



**AMERICAN UNIVERSITY OF
ARMENIA**

DEPARTMENT OF PUBLIC HEALTH

***IDENTIFICATION OF EDUCATIONAL NEEDS
ON BREASTFEEDING AMONG ARMENIAN
MOTHERS AND PREPARATION OF
APPROPRIATE EDUCATIONAL MATERIALS
FOR THEM***

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Abstract

Objective: This study is aimed to identify educational needs of lactating mothers in Armenia concerning optimal breastfeeding and infant feeding practices, and to suggest effective means to address those needs.

Method: Qualitative methodology was implemented with the utilization of focus group discussions with the target population - mothers of infants under 6 months of age, with the purpose to determine their perceptions, beliefs and attitudes toward breastfeeding and to find out their infant feeding habits. Four focus group sessions were conducted between July 27th and August 3rd, 1999, two of which were in Yerevan, and two others were in the Regions, with participation of a total of 30 women. A semi-structured field-guide and note-taking technique was used. The analysis was done by rereading notes, coding the key areas of interest and regrouping research findings according to those key areas.

Results: The study revealed lack of knowledge in many areas that are crucial for successful breastfeeding, such as correct positioning of the baby at the breast, insuring enough frequency of feedings to stimulate lactation, and importance of night feedings. Mothers had many misconceptions concerning the breastfeeding process, breast milk, as well as nutritional value of different foods and liquids for the child. They were unable to understand causes and consequences of common problems that they faced during lactation and were tended to seek those causes in their immediate impressions and feelings, considering common and temporal breastfeeding difficulties as unchangeable and hopeless situations. In some areas a discrepancy was observed between mothers' knowledge and actual behavior. Thus, exposure to the statement alone was not enough for changing mothers' behavior. Profound, well-organized and convincing information on many practical aspects of infant feeding was considered necessary to produce behavioral changes among them. Mothers demonstrated strong ability to be influenced by inappropriate marketing of baby foods and drinks in the case when they have no available and reliable sources of information. Brochures and conversations with the specialists were identified as preferable sources of information for mothers.

Development and pre-testing of educational materials: According to these results 11 areas of educational messages on infant feeding were determined, and 17 common questions were considered important to address. A 22-page brochure "How to Breastfeed", a 10-hour Curriculum on Breastfeeding Education, and a scenario of 4-minut TV-spot on Breastfeeding were developed and pre-tested via two focus group discussions with mothers of infants. The results showed that these materials were not only acceptable and convincing for mothers, but also were influential enough to produce behavioral changes.

Conclusion: Developed educational materials might be powerful tools to promote optimal breastfeeding practices. Besides, to reach better results, it is important to ensure the consistency of information that mothers receive from different sources. And also, success of breastfeeding largely depends on appropriate help that mothers get from maternity wards and from children polyclinics thereafter.

I. Introduction: Background Information on Breastfeeding in Armenia

Since 1988 an abrupt decline was observed in the number of breastfeeding children in Armenia. While in 1988, 64% of all infants were fully breastfed at the age of four months, by 1993 this figure had dropped to 23%. (MOH data, 1999). Deterioration of living conditions and continuous stress were blamed to cause this decline. But there were some other important reasons such as: availability of free infant formula, imported by humanitarian aid; lack of mothers' confidence in their own abilities to breastfeed under the hard living conditions; and lack of trained medical staff, capable to help mothers to initiate and continue breastfeeding successfully under such conditions. (Demirchyan, 1997; Wellstart Int., 1998). The 1993 study of infant feeding practices by K. Hekimian revealed not only low breastfeeding rates, but also: hospital practices that did not encourage breastfeeding, and extremely low level of knowledge among health care providers and mothers on the art and technique of breastfeeding. (Hekimyan, 1993).

At the end of 1993, Ministry of Health initiated Breastfeeding Promotion Program in Armenia. Since the adoption of this program several interventions have been implemented in collaboration with UNICEF, USAID, Wellstart International, IBFAN etc., to establish optimal infant feeding practices in Armenia. Several books in Armenian were developed and/or translated for health care providers on current breastfeeding knowledge, and were distributed among them free of charge. During 1994, ten 18-hour courses of WHO/UNICEF on Baby Friendly Hospital Initiative (BFHI) for administrators and health care providers were conducted in all regions of Armenia. Meanwhile, the MOH adopted a policy ordering the immediate implementation of the five steps of BFHI that required minimal training and resources in all maternity hospitals of Armenia, with subsequent implementation of remaining steps in parallel with ongoing training of staff. Since 1996, 40-hour courses on Breastfeeding Counselling (WHO/UNICEF) were implemented and 285 physicians and 200 nurses were involved in those courses till 1999. However, only 12% of all primary pediatric care providers in Yerevan, and even less in the regions have been trained, which is obviously not enough for providing the lactating mothers with all the support that they need. (MOH data, 1999).

Since 1995, the free distribution of donated infant formula was stopped. And in 1999, a new article on marketing of breast milk substitutes was introduced in the National Law on Advertisement that forbids adverts and free distribution of infant formula, bottles, teats and any liquids or foods intended for infants under 6 months of age.

In 1994, an intensive, mass media communication campaign was conducted for mothers, aimed to promote some optimal breastfeeding behaviors such as exclusive breastfeeding for 4-6 months, breastfeeding on demand, rooming-in, and early initiation of breastfeeding. The theme of the campaign was that mothers should trust their bodies to provide adequate nourishment for their infants, even in times of poor diet and difficult conditions. The campaign lasted for three months, and included two radio spots,

a two-minute television spot, full- and half- page advertisements in newspapers, and 60,000 brochures for mothers. According to the evaluation conducted one year after the campaign, the exposure of mothers to the brochure and to the television spot was the highest (74% and 65% correspondingly). The brochure, in particular, was very well received by mothers and well recalled. (Holley-Newsom, 1995; Wellstart Int., 1998). Although the campaign was successful, it was the last one since 1994. There were other few publications and radio- and TV- spots on infant feeding for mothers. But they had very limited coverage and were aimed mainly to highlight breastfeeding advantages, the knowledge that is not new for the majority of Armenian mothers. (Hekimyan, 1997). The only brochure on breastfeeding that was published in sufficient quantities (100,000 copies) with support of UNICEF was aimed to pregnant women. Lactating mothers are still lack of vital information on practical aspects of breastfeeding.

The comparative study by K. Hekimian on infant feeding practices in Armenia that was conducted in 1997 revealed that since 1993, considerable improvements have been made in breastfeeding practices. Particularly, the rate of full (exclusive and predominant) breastfeeding in infants under 4 months of age was increased from 30.8% in 1993 to 62.4% in 1997; post-partum hospital practices were improved significantly in terms of increase in immediate initiation and rooming-in and decrease in reported prelacteal feeds; health care providers' knowledge was improved considerably. These data is consistent with the MOH data that shows an increase in the rates of full breastfeeding at 4 months of age from 20% in 1994 to 50.3% in 1998.

However, many areas, such as exclusive breastfeeding, breastfeeding duration, postpartum hospital practices, and especially, mothers' knowledge and practices that are crucial for establishment of optimal breastfeeding practices, still need improvement. The study mentioned effectiveness of printed materials for changing behaviors, especially in the country like Armenia, where almost all mothers are literate. Television was considered as a second appropriate channel, due to high exposure of all sectors of population to it. (Hekimyan, 1997).

Another recent study has also highlighted the importance for educational intervention aimed to improve knowledge of Armenian mothers on optimal breastfeeding and infant feeding practices. (Branca, 1998).

II. The Aims of the Study & The Objectives of Proposed Intervention

This paper is aimed to identify educational needs of lactating mothers in Armenia concerning optimal breastfeeding and infant feeding practices, and to suggest effective means to address those needs. Thus, the goal of the proposed intervention is to increase mothers' knowledge on the theory and technique of breastfeeding and infant feeding in general.

To reach this goal, it was considered necessary to go through two steps:

1. To conduct qualitative study aimed:

- a) To reveal mothers' perceptions, beliefs and attitudes concerning breastfeeding and its determinants;
 - b) To find out infant feeding and breastfeeding habits among mothers;
 - c) To identify common breastfeeding problems that face mothers;
 - d) To explore means of communication for mothers and to identify appropriate information sources and channels for them.
2. To develop appropriate breastfeeding education materials for lactating mothers through several steps:
- a) To design main educational messages for mothers;
 - b) To develop channels to use for communication of those messages to mothers;
 - c) To test developed educational materials and to introduce appropriate changes.

III. Why and How to Promote Breastfeeding: Review of the Literature

Benefits of Breastfeeding for Child

Human milk contains the best known balance of nutrients, enzymes, hormones, growth factors, immunoglobulins and anti-infective substances for the developing infant. (Freed, 1993). It is characterized by a host of immunologic components that protect the infant against infections. The immunologic system in human milk undergoes remarkable changes, which may represent adaptation for the recipient infant. (Goldman et al., 1982).

Many studies have found that breast-fed infants have much lower rates of hospital admissions, ear and respiratory infections, septicemia, meningitis, and diarrheal illness than their bottle-fed counterparts. (Howie, 1990; Cunningham et al., 1991; Beaudry & Marcoux, 1995; Duncan et al., 1993, Huffman & Combest, 1990). There is greater difference in illness rates between breast-fed and bottle-fed infants among those in high-risk categories (Kovar et al., 1984). Protective effect of breastfeeding is most evident against serious and complicated, rather than uncomplicated conditions. (Cunningham et al., 1991). Even in countries where infant mortality is low, artificially fed infants require hospital treatment up to 5 times more often. (De Zoysa et al, 1991).

It has been also shown that bottle-feeding is a risk factor for many chronic diseases of childhood and adulthood, such as insulin-dependent diabetes mellitus, malignant lymphomas, certain types of chronic liver disease, allergies and autoimmune diseases. (Borch-Johnsen et al., 1984; Mayer et al., 1988; Anderson et al., 1974; Davis et al., 1988; Cunningham et al., 1991). Breast milk is important for normal development of intestinal mucosa. Lucas & Cole (1990) have found strong protective effect of breast milk against neonatal necrotizing enterocolitis. Lack of breastfeeding accelerates the development of celiac disease and is significantly associated with development of ulcerative colitis and Crohn's disease later in life. (Greco et al., 1988; Bergstrand & Hellers, 1983, Whorwell et al., 1979). Breastfeeding protects

against dental decay and malocclusion. (Brian, 1998). Several studies have shown that the intellectual development of breast-fed children is slightly but significantly better than that of children fed artificially. (Lucas et al., 1992; Rogan & Gladen, 1993; Horwood & Fergusson, 1998). Birch et al. (1993) have shown that dietary supply of ω -3 essential fatty acid in breast milk influences optimal visual development both in pre-term and full term infants.

Breastfeeding and Infant Mortality

It has been estimated that breastfeeding currently saves over 6 million lives of infants, and it has the potential to save an additional 2 million infant lives in the world annually. (CPCM Policy Series, 1991). Numerous studies have shown that the mortality risk for artificially fed infants is considerably higher than for breast-fed babies in both developing and developed countries. (Cunningham et al., 1991). In countries with moderate or high infant mortality rate, artificially fed infants are at least 14 times more likely to die from diarrhea and 4 times more likely to die from pneumonia. (Victora et al., 1987). In Latin America and Caribbean it was estimated that their mortality risk is three to five times higher than that for breast-fed infants (Macedo, 1988). In rural Bangladesh one third of all deaths in children from 18 to 36 months were attributable to failure to breast-feed. (Briend et al., 1988). In Brazil, after 5 years of breastfeeding promotion, researchers have attributed a 12% reduction in infant mortality to improved breastfeeding practices. (Berg, 1993). The decision to breast-feed was estimated to account for decrease in infant mortality rate by 4 per 1000 in USA. (Cunningham et al., 1991). Sudden infant death is the leading cause of postneonatal death in developed world, and it occurs much less frequently in breast-fed infants. (Bernshaw, 1991).

With the use of the Guide to Assessing the Economic Value of Breastfeeding (Levin & Konan, 1991) it can be shown that out of overall 245 infant deaths caused by diarrhea and acute respiratory infection that happened in Armenia in 1997, almost 120 were due to inadequate breastfeeding. Taking into account that these diseases were responsible for approximately 30% of all infant deaths in 1997, it can be concluded that there is a potential to reduce infant mortality rate in Armenia by almost 16% by insuring optimal breastfeeding practices. Indeed, this could be an underestimation, since breastfeeding protects not only against diarrhea and acute respiratory infection, but also from many other acute and chronic conditions in childhood.

