الاقتصاديّ لتتمكن من تغذية نفسها تغذية تسمح لها بالإرضاع الطبيعيّ بشكل مناسب، وبما أنَّ بيئاتنا المسلمة تتأثر بآراء العلماء وفتاواهم المستندة إلى الكتاب والسنَّة النبويَّة المطهرة فإنَّنا نرجو من دار الإفتاء ومن المفتين في العالم الإسلاميّ ومن جميع المجامع الفقهيَّة الإسلاميَّة إصدار الفتاوى والنداءات التي تشجع الأمهات على الإرضاع الطبيعيّ، وتنفرهن من الاعتماد على الإرضاع الاصطناعيّ الذي ثبت ضرره للأطفال في سن الرضاعة وتأثيراته السلبيَّة على نموهم العقليّ والنفسيّ والبدنيّ، وهناك دراسات كثيرة أعدت ويجري إعداد بعضها في هذا المجال، وأملنا أن تكون فتاوى أهل العلم وأهل الذكر وتوصيّاتهم للأمهات بأن إرضاعهن لأطفلهن ستة أشهر كاملة خالصاً من لبنها و إستمرار الرضاعة لمدة عامين كاملين مع الوجبات المناسبة هو عمل عباديّ يكسبها ثوابًا وأجرًا إضافة إلى عائده الهام على تماسك الأسرة وإنماء عواطف ومشاعر المولود وتعزيز ارتباطه بأمه وأبيه وأسرته لمقاومة كل تحديات التفكك الأسريّ التي تواجهها مجتمعاتنا اليوم، **إن أملنا كبير أن يكون الأزهر ودار الافتاء سبَّاقين لإصدار نداء في هذا المجال لحث الأمهات المصريّات وغيرها فى العالم العربى والإسلامى وتوصيات الى مجلس الشورى والشعب بأن تكون إجازة الأم العاملة المرضع فى جميع القطاعات الحكومية وغيرها 24 أسبوعا (6 أشهر بدلاً من ثلاث) مدفوعة الأجر كاملة من التأمينات الإجتماعية وأن يكون حصولها على عامين بدون أجر غير محدد بدفع التأمينات حتى تصبح قادرة على رعاية وإرضاع طفلها بأفضل ما رزقها الله له من رزق لإتمام العامين كما أمرها الله تعالى بذلك فى كتابه الحكيم و بما يوصت به منظمة العمل الدولية و منظمة الصحة العالمية ومنظمة الأمم المتحدة للأطفال** لتكون مصر كما كانت دائمًا في موقع القيادة والريادة في كل ما هو خير ومفيد ونافع للفرد وللأسرة والمجتمع إن شاء الله.

الأستاذة الدكتورة: عزة محمد عبد المنعم أبو الفضل. رئيس جمعيّة أصدقاء رعاية الأم والطفل، وأستاذ طب الأطفال في جامعة بنها، واستشاري دولي لهيئة الرضاعة الطبيعيّة، ومستشار منظمة الصحة العالميّة في برامج تشجيع ودعم الرضاعة الطبيعيّة.

من رواد الفكر النسائى : الدكتورة منى أبو الفضل .... فى سطور

الأستاذة الدكتورة منى أبو الفضل ولدت بالقاهرة فى7 نوفمبر 1945 وتوفيت بفرجينيا فى 23 سبتمبر 2008

هى أستاذة العلوم السياسية بكلية السياسة والإقتصاد بجامعة القاهرة وأستاذ كرسى د. زهيرة عابدين للدراسات النسوية بجامعة العلوم الاسلامية والاجتماعية فى ليزبرج بفيرجينيا بالولايات المتحدة الأمريكية وتبلغ مؤلفاتها فى العلوم السياسية والدراسات النسائية ما يقرب من 15 كتاباً و 30 بحثاً علمياً محكماً نشرفى مجلات علمية عالمية.

