



## A STRATEGY AND AWARENESS ON IMPROVING HEALTH OF LACTATING MOTHERS AND BREASTFEED CHILDREN: A REVIEW

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Article Info	ABSTRACT
<p>Received 25/10/2013 Revised 15/11/2013 Accepted 18/11/2013</p> <p><b>Key words:</b> Breast feeding; Mother; Nutritional value; Infant and child; Growth factor; Prenatal Education.</p>	<p>Infant and young child feeding is a key area to improve child survival and promote healthy growth and development. The first two years of a child's life are particularly important, as optimal nutrition during this period will lead to reduced morbidity and mortality, to reduced risk of chronic diseases and to overall better development. In fact, optimal breastfeeding and complementary feeding practices are so critical that they can save the lives of 1.5 million children under five every year. WHO and UNICEF recommendations for optimal infant and young child feeding are: early initiation of breastfeeding with one hour of birth; exclusive breastfeeding for the first six months of life; and the introduction of nutritionally adequate and safe complementary foods at six months together with continued breastfeeding up to two years and beyond. The health and nutritional status of an infant and its subsequent growth and development through childhood depend upon successful feeding practices right from birth. A sound knowledge and practical application of nutritional requirements must be the basis for the choice of infant foods. The socioeconomic status and education of the mother have also been known to influence infant feeding practices. This review article studied with 31 research articles which are related to the nutritional value of breast feeding. Gynaecologists, Family doctors, Pediatricians, Family Health Board should take a privilege to identify physical discomforts, health problems in mothers who is not able to care baby by lactating. Hence this can be easier to instruct and educate the mothers accordingly. Health nutritionist, Community pharmacists and Government hospitals should promote the practice of breastfeeding among mothers by providing post natal care guidance book, pamphlets, audiovisuals where they can improve their quality of life.</p>

### INTRODUCTION

Infant and young child feeding is a key area to improve child survival and promote healthy growth and development. The first two years of a child's life are particularly important, as optimal nutrition during this

period will lead to reduced morbidity and mortality, to reduced risk of chronic diseases and to overall better development. In fact, optimal breastfeeding and complementary feeding practices are so critical that they can save the lives of 1.5 million children under five every year. WHO and UNICEF recommendations for optimal infant and young child feeding are: early initiation of breastfeeding with one hour of birth; exclusive breastfeeding for the first six months of life; and the introduction of nutritionally adequate and safe

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The health and nutritional status of an infant and its subsequent growth and development through childhood depend upon successful feeding practices right from birth. A sound knowledge and practical application of nutritional requirements must be the basis for the choice of infant foods. The socioeconomic status and education of the mother have also been known to influence infant feeding practices.

**Prevalence & Background of Breast feeding in Malaysia** The World Health Organisation (WHO) recommends that infants should be exclusively breastfed for the first six months of life and complementary food should be introduced at the age of six months. These recommendations were adopted following a systematic review of current scientific evidence on the optimal duration of exclusive breastfeeding and an expert consultation on the subject [1].

Only 14.5 per cent babies in Malaysia were exclusively breastfed below six months in 2006.

In Malaysia 2011 year, the statistics [2] was only 23.7 per cent of babies born in the country are breastfed exclusively for the first six months, and the government hopes to increase this figure to at least 30 per cent by 2015.

Unicef's State of the World's Children Report 2011 stated that out of 136.7 million babies born worldwide, only 32.6 per cent of them were breastfed exclusively for the first six months. In keeping with the current recommendation, Malaysia has revised the existing National Breastfeeding Policy in 2005 [3]. In Malaysia, nationally representative data on levels of exclusive breastfeeding was virtually unavailable before the 1990s. The Second National and Health Morbidity Survey (NHMS II) which was conducted in 1996 was the first national survey that used the indicators recommended by WHO for assessing breastfeeding (WHO, 1991) and provided baseline data for the country [4].

Findings of the (NHMS II) [5] showed that although the overall prevalence of children ever breastfed in Malaysia was 88.6%, the prevalence of exclusive breastfeeding was only 29.0%.