Benefits of Breastfeeding for Mother

Benefits for mothers include decreased risk of postpartum hemorrhage and prevention of iron deficiency anemia during lactational amenorrhea. (Riordan & Auerbach, 1993). Lactation is associated with suppression of the secretion of stress-responsive neurohormons, which has potential to relieve

psychological stress, and enhance immune function in lactating women (Altemus et al., 1995). Exclusive breastfeeding with true lactational amenorrhea prevents pregnancy during 6mo postpartum. (Labbok et al., 1994; Kennedy et al., 1996). Long-term health effects of breastfeeding for women include decreased risk of breast and premenopausal ovarian cancer. (Byers et al. 1985; McTiernan & Thomas, 1986; Yoo et al., 1992; Rosenblatt & Thomas, 1993). Duration of lactation is positively associated with bone mineral density in women during early postmenopausal period (Berning et al., 1993). Breast-feeding also provides a unique and intense time of mother-infant interaction and bonding, and has a potential to decrease the incidence of abuse, neglect, and abandonment of infant. (Freed, 1993; Kennel & Klaus, 1998).

Importance of Exclusive Breastfeeding

It is widely acknowledged that protection offered by breastfeeding is greatest when feeding is exclusive, and protection declines in proportion to the degree of supplementation (Howie, 1990; Kovar et al., 1984; Cunningham et al. 1991). Giving water and teas increases the risk of diarrhea in a breastfeeding infant by two to three times that of exclusive breastfeeding. When foods and nutritive liquids are added to the breastfeeding infant's diet, the risk increases from 4.17 to 13 times that of exclusive breastfeeding (Popkin et al., 1990). Numerous studies have demonstrated that the hydration status of exclusively breast-fed infants is normal even in very hot (35-40⁰C) and dry (10-35% humidity) climates. (Almroth & Bidinger, 1990; Sachdev et al., 1991; Sachdev et al., 1992; Ashraf et al., 1993). Thus, there is no need to provide extra fluids to breast-fed infants before around 6 months of age to satisfy their fluid requirements. This recommendation is imperative in areas where contaminated drinking water may contribute to infant morbidity. (Almroth & Bidinger, 1990).

Besides, early supplementation is associated with a decrease in the amount of human milk the infant receives as well as with early weaning (Hill et al., 1997). It has been suggested that even non-caloric fluids affect breast-milk intake. (Sachdev et al., 1991). Because infant demand is the primary determinant of maternal milk production, avoidance of other foods and fluids is essential to optimize breast milk production and intake. (Dewey et al., 1991; Daly et al., 1993). Most other items offered to young infants are less nutritious than breast-milk, and therefore if displacement occurs the infant may be at a nutritional disadvantage, even if the items are prepared hygienically. (WHO/Nut, 1998). Other potential consequences of the displacement of breast milk by other foods or fluids are dilution of protective effect of breast milk and an earlier return of maternal fertility. (WHO/Nut, 1998).

According to the existing data, Armenian mothers are still very resistant to the message to breast-feed exclusively. Recent study by Branca et al. (1998) found that water and herbal tea were introduced in baby's diet in the first two months, tea - in the third month. Fruit juices were introduced at four months of age, and soon after - cow's milk, semi-solid foods and biscuits. (Branca et al., 1998). Widespread usage

of whole cow's milk, especially in rural areas (Hekimian, 1998), is the issue of particular concern, since it causes altered nutritional status and severe iron deficiency in infants. (Am. Ac. of Ped. 1992).

Although the rate of exclusive breastfeeding among Armenian children under four months of age has increased significantly from 0.7% in 1993 to 20.8% in 1997 (Hekimian, 1997), it is still very low. More investigation is necessary to find out the causes of the resistance of mothers to practice exclusive breastfeeding, and to identify ways to overcome it.

Breast-feeding Duration and Factors That Affect It

According to the WHO current recommendation, the optimal duration of exclusive breastfeeding is up to around six months of age. The recommended duration of breastfeeding while giving complementary food is "up to two years of age or beyond", since there is considerable evidence in developing countries to suggest that breast milk continues to be beneficial during all this period by providing a source of key nutrients, protecting against infections and increasing birth spacing. (WHO/Nut, 1998). Several studies in Thailand, Peru, Honduras, and the United States have documented that initiation of complementary foods before six months of age replaces breast milk and does not increase caloric intake. None of these studies reported any benefits for the child's growth of early complementary feeding. (Cohen et al, 1994; WHO/Nut, 1998).

It has been shown that the major factors contributing to decline of breast feeding duration are: inappropriate hospital practices (such as late initiation of breastfeeding, separation of infant and mother, breastfeeding according to rigid schedule, giving newborns artificial teats and/or food or drink other than breast milk), as well as infrequent breastfeeding, early introduction of other foods, knowledge deficits in mothers, unfavorable social environment and aggressive marketing of infant formula. (Lindenberg, 1990; Auerbach, 1989; Hill, 1991). Pacifier usage at one month of age was also strongly related (RR=3.84) with weaning before 6 months of age. (Barros et al. 1995). Victora et al. (1997) found that pacifiers might contribute to weaning, especially when mothers experience difficulties in breast-feeding.

Barron et al. (1988) found that duration of breastfeeding was significantly longer for women who participated in educational program during the breastfeeding experience than for those who did not participate. In one study from Mexico the authors found that in many cases premature cessation of breastfeeding was related to insufficient stimulation of lactation due to infrequent and ineffective emptying of the breasts. Mothers who did not practice breast-feeding frequently cited insufficient milk, poor growth of the child, breast infection, child refusal or another pregnancy as the reason for their decision. Most of these causes could have been related to improper breastfeeding technique that could be the primary consequence of the lack of information about the proper way to achieve effective stimulation of lactation. (Avila et al, 1980). This may be the case in Armenia also, where, according to the recent

study, 8% of mothers do not initiate breastfeeding at all, 47% stop to breast-feed before infants reach 5 months of age, and only 22% continue to breast-feed beyond 12 months. (Branca et al., 1998).

Mothers' Perceptions and Attitudes Regarding Breastfeeding

The reason that majority of short-term breast-feeders give for weaning is lack of milk for the baby (Veronen, 1982; Barron et al., 1988; Baumslag, 1992; Bergman et al., 1993; Auerbach, 1989). The phenomenon is termed "perceived breast milk insufficiency". Women tend to believe that they no longer have enough milk when they notice one or more changes either in their breasts (feeling less "full" or noting a decrease in breast size) or in baby's behavior (crying, increase in appetite, refusal to nurse). According to different studies, 36-55% of lactating mothers experiences one or more episodes of transient lactational crisis (mostly connected with "growth spurts" of infant), which can be easily overcome during 4 days or less by frequent breastfeeding (Veronen, 1982; Hillervik-Lindquist et al., 1991). If the mother is not prepared for days of insufficient milk, she is apt to interpret them as a sign of losing her milk. Women who fear they have insufficient milk tend to supplement baby's diet in a regular fashion, which contributes to early weaning. (Hillervik-Lindquist et al., 1991). Inability to relax because of the lack of support, as well as fatigue and stress, may temporarily inhibit milk ejection reflex, which is also frequently misinterpreted as a sign of "milk insufficiency". (Barron et al., 1988; Akre, 1991). "What many mothers accept as indications of insufficiency are unlikely to be confirmed by their infants' growth and development". (Auerbach, 1992).

Many mothers believe that increase in fluid intake would result in an increase in milk supply, but little scientific support for this belief has been demonstrated. Mothers often see a direct relationship between dietary practices and good lactation also, and force-feed themselves, which could be harmful for both mother and infant. (Bottorff & Morse, 1990). One of the expectations of many mothers is that breast milk should be "rich" and "nourishing" and, therefore, thick rather than thin, creamy rather than watery, and white rather than bluish. Perhaps the creamy, thick, yellow appearance of infant formula may influence mothers' perception of what constitutes proper milk for infants. (Bottorff & Morse, 1990).

Choice of infant feeding may be influenced by new mothers' concerns that breastfeeding could change their figure, would prevent them from being able to leave the baby, is messy, or is old-fashioned. (Auerbach, 1989). Young mothers may be vulnerable to some misconceptions such as "breast-feeding mother have to eat differently", "breastfeeding makes breasts sag", "breastfeeding hurts". (Baisch et al., 1989). Inappropriate marketing of infant formulas often leads to perception of formula feeding and breastfeeding to be equivalent, so similar that modern women can choose either without guilt. Mothers often think that as infant formulas are made by "scientists", they provide the same protection as human milk. (Auerbach, 1989).

Black et al. (1990) found that positive attitudes of women toward breast feeding had the strongest impact on anticipated choice of infant feeding method, followed in order by method preferred by the father, the positive attitudes toward infant formula, and the knowledge about breast feeding. Baisch et al. (1989) showed a strong relationship between attitudes of pregnant women and their actual behavior regarding breastfeeding. So, fostering positive attitudes toward breast-feeding through education may have strong positive impact on breastfeeding promotion.

Educational Needs of Mothers and Appropriate Interventions Strategies

During the past decade, a variety of strategies have been used in an attempt to promote breastfeeding. These efforts include: modifying hospital practices; educating health workers; providing mothers with educational materials and support; initiating legislation aimed to control marketing of breast milk substitutes. It was concluded that multi-component interventions appear to be most effective for large-scale behavior change. (Baumslag, 1992). Education of mothers was one of the important components in such programs. And although most of the promotional efforts were focused on the pre- and peri- natal period, it was found that continued support after delivery may positively affect program outcomes. (Wilmoth & Elder, 1995, Freed, 1993). Meanwhile, it was shown that the cost for nutrition education efforts is very low relative to other forms of nutrition intervention. (Berg, 1993).

Although many of above mentioned strategies have been successfully implemented in Armenia since 1993 (Wellstart Int., 1998), there is still lack of appropriate sources of breastfeeding information and support for the great majority of lactating women, which is the main weakness of Breastfeeding Promotion Program in Armenia. (Hekimyan, 1998; MOH data, 1999). Especially when there is a real danger that in the lack of educational materials for mothers an assortment of “free” materials from manufacturers of artificial feeding products can be in use (Smith, 1995).

Mothers choose and persevere with breastfeeding when they believe or know (1) why their milk is good, (2) how to make enough milk, and (3) how to breastfeed comfortably. (Smith, 1995). Women who are better informed regarding the benefits of breast-feeding and the breast-feeding process are more likely to initiate breastfeeding. (Winikoff, 1980). However, a study from Sweden found that although the majority of mothers under study were in favor of breastfeeding and intended or had begun to breastfeed, they often had problems such as “sore nipples” and “milk insufficiency”, which led to weaning. (Bergman et al, 1993). In another study the survey results confirmed that women had high level of knowledge about the benefits of breastfeeding, regardless of their infant feeding practices. (Laukaran & Van Esteric, 1984). This might be the case in Armenia also. (Hekimyan, 1997). Moreover, some researchers think that listing the “benefits of breastfeeding” to mothers can lead to “deliberate disconfirmation”, since it establishes artificial feeding as the normative (reference) behavior. (Smith, 1995). It is thus not surprising that

breastfeeding promotion campaigns based on improving knowledge and belief about the *benefits* of breastfeeding have not, by themselves, proved to be an effective means for changing infant feeding patterns. (Van Esteric, 1988). This was the shortcoming of several small-scale communication activities that were conducted in Armenia recently (MOH data, 1999).

According to Bedinghaus and Melnikow (1992), when mother can comfortably position her infant on the breast, can manually express milk and understands let down, nipple care and milk supply, she has the basic skills for successful breast feeding. Tobin (1996) emphasized the importance to focus parental attention through education on eight elements relating to early breastfeeding: feedings, positioning, latch, suck, milk flow, intake, output, and infant weight gain. Helsing and Saadeh (1991) stated that empowerment of mothers, making them feel that they are up to the task of feeding their babies is the single most important factor influencing the success of breastfeeding. It can be done successfully by women's self-help/empowerment publications. (Freed, 1993). Since "not enough milk" is the most common reason for breastfeeding failure, it is very important to address "how to make milk" thoroughly in such publications. (Smith, 1995). Helsing & Saadeh (1991) have stated that there is strong association between breastfeeding and educational level of mothers, and explained this by the fact that in societies where the oral tradition among women about lactation management disappeared, mothers are dependent on written information material on the subject, and educated women have more easy access to written sources. This might be the case in Armenia.