وهى من رواد الفكر النسائى المعاصر الإسلامى والذى أرسخت من خلال كتابتها وأعمالها (المقررات والتخصصات الدراسية وأنشطة "جمعية دراسات المرأه والحضارة" التى أسستها) عناصر ومقومات المرأه الحديثة التى تستطيع أن تأخذ من الغرب فتبنى جسور العلم والمعرفة والثقافة ما يفيد به الشرق ليعيد بناء تراثه فيشرق فى أزهى ثوب مصمم على أصول العلم والدين والعمل والإصلاح والتغيير الفكرى والثقافى الذى ينقى به الإنسان العصرى من الملوثات الفكرية والمثبطات المعنوية التى أضاعته فى خضم التطلعات الغامضة للمظاهر الخادعة والأفكار السطحية والسلوكيات البائسة التى تودى بالفكر الإنسانى الى الدمار و الهلاك ...

ويقول عنها الأستاذ الدكتور الشيخ / طه جابر العلوانى زوجها و رفيق دربها لربع قرن من الزمن ما يلى:

"لم تكن الدكتورة منى أستاذاً جامعياً مدرساً للطلبة بالجامعة فحسب بل كانت مفكراً على أعلى مستوى تنطلق من بين الأصالة والمعاصرة بأسلوب فى غاية القوة والعمق المنهجى كما أنها هضمت الفكر الغربى بمدارسه المختلفة وصارت أستاذاً يشاد له البنيان فى الفكر الغربى وحين يعد العلماء المصريين فى هذا المجال فتوضع د/منى فى المقدمة الى جانب د/ عبد الوهاب المسيرى ود/زكى نجيب محمود، فقد عاشت لتقدم دراسات نقدية فى هذا الفكر من منطلق العلم الدقيق لجذوره وبحيث كانت رؤاها النقدية تبهر كثيراً من الأساتذة الغربيين أنفسهم والذين كانوا ينحنون إحتراماً لها وتقديراً بفكرها."

لقد نشأت وعاشت الدكتورة منى أبو الفضل فى الغرب أعواماً طويلة حيث أكملت دراستها فحصلت على الدكتوراة من كلية SOASبجامعة لندن ولكنها تمسكت بهويتها وفكرها الإسلامى وإنتمائها للأمة وإستطاعت أن تسنبط من الغرب وعلى مدار عصوره التاريخية ما يجعل المرأة العصرية تنهض به لكى تنير الطريق الى مفهوم الأمة كوحدة متكاملة يشد بعضها البعض فتقوى بها إيمانها ووجدانها بأصالتها وعمق تراثها الذى يجعلها لا تتهاون فى الحق والخير مهما كانت التحديات ولو كانت بيننا فى وقتنا الحالى لوقفت شامخة بإصرار - كما كانت دائماً تفعل فى مواجهة مواقف التحدى - تطالب بحماية حقوق المرأة الأم التى أشاد بها القرآن فى آياته الكريمة بمصابرتها وتحملها لأعباء الأمومة و التى وصفتها فى دراستها بأنها ركيزة الأمة و منبع صلابتها ومحور التحول للتنمية على مدار العصور فهى تلك التى قامت عليها الثورة الصناعية فى أوروبا بعد أن دمرت الحرب العالمية شبابها فكانت طفرة الحركة النسائية التحررية التى واكبت هذا العصر سبباً من أسباب التغيير والنهضة الأوروبية وفى الغرب بوجه عام – وقد أشاد الإسلام بالمرأة فى مختلف الظروف ولكن المرأة الأم هى التى تُقوِّم بها الأمة فتستمد منها دوامها وعراقتها وقوامها وقوتها وعزيمتها على النهوض والبقاء ومقاومة الأزمات وبعث الأمن والآمان والعدل والسلام على الأرض.

فطوبا لها ولمن خطا خطاها وتحدى قضايا المرأة من أجل إعلاء كلمة الحق...

أ.د/ عزة أبو الفضل – رئيس تحرير المجلة

في ذكرى العقد لأم الأطباء المصريون : الأستاذة الدكتورة زهيرة عابدين

(17 يونيو 1917 – 7 مايو 2002 م)

نموذج الأم والطبيبة و المؤسسة و المعلمة و المربية المصرية

لمسات من حياتها نطفو في رحاب ذكراها مع كتاب
"أم أطباء مصر" إعداد وتأليف الدكتورة منى أبو الفضل

