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Review article

Breast feeding and use of education programme for its improvement: A mini-review

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Abstract

Breastfeeding plays a vital role in child survival, growth and development and helps to protect the infants against major causes of childhood morbidity and mortality. It is currently recommended that starting within one hour of birth, infants should be exclusively breastfed for the first six months of life, and that breastfeeding should continue up to 2 years of age or beyond. Unfortunately, infant feeding practices are still far from optimal; in many parts of the world rates of exclusive breastfeeding are low and many women stop breastfeeding earlier. It has been observed that breastfeeding education is effective in increasing both the rate of breastfeeding initiation and breastfeeding duration. In this review, we will discuss about breastfeeding and role of educational programme on its improvement.

Keywords: Breast feeding, nursing, education programme.

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1. Introduction

Breast milk is often referred to as "liquid gold," and storing it safely is the key. There is a lot of conflicting research about the advantages and disadvantages of storage containers made from particular materials. The first milk is the most suitable food for the newborn. It is thick and yellow coloured, the shaastras call it "Peeyusha" (equal to amrit, the 'liquor of life') and western science uses the word colostrums. It is the infant's first immunization. For most of the children breastfeeding makes the difference between life and death and it is the infants' 'passport to life'.

Storage of breast milk

Storage of human breast milk by freezing or refrigeration of milk with and without heating has been recommended. This can hardly be avoided because of the social circumstances of most mothers who are regularly separated from their infants because of work or schooling as well as the particular needs of some pre-term or sick babies to be fed with expressed breast milk. The greatest fear that has hindered the prospects of *in vitro* storage of breast milk for any considerable period of time is the possibility of bacterial contamination and growth of infectious pathogens in the stored milk, thereby rendering it unsafe for human consumption. Bacteriological examination of refrigerated milks has proven their safety for human consumption for even up to 72 h. For a storage over longer periods up to 1 month, freezing at -20 °C could be recommended, but the most preferred method, especially for longer storage would be fresh freezing at -70 °C, if affordable or available. The expressed fears arising from increased acidity of such stored milk samples have been unfounded,

since it has been shown to be mainly attributable to levels of free fatty acids, rather than lactic acid, which might have been produced by bacterial fermentation of milk sugars. Evidence shows that temporary storage of human milk under appropriate conditions is not dangerous for babies and infants. This would further encourage the practice of prolonged exclusive breastfeeding and allow the families to reap its multi-fold benefits. [1]

A retrospective study within a comprehensive corporate lactation program (CLP) measured the rate of initiation and duration of breast milk expression and provided a characterization of participants. The combined data for all 462 women showed that breastfeeding was initiated by 97.5% of the CLP participants, with 57.8% breastfeeding for at least 6 months. The women were divided into groups based on whether they returned to work after maternity leave and, if they returned to work, whether they utilized the pumping option of the CLP. The 462 women studied, 94.2% returned to their jobs, and 5.8% did not return to work. The study criteria for successful expression of milk at work was defined as being able to pump for at least 2 weeks after returning to work. Based on the CLCs' experiences, this was sufficient time for mothers to comfortably incorporate pumping into their daily work schedule. The 435 who returned to work, 79% attempted to express milk at work and 98% of them succeeded. Only 7 attempted pumping at work but discontinued within 2 weeks. For the 336 mothers who successfully expressed milk at work, the mean postnatal leave was 2.8 months (SD = 1.44), with a median of 2.5 months. 90% had returned to work before their babies were 5 months in age. [2]

An important factor influencing duration of breastfeeding is mother's employment status. A study results showed that despite the efforts of the four employing organizations to develop general policies for mothers' well-being and two of them having some facilities and breastfeeding policies in development, 42 participants (91%) were unaware of any support that might be offered to enable breastfeeding after returning to work, yet this is widely available to employers and the public. Those women who accessed bookable rooms and equipment largely did so through their own efforts, and many experienced unhealthy conditions in their use. Access to workplace childcare was only available for a minority. But for three-quarters of the sample it was or would have been important to continue breastfeeding after returning to work. It is clear that these employers are failing to meet their health and safety obligations and are indirectly hampering public health efforts to improve the duration of breastfeeding. [3]