The only comprehensive communication campaign on breastfeeding promotion was conducted in Armenia 5 years ago (in 1994). Its six main messages were concentrated on early postpartum period and had a significant impact. Greater exposure to the campaign was significantly related to behavioral changes. (Holley-Newsome, 1995). Holley-Newsome suggested that written materials were more effective than radio and TV, and that a qualitative research might be helpful to understand why some practices advocated by the campaign were adopted while others were not. Hekimian (1998) also emphasized the effectiveness of printed materials to promote behavior change with regard to breastfeeding in Armenia and the importance to re-develop educational materials taking into consideration the results of new studies. Effectiveness of printed educational materials in Armenia can be explained by the high percentage of literacy among mothers. (Hekimian, 1998). However, TV and radio messages should be considered also, since they have advantage to ensure higher coverage of exposure, including fathers, grandmothers and peers. Many researchers have emphasized importance of these population groups. (Freed et al., 1992, Black et al., 1990; Baranowski et al., 1983). Studies also showed that active participation of learners in the nutrition education programs (face to face learning) leads to more comprehensive and effective development of problem-solving and decision-making skills, important to produce behavior change. (Cerqueira, 1992, Hornik, 1989; Hartley & O'Connor, 1996).

As stated by Berg (1993), “Nutrition education for behavioral change is one of the most potent tools we have. Behaviors, once changed, last a lifetime. And some beyond. We have no idea of how much intergenerational transmission of knowledge takes place. But programs ought to get credit for future returns from them”.

IV. Methodology of the Study

For this study, qualitative research methodology was chosen for several reasons. First of all, the study was aimed to better understanding of mothers’ perceptions, beliefs and attitudes concerning infant feeding and particularly, breastfeeding, with the purpose to develop appropriate educational materials for them. Meanwhile, it is known that infant feeding in general and breastfeeding in particular are very personal and emotionally charged subjects. For this reason, it is difficult to obtain reliable, valid information on mother’s attitudes, beliefs, and knowledge through survey methods. Moreover, standardized knowledge and attitude statements about infant feeding often reflect verbal cliches developed through breastfeeding promotion campaigns, and thus, the response may also reflect the cliché, but not the actual perception or practice. (Van Esteric, 1988). Besides, survey methodology limits the dept. and diversity of obtained information, which is crucial for better understanding of the reasons of practiced behavior, and thus, for finding appropriate ways to introduce behavioral changes by addressing those reasons. (Berg, 1993; Bottorff & Morse, 1990).

Focus group methodology was implemented in the study, because of its ability to seek group interaction for maximal response stimulation. Possibility to conduct the study during relatively short period of time and with moderate cost was the other reason for choosing this methodology.

Four focus group sessions were conducted between July 27th and August 3rd. Having a baby from 0 to 6 months of age and female gender were the eligibility criteria for participants. Two focus groups were conducted in Yerevan, two others – in the Regions, with purpose to detect possible differences between mothers’ perceptions, beliefs and attitudes in the Regions and in the Yerevan. Focus groups in Yerevan were conducted in Mashtots district (4th children polyclinic) and Sought-West district (8th children polyclinic). Focus groups in Regions were conducted in regional centers of Echmiadzin and Abovyan. A total of thirty women participated in the focus groups. Recruitment procedures for all focus group sessions were done in collaboration with the local (district) children polyclinics’ staff. Some staff members from the polyclinics were involved to contact and invite eligible mothers to participate in the focus group discussions. The same polyclinics provided space for conducting the sessions. Since focus group discussion with the fourth group did not elicit new ideas any more, we decided to stop focus group series after that. The samples for all focus group sessions were convenience samples. We had 5; 7; 8 and 10 participants correspondingly in Sought-West district, Echmiadzin, Mashtots district and Abovyan.

Short self-administered questionnaires were used before the sessions. All four groups were rather homogeneous in terms of age, education, parity and family size of participants. The participants were mainly in the age group from 21 to 25 years (13 or 43%). Four participants (13.3%) were less than 20 years old, five (16.6%) - from 26 to 30, six (20%) - from 31 to 35, and two (6.6%) – from 36 to 40. The mean family size was 4.9, and the mean parity – 1.8. There were no considerable differences between participants from Yerevan and Regions in terms of age, parity or family size. But participants from Yerevan were generally more educated than those from Regions. Percentage of women with university education or higher was 57% in Yerevan, and only 5% - in Regions. However, 97% of participants had at least high-school education, and only one participant out of all 30 had less than high school education. Four participants (13.3%) were giving their children exclusive breastfeeding, fifteen (50%) – predominant, four (13.3%) – partial, and seven (23.3%) – artificial. Groups were mixed in terms of practiced feeding mode to elicit diversity of responses and active discussion.

Focus group discussions were conducted with the use of semi-structured field-guide. All groups had a moderator and two note-takers, preliminary prepared for this task. One of the note-takers was also observing the participants. The main language of discussions was Armenian, although some of participants preferred to express their ideas in Russian. Note-taking technique was utilized for recording obtained information. Two notes were taken in parallel and then were compared with each other to avoid imprecision. The discussions took approximately one and half-hours. Women were rather interested and open-minded during all four sessions, but discussions were more fluent in the groups with smaller number of participants (5-7). This was consistent with the knowledge that if the purpose of the focus group is to maximize the dept of expression from each respondent, a smaller group works better, which was the case in this study.

The analysis of focus group discussions was done by rereading the notes, coding the key areas of interest and regrouping the research findings according to those key areas. The analysis was aimed to identify the diversity of responses elicited in relation to each topic, as well as to evaluate the apparent significance of these responses. Another perspective of the analysis was identification of possible systematic differences in responses between participants from Regions and Yerevan. The analysis of the particular theme was considered to be complete when additional rereading did not elicit new information.

V. The Results of Focus Group Discussions

1. Mothers' perception about the ideal duration of exclusive breastfeeding and the ideal duration of breastfeeding in general.

The most common answer was that the ideal breastfeeding duration is one year, and the optimal duration for exclusive breastfeeding is 5-6 months. Only few mothers mentioned that breastfeeding should be

continued up to two year. Some mothers thought that it is justified neither for baby, nor for mother to breastfeed longer then one year. Many of mothers stated that it would be good to continue breastfeeding as long as they will have milk. So, they think that milk production will diminish and stop in some point of time and that it does not depend from their intention to continue or to stop breastfeeding. Some of mothers mentioned 7-8 months and more as an optimal duration for exclusive breastfeeding. It was interesting that there was discrepancy between what mothers think to be the ideal duration of exclusive breastfeeding and their breastfeeding practice in reality. Many of breastfeeding mothers had introduced fruit juices, rice water with yogurt and other fluids starting from second month, but they told us that they were feeding the child exclusively by breast milk. The impression was that they did not think that little quantities of other drinks and foods could interfere with exclusive breastfeeding. One mother decided to continue breastfeeding up to the time when her child will have teeth. Some women thought that milk would become less nutritious as child grew, that is why it should be displaced by other foods. The other concern connected with long breastfeeding duration was that child would get used with breastfeeding and would refuse to eat other foods. Mothers were unsure or against to continue breastfeeding if woman became pregnant.

- I think that mother should continue to breastfeed as long as she has milk. Only breast milk could be enough during the firs six-seven months.
- Breast milk - up to one year. Of course, the longer the better, but... If there will be breast milk.
- Milk becomes less nutritious after six months. That is why other foods should be introduced.
- If the child will eat breast milk for two years, he will refuse other foods afterward.
- Breastfeeding should be continued up the age when child will have teeth.
- It is usually impossible to continue breastfeeding up to two years because of milk insufficiency. Besides, I think that mother becomes overwhelmed by so long breastfeeding, and for two years old baby breast milk is not a big deal any more.
- Only breast milk should be given for four-five months and then breastfeeding should be continued while giving other foods up to 1.5-2 years of age.
- Breastfeeding longer then one year is dangerous for mother and not useful for baby.

2. What foods should be introduced to the babies' diet first and when?

Many mothers stated that fruit juice and other foods should be introduced into infants' diet starting at 2-3 months of age. Again the same discrepancy between the statement to give only breast milk for around 6 months and reality of introducing other foods much earlier was obvious. It seems that the reason of introducing complementary foods too early is not the ignorance of current recommendations, but resistance to accept them and to change rooted behavior. The impression is that only statement is not enough to convince mothers. They need more detailed explanations. Most of mothers suggested fruit juices, wheat-porridge, cereals and rice-yogurt mixture as the first foods for infants. Some of them mentioned also mashed vegetables and mashed potatoes. Many mothers, especially those from regions, thought that cow's milk was acceptable substitute of breast milk, and even that it was an acceptable

complementary food for breastfeeding baby that can be introduced as early as from 3-3.5 months of age. Some mothers introduced honey to infants' diet very early. Some of them gave biscuits and tea to the child starting from 3 months of age. Some mothers considered milk-products such as cream, yogurt, cottage cheese, and butter appropriate first complementary foods. In the other hand, almost all mothers thought that iron-rich complementary foods such as meat, pulses and beans can be introduced into child's diet only around 1 year of age or even later. Sometimes mothers got advise from health workers to introduce complementary foods early. One mother told as that other foods should be introduced at 4 months, because there is no iron in the breast milk.

- Fruit juices should be introduced at two months of age. Apple and carrot juices are the best.
- I gave fruit juices to my baby, when she was 2 months old. Now she is 4.5 months old and eats formula, soup, mashed potato, and biscuit with tea. I could breastfeed her only for 10 days.
- My baby is three months old. I give him to test everything which I eat (fruits, honey, ice cream), putting small amount on her lips.
- I introduced cereals, soups and fruit juices at three months of age. At 6 months of age my child was weaned.
- My baby is 5 months old. I still breastfeed him and I feed him also with wheat-porridge, honey and butter. At two months I started to give him formula ("Nan").
- At one month of age I started to feed my baby with milk powder, since my milk was not enough.
- The first food should be wheat-porridge, after that cereals, mashed potato, apple juice, carrot juice, and rice could be introduced.
- I started to give rice-yogurt mixture with a little salt to my baby at two months of age. Now he is three months old, and I have planned to give him mashed potato and cereals at 4 months of age.
- There is no iron in the breast milk; thus baby needs other foods from 4 months of age.
- I think that milk products such as cream, yogurt, mixture of cream and cottage cheese could be good first foods for baby.
- Pulses and beans can be introduced into baby's diet only after 1 year of age.
- Meat is possible to give after one year of age, and before that baby should get used with meat-water (water were meat was boiled) starting from 9 months of age.
- Meat-water should be given starting from one year of age, and meat - later on.

3. Breast-feeding habits and perceptions of the mothers (When to breastfeed? How frequently? For how long? In what position? Attitudes toward night feedings)

Baby's crying was the main signal to breast-feed for the majority of mothers. Only some of them mentioned that they looked at other clues also such as baby's opening mouth and searching for the breast. In many cases there was problem concerning the frequency of breast-feedings. Mothers either decided to breast-feed by schedule, mostly – with three hour intervals, or they relied only on babies' signals, never awaked them up for feedings, and often faced serious problems with weak and sleepy babies. With rare exclusions, nearly all the mothers thought that there was no need to awake up the baby for feedings, even if he was sleeping for more than 6-7 hours. Some mothers felt that schedule feeding is easier than on-demand feeding. But all the mothers with successful breastfeeding experience never practiced rigid regimen for infant feeding. Some mothers still thought that it was possible to cumulate milk by

postponing next feeding or by giving one breast at each time. Many mothers offered both breasts during each feeding. But often mothers mentioned that baby preferred one breast from the other and they suggested the “favorite” breast first at each feeding. Breastfeeding duration was regulated mainly by infants, and was very different: from less than 5 minutes to more than 30 minutes. Some mothers mentioned that they take their breast off from baby’s mouth when they felt that the baby was not hungry any more and was just “playing” with the nipple. Many mothers tried to avoid night feedings. Some of them considered night feedings to be very inconvenient, some others – even not good for baby, because “his stomach needs rest”. Interestingly, one mother mentioned that breast milk is more nutritious at nighttime. Mothers knew very little about positioning of the baby at the breast. They just stated that baby should be held comfortably, but did not mention – how. They knew a little bit more on latch-on, particularly, that not only nipple, but also areola should be grasped by infant’s mouth while breastfeeding. They often obtained this knowledge from their own experience (“Grasping only nipple is painful”). But they think that baby’s nose should not touch the breast. One-two mothers mentioned regular swallowing as a sign of correct feeding technique.