تعريف عن الدكتورة/ *زهيرة حافظ عابدين*

- **أول طبيبة عربية تمنحها كلية الأطباء الملكية بلندن درجة الزمالة .**
- **الطبيبة الوحيدة التي نالت الدكتوراة الفخرية في العلوم الطبية من جامعة أدنيره بانجلترا علي مستوي العالم كله عام 1980**
- **منحتها مصر وسام الدولة الذهبي تقديرا لمكانته العلميةة ، قدمه لها الرئيس السادات .**
- **أسست أول كلية طب متطورة بدولة الامارات العربية (كلية دبي الطبية للبنات) عام 1986ووضعت مناهجها.**
- **للدكتورة زهيرة عابدين من الابحاث العلمية ما يربو علي المائة والعشرين بحثا في المجلات العلمية بمصر والعالم .**
- **منحتها الدولة الجائزة التقديرية سنة 1996 في العلوم الطبية التطبيقية فتبرعت بقيمتها المادية لاوائل الخريجين في طب الاطفال والدراسات العليا .**

قال في إنسانيتها الدكتور/ حمدى السيد "نقيب أطباء مصر"

" تتابعت انجازات الدكتورة زهيرة عابدين من موقع الي موقع ومن مكان الي مكان انجازات علمية وجامعية وانسانية وكانت نمزذج للعمل الفريد ، العمل التطوعي ، العمل الذي لم يكن يصبو الا ارضاء الله سيحانه وتعالي . لقد كانت تعمل بتفان شديد ومثابرة وتراعي ادق التفصيلات في عملها وتراعي سائر الجوانب الانسانية التي تكتنف هذا العمل ، فكانت اي مشكلة لاي طبيب هي بمثابة مشكله لها ولاسرتها ، وعندما تكون هناك مشكلة مع محافظة الجيزة او وكيل وزارة الصحة كانت تأتي وتجلس معنا بالساعات محاولة ايجاد حلول هذه المشكلات ، وكانت تفعل ذلك وهي في غاية الاهتمام والتفاني في عملها ، لقد كانت نوذج فريد للعالم والانسان والعطاء المتجدد الدائم الذي لم يتوقف حتي فارقت الحياة".

كتبت عنها الكاتبة القديرة الدكتورة نعمات أحمد فؤاد (جريدة الاهرام 29 مايو 2002)

"منحت نقابة الاطباء الدكتورة زهيرة عابدين لقب "أم الأطباء" لقد اتسعت أمومتها فشملت مرضي روماتيزم القلب من الاطفال .. واتسعت رعايتها فوسعت المسنات وفردت جناحاً فأسست جمعية الشابات المسلمات .....

"انها ام الخير"

"لم يكتب قلمي يوما سطرا واحدا رثاء لناس ، او ابتغاء زلفي ، او اشتهاء مغنم ، ولكن أطري مناقب الدكتورة زهيرة عابدين بعد الغياب لان إطراءها صدق والثناء عليها حق ، وأبارك عملها لأن القول فيها كظلها مديد.... كبحرها يفيض ولا يغيض ... وبعد المطاف وطول الطواف يقف القائل لا يحيط بها ولا يزيد ..."

"ماذا يقول الناس في طبيبة تغلق عيادتها وتزهد فيما تدره العيادة من مال يتلهف علية الانسان الذي كابد دراسة الطب لتتفرغ للأعمال الخيرية مما إمتدت اليه رسالتها الانسانية .

دكتورة زهيرة !..اننا نكرمك بعد ان سبقنا الي تكريمك منذ سنوات خلت هيئة الامم المتحدة ، التي اختارتك ليس عن مصر وحدها وما اجلها ، ولكن عن افريقيا ...
لقد كرمتها الجمعية الملكية بلندن وبحسب المرء ان يكون في وطه وفي خارجه رمزا زمعلما .
"رحلت الدكتورة زهيرة عابدين جسما وبقيت روحا تلهم الاسوة وتصنع القدور ، وتكتب في تاريخ المرأة المصرية تاريخ مديد ومجيد في السلم والحرب يفرد له الحديث ."
الدكتورة زهيرة عابدين كانت أمـــا بالمعني الجامع وكانت علامة مصرية وكانت تاريخا يعتز به التاريخ في وطن التاريخ والامجاد .