The expression of breast milk allows a mother to be away intermittently from her infant while continuing to breastfeed. The aim of this study was to investigate the association between expression of breast milk and breastfeeding duration. A cohort study of 12 months duration included mothers from two public maternity hospitals in Perth, Australia. Telephone interviews conducted at regular periods monitored changes in infant feeding practices, including expression of breast milk. Multivariate Cox regression analysis was used to explore the association between breast milk expression and the duration of any breastfeeding. A total of 587 mothers, or 55% of those eligible, participated in the study. Of these 93.5% were breastfeeding at discharge from hospital. Mothers who expressed breast milk (at one or more time periods) were less likely to discontinue any breastfeeding before six months than those who had never expressed milk. This study found that mothers who express breast milk are more likely to breastfeed to six months. While further research is required in different cultures to confirm these results, the appropriate use of expressed breast milk may be a means to help mothers to achieve six months of full breastfeeding while giving more lifestyle options. [4]

Human milk is recognized as the optimal feeding for all infants because of its proven health benefits to infants and their mothers. However, mothers of vulnerable infants, such as preterm infants, encounter a variety of unique breastfeeding barriers and challenges that result in a decreased rate of breastfeeding in preterm compared to term infants. As an example, in Massachusetts, breastfeeding initiation rates were 77, 70, and 63 percent in term infants,

infants born between 32 and 36 weeks gestation, and those born between 24 and 31 weeks, respectively. For extremely premature infants, a major barrier is their inability to breastfeed effectively for some time after delivery, which requires their mothers to establish and maintain milk production by milk expression either by hand or by use of a pump. As a result, efforts need to be made to support both breast milk expression and breastfeeding for the maternal-preterm infant dyad, because the benefits of human milk are well-established in these infants. There is strong evidence that a combination of prenatal and postnatal educational and support interventions improve breastfeeding rates for all new parents. Clinical staff should discuss the benefits of human milk, including the long-term effects of exclusive breastfeeding. In most cases, mothers opt to feed their infants the breast milk and are willing to express their milk for at least one to two weeks when they learn about the benefits of human milk. [5] It has been observed that the pump-dependent mothers of preterm infants commonly experience insufficient production.

Most common adverse effects due to breast-feeding are pain and damage to nipples. It was observed that the mother's maximum comfortable vacuum enhances milk flow rate and milk yield. The findings also suggest that it is bacteriologically safe to refrigerate expressed breast milk for up to 48 hours.

Early feeding for preterm infants via the mother's own milk is crucial for lowering morbidity and mortality. Obtaining the mother's milk in the first few days is sometimes difficult; an effective way of mediating this problem has not yet been established. A sequential cross-over study was performed in a maternity ward, in a tertiary perinatal center, Japan. Eleven women whose infants were admitted to the neonatal intensive care unit were sequentially allocated to either manual or electric breast expression (Symphony) for their first expression after 6 hours following birth. The women then used the other method for the next expression, and continued to alternate between methods until seven sessions had been completed for each method. The time interval between expressions was 3 hours. Main outcome measures were volume of milk expressed per session and pain assessment at each expression using the Wong and Baker face-scale. Net milk yield per woman was 2 ml manually (median; range: 0–12.6ml) and 0.6ml (0–7.2ml) by electric expression (P = 0.05). The frequency of women stating no pain was higher for electric pumping than manual expression (90% vs. 36%, respectively; *P* <0.05). The present results indicate that manual expression was superior to electric pumping in obtaining a higher volume of milk in the first 48 h after birth: manual expression yielded twice as much milk as electric pumping. It was concluded that in the early postpartum period, the best way to obtain colostrum is by gentle manual expression. For mothers who feel pain during manual expression, use of the stimulation phase of the Symphony pump may be preferable. [6]

It has been found that mothers who are separated from their prematurely born or sick infants should begin to express milk for their own infants as soon after birth as possible to provide milk with low bacterial contamination for frozen storage and later use. [7]

Role of self instructional module

It has been observed that most of mothers are not aware of impact of breastfeeding and hence, they can be educated using several programmes. One of the important programmes is using self-instructional module (SIM) which utilizes specific questionnaires. [8]