- I breast-fed when my baby cried. Before two months of age he was crying very often and I was breastfeeding him all day long. At two months he accepted bottle and I started to give him other things by bottle when he was crying. I stop to breastfeed when he was three months of age.
- When baby is hungry, he cries differently.
- I do not wait the baby to cry. I suggest breast each time when he “searches for the breast” with his opened mouth. During the first months I was breastfeeding 10-11 times during day.
- My milk usually flows at the feeding time. This is my clue to breastfeed. It happens at each two hours. (The baby is 22 days old)
- I breast-fed my baby by schedule: once in each 3.5-4 hours. My breasts were small, so, milk was not enough and I waited to cumulate more milk for feedings.
- I decided to breastfeed by schedule - once in each 3 hours. It is easier for me. At the beginning I was breastfeeding irregularly, by demand, and it was difficult.
- My baby was very quite. I was breast-feeding him 3-4 times per day, when he was alert or when he was crying. He was sleeping most of the time, and even - while feedings. My milk was not enough and at one month I started to give her cow's milk.
- I never waked up my baby to feed him, even if he slept for 7-8 hours.
- My baby sometimes sleeps for 5-6 hours. I don't think that I should wake him up. He will not sleep if he hungry.
- My baby was born with 2700.0 weight. Between feedings he slept a lot: for three hours and more. I did not awake him up. My milk was enough. (I felt it, because my breasts were full). I breast-fed the baby using both breasts at each time, and each feeding took more than 30 minutes. The doctor told me that his position at the breast was right. But he did not gain weight. I thought that my milk was low fat and this was the reason for my baby's poor growth.
- I take off my breast from the baby's mouth after 15 minutes of feeding, because he seems not hungry after that time and just plays with my nipple.
- I did not breastfeed my baby at night. At the beginning he cried, then get used. Now he sleeps from 12 to 7 a.m. and I am very content. Night feedings are not convenient.
- Night feedings are not good, because baby's stomach needs rest.
- My baby prefers my left breast more than right. I think, there are more ducts in the left breast and I always suggest him the left breast first.

- When the baby grasps only nipple, it hurts. So, I try to help him to grasp the breast deeply.
- I always look if the dark skin (areola) is in the mouth of the baby and try to give him the breast as deep as possible. I also look if he swallows while feeding.
- My baby was grasping only nipple. I think it was the reason for his early weaning. And my milk gradually became thinner like water.
- I think, the positioning of the baby at the breast is right, when he is held comfortably, and his nose is not touching the breast.

4. Mothers' perception about necessity to give water and other non-nutritious liquids to the breastfeeding infant during the first months of life.

The majority of mothers considered that water is necessary to give the neonate from very beginning, especially if the weather is hot. They gave several reasons for this attitude, such as quenching babies' thirst, cleaning babies' mouth from milk after breast-feedings, and helping baby's body to maintain its balance in the situation of increased metabolism. Some of mothers received advice to give water from health workers. Some others gave water to the child, even having experience of not giving water to their previous children. So, giving water to the baby is one of the deeply rooted habits, and only recommendations are not enough to reach behavioral change here. The minority of mothers, however, knew that breast-feeding infant does not need water during the first 4 to 6 months of life. Many mothers preferred to give unsweetened herbal tea instead of water, or besides it. They provided several explanations for this preference, such as herbal teas can relieve colic, they are good for stomach and they can remove gasses. Some of mothers however, add sugar into water or tea, to make it more acceptable for baby. Usually mothers use boiled water. Many mothers, especially in regional areas, boiled dry fruits and some vegetables, and the water gave to the baby. Often health workers advised them to do this. The majority of mothers who lived in Yerevan, used herbal teas from HIPP Company (imported from Austria), or have intention to use it. Some of mothers even thought that those teas were nutritious and could provide some nourishment to the baby if mother's milk is insufficient or if mother is out. Mothers often gave teas with spoon, but some of them used bottles, and gave babies considerable amount of these fluids, up to 120 ml each time.

- Water should be given starting immediately after birth. I have written somewhere that 82% of baby's body is water, so, he needs plenty of water.
- During first months babies do not need water, because 90% of the milk is water. But now is hot, and teas can make babies to feel cooler. I will give herbal teas, if the child will be fussy.
- It is better to give herbal teas, than black tea or water.
- I gave herbal tea to relieve colic, but it did not help.
- I boiled dry fruits and carrots, and the water gave to the baby when he was fussy.
- My baby does not drink water, so I add a little sugar to make it sweet.
- I did not give water to my first baby up to 40 days as the doctor told me, but to this baby I started to give water from the very beginning to quench her thirst.
- I prepared HIPP tea several times when my milk was insufficient or when I had to go somewhere. HIPP tea is nutritious. So, I gave it until my breasts would become full.
- I breastfeed my 2.5 months old baby and give him 50 ml HIPP tea by spoon each day.

- Water is necessary for the baby in hot time, because heat intensifies metabolic processes in body.
- Water is good to give after breastfeeding to clean the baby's mouth from milk.
- I used to give 120 ml of tea by bottle, when my milk was not sufficient. But my son did not like it.
- My baby's stool was not good, and doctor suggested me to give him 30ml herbal tea each day.

5. Mothers perception about the usage of pacifiers

As a rule, mothers did not think that pacifier could interfere with breastfeeding. They considered it as a useful item to calm baby and to give the mother possibility to rest. "It is necessary, otherwise it would not be produced", told as one of the mothers. Some mothers said that pacifier helps baby to remove gasses, some others – that it is good in the period when teeth are appearing. Some mothers even asked others what to do if their baby refused to take pacifiers. Only few mothers stated that pacifier should not be introduced before 2 months of age, because it is "not good".

- I tried to give pacifier to my baby starting from the hospital. But he accepted it later, when was 3-4 weeks old. With pacifier much easier, because he does not want to eat breast as often as it was before.
- With pacifier baby sleeps more easily.
- I don't think that pacifier could interfere with breastfeeding.
- Baby would suck his hand, if pacifier would not be given.
- Baby would take pacifier easily, if honey would be spread on its surface.
- Pacifier calms the baby. It is necessary; otherwise it would not be produced, But my baby refuse to take it.
- Pacifier helps baby to remove gasses.
- Pacifier should not be introduced too early. Two months is good age for introducing it.
- Pacifier is good to give at 5-6 months of age, when teeth start to appear.

6. Mother's perception of breast milk insufficiency (signs, causes, how to increase).

Common signs of breast milk insufficiency, according to focus group participants, were baby's crying, fussiness, poor growth, lack of stool for several days, getting nervous at the breast, as well as filling that breasts are empty, and lack of milk while expressing. Some mothers mentioned also child's demanding to eat very often and rare swallowing of the child during feeding. Interestingly, mothers not always saw a connection between baby's weight gain and milk supply. One mother thought that poor growth is not the sign of milk insufficiency, because it is connected with milk quality, rather than the amount of consumed milk. Some mothers believed that their milk would dry-up soon, because their breasts were not as full, as it was during early postpartum weeks. Few mothers thought that small breast size could be connected with lack of milk. In many cases mothers interpreted the late start of let-down reflex as a sign of milk insufficiency. Some mothers described a typical picture of transient lactational crisis, which they interpreted as milk insufficiency. When asked about causes of insufficient milk supply, women mentioned stress, mother's worries, fatigue, self-inspiration, and even – "evil eye". Nobody mentioned infrequent or ineffective feedings as causes of milk insufficiency. Although some mothers thought that eating more might increase milk supply, no one among focus group participants stated poor diet as the reason of milk

insufficiency. Mothers suggested several remedies to increase milk production, such as resting in the bed, drinking a lot of fluids (tea or hot milk), eating white onion, greens, sunflower seeds.

- I would think that there is no enough milk, if baby wanted to eat but breasts were empty, soft, and there was no milk flow during expression.
- I fill that my breasts are not full enough any more. I think my milk will disappear in a month.
- Crying and demanding to eat very often are the signs of milk insufficiency.
- Gaining weight is not connected with the amount of milk. Milk quality is important. Sometimes milk facilitates good growth, sometimes - not. I would think that milk is not enough if baby is hungry, sucks a lot but still is dissatisfied and cries.
- My baby started to cry a lot at three months of age. He was looking for the breast all the time. I knew that he was hungry. So, I started to give him cow's milk, yogurt, and he got ill. We had to take him to the hospital.
- My baby is 4 months old. He was sleeping normal. But now he sleeps one hour at maximum and wants to eat very often. He is growing very well. He eats both breasts at each time, but still remains hungry. I was told to introduce "Narine" (acidophilic yogurt) into his diet.
- Stress and worries can cause decrease of milk supply.
- "Evil eye" can cause milk insufficiency. I breast fed in front of others in the hospital and everybody said that my milk was very good. Soon after it disappeared. The same happened with my mother. Maybe my self-inspiration is the cause.
- Milk supply increases when woman eats a lot.
- It is good to drink plenty of tea to increase milk supply.
- Sunflower seeds are good. They make breasts full. Hot milk is also good.
- White onion and some greens also increase milk supply.

7. Mothers perception of milk quality.

Worries about milk quality were more common among mothers from regions. Mothers tend to think that something with their milk is not right, when baby fails to grow, had loose stools, is dissatisfied after feedings or refuses to take breast. Mothers often thought that "good" milk is fatty milk that should look yellow and dense. They never mentioned about possible changes of milk composition connected with time and stage of feedings (such as foremilk and hindmilk). They usually considered that watery and bluish milk was not good for the baby. Mothers often associated yellowish color of milk with its high fat content. Some mothers worried that their milk could be not testy - salty or not sweet. One mother with Rh-negative blood was told to check her milk to see if it was not dangerous for the baby. The overall impression was that mothers accepted milk quality as constant and unchangeable feature of their body. Mothers who had "good" milk, were lucky, and if your milk was "not good", there was nothing to do about it. Only few mothers with successful breastfeeding experience told us that they trusted their body – it prepared the milk what their baby needed. Some participants worried that new pregnancy might deteriorate the milk quality.

- My milk was like water when I expressed it in the glass.
- I thought that my milk was low in fat and this was the reason for my baby's poor growth.
- My baby was dissatisfied after feedings. So, I was told to test my milk to see if it salty or sweet. My mother-in-law tested it and the milk was sweet. But there was no fat in my milk. It looked bluish. And my baby refused to take breast.

- My baby was awake all day long. He was "fighting" with my breast. I was told that my milk might be not good for the baby, because I have Rh-negative blood. We took the milk sample, and there was nothing dangerous in the milk. But my milk was like water. There was no fat there. The baby was not growing well and we started to give him artificial milk at 2.5 months of age.
- Baby's growth depends from breast milk quality also. Sometimes baby eats very little but gains weight normally.
- I compared my milk with my neighbor's milk. My milk was yellow, her milk - watery and white.
- Milk become not good if mother gets pregnant.

8. Common problems that experience mothers during breastfeeding.

Sore and cracked nipples were the most common problem mentioned by mothers. In most cases this problem appeared during the first days and weeks of breastfeeding. Some mothers considered that it could be caused by vigorous suck of baby. One mother mentioned candida as a causal factor. Although some mothers new that sucking only nipple is painful, nobody mentioned this as a reason for nipple soreness. Some mothers thought that this problem could be prevented if women would prepare their nipples by exercises during pregnancy. Mothers suggested different remedies such as batter, oil, and special creams, to cure sore nipples. Some of them knew about curative qualities of breast milk and about air-drying of nipples. No one mother mentioned that nipple soreness might be overcome if baby's position at the breast and latch-on would improved.

The other common problem was swelled breast, which often led to baby's refusal to grasp it. Almost all mothers knew that breast engorgement and plugged milk ducts could be cured by frequent feedings and milk expression, but they did not know the causes of these problems and how to avoid them.

Milk leaking was the other problem that mothers often connected with the inability of breast to "cumulate" milk and thus, to the milk insufficiency. Another common problem was baby's refusal to take breast. Mothers knew nothing about both its reasons and how it could be overcome. Some problems mentioned by mothers were connected with flat nipples and low birth weight or weak babies. Some mothers thought that painful nipples and breasts were normal during the first days, "until the ducts would become opened".

- Vigorous suck of the baby is the cause of nipple soreness.
- My nipples were sore and breasts - swelled. It was very painful. One woman prepared cream with herbs and batter. I put it on the breast and it opened my milk ducts.
- I had cracked, bleeding nipples. It was awful. Mothers need advise to prepare their nipples during pregnancy to avoid this problem.
- When breasts become full and swelled, it is necessary to feed often and to express milk.
- Cabbage leaves are good for swelled breasts.
- At the beginning breastfeeding is usually painful until the ducts get opened.
- Milk was not cumulating in my breasts. It was flowing. But when I was trying to express milk, there was nothing there.
- I ate a lot of food to feed my baby, but my breasts did not keep the milk. It was flowing all the time. My baby was born with low birth weight and asphyxia. He was weak and sleepy, and suckled very slowly - all day long. My breast was just like a pacifier for him.