The Third National Health and Morbidity Survey (NHMS III) [6] is a population based cross sectional study using a two-stage stratified sampling design proportionate to population size throughout all states in Malaysia by Ministry of Health Malaysia. The prevalence report of timely initiation of breastfeeding in Malaysia in 2006 was 63.7%.

In Thailand, only five per cent of mothers breastfeed, while in Vietnam, the rate is less than 20 per cent. In China, the figure is 28 per cent.

The key reasons are that breastfeeding not only helps in the growth and development of babies and protects them against sickness such as bacterial infection, obesity, asthma, diabetes, and heart diseases, but it also protects mothers against risks such as breast and ovarian cancers.

## **Breast Feeding**

It deserves encouragement from all concerned in the welfare of the children- pediatricians, general practitioners, nurses, midwives and other paramedical workers in child welfare centres. The preparations for breast feeding commence during the mother's ante natal period.

The advantages of the breastfeeding [7] should be explained to her clearly and its psychological benefits for her and baby should be emphasized. The attending doctor should reply patiently to her queries and guide her in equipping herself to breast feed the baby. One of the point that often raised is how an adequate flow of milk can be ensured. The first important step towards this is to ensure that the mother is relaxed and confident; the more she nurses the baby, the more milk she will have. Supplementation with formula –feeding tends to decrease the milk supply.

A small quantity of lemon- yellowish milky fluid called colostrum is secreted during the first three days. This is very rich in protein, mainly globulins, and low in fats and carbohydrates. The vitamin A content is also higher in colostrum than in breast milk. It consists of small endothelial cells (colostrum corpuscles) and its specific gravity is high, 1040 to 1060 (specific gravity of breast milk is 1030).

The colostrum, though secreted only in small amounts, is sufficient for the baby's needs till it is replaced by more abundant milk. The change from colostrum to milk occurs somewhere between the third and sixth days, when the protein content gradually diminishes and that of sugar (lactose) increases.

## **Physiology of Lactation**

The mammary gland consists of 15-20 segments converging on the nipple. Each segments consists of clusters of alveoli, collecting sinuses, milk ducts, fat and intersitial tissue. Milk is secreted by the epithelial cells lining the alveoli and is collected in the sinuses. When the infant suckles, nerve impulses reach the posterior pituitary and stimulate it so that the hormone oxytocin is released. Oxytocin acts on the small muscles surrounding the milk producing ducts and helps in the ejection of the milk. This is known as the 'let down reflex'. This reflex is sensitive to emotional and psychological factors. Emotionally, confidence can enhance the milk flow, while anxiety can suppress it. Nipple stimulation is not the only way to initiate the 'let down reflex'. The sight or the sound of the baby, or even the thought of the baby can initiate the reflex and the flow of milk. Sucking is however best galactagogue.

## **Traditional false beliefs**

In certain regions of the world ( burma, phillippines, Tanganyika, etc) it is usual o discard the colostrum as unfit for feeding neonates. Various other foods are substituted for pre- lacteal feeding. It is the



custom in burma to give the newborn muslin dipped in honey ( Foll,1959), and to administer a purgative. Breast feeding is not started until the third or fourth day of life (Nurge, 1957). Similarly, there are various traditional beliefs which exist among different peoples regarding the harmful effects of colostrum and its undesirability as food for the newborn. Colostrum is, for instance, believed to produce disease or is regarded as too strong for the newborn. In some other regions (Ppua New Gunea) infants are starved for the first three days of life in order to prevent the undesirable effects of colostrum.

### **Ante -natal preparation**

Preparation for breast feeding must begin in the antenatal period. Breasts and nipples must be kept clean. The skin over the breasts and nipples should not be allowed to go dry as it can cause painful cracks and infection. Pulling out the nipples gently will help to correct slightly retracted nipples. The nipple should be held at the base where it joins the areola and gently rolled between the thumb and the forefinger. This can be repeated a number of times during the day. As retracted nipples make it difficult for the baby while sucking, they must be corrected during the ante natal period. The breasts need to be gently massaged and well supported.