A study was designed to assess information related to warning signs of pregnancy and prepare instructional booklet to check its effectiveness. Information deficit regarding warning signs of pregnancy was assessed from 30 primigravida women. Awareness score was less than 20% regarding warning signs. Based on this an information booklet was developed and tested for its effectiveness in improving knowledge of warning signs for a group of 33 pregnant women using a one group pre-test post test design. The finding revealed that the mean post-test score of 88.79% was significantly higher than the mean pre-test score of 25.58%. The post-test scores were significantly higher in

individual areas of knowledge. This indicated that the information booklet was effective in raising knowledge regarding warning signs. [9]

The use of SIMs appears to be superior to more conventional instructional methods for developing concepts and skills essential to instruction for higher cognitive processes. [10]

A study was designed to assess the knowledge of the staff nurses and to determine the effectiveness of SIM in terms of gained knowledge regarding nursing management of patients having chest tube drainage. By adopting quasi- experimental study systematically & randomly selected 100 staff nurses working in Nehru Hospital, PGIMER, Chandigarh were included in the study. A single group pre-test - post-test design was used to assess the existing knowledge and their improvement in the knowledge after the introduction of SIM within an interval of 7-10 days on individual basis. Subjects had poor knowledge related to clamping of chest tubes during transportation (35%), clamping during leak (28%) and about indications for chest tube removal (19%). After introduction of SIM, number of subjects further increased to 75%, 65% and 74% respectively in these areas. The information given through SIM proved beneficial in improving the knowledge and skill of 100 study subjects as written information in the form of ready reference i.e. SIM available with the subjects could provide reinforcement in their day to day clinical knowledge and skill, which eventually improved the quality of care. [11]

A study found that the training module is able to improve the knowledge competencies of resource room teachers. The training module had great effects in developing these competencies due to numerous, techniques, aids, and live instructional models included in the training program. [12] Instructional module is also effective to quit smoking in patients with angina pectoris. [13] The self instructional module influences significantly the knowledge of post myocardial infarction patients in experimental group about life style modification needed after myocardial infarction. [14]

A study was conducted to develop and evaluate the effectiveness of self instructional booklet on nursing management of neonates with selected problems for the nursing personnel working in NICU of hospitals at Bangalore. The study utilized an evaluative approach with pre-experimental one group pre-test posttest design. The study was conducted in the NICU of 4 hospitals at Banglore. The non-probability, convenient sampling technique was used. The sample size comprised of 40 nursing personnel working in NICU of teaching hospitals. Tool used for study was structured questionnaire. The reliability of consistency was established and value found to be 0.9312. The findings reveal that the posttest mean knowledge scores of respondents on all the aspects were found to be higher than the pre-test knowledge score on nursing management of neonates. The enhancement of knowledge on all the knowledge aspects was found to be significant statistically ($P< 0.05$) indicating the effectiveness of self instructional booklet on nursing management of neonates. [15] It has also been observed that the SIM is effective in increasing the knowledge of pregnant mothers on family planning methods. [16]

A study was to conducted to assess the effectiveness of self instructional module on hepatitis among High School Teachers in selected High Schools of Bangalore South. The study utilized an evaluative approach with single group pre-test and posttest design. The study was conducted in 5 Government High Schools of Bangalore South. The sample comprised of 50 government High School teachers. The purposive sampling technique was adopted. Tool used was structured knowledge questionnaire on hepatitis. The findings revealed that the mean post test knowledge score (59.69%) of High school teachers was found to be significantly higher than their mean pre-test knowledge score (37.96%). The paired‘t’ value (67.34) was greater than the table value at 0.05 level of significance, indicatingt SIM was significantly effective in increasing the knowledge among the High School teachers. [17]

Conclusion

This studied have shown that educational program and adherence to protocols can increase exclusive breastfeeding as well as improve healthcare provider knowledge, comfort level, and attitudes about breastfeeding. There is a need for further well-designed clinical trials, including in low and middle-income countries, to investigate the benefits of antenatal breastfeeding education on breastfeeding initiation, exclusive breastfeeding rate and duration of breastfeeding.

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