- I was breastfeeding very often. My baby was crying all day long. He ate breast for 10 days and then refused to take it. He lost weight and we started to feed him with artificial milk.
- My baby was hungry but refused to take breast. I had to express milk and give him by spoon.
- My nipples were flat. The baby grasped only nipple and it was very painful. Then he refused to take breast. I had to start feeding him with formula (Nan).

9. Mother's perception of interrelationship between breastfeeding and illness.

We received diverse answers when asking about possibility to continue breastfeeding if the mother gets ill. Many mothers considered that high fever in mother is a contraindication for continuing breastfeeding, because milk would deteriorate and would cause harm to the baby. The other misbelief shared by many mothers was that breastfeeding should be discontinued in the case of infectious diseases in mother, such as measles or hepatitis. Only few mothers stated that mother's illness is not an indication to interrupt breastfeeding, because it provides protection to the baby. Many mothers had no answer to this question. Almost all mothers had concerns about possibility to breastfeed in the case if mother had to take medications. When asked about child's illness, mothers answered that breastfeeding should be continued always. Even if baby is not able to take breast, he should be fed by expressed milk. Mothers knew that in the case of breastfeeding interruption milk production could be maintained by expressions. But they did not know about the frequency of expressions necessary to maintain milk supply. Often they thought that this frequency should be decided individually – according to the degree of breast fullness.

- If I would get flu, I would cover my nose with gauze mask and would continue to breastfeed.
- It is possible to breastfeed with flu, if mother does not take medication.
- Drugs that takes mother, could transfer to the baby by milk and damage him.
- If mother would get infectious diseases such as measles, hepatitis, breastfeeding should be discontinued.
- Doctors told me to continue breastfeeding when I was in the hospital. But I received injections and had high fever, so, I was afraid to breastfeed.
- Breastfeeding is allowed if mother's fever is no more than 38°C. If the fever is higher, her breast milk is not good for the baby any more.
- Baby could spit out, if mother would breastfeed with high fever.
- Breastfeeding should be always continued if baby gets ill, and discontinued in the case of mother's illness.
- If baby is so ill that could not suck the breast, milk should be expressed and given him by spoon.
- If mother would discontinue breastfeeding during her illness, milk production could be maintained by expressions. Frequency of expressions depends on the degree of breasts' fullness.

10. Mothers' exposure to the marketing of breast milk substitutes.

No one mother mentioned that they saw advertisement of infant formula or received free or low cost samples of formula recently. Some mothers told that they received formula free of charge six years ago, when it was distributed through children polyclinics as humanitarian aid. Some mothers, especially from regions, preferred cow's milk or rice porridge rather than formula to feed their infants. Mothers told us that they received information about infant formulas mainly from doctors. Some information they got

reading the formula labels. The picture was different regarding HIPP teas. Many mothers, mainly those from Yerevan, saw booklets in the stores that promote HIPP production. They thought that HIPP teas are very good, and even – highly nutritious. They said that all the HIPP products were widely used in foreign countries.

- I chose "Nan" to feed my baby, because the doctor told me that it would be an appropriate food for him. Besides, I have read on the label that it could be given to babies.
- Infant formulas are very expensive. Six years ago I received free formulas from children polyclinic.
- Cow's milk is better than "Nan". I did not like "Nan". It had a smell of dust. So, I transferred to cow's milk.
- I gave neither cow's milk, nor formula to my baby. I avoided both. So, I gave him rice porridge with butter and sugar for two months.
- I received "Frisolac" formula for my older son six years ago. It was good one. My son had good growth.
- HIPP tea is nutritious. So. I gave it until my breasts would become full.
- All the products of HIPP are widely used in foreign countries.

11. Why mothers sometimes do choose to feed their infants artificially?

The most common answer to this question was that those mothers were afraid to spoil their figure. Although the majority of our focus group participants also considered that breastfeeding could spoil mother's figure, but they stated that they never worried about it, because baby's health was more important for them. However, some mothers were pessimistic to believe that there is a true association between child's health and breastfeeding. Mothers' opinions were diverse concerning the issue of how breastfeeding influence the body weight, since some of them gained weight during breastfeeding, some others – lost weight. The majority of women considered that breastfeeding made breasts sag. The other reason of choosing artificial feeding, according to mothers, was lack of patience. They thought that some mothers got very nervous or too tired to continue breastfeeding. Some mothers considered artificial feeding to be easier than breastfeeding. Work or study of mother, according to participants, were also reasons of choosing to feed artificially.

- Some mothers say they do not have enough patience to breastfeed.
- Some women do not want to spoil their figure: to make their breasts sag or to gain weight.
- If mother works or studies, she have to choose artificial feeding.
- Some mothers wean the baby, because they get tired from breastfeeding.
- Artificial feeding is easier for the mother. I lost weight during breastfeeding.
- I think breastfeeding is easier than artificial feeding.
- I gained weight during breastfeeding.
- I think that breastfeeding can change my figure but I never worried about it. Child's health is more important.
- Breastfeeding is not important for child's health. It protects from illness only during early months of life. Health is the characteristic of the child.

12. Information that mothers need and appropriate channels of information for them.

The majority of mothers considered brochures and conversations with the specialist as most preferable sources of information on breastfeeding. They justified their choice by the argument that books were always with them and that books could provide more profound information. In the other hand, conversations were easier way to learn and gave possibility to ask questions and to get answers. Mothers trusted doctors as reliable sources to provide information on infant feeding. They told us that even being very busy, they could find time to visit classes for mothers, if such classes will be conducted in the polyclinic. The third preferable source of information, according to mothers, was TV. But many of them said that they did not like to watch TV very much and that information obtained by TV was usually superficial and passed soon. The main current sources of information on infant feeding for mothers were their mothers and other relatives, as well as doctors. Only few mothers told us that they had literature on infant feeding, and all those literature sources were rather old.

Concerning the information that they need more, mothers told that they knew much about the advantages of breastfeeding, and so, they need more practical information on how to breastfeed. They were interested to know about the composition of breast milk and how it helps baby to grow. Many mothers were interested to know what complimentary foods should be introduced to the infants' diet first and how they should be given. They asked if it is good to give pacifiers to the child, what should be like child's normal stool, is it necessary to breastfeed child during night, how to increase milk supply and other practical questions. The impression was that they need profound, well-organized and convincing information on many practical aspects of infant feeding.

- Usually the doctor tells me how to feed my baby.
- I saw TV program "Good morning" recently that was about breastfeeding issues.
- I prefer face to face conversation with doctor as a source of information on infant feeding and infant care, where you can ask questions and receive trustable answers.
- I read book on infant feeding. Books are good sources of information, but I prefer direct conversation with specialist. I would like to know more about the composition of breast milk and how it helps the baby to grow. And also, what first solids should be given to the baby?
- I got advice from my mother and grandmother. I am interested to know more about complementary feeding.
- My mother and relatives told me how to breastfeed. I had no books or brochures on this issue. If I had, I would read for sure. Conversations are also good. I would visit classes for mothers, if such classes would be organized in the polyclinic.
- Conversations and books are good channels to get information. TV is good, but passes fast.
- Book is good for receiving profound information, but sometimes there is no time to read.
- Book is always with you.
- It would be better to know more about breastfeeding in practice: night feedings, weather it is necessary to wake up baby to feed him, breastfeeding frequency, duration, usage of pacifiers, what baby's normal stool should look like. We know already about advantages of breastfeeding.
- Brochures and conversations are the best ways to receive information.
- I would like to know how to increase milk supply.
- I worry that my baby will not accept the bottle, when he will be weaned from breast.

The general impression from observation of mothers' behavior during the discussions was that most of them were really interested in the topics of conversation, but often they were not sure in their answers. Many mothers were looking at us or at each other for encouragement while expressing their ideas. Some of them stayed after discussion to ask questions on the issues that were the topics of discussion and to seek advice on appropriate sources of relevant information.

VI. Discussion and Interpretation of the Results

The main theme of this study was to identify mothers' knowledge, perceptions, beliefs, and attitudes towards breastfeeding and to reveal interrelationship between those factors and mothers' actual infant feeding behavior. The study highlighted several important findings. First of all, mothers demonstrated lack of knowledge in some areas, and superficial knowledge in others, which did not allow them to understand causes and consequences of common problems that they faced during their breastfeeding experience. As a result, they tended to seek those causes in their immediate impressions or feelings, and thus, believed that stress could cause milk insufficiency, milk leaking was the sign of inability of breasts to cumulate milk, watery milk with bluish color was not enough nutritious, milk production was normally diminishing over time, etc. Another consequence of superficial knowledge was the observed discrepancy between what mothers know to be correct and what they do in reality. A good example of this was giving babies water, tea, juice and other liquids starting from early weeks of life while knowing that exclusive breastfeeding up to 5-6 months is the correct way to feed the baby. Thus, having exposure to the current recommendations was not enough to change mothers' behavior. To be convinced, they needed not only the statement, but also more detailed explanations. Very often mothers considered common and temporal breastfeeding difficulties, such as child's refusal to take breast or transient lactational crisis, as unchangeable and hopeless situations, when they had no other choice but to give artificial milk to the baby. The study revealed lack of knowledge in the areas that are crucial for successful breastfeeding, such as correct positioning of baby at the breast, insuring enough frequency of feedings to stimulate lactation during the early postpartum weeks, importance of night feedings during this period, etc. Mothers had many misconceptions concerning the nutritional value of different foods and liquids for the child. The main differences between mothers living in Yerevan and those living in Regions were that mothers in regions were more concerned with the quality of their milk, and they used cow's milk much more often to feed their infants. In contrary, usage of herbal teas produced by HIPPP Company (imported from Austria) was much more widespread among mothers living in Yerevan. Generally, they demonstrated strong ability to be influenced by inappropriate marketing of baby foods and drinks (such as advertisements of teas from HIPPP), especially in the case when they had no available and reliable sources of relevant

information. The main sources of infant feeding information for mothers were their relatives, friends, and health workers. Very few of them had printed materials on infant feeding, and the vast majority of those materials were out-dated. Mothers had deeply rooted beliefs in some areas of infant feeding, such as necessity of giving water and herbal teas to the breastfeeding baby. However, generally mothers were unsure in correctness of many answers that they gave during the discussions and were seeking for answers to those questions themselves. Brochures and conversations with the specialists were the more preferable sources of information on breastfeeding for the majority of mothers. Concerning the information that they need more, mothers told that they knew much about the advantages of breastfeeding, and so, they need more practical information on how to breastfeed. The impression was that they need profound, well-organized and convincing information on many practical aspects of infant feeding.

However, these results should be viewed in light of the method used to elicit the information and the characteristics and representativeness of the participants. Regarding the method, although focus group discussions were open-ended, but the discussion was about predetermined topics, thus there is a possibility that some relevant information was missed. The convenience sampling methodology led to some participants in a given group having been previously acquainted, although the sensitivity of the topics covered was not such that familiarity among participants would necessarily limit open discussion. Also, as with any focus group study of this type, whether the opinions and comments expressed by this participants represent the general views of Armenian mothers cannot be evaluated directly, although many repetitions of the same ideas during different discussions increased our confidence in potential importance of obtained information. Concerning future research needs it seemed worthy the further investigation of the role of beliefs and attitudes of mothers in structuring behavior related to complementary feeding and weaning practices.

VI. Development of Educational Materials on Breastfeeding for Mothers

Taking into consideration the results of this study, and the recommendations of previous surveys, conducted in Armenia (Hekimyan, 1997; Branca, 1998), as well as the data from literature, the main educational messages on infant feeding, and particularly, on breastfeeding for Armenian mothers were considered as follows:

- ❑ An idea about the production of breast milk and its regulation
- ❑ An idea about the composition of breast milk
- ❑ Positioning of baby at the breast and why is it important
- ❑ Optimal breastfeeding behavior of mother
- ❑ Optimal frequency of breast feedings (sleepy baby, night feedings)

- ❑ Optimal duration of exclusive breastfeeding and disadvantages of giving water, teas and other liquids to exclusively breastfeeding baby
- ❑ Common breastfeeding problems (transient lactational crisis, nipple soreness, breast engorgement, plugged ducts), causes, prevention, treatment
- ❑ Optimal practice of complementary feeding
- ❑ Optimal duration of breastfeeding in general
- ❑ The main disadvantages of artificial feeding
- ❑ Inappropriate marketing of breast milk substitutes and the measures undertaken against it.
- ❑ Answers to common questions, such as:
 - ⇒ Milk leaking and what does it mean?
 - ⇒ Is it necessary to prepare nipples during pregnancy?
 - ⇒ Why outer appearance of breast milk may be different?
 - ⇒ How to evaluate baby's breast milk intake?
 - ⇒ How to maintain or increase breast milk production?
 - ⇒ How to express breast milk manually?
 - ⇒ Baby's refusal to take breast and how to overcome it?
 - ⇒ Is it appropriate to use pacifiers?
 - ⇒ Is it possible to breastfeed with flat or inverted nipples?
 - ⇒ Does stress reduce breast milk production?
 - ⇒ Does milk production depends from breast size?
 - ⇒ Does breastfeeding prevents from new pregnancy?
 - ⇒ Is it possible to continue breastfeeding if new pregnancy occurs?
 - ⇒ Does milk production depends from mother's diet?
 - ⇒ What should eat breastfeeding mother?
 - ⇒ Is it possible to continue breastfeeding if mother gets ill?
 - ⇒ Does breastfeeding effect mother's figure?