### **Diet for nursing mothers**

Mothers should consume more than the normal daily diet requirement. The nutrient intake of lactating women is one of most important determinants of woman's health, well-being and the ability for long-term successful breastfeeding. Human lactation is a natural process, which is well established to provide many health benefits for both mothers and their infants. Lactation also has many favourable effects on women, including reducing the incidence of type 2 diabetes, metabolic syndrome [8, 9,] cardiovascular disease [10, 11] and cancer [12]. The nutrient intake of lactating women affects the nutrient content of breast-milk and maternal health [13].

### **Breast hygiene**

Breasts should be kept clean and carefully washed before and after each feed.

### **Benefits**

Breastfeeding also contributes to the health and well-being of mothers; it reduces the risk of ovarian and breast cancer. The nutritional content of human breast-milk has been shown to enhance many biochemical and metabolic pathways critical to the development of most organ systems including the digestive, cardiovascular, pulmonary, immune, endocrine and nervous system [14, 15]. These metabolic events are vital for maintaining the normal function and health of newborns, particularly those born prematurely or with a low birth weight, and that often persist long after nursing [16]. Breast milk is the food most suited for the normal newborn infant. The evolution,

complexity and general nutrient composition of this biological fluid is discussed from the perspective of the normal infant's requirements for growth and current knowledge of neonatal nutritional requirements [17].

The total non-protein nitrogen and amino acid nitrogen were practically of the same concentration in the milk from the first and last halves of the nursing period, and in the milk from the right and left breasts. The total non-protein nitrogen and amino acid nitrogen varied appreciably throughout the day and night. A rhythmical diurnal fluctuation appeared to exist with maximal values in the afternoon or evening, and minimal values in the morning. The concentration of the non-protein nitrogen constituents in the milk varied from day to day, more so throughout lactation, and most widely among different women. The data indicate that under normal physiological conditions the concentration of non-protein nitrogen constituents in the milk is similar to that observed in the blood. Under abnormal conditions of bodily disturbances, drastic alterations may occur in the non-protein nitrogen partition of the milk, alterations which may serve clinically as an index of such bodily disturbances as reflected in the blood [18].

### **Advantages of breast feeding**

Breast feeding is ideal for several reasons. All spices produce ideal food, in the form of milk, for their young. Breast milk is the most natural and therefore the best food.

1. Breast milk is readily available, warm and free from contamination. No expense is involved milk itself, for bottles, or for fuel. Breast milk will reduce gastro intestinal disturbances and malnutrition in children.
2. The nutritional value of breast milk is far superior to any other milk. Its composition is suited to the needs of the baby and therefore it is very easily digested and provides adequate nutrition for the optimum growth of the baby.
  - a. Human milk contains only 1.0-1.5 gm of protein, 60% of which is lacto albumin and lacto globulin (proteins), and 40% is casein. Low casein content makes the curds soft and easily digestible by the enzymes.
  - b. Lactose which is the carbohydrate in 6.5-7.0gm % is higher than in other milks. This provides the energy for the development of the brain, which is faster and greater than in other species. It enhances the absorption of calcium and phosphorus and helps nitrogen retention.
  - c. Fat content in human milk varies according to the needs of the baby. It has diurnal variation and may even vary in the same feed, the later part having more fat. The linoleic acid content, which is 2.7 times more, makes it more easily digestible.
  - d. Richer in vitamin C and other vitamins that the baby needs except perhaps vitamin D.
  - e. It contains less iron. Here the iron is completely absorbed. Iron supplements are needed after the baby is 3 months old. Calcium and phosphorus are fully absorbed and utilized.



f. Human milk has high concentration of IgA antibodies.

g. Gastro intestinal and even respiratory infections occur less frequently in breastfed babies. Human milk has a high concentration of IgA antibodies. It also contains viral and bacterial antibodies against viruses like poliomyelitis, mumps, influenza, Japanese B encephalitis virus and bacteria, especially *E.coli*, *sheigella*, *salmonella*, streptococci and pneumococcal.