و كتبت عنها الكاتبة والصحفية الأستاذة أميرة الخازندار (الاخبار4 يونيو2002)

"واذا أردت ان اكتب فسوف احتار في أي اتجاه اختار ..
فهي كانت دولة كلملة ...هل اكتب عن الانسان ...أم عن المرأة العاملة ؟ أم عن الطبيبة الاستاذة ..؟ أم عن الام المسلم ..؟ ام عن سيدة الاعمال الناجحة في اي مجال..؟
لقد كانت كل هؤلاء ، فى ياجمل وأكمل صورة بلا تجمل او افتعال وفي بساطة وتلقائية ..كانت رائدة للمشاريع الخيرية – دارصحة الطفل – لعلاجه ورعايته – ثم تعليمه – ودار مسنات ومستشفي ام الطباء – وجمعية روماتيزم القلب للاطفال بالهرم علاج ورعاية- ودار أيتام بالشابات المسلمات ودارس لغات اسلامية – علي اعلي مستوي ...أهدت احداهما لوزارة التعليم بـــ6 أكتوبر كل ذلك وغيره أكثر ، وكان بداخلها كبيوتر غاية في الدقي – لا تتكلم الا القليل الهادف تماما الصادق دائما – الحازم أبدا ، في صوت دقيق رقيق هامس ، يضطرك للسكون لكي تسمعه .
كانت قوية دائما لا تقف أمامها مشكلة فلديها المخرج الحكيم – وبداخل تلك القوة الجادة تتواءم مع الحزم الحاد لقلب طفل مرهف رقيق سريع التأثر في المواقف الانسانية ، واللمحات الدينية – فتري الدمع منساب .
لقد كانت هرما من العزيمة مؤمنة بكل مت تعمل او تقول – تفكر بكل عقول من معها ...تنطق بكل آمالهم ، وتكشف مكنوناتهم بنظرة نافذة ، تتكلم بالود وتعبر عن اللوم ."

و عن أعمالها و إنجازاتها الطبية قال فيها الدكتور/ حمدى السيد:
" قامت بانشاء تخصص أمراض القلب للأطفال وقامت برعاية مرضي روماتيزم القلب للأطفال .وكان للمنشأة العظيمة الموجودة تحت سفح الهرم لرعاية مرضي روماتيزم القلب والذي كان عددهم في ذلك الوقت بالالاف ، دور كبير في مكافحة هذا المرض وتحجيمه . لقد اتجهت جهود د. زهيرة لرعاية هؤلاء المرضي صحيا وعلميا وثقافيا ، وقامت بعمل عظيم ما زلنا نذكره ومازال يذكره المجتمع الطبي ومازالت تذكره المحافل الدولية ، وكان بداية نهضة علمية طبية انسانية تفتخر بها . ولقد كان لي معها لقاءات كثيرة بحكم زياراتي لها في موقع عملها حيث كانت تستعين بنا ونستعين بها في رعاية أولادها من المرضي والاطفال الذين كانت تحنو عليهم حنة الام وكانت نموذج فريد وجديد للعمل الطبي والعمل الانساني الذي يشع بالنور وبالرحمة والانسانية ."

كتبت عنها الصحفية الأستاذة/ مني عوض (مجلة نصف الدنيا - 15مارس 1992)

"ونكتشف هذا المنجم المعطاء الذي لا ينضب ولا يتوقف عطاؤه"

"هي مؤسس علم الطب الإجتماعي في مصر والعالم العربي ، إليها الفضل في إنشاء المركز القلب بالهرم والخاص بعلاج روماتيزم القلب ومعهد صحة الطفل بالدقي للحفاظ على صحة الطفل.. وهي التي أسست جمعية الطبيبات المصريات و جمعية الشابات المسلمات ، لم يتوقف نشاطها عند حد الصحة فقط بل تعداه الي ميدان التربية والتعليم حيث ساهمت في انشاء مدارس اسلامية للغات تضع الدين نصب عينها لتخريج جيل مسلم ملتزم بتعاليم دينه ويواكب روح العصر ..."
"زهيره عابدين .. في مجتمع الأطباء ...عندما تنطق بهذا الإسم تغشي المكان سحابة من السكينة وغمامة من هدوء ووقار ويكاد كل طبيب ان يقول **أمي .. فهي الملقبة بأم الأطباء** وهي التي كرمتها الدولة فنالت درع الجمهورية والوسام الذهبى فى ذكرى مرور 150عاما علي انشاء كلية الطب ."