According to the identified educational needs of mothers and the information channels that they prefer more, printed materials, as well as educational courses were considered to be the best way to address those needs. Only through these channels it was possible to provide the substantial and well-organized information on infant feeding that mothers needed. The other reasons to choose printed materials were high level of literacy among Armenian mothers, as well as the results of the breastfeeding communication campaign in 1994, showing high effectiveness and long-lasting effect of printed materials. (Holley-Newsom, 1995; Hekimian, 1997). However, the television considered an important channel also, because

of population's almost universal exposure to it (Hekimian, 1997). Thus, television has the best potential to increase the social support to lactating mothers, which is very important for breastfeeding promotion. (Baranowski et al., 1983).

Considering all these arguments, the following educational materials for mothers were developed:

- ❖ A 22-page brochure “How to Breastfeed”, to be distributed among all lactating mothers;
- ❖ A 4-minut Television Spot on Breastfeeding;
- ❖ A 10-hour Curriculum on Breastfeeding Education for Mothers, to be implemented in children polyclinics.

The educational materials were developed taking into consideration existing recommendations on this kind of literature, that is accuracy, degree of positive approach to breastfeeding, readability and compliance with the WHO/UNICEF Code on the Marketing of Breast milk Substitutes (Valaitis and Shea, 1993), as well as consistency of demonstrated pictures and text next to him to avoid cognitive dissonance. (Smith, 1995). The materials then were tested with the use of “Scoresheet for Evaluating Breastfeeding Educational Materials” developed by L.J. Smith in 1995. After that the brochure, TV-spot and Curriculum were pre-tested via focus group discussions with target population: mothers of infants.

VII. Pre-testing of Educational Materials: Methodology and Results

Two focus group discussions with mothers of infants were conducted in the Polyclinic Department of Emergency Children Hospital that serves Shengavit District of Yerevan with purpose to pretest educational materials. Taking in to consideration rather big volume of the brochure, it was distributed among mothers two weeks earlier the discussions to ensure enough time for them to read the brochure and to think over its content and design. The staff of the polyclinic was involved in the recruitment procedures. Some staff members from the polyclinic were appointed to contact eligible mothers (mothers of infants), to distribute the brochure among them and to invite them to participate in the focus group discussions. Convenience sampling methodology was implemented. Two focus group discussions took place in the polyclinic during the same day - 20th of September, one hour apart from each other. A total of fifteen women participated in the focus groups: 9 – in the first one and 6 – in the second one. Short self-administered questionnaires were used before the sessions to identify social and educational backgrounds and child-rearing experiences of the participants. The mean age of focus group participants was 26 years old (range from 19 to 40), the mean family size - 5.9 (range from 3 to 8), the mean parity - 1.8 (range from 1 to 4), and the mean age of the youngest child – 7 months old (range from 3 to 10). All the mothers had at least high school education. Meanwhile, 6 of them had university education (40%) and 5 – college education (33%). 11 of participants (73%) still were breastfeeding their infants, 4 of them discontinued

breastfeeding at the mean age of 2 months of their infants. So, the sample was diverse enough to elicit a variety of opinions and ideas.

Focus group discussions were conducted with the use of a semi-structured field-guide that consisted of three parts to identify mothers' impressions: (1) about the brochure, (2) about the TV-spot, and (3) about the curriculum. The discussions took approximately one and a half hours. The technique of recording and analyzing the information was the same as in previously conducted focus groups.

Concerning the brochure, three main areas were addressed during the sessions: general impression about the brochure, perception of its usefulness, and impression about its design.

General impression about the brochure: The participants expressed very positive overall impressions about the brochure. All of them agreed that the brochure is pleasant to read and easy to understand, and that the information it provides is very interesting and important for both mothers and their families. Women stated that they liked the brochure and were convinced by its messages. They felt that the brochure is very practical and that it helped them a lot to become more self-confident in the area of infant feeding. Mothers said that the brochure covered almost all the questions that they had regarding breastfeeding and that there was nothing unnecessary in the brochure. Some mothers said that they would breastfeed their children longer if they had read this brochure before. Many mothers stated that the brochure became their "permanent adviser" and that they opened and reread it very often. Although the vast majority of mothers found the brochure very convincing, some of them were not convinced by a few messages such as sleeping in the same bed with the infant or not removing the breast from the baby's nose while breastfeeding. Participants found that the volume of the brochure was appropriate and that generally they would prefer bigger volumes providing useful information rather than smaller volumes that leave many questions unanswered.

- The brochure is very easy to read and the information it provides is very clear. Everybody could understand it easily.
- The brochure is very interesting not only for mothers, but also for other family members. We read the booklet very often while taking care of the child and correct our actions according to it. So, the brochure guides us.
- It was very convincing. I never had any suspicion concerning its messages.
- The brochure is very impressive and contains a lot of new information.
- There was nothing unnecessary in the brochure. All the information it provides is important for mothers to know.
- I breast-fed all my children less than 3 months. If I had this brochure before, probably I could breastfeed them longer.

- The brochure has appropriate volume. As to me, it is better to have even more pages with more such kind of information.

Perception of usefulness of the brochure: Focus group participants stated that the content of the brochure was consistent with their needs. They felt that it helped them to obtain a lot of new and useful information on the topics that are crucial for successful breastfeeding such as positioning the baby at the breast, recognizing and handling transient lactational crisis, increasing milk supply, awaking sleepy baby for breastfeeding, do not giving water, teas and juices to exclusively breastfeeding baby, facilitating milk ejection reflex. They mentioned that the knowledge about foremilk and hindmilk, as well as an idea on breastmilk production was new and very useful for them. Mothers felt that the topic on supplemental feeding was very important and contained new knowledge for them such as dangers of cow milk and honey for an infant. However, they stated that often they received information on infant feeding from other sources that were inconsistent with the messages of the brochure. Some mothers said that they have already changed their behavior in accordance with the messages of the brochure: they ceased to give water and other liquids to their young infants. Some of them told us that they would not give honey and cow milk to their infants any more. Mothers said that the brochure could be very helpful for both pregnant women and lactating mothers, although the final ones will read it more often and with more interest. Some mothers suggested adding more topics to the brochure such as what to do when baby cries or what can fathers do to support breastfeeding mother.

- It was very well described in the brochure how to position the baby at the breast. I think, lack of this knowledge was the reason of my failure to breastfeed.
- The idea of foremilk and hindmilk was completely new for me.
- The description of introduction of supplemental foods: their order, preparation, helped me a lot. It was new for me that there is no need to add salt to the infant food.
- Some things are crucial for breastfeeding mother to know: idea of transient lactational crisis, how to increase milk supply. Now I recognize that with this knowledge I could breastfeed my older child longer.
- It was interesting that it is not important to eat and drink more for increasing milk supply, it is important to breastfeed a baby more often!
- This brochure should be available for all mothers after delivery, because they need immediate answers of numerous questions on breastfeeding continuously.
- If herbal teas are not helpful to remove gasses and to calm down the baby, why people (and health workers as well) advise to use them? It is difficult to make right

choice when one receives different advises from different sources.

- This brochure is not only for mothers, but also for the members of her family. It would be better to include a small topic for fathers to help them recognize the importance of their support for breastfeeding mother.

Impression about the design of the brochure – In general, women liked the design of the booklet as a preliminary one, mentioning that it would be better if the final version would be smaller in size. Women said that they liked the photo on the front cover of the brochure, but they suggested making the cover page thicker, because mothers will open it very often during rearing their children. Many of them stated that they liked font size. They liked also that the main messages were underlined. Some of them even suggested to print these messages with red color. Many mothers mentioned that the pictures were helpful for them to understand the messages better. One mother mentioned that burping of her baby became much easier after implementing the technique illustrated in the picture of the brochure. However, some mothers found that the pictures should be bigger in size and colored - to be more attractive for readers.

The second area of the focus group discussions was **pre-testing of the TV-spot narration and scenes**. The moderator read scripts for participants and described the scenes, meanwhile showing some preliminary versions of accompanying pictures. Then two main areas were addressed: overall impression from the TV-spot and the degree of its usefulness for mothers and their family members. All the participants liked the narration. They said that it includes all the main messages for successful breastfeeding and that there is nothing to add to, or to cut from it. They felt it pleasant to hear the narration. Many of them said that the TV-spot carries new and very important information on breastfeeding that would be very helpful not only for mothers, but also for their family members. Concerning the scenes, women made several suggestions such as adding more movement to the first scene to make it more attractive for viewers, and showing something happy with the breastfeeding baby and something abnormal with the bottle feeding one (overweighed or underweight child). They also suggested showing a scene from the assembly of the Armenian Parliament where the addition to the National Law on Advertisement was adopted. Women agreed that the scenes would fit well with the narration and would help to understand its messages. Mothers that failed to breastfeed their baby for long enough, told that they had no negative feelings evoked by the TV-spot, but they felt desire to have an opportunity to try breastfeeding in future.

- This spot includes the most important messages for successful breastfeeding. There is nothing to add to it. I think it will be helpful not only for mothers, but also for fathers and grandmothers.
- The messages are quite clear. I think, I will watch the spot with pleasure.

- I think, the spot will gain if the dynamic of the scenes will be quick. Usually it is more attractive to watch the spots with a lot of dynamic.

The third area of the focus group discussions was *pre-testing of the Curriculum on Breastfeeding Education for Mothers*. The participants were asked if the themes included in the curriculum (that was presented them) are interesting for them. All of them agreed that all the themes are important and they would attend the course with pleasure. But they worried that they would not have enough time for that. Most of participants felt that ones a month is the most realistic frequency for them to visit the polyclinic, which is obviously not enough to attend the 12-hour course. Participants told that they had much more time during pregnancy and suggested conducting the main part of the course for pregnant women, and inviting lactating mothers to attend the continuation of the course concerning the later topics such as later breastfeeding problems and supplemental feeding. Participants stated that the main advantage of such course is that it will provide possibility to ask questions and to exchange experience with others. However, some of the mothers preferred the brochure to the possibility of attending the course.

VIII. Conclusion and Recommendations

The study revealed lack of knowledge among mothers in the areas that are crucial for successful breastfeeding, such as correct positioning of baby at the breast, ensuring enough frequency of feedings to stimulate lactation, importance of night feedings, etc. Even in the cases when mothers were exposed to the current recommendations on breastfeeding, their behavior often was inconsistent with those recommendations. The probable reason of this could be lack of understanding of underlying causes of those recommendations that made them unconvincing for mothers. The study revealed a lot of misconceptions among mothers concerning breastfeeding and breastmilk. Mothers often expressed tendency to interpret temporal difficulties that they experienced during breastfeeding as desperate and hopeless situations, since they were unable to understand the causes of those difficulties and to overcome them. Meanwhile, mothers were unsure in many issues of infant feeding and were seeking for information themselves. The study also revealed lack of appropriate educational materials for mothers. Printed materials and conversations with health workers were the most preferable channels of information on breastfeeding for mothers. However, very few of mothers had printed materials on infant feeding, and the vast majority of those materials were out-dated. Meanwhile, mothers demonstrated strong ability to be influenced by inappropriate marketing of baby foods and drinks (such as advertisements of HIPP teas), especially in the case when they have no available and reliable sources of information.

According to these results, it was considered necessary to develop appropriate educational materials for mothers that would ensure not only exposure of mothers to the current recommendations, but also would

provide information detailed enough for enabling them to understand underlying causes of those recommendations, and for convincing them to change rooted behaviors according to those recommendations. It was considered also important to help mothers to obtain skills that are necessary for successful breastfeeding, and to create social atmosphere favorable for breastfeeding mothers. Thus, the main educational messages were developed and three channels of information were chosen to distribute those messages, according to expressed preferences of mothers:

- ❑ A brochure, as a source of detailed and convincing information,
- ❑ A Lactation Education course, as a mean for mothers to obtain breastfeeding skills and to be convinced through discussions and exchange of experience and knowledge,
- ❑ A television spot on Breastfeeding, as a mean to create social atmosphere favorable for breastfeeding.