Macrophages in the colostrum and milk can synthesize complement, lysozyme and lactoferrin. Lactoferrin, the iron binding whey protein, has an inhibitory effect on the growth of *E.coli* which is the commonest pathogen for diarrhoeal episodes. This is why gastroenteritis is less common in breast fed babies. Breast milk also contains a growth factor which helps the intestinal colonization with *Lactobacillus vifidus*. This produces the high quantity of lactic acid and formic acid which suppress the growth of entero-pathogenic *E.coli*.  $\kappa$ -Casein, a minor casein subunit in human milk, is a glycoprotein with charged sialic acid residues [19]. The heavily glycosylated  $\kappa$ -casein molecule has been shown to inhibit the adhesion of *Helicobacter pylori* to human gastric mucosa [20]. *H. pylori* infection has been shown to occur in increasingly younger age groups, but breastfeeding seems to provide some protection.

3. Breast feeding promotes the rapid involution of the uterus. Nursing mothers are less prone to breast cancer. The contraceptive aspect of breast feeding is also an significant advantage. Breast feeding promotes and preserves maternal health, provided the mother gets adequate nutrition. Multitude of proteins in human milk have inhibitory activities against pathogenic bacteria, viruses, and fungi. Some of these proteins are likely to act independently, whereas others may act synergistically. There appears to be considerable redundancy, with several components acting on the same pathogen; this suggests a multilayered defense system that may explain the lower prevalence of infection in breastfed infants than in formula-fed infants [21].

The immunoprotective constituents of human milk are stable when stored at room temperature for 8 h, refrigerated at 0–4°C for 3 d or frozen at  $-20^{\circ}\text{C}$  for 12 months [22, 23]. They are also stable after pasteurization at 56°C for 30 min<sup>23</sup>. Sonification may well reduce the protective effects on IgA, sIgA and lysozyme and the ability to inhibit *E. coli*. The cells in human milk are reduced by storage, freezing, pasteurization, microwaving and sonification. Cell activity is also reduced in the surviving cells.

## RESULTS AND DISCUSSION

Mothers must be encouraged to breastfeed their babies in the first hours after giving birth. As such, family members and their husbands should play an important role in motivating and encouraging them to continue breastfeeding when they are at home. It is the need to promote the breastfeeding culture to mothers, especially from the aspects of the nutritional values and benefits to

their babies and themselves. Expression of breast milk is desirable whenever a woman is separated from her infant for more than four hours. The goals of breast milk expression in the workplace were to obtain the highest possible level of prolactin hormone, most efficient emptying of the breasts and greatest possible volume of breast milk [24]. Most new mothers do not have direct, personal knowledge of breastfeeding, and many find it hard to rely on family members for consistent, accurate information and guidance about infant feeding. Further, although many women have a general understanding of the benefits of breastfeeding, they lack exposure to sources of information regarding how breastfeeding is actually carried out.

### Educating Nursing Mothers Prenatal Education

Breastfeeding education during pregnancy is often offered in a hospital or clinic group setting, but it need not be provided in a medical setting. Libraries, community centers, YMCA-type facilities, churches, temples, schools, and work sites can all be appropriate venues. Classes are typically offered by a professional trained in breastfeeding or lactation management who is an effective teacher with groups of adults. Classes may meet as part of a series (such as infant care or childbirth) or be freestanding. In addition to traditional instruction, classes often incorporate multidimensional learning opportunities, such as demonstrations and practice using a doll, videos, observing a newborn breastfeeding, and work in small groups. Many hospital-based classes include instruction on preparing for the infant's birth and early feeding practices that is directly tied to the policies at that particular hospital.

