

# Studies related to the importance of human milk storage health essay

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Review of literature entails systematic identification, selection and critical analysis of scholarly publications, unpublished scholarly print materials, audiovisual materials and personal communications to the problem of interest. Hence the investigator intended to review the literature available regarding Human milk storage using both research and non-research materials. The purpose of the review is to get a comprehensive knowledge and positive attitude regarding human milk storage to lay a foundation for the study.

2. 1 part 1: Studies related to the importance of human milk storage.

2. 2 part 2 : Studies related to knowledge and attitude regarding human milk storage.

2. 3 part 3: Studies related to effectiveness of technology integrated teaching on human milk storage

## **2. 1 part 1: Studies related to the importance of human milk storage.**

Geraghty SR., et al (2012) conducted a retrospective cohort study in Newyork about expressed human milk storage. 40 mothers were selected and their babies were fed by expressed human milk. The results showed that more mothers were benefited by expressed breast milk because of the production and consumption of the breast milk was accurate. The study concluded that the babies born to mothers who used expressed breast milk were healthy since the amount of consumption is measured . Wendelin M Slusser(2011) conducted a study on the time needed for expression of human milk and the barriers for full time working women were assessed. Mothers having 3 months and 6 months babies were taken as sample. Results shows that 82 % of the mothers spent 1 hour or less to express the breast milk when infants are 3 months and 96% of mothers spent 15 minutes

to express breast milk when 6 months old , with a significant difference ( $P < 0.05$ ) between the 2 age groups. The study concluded that the full time working women couldn't find time to express breast milk and indicated the need for storage of human milk. Ogbuanu C., et al (2011) Conducted a Longitudinal cohort study on effects of breast feeding practices among employed mothers. Data were collected from different kind of professionals of postnatal mothers. Among those, fulltime employed workers had 19% lower breast feeding practice beyond 6 months than those who were not employed. Results concluded that, there is a need for education about human milk storage among employed mothers . Payne D,(2010) Conducted experimental study on managing breast feeding difficulties among paid workers. 20 mothers were taken for study by interview. The health promotion policy provides compulsory exclusive breastfeeding for 6 months, but most of the mothers were returning to work due to paid employment. This study concluded that the breast feeding workers need to be identified and supported by other alternative methods of breast feeding like human milk storage. Sultah . M, (2010 ) Conducted a descriptive study to assess the storage capacity of expressed human milk in refrigerator in Intensive care units, Maharashtra. 36 samples were taken and the components, growth of bacteria in human milk were analysed. In this study, breast milk were stored in different temperatures for 0, 24, 48, 72 and 96 hours and found that there was no change in stored human milk. The study concluded that, the human milk can be stored in refrigerator for longer periods till 96 hours. Martin ML, et al,(2009) Conducted a experimental study on cold storage of human milk and effect on its bacterial composition. Among 34 healthy mothers, 27

expressed their breast milk by manual expression and 7 by breast pump . In this samples, bacterial growth was more in pump collected samples than in manual collection. Staphylococci and streptococci were more in both fresh and frozen milk . Study concluded that even  $-20^{\circ}\text{c}$  for more than 6 weeks will not affect the bacterial composition of human milk. Jennifer Lou L., et al (2009) Conducted experimental study on inhibition of bacterial growth after expression and storage of human milk. 15 normal postnatal mothers were selected. The breast milk immediately after expression was thawed after being frozen for 24 hours; and thawed after being frozen for 72 hours. Study concluded that, Breast milk has bacterial inhibiting property against common neonatal pathogens which is still exerted even after storing it in refrigerator for a long time. Nwet N Win et al(2008) conducted a cohort study on duration of feeding by mothers who express breast milk from two public maternity hospitals, Australia. A total of 587 mothers participated in the study were interviewed over phone. Of these 93. 5% were breastfeeding at discharge from hospital. Mothers who expressed breast milk were less likely to discontinue breastfeeding before six months than those who had never expressed milk. Judith Labiner. et. al.,(2008), conducted a cohort study on Prevalence of breast milk expression and associated factors among breastfeeding mothers. A total of 85 % of breastfeeding mothers had successfully expressed milk since their babies were newborn and 68% of breastfeeding mothers had successfully expressed milk since their babies were infants, with 43% having done so occasionally and 25% on a regular schedule. Study concluded that breast milk expression is a very common practice. It is associated most strongly with maternal employment. Ezz El Din