Although the limitations of pre-testing of educational materials connected with unavailability of final versions of materials (only the brochure was in the format close to the final), the results of pre-testing were rather informative. The reaction of mothers to those materials was very positive. The messages were not only acceptable and convincing for them, but also were influential enough to produce behavioral changes. Some changes were introduced in educational materials according to the results of pre-testing, such as exclusion of the topic on sharing bed with the baby from the brochure and inclusion of new one concerning fathers' and other family members' role in breastfeeding success; introduction of new scenes in the TV-spot; and rearrangement of the Breastfeeding Education course in the way that the main part of it would be intended for pregnant women, and only few topics – for lactating mothers. The results of pre-testing showed that the developed educational materials could be powerful tools in changing mothers' attitudes towards breastfeeding and enabling them to breastfeed successfully for long period of time. Besides, to reach better results, it is important to ensure the consistency of information that mothers receive from different sources. And also, success of breastfeeding largely depends on appropriate help that mothers get from maternity wards and from children polyclinics thereafter. Thus, we recommend:

- ❖ To find funding to produce the developed brochure for lactating mothers “How to Breastfeed” in quantities that will ensure overall exposure of Armenian mothers to it during two-year period (100,000 copies), and to distribute it through children polyclinics free of charge.
- ❖ To prepare health workers for implementing the developed Lactation Education Course in the all children polyclinics of Armenia in the form of ongoing pre-natal and post-natal classes for women and their families.
- ❖ To find funding to produce the developed TV-spot and to show it with enough frequency (each day) and duration (2-3 months) by Armenian National TV-Channel in evening hours to ensure better exposure of the population to it. (Hekimian, 1997).

- ❖ To evaluate the results of this educational intervention on breastfeeding in one-year period after its implementation with combination of qualitative and quantitative survey methodologies.
- ❖ To continue the educational courses on Breastfeeding Counselling and Baby Friendly Hospital Initiative for health workers of women consultations, maternity wards and children polyclinics in the scope of National Breastfeeding Promotion Program to ensure consistency of advise and practical help that mothers receive from health workers.
- ❖ To monitor the marketing of breast milk substitutes in Armenia in compliance with the Law of Armenia on Advertisement and with the International Codex of Marketing of Breastmilk Substitutes, to protect mothers from adverse psychological effects of inappropriate marketing of those products.
- ❖ To conduct further research directed to investigation of the role of mothers' beliefs and attitudes in structuring behavior related to complementary feeding and weaning practices.

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List of appropriate journals where this work might be published
(After adoption to meet the guidelines of the intended journal)

1. Journal of Nutrition Education
2. International Journal of Childbirth Education
3. Journal of Human Lactation
4. Journal of the American Dietetic Association
5. American Journal of Clinical Nutrition
6. British Journal of Nutrition
7. Journal of Public Health Policy
8. Journal of Obstetric Gynecology and Neonatal Nursing
9. Public Health Nursing
10. American Journal of Health Promotion
11. Topics in Clinical Nutrition
12. European Journal of Clinical Nutrition

APPENDIX 1:
EDUCATIONAL MATERIALS

TV-spot Promoting Breastfeeding

<p>Almost every mother knows that breastfeeding is the best way to feed the baby, but very few of them really know the dangers of artificial feeding for him. Artificial feeding does not protect baby against illness, it does not stimulate growth and development of baby’s tissues, it does not provide baby with optimal balance of nutrients. Thus, artificially fed babies get seriously ill much more often, than breast fed babies do.</p>	<p><i>Screen in two half. One half shows a baby while breast-feeding, second half – a baby in the bed with bottle in his mouth. Scene begins from the first baby with whole view. The breast feeding pair is happy and beautiful. Then screen shows the second baby with whole view – the baby is sad and unhappy.</i></p>
<p>To protect infants from adverse effects of artificial feeding, in 1981 World Health Organization adopted International Code that forbids inappropriate marketing of breastmilk substitutes such as adverts, distribution of free samples, distribution through health care facilities etc.</p>	<p><i>Screen shows a publication of International Code on Marketing of Breast Milk Substitutes.</i></p>
<p>Recognizing the whole importance of the Code, in 1999 National Assembly of Armenia introduced a new article in the National Law on Advertisement that prohibits advertisement and free distribution of any food and drink intended for children under 6 months of age.</p>	<p><i>Screen shows a scene from Armenian National Assembly in the moment of voting and the adopted National Law on Advertisement with the new article there.</i></p>
<p>Free from powerful psychological influence of inappropriate marketing of breast milk substitutes, almost all mothers can produce enough milk and breastfeed successfully, following several simple rules such as:</p>	<p><i>Screen shows breastfeeding mothers.</i></p>
<p>❑ Breastfeed the baby in the correct position, when he faces the mother with his whole body and is very close to her, having good support for his back, and when he grasps not only the nipple, but majority of the areola as well.</p>	<p><i>Screen shows breastfeeding baby in a correct position: at first - position of his body and then - latch-on and suckling.</i></p>
<p>❑ Breastfeed the baby according to his demand, but be sure to feed him at least 8-12 times per day to stimulate milk supply. To ensure enough frequency of feeding awake up and breastfeed a sleepy baby in each 2-3 hours during the first month of life. Do not avoid night feedings.</p>	<p><i>Mother that awakes up a baby and starts to breastfeed him.</i></p>

<p>❑ Breastfeed even more frequently during the periods of baby’s growth spurts, when he becomes very hungry and demands feedings all day long. Your milk production will increase enough to satisfy his needs in several days.</p>	<p><i>Screen shows a growth chart where a growth line goes up suddenly and a red arrow shows this sudden increase as a growth spurt.</i></p>
<p>❑ Do not give any other food or liquid to the baby besides breast milk for about 6 months. Water, herbal teas and all other liquids have no proven benefits for breast-fed infants, but they can cause harm to them.</p>	<p><i>Red cross on several tea and water products of HIPP company and other liquids.</i></p>
<p>Concentrate all the care and love you fill to your baby in the marvelous liquid that produces your body for him, and be sure that giving him only your breast milk you choose the best possible start of life for him.</p>	<p><i>Screen shows a loving mother who breastfeeds the child.</i></p>
<p>For more information ask for the booklet “How to breastfeed” at your district children polyclinic.</p>	<p><i>Picture of the booklet.</i></p>

Curriculum on Lactation Education for Pregnant Women & Lactating Mothers

(To be implemented in children polyclinics)

The following 10 one-hour “talks” are to be conducted for a group of 7-10 women with one facilitator. The first 7 talks are intended for pregnant women, the last 3 talks – for lactating mothers. They cover topics that are necessary for enabling mothers to breastfeed successfully. Frequency of sessions could be changed to reflect preferences of group members. During the sessions different teaching methods are to be implemented.

<i>Talks</i>	<i>Themes</i>	<i>Teaching methods</i>	<i>Time (min)</i>	<i>Materials needed</i>
1 st	<ul style="list-style-type: none"> ❑ Production of breastmilk ❑ Maternity ward (MW) practices optimal for breastfeeding 	<ol style="list-style-type: none"> 1. Opening discussion to identify prior knowledge & areas of interest 2. Presentation of the first topic 3. Discussion & development of the list of new knowledge obtained 4. Discussion: New MW practices – why they are important for lactation 5. Videotape watching: “Post-delivery Self-attachment” 	10 15 15 15 5	Reference materials* Poster sheets & magic markers Overhead projector & transparencies: Breast structure; milk-production reflex; let-down reflex Playback unit & video
2 nd	<ul style="list-style-type: none"> ❑ Disadvantages of artificial feeding ❑ Idea about the composition of breastmilk ❑ Foremilk and hindmilk 	<ol style="list-style-type: none"> 1. Opening discussion to identify prior knowledge 2. Presentation of the topics 3. Discussion & development of the list of main disadvantages of artificial feeding 4. Videotape watching: “Breast is best” 	5 15 10 30	Reference materials* Poster sheets&markers Overhead projector & transparencies: composition of human; cow milk & formula; foremilk & hindmilk. Playback unit & video
3 rd	<ul style="list-style-type: none"> ❑ Positioning of baby at the breast and latch-on 	<ol style="list-style-type: none"> 1. Opening discussion: Positioning, is it important 2. Presentation: Effective & ineffective suckling, causes and consequences 3. Demonstration: different positions 4. Videotape watching: “Positioning” 5. Practice 	10 20 10 10 10	Reference materials* Poster sheets&markers Overhead projector & Transparencies: Right and wrong positions Dolls & model- breasts Playback unit & video Armchair, pillows
4 th	<ul style="list-style-type: none"> ❑ Optimal BF behavior (BF frequency, sleepy baby, duration, burping, night feedings, what breast to suggest) ❑ Colic in baby 	<ol style="list-style-type: none"> 1. Opening discussion to identify prior knowledge 2. Videotape watching: “Special relationships” 3. Discussion & development of the list of most important BF behaviors 4. Discussion: Colic, what is it? & demonstration of positions to calm down a baby with colic 	10 20 20 10	Reference materials* Poster sheets&markers Playback unit & video Doll

5 th	<ul style="list-style-type: none"> ❑ Breastfeeding evaluation tool, early weeks (Tobin, 1995) ❑ Manual expression of breastmilk (BM) 	<ol style="list-style-type: none"> 1. Distribution & introduction of BF evaluation tool, discussion of its main points 2. Demonstration of manual expression technique 3. Videotape watching: “Manual expression of breast milk” 4. Practice 5. Discussion: When to express BM 	<p>20</p> <p>10</p> <p>5</p> <p>10</p> <p>15</p>	<p>Reference materials*</p> <p>Printed evaluation tool for participants</p> <p>Poster sheets&markers</p> <p>Playback unit & video</p> <p>Model-breast and cup</p>
6 th	<ul style="list-style-type: none"> ❑ Exclusive breastfeeding; advantages ❑ Low on Marketing of BM substitutes 	<ol style="list-style-type: none"> 1. Discussion: Prior ideas of why it could be dangerous: giving water, teas and other liquids, as well as pacifiers to the breastfeeding baby, development of the list of disadvantages 2. Presentation of several facts on advantages of exclusive BF 3. Presentation of the Law on Marketing of BM substitutes 4. Discussion: Why the Law is necessary? 	<p>15</p> <p>15</p> <p>15</p> <p>15</p>	<p>Reference materials*</p> <p>Poster sheets&markers</p> <p>Relevant article in Armenian Low on Advertisement – for participants</p> <p>Overhead projector & Transparencies:</p> <p>Comparative health advantages of exclusive BF; main points of the Low</p>
7 th	<ul style="list-style-type: none"> ❑ Transient lactational crisis (TLC) ❑ How to maintain or increase breast milk production ❑ Mother’s diet & breastfeeding 	<ol style="list-style-type: none"> 1. Discussion to identify prior knowledge on TLC and relevant experience with older children 2. Presentation: Transient lactational crisis 3. Discussion: how to increase BM production & developing a list of main measures 4. Demonstration of BM Supplementer 5. Discussion: Mother’s diet and breastfeeding 	<p>10</p> <p>10</p> <p>20</p> <p>5</p> <p>15</p>	<p>Reference materials*</p> <p>Poster sheets&markers</p> <p>Overhead projector & Transparencies:</p> <p>Growth spurts of baby on growth chart; main signs of TLC</p> <p>BM supplementer and model-breast</p>
8 th	<ul style="list-style-type: none"> ❑ Stress and let-down reflex, how to relax ❑ Baby’s refusal to take breast ❑ Milk leaking 	<ol style="list-style-type: none"> 1. Discussion: How to relax? 2. Demonstration of relaxation techniques 3. Discussion: Refusal to take breast, possible causes, how to help baby to take breast (list of measures) 4. Discussion: Milk leaking, causes 	<p>10</p> <p>15</p> <p>20</p> <p>15</p>	<p>Reference materials*</p> <p>Poster sheets&markers</p> <p>Armchair & foot-stool, audio-player</p>
9 th	<ul style="list-style-type: none"> ❑ Common breastfeeding problems (nipple soreness, breast engorgement, plugged ducts) ❑ Mother’s illness and BF ❑ Pregnancy & BF 	<ol style="list-style-type: none"> 1. Discussion to identify prior practice concerning BF problems 2. Presentation of the topic: Causes of common BF problems and recommended measures 3. Demonstration of breast massage techniques, usage of breast-shells 4. Practice 5. Discussion: Mother’s illness & BF, pregnancy & BF (list of new knowledge obtained) 	<p>10</p> <p>15</p> <p>10</p> <p>5</p> <p>20</p>	<p>Reference materials*</p> <p>Poster sheets & markers</p> <p>Overhead projector & Transparencies:</p> <p>Causes of common BF problems, signs, recommended measures</p> <p>Breast-shell, model-breast</p>

10 th	<input type="checkbox"/> Complementary feeding <input type="checkbox"/> Duration of BF and weaning from the breast	1. Discussion of the prior practice	10	Reference materials* Poster sheets & markers Items to demonstrate complementary food preparation techniques List of appropriate complementary foods and time-table of their introduction; list of foods dangerous for infants (for mothers)
		2. Discussion: What foods are valuable and why?	10	
		3. Demonstration of food preparation techniques	15	
		4. Discussion: Directed to develop a list of appropriate complementary foods and a time-table of their introduction	15	
		5. Discussion: weaning techniques	10	

***Reference materials:**

- Brochure “How to Breastfeed” by A. Demirchyan for all mothers;
- “Helping mothers to breastfeed” by F. S. King (Armenian translation);
- “Breastfeeding, How to Reach the Success” by T. Vinter (Armenian version);
- “Breastfeeding Counselling” WHO/UNICEF curriculum – transparencies (in Armenian);
- “Protecting Infant Health. A health worker’s guide to the International Code” (Armenian translation).