Prenatal curricula [25] most often provide guidance for mothers about anticipated situations and signs of effective breastfeeding or breastfeeding problems; the benefits of breastfeeding to mother, baby, and society; appropriate positioning for feeding; facilitating effective latch; specific needs in the early days of breastfeeding; and resources for assistance. Emphasis is generally placed on building skills for latch and positioning, as well as addressing common fears, concerns, problems, and myths.

### Intrapartum Education

Education on breastfeeding during the intrapartum period is extremely time sensitive. This type of education is often less formal than education provided during pregnancy and is generally conducted individually. Intrapartum breastfeeding education almost always occurs within a hospital setting. Intrapartum breastfeeding education most often focuses on immediate issues such as fostering appropriate latch and positioning, adequate milk removal, stability of the infant, and comfort of the mother. It also gives an opportunity to reassure and support a concerned mother or family member, provides mothers and family members with referral information for further postpartum support, and allows the reiteration of signs of success or potential problems in the first few days after



hospital discharge. All hospitals that routinely handle births should have staff with adequate training and knowledge to address and facilitate routine, standard breastfeeding education in the intrapartum period for all breastfeeding dyads.

### Support for Breastfeeding in the Workplace

Support for breastfeeding in the workplace includes several types of employees benefits and services, [26,27] including writing corporate policies to support breastfeeding women; teaching employees about breastfeeding; providing designated private space for breastfeeding or expressing milk; allowing flexible scheduling to support milk expression during work; giving mothers options for returning to work, such as teleworking, part-time work, and extended maternity leave; providing on-site or near-site child care; providing high-quality breast pumps; and offering professional lactation management services and support.

One-third of these mothers return to work within 3 months after birth and two-thirds return within 6 months, working outside the home is related to a shorter duration of breastfeeding, and intentions to work full time are significantly associated with lower rates of breastfeeding initiation and shorter duration [28]. Therefore barriers should be identified in the workplace include a lack of flexibility for milk expression in the work schedule, lack of accommodations to pump or store breast-milk, concerns about support from employers and colleagues, and real or perceived low milk supply [29-31].

Approach local media outlets (television, radio, print) and request them to air or feature the public service announcements for the importance of breast-feeding and nutrition for babies.

Each government hospitals and public health sectors should encourage themselves to participate and trained themselves to educate the gestational mothers and nursing mothers about the nutritional value of breast feeding and also providing the awareness of various health problems for the babies those who get insufficient nutrition from breastfeed.

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### CONCLUSION

This review article was studied with 31 research articles which are related to the nutritional value of breast

feeding. The main reason is to bring this review article to all the awareness of the breastfeeding and the nutritional value of it. This may encourage health professional organizations to provide training for their members who provide services to women of childbearing age in providing breastfeeding education to mothers also providing them the awareness of various health issues for infants and babies received insufficient nutrition from breast feed. Breast milk is the one of the important component of infant care.

Every country should organize activities and awareness around Breastfeeding Week. Some mothers they have lack of knowledge on choosing food during lactating period. Some mothers they get misleded by neighbours, friends, relatives, colleagues and gather inaccurate informations. Many mothers mistakenly believe that infant formula is as good as breast milk, or breastfeeding may affect their bodies negatively. Some mothers are not producing enough milk to keep their baby full and happy. It should be noted that only a tiny percentage of women (about 1%) are truly not able to produce enough milk for their babies. For most women, low milk supply is caused by problems such as infrequent breastfeeding, poor positioning, poor latch-on by baby, sore nipples, sore lumps and breast infection (mastitis). Some guidance and advice on improving milk supply must be provided by the medical practitioners to the breast feeding mothers during post natal care. Mothers should do balancing work, exercises and eat healthy food for adequate secretion of hormones for the production of milk.

Gynaecologists, Family doctors, Pediatricians, Family Health Board should take a privilege to identify physical discomforts, health problems in mothers who is not able to care baby by lactating. Hence this can be easier to instruct and educate the mothers accordingly.

Health nutritionist, Community pharmacists and Government hospitals should promote the practice of breastfeeding among mothers by providing post natal care guidance book, pamphlets, audiovisuals where they can improve their quality of life.

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