"في المانيا كرمها **نادي النساء الدولي** في فرانكفورت واعطاها **جائزة اليزابيث نورجال** التي تمنح سنويا لاحدي النساء الاتي يقدمن خدمات جليلة للمرأة وهي المرة الاولي التي تمنح هذه الجائزة الكبري لسيدة خارج اوربا وامريكا ."

"قالت عنها الصحيفة الغربية : **انها نموذج لامراة قلما تستطيع امراة اخري محاكاتها في مسيرة حياتها المليئة بالاعمال الخيرية** .فعندما تحصل امراة في مجتمع شرقي يتميز بسيطرة الرجال علي لقب " الام المثلي لاطباء مصر" فان هذا يقترب من مرتبة الاسطورة ويعبر عن تقدم عظيم ليس من قبل زملائها فحسب بل من بقية المواطنين**."**

وكتبت فيها الدكتور/ منى أبو الفضل نجلتها وأستاذة العلوم السياسية بجامعة القاهرة (فى فاتحة كتاب "أم أطباء مصر)

"..... فلم تكن لتعبء بوهن او مرض او ضعف او قلة حيلة او هوان علي الناس في زمن عز فيه الكرم وتوارت فيه الفضيلة ، لم يقعدها ثقل الامانة عن عزيمة الدأب والصبر والجلد والمثابرة التي جلبت عليها ، لان تستمر في حمل الامانة ، وعن تحمل الوان المشقة في سبيل الا تسقط راية الجهاد التي عاشت عمرا ترفعه ، حتي اذن لها ربها بالرجعي ، فلاقت وجه العلي الكريم وهي علي العهد حافظة لتلحق في زمرة عباده المخلصين من الصديقين والشهداء والصالحين ممن قال فيهم وقوله الحق " الا ان اولياء الله لا خوف عليهم ولا هم يحزنون " ....وقد بؤاهم الرحمن جل وعلي مكانة يرضونها "..في مقعد صدق عند مليك مقتدر " ونعم هذا مقاما وحسن أولئك رفيقا .(لقد كانت دائما تردد : يقيني بالله يقيني) ، وتؤمن بان الله لا يضيع أجر من عمل صالح لوجهه مصداقا للقوله تعالي : ان الله لا يضيع اجر عمل عامل منكم من ذكر أو أنثي....

"ومن واقع هذا الإلحاح الوجداني أجدني اليوم أجتهد محاولة إستنطاق زهيرة النموذج ، مبني ومعني ودلالة ، حتي يمكن ان أمد الجسور بيني وبين الآخرين في مجلس المدارسة والاعتبار ، لعلنا يكن لهذا الجهد المتواضع ان ننفع الفكر المعاصر في المجالات التي تتماس وتتقاطع من خلال سيرة زهرة النموذج : فها هى المثل والقدوة التى أمضت حياتها عمليا فيما ينفع الناس ، وتأتي سيرتها لتدعم هذا النفع وتعممه نظريا وفكريا ومثلا بما يثري مستقبل الأجيال ".

وأخيراً فماذا تقول الدكتورة زهيرة عابدين عن دورها كأم عاملة و بيتها وعملها ..... فهى تعتبر أن البيت هو الاساس فتقول:

"*في البداية أؤكد ان بيتي محل اهتمامي الاول ورعاية زوجي وتربية أولادي هي المسئولية الاساسية* **فخير عمل تستطيع المرأة ان تقدمه لوطنها أولا هو تربية أولادها وإعداد جيل جديد صالح** ." "والحمد لله قد استطعت ان أحقق نجاحا مشرفا في بيتي فلم أظلم أسرتي أبدا وخاصة ***وأن زوجي*** *الدكتورمحمد عبد المنعم ابو الفضل استاذ ورئيس قسم التحاليل الطبية بجامعة القاهرة زوج مثالي ولولاه ما استطعت تحقيق هذا النجاح الكبير* وعاونني في مسيرة حياتي كلها ، أما أبنائي فأنا حهدت ألا أقصر في حقهم فقد كنت حريصة علي خدمتهم بنفسي وهم في مرحلة الطفولة بالرغم من أعبائي ومشاغلي الكبيرة ....."

مقطتفات من كتاب "أم أطباء مصر" تأليف د/ منى أبو الفضل