Short Content of the Brochure “How to Breastfeed” by A. Demirchyan

Foreword

It is well known that self-confidence of mother is the key of successful breastfeeding. But confidence can not appear without a base. Knowledge and experience are its bases, and ignorance is its main enemy. Infant feeding could become so easy if a trustable adviser would prompt answers of innumerable questions that rise during the breastfeeding experience and remain unanswered.

This brochure is intended to share with you the burden of responsibility that you took on your shoulders with birth of your baby - the main happiness and the main trial of your life during this period. As an experienced and wise adviser, it will help you to make your own decisions concerning the feeding of your baby. It will help you to find correct solutions under the different circumstances and so, will help you to be calm, certain, and confident. Thus, you will have a key of the big mission of successful breastfeeding - not only the best feeding mode of your baby, but also a unique happiness of being so close to him physically and emotionally.

Introduction



“Only by experiencing breastfeeding does a young mother truly recognize its freeing nature, the degree to which it enhances her self-esteem, and its unique ability to bond her - physically and emotionally - with her baby”.

K. Auerbach

Skill of breastfeeding is not an inborn ability of women. Mother should learn breastfeeding, learn - recognizing its essence, and experiencing it in practice. Both mother and child need some time - to obtain correct breastfeeding technique, to get used with each other, and to build relationships that are unique for each mother-child pair.

This learning pass very fluent and easy sometimes. But more often some difficulties and obstacles arise that may disappoint unprepared mother, seem insuperable to her, and finally, result in discontinuation of breastfeeding. Whereas in reality all of those difficulties are temporal and can be overcome easily, if the mother has trust, knowledge and desire. Thus, good luck to you, dear mother, on your way of reaching knowledge and confidence.

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APPENDIX 2:
***FOCUS GROUP FIELD GUIDES AND
QUESTIONNAIRES***

Focus Group Field Guide (*Identification of Educational Needs*)

Good afternoon, and first of all - thank you very much for coming. My name is Anahit. I am interested in infant feeding, and particularly – in breastfeeding. We have invited you here to ask you to share with us your approaches towards breastfeeding and to tell us about your experience in the area of infant feeding in general. We have an intention to develop and disseminate educational materials on breastfeeding for mothers. Your frank answers will be very helpful for us in selecting the right issues to address in those materials. I will just suggest you topics of discussion, and will ask all of you to express your opinions on those topics. Our discussion will take approximately one and half-hour. It would be better if the discussion will pass as a free conversation, and everybody will participate in it without waiting to his turn. I ask you only do not speak simultaneously, to make it easier for us to listen carefully to all of you. Please, express your ideas freely, having in mind that there are no wrong or right answers here. We are interested in all opinions equally, and all opinions are equally valuable for us. Be informed also that the information you will give us will remain confidential, and your names will not be mentioned with that information. Please, let us begin now.

Opening question (3-5 min) – Please, introduce yourself, tell us how many children do you have and what is the age of your youngest baby?

Introductory question (3-5 min) – Do you breastfeed your child currently?

(Probing questions: If yes, how? What other foods and/or fluids do you give him/her? Why? If no, when did you stop and why?)

Transition question (5-10 min) – In your opinion, what is the ideal duration of exclusive breastfeeding and breastfeeding in general.

(Probing questions: What other food should be given to the baby first, while continuing breastfeeding? Why? When it should be given and how?)

Key question 1 (5-10 min) – Please, describe how do you (did you) breastfeed your baby?

(Probing questions: What hunger cues do you know? How do you decide when, how frequently and for how long to breastfeed the baby and what breast to suggest? Do you note how the babe is attached to the breast, how he suckles? What do you think about night feedings?)

Key question 2 (5-10 min) – In your opinion, is it necessary to give water or other liquids to breastfeeding infants during the early months of life?

(Probing questions: If yes, what liquids, in what quantities, why and how (with usage of bottle and nipple or otherwise)? If no, why and for how long time? What do you think about artificial nipples and pacifiers in general? Are they useful and why?)

Key question 3 (10-15 min) – In your opinion, in what circumstances other milks besides breastmilk should be introduced into baby's diet?

(Probing questions: When would you think that breast milk is insufficient for the baby? What could be the reasons of breast milk insufficiency? Is it possible to increase milk supply and how? Have you ever worried about the quality of your milk? Why? What are the more frequent reasons of early weaning from the breast?)

Key question 4 (15-20 min) – Tell us, please, about the difficulties that you have experienced during breastfeeding.

(Probing questions: When did those difficulties arise? What do you think about the reasons of those difficulties? How did you overcome them? What do you think about the reasons of nipple soreness, breast engorgement? How would you avoid or treat these problems? What do you think about the reasons of baby's refusal to take breast?)

Key question 5 (8-10 min) – In your opinion, is it possible to continue breastfeeding if mother or infant gets ill?

(Probing questions: Why yes or why no? Is it possible to maintain breast milk supply if breastfeeding was interrupted and how is it possible?)

Key question 6 (8-10 min) – Have you ever seen adverts of breast milk substitutes or have you ever received free supplies of infant formula or teas?

(Probing questions: If yes, did it have any influence on your decision of feeding mode of your baby? What do you think about these practices? Are they useful or harmful, why? If you give other milk or liquids to your baby, why did you choose those products? What baby milks or liquids do you consider the best once? Why? Do you think that they are nutritionally valuable? Why?)

Key question 7 (5-10 min) – In your opinion, why mothers sometimes prefer do not breastfeed their infants?

(Probing questions: Do you think that breastfeeding could make breasts different or change mother's figure. If yes, how and why? What other reasons of choosing artificial feeding do you know? What do you think about those reasons?)

Key question 8 (10-15 min) – Have you ever received information on breastfeeding?

(Probing questions: If yes, how? Was that information useful to you? Why yes or why no? What information sources (TV, radio, literature, group discussions, newspapers etc.) are more trustable, more effective and/or more preferable for you? Why?)

Summarizing question (5-10 min) – What else would you like to add or emphasize? Answers of what questions on breastfeeding and infant feeding would you like to receive?

Thank you very much for your time and contribution, which we highly appreciate!

Questionnaire for Focus Group Participant *(Identification of Educational Needs)*

Please answer to the following questions:

1. How many family members do you have? _____
2. How many children do you have? _____
3. Point out (✓), what is your age category among following?
 - _____ 20 years and younger
 - _____ 21-25 years
 - _____ 26-30 years
 - _____ 31-35 years
 - _____ 36-40 years
 - _____ 41 years and older
4. Point out (✓), what is your education category among following?
 - _____ incomplete high school
 - _____ high school
 - _____ college
 - _____ incomplete university
 - _____ university
 - _____ postgraduate

Focus Group Field Guide (*Pre-testing of Educational Materials*)

Good afternoon. The objective of our meeting is to get your opinion on several educational materials and particularly on the brochure that was distributed to you preliminary. Thank you very much for reading the brochure and for expressing your willingness to discuss it with us. The brochure, as well as the other materials – an educational TV-spot scenario and a breastfeeding education curriculum for mothers are intended to promote long and successful breastfeeding practice by helping mothers to find right solutions in different situations. They are intended to answer the questions that mothers often ask during breastfeeding. We want you to help us develop the best materials that will appeal to Armenian mothers. Your ideas, fillings, and suggestions are very important for improving the materials and for making them more acceptable and useful for mothers. I will just suggest you issues to discuss about the educational materials, and will ask all of you to express your opinions on those issues. Your full participation is important. Please, express your ideas freely, having in mind that there are no wrong or right answers here. Feel free also to disagree with anyone's opinion. We are interested in everyone's opinions and fillings. We hope to learn from you. Our discussion will take approximately one to one-half hour. It would be better if the discussion will pass as a free conversation, and everybody will participate in it without waiting to his turn. I ask you only do not speak simultaneously, to make it easier for us to listen carefully to all of you. Be informed also that the information you will give us will remain confidential, and your names will not be mentioned with that information. Please, let us begin now.

Opening question (5 min.) – My name is Anahit. Please, introduce yourself, tell us how many children do you have and for how long time you have breast-fed them?

Transition question (5 min.) – Did you read the whole brochure? How readable it was?

(Probing questions: Was it interesting? Was it easy or difficult to read?)

Key question 1 (10 min.) – What was your general impression about the brochure?

(Probing questions: What was your overall reaction to the brochure? Was the brochure easily understandable? Could you find there the answers to the questions that you had? What did you like/dislike about the brochure? How did the brochure affect you? In your opinion, who could find this brochure interesting?)

Key question 2 (10-15 min.) – In your opinion, how useful the brochure could be for breastfeeding mothers?

(Probing questions: Was the content of the brochure consistent with your interests? What information was new or useful for you? What information was unnecessary or uninteresting? Did any of the messages contradict your beliefs or the information you received from other sources? Did you change any practice after reading the brochure? What additional information on infant feeding would you like to have included in the brochure?)

Key question 3 (5-10 min.) – How did you like the design of the brochure?

(Probing questions: How did you like the cover page, the font size, the page format, and the pictures? Were the pictures useful for the better understanding of the content? What suggestions do you have for improvement of the brochure with regards to design or style?)

Thank you very much for the discussion of the brochure. Now we are going to examine a TV-spot scenario. I will read the scripts and describe/show the pictures that resemble those being used in each scene. Please, make connections between the scripts and pictures. We want your opinions of each. If you will miss something from my reading, just tell me and I will read it again.

Key question 4 (10 min.) – What are your general impressions about the TV-spot scenario?

(Probing questions: What feelings do it evoke? Is it acceptable? What did you like/dislike about it?)

Key question 5 (10 min.) - In your opinion, how useful the TV-spot could be for breastfeeding mothers and their family members?

(Probing questions: Are the most useful or new messages selected for the TV-spot? What is the main point of the spot? How believable is it? In what extent are the scenes connected to the narration and helpful for understanding it? What suggestions do you have for improvement of the scripts or scenes?)

Thank you for your valuable ideas. The last topic of our discussion concerns the themes included in the curriculum on breastfeeding education course for mothers that is to be implemented in children polyclinics. Now I will read those themes in forms of common questions and will ask you to express your opinions about the usefulness of including them in the course, and about the usefulness of the course itself.

Key question 6 (10 min) – In your opinion how is it advisable to include each of these themes (topics) in the curriculum?

(Probing questions: Are you interested in these topics? What sessions would you attend with more willingness? What topics are not so interesting for you? Why?)

Key question 7 (5 min) - How is it feasible for you to participate in such course?

(Probing questions: Would you like to attend such course? How is it probable that mothers will attend this course? What frequency and duration of sessions do you consider more advisable for you? Why?)

Thank you very much for your time and contribution, which we highly appreciate!

Questionnaire for Focus Group Participant (Pre-testing of Educational Materials)

Please answer to the following questions:

1. How many family members do you have? _____
2. How many children do you have? _____
3. How old is your youngest child? (months) _____
4. Do you breastfeed him/her currently?
Yes No
5. If no, for how long time did you breastfeed him/her? _____
6. How old are you? _____
7. Point out (✓), what is your education category among following?
_____ incomplete high school
_____ high school
_____ college
_____ incomplete university
_____ university
_____ postgraduate