Z. M. et. al.,(2008), conducted a study to assess the alternative method of breast feeding practiced among Egyptian mothers. Totally 3 expressed breast milk samples were collected from 61 healthy lactating mothers for determination of total protein, fat, lactose and zinc content, vitamins C, A and E concentrations. One sample was analyzed immediately without storage, 1 after storage for 24 hours in a refrigerator at 4 degrees C and 1 after storage for 1 week in a home freezer at-4 degrees C to -8 degrees C. The study concluded that the values of all nutrients were still within the international reference ranges for stored human milk.

## **2. 2 part 2: Studies related to knowledge and attitude regarding human milk storage.**

Bhatt Shwetall., et al(2010) has conducted a cross sectional study to assess the knowledge, attitude and practice of postnatal mothers for early initiation of breast feeding in tertiary care hospital, vadodaracity. The research sample consisted of 175 post natal mothers. The results revealed that , delay in initiation of breastfeeding were caesarian section and fatigue (29. 7% and 21. 1% respectively) and 32. 6% mothers initiated breastfeeding within one hour of delivery. The study concluded that lack of adequate information, maternal education level, socioeconomic factors, etc influences the early breast feeding practices which can be overcome by proper support, care and counseling provided by health care staff. L. C Mala(2010), conducted a quasi experimental study on effectiveness of educational programme on knowledge regarding breast feeding practices among mothers of infants, Manipur. 60 mothers were taken as a sample for the study and their knowledge were assessed by questionnaire and practice by observation.

Results showed that 93.3% of the mothers had adequate knowledge, 40% of mothers breast fed their infants for 6 months, 91.3% of mothers breast fed their infants more than 2 years. The study concluded that nurses play a vital role in motivating the mother in the promotion of breast feeding. Maheswari Ekambaram., et al (2009) conducted a descriptive study on knowledge regarding expressed breast milk among postnatal mothers in JIPMER Pondicherry. 100 postnatal mothers were taken for the study. Results showed that, 51% had inadequate knowledge on expressed breast milk, 34% of the mothers had inadequate knowledge on technique of expressing breast milk and 2% had adequate knowledge on storage at room temperature. Study concluded that, there is still a need for programmes, which support and encourage breast-feeding particularly at a primary care level, focusing more on younger, less well-educated women and those from lower socioeconomic class. Selvanayaki. V (2008) conducted an explorative correlative study to assess the knowledge, attitude and practice of breast feeding among employed mothers attending pediatrics OPD in a selected hospital, Salem. Data were collected from 60 mothers through survey. Study results revealed that 45% of mothers had average knowledge and 67% had positive attitude toward breast feeding but practice was poorly adoptive for 52% of mothers and completely adoptive for 43% mothers. This study concludes that mothers had poor knowledge regarding the collection and storage of breast milk and providing adequate information, education and practices will improve knowledge and create a positive attitude regarding breast milk expression. Sisk P., et al (2010) Conducted a Study on breast milk expression, maintenance, support and barriers that affect the human

milk expression among mothers of very low birth weight infants. 32 women in 1-6 months after delivery were taken as sample . Results revealed that Anxiety and lack of privacy were the factors for inhibiting the initiation of human milk. Family support, positive attitude towards pumping and anticipation of breast feeding enhance breast milk production. Results shows that family support can enhance the production and expression of human milk. Hanna et al., (2008) conducted a study on maternal employment and breast feeding among 567 employed mothers at Omaha. The survey revealed that 76% of women were back on the job before the infant was 13 weeks old. 49% of respondent used only expressed breast milk for missed feeding until solid food were introduced. The study concluded that the employed mothers could continue breast feeding if they were informed about expression and storage of breast milk during missed feeding. Lawrence. R, et. al.,(2007) conducted a study to assess the knowledge and attitudes regarding breast milk storage practices among nursing personnel at selected hospitals, southern Nepal . 50 nurses were interviewed. A total of 98 % of the respondents believed that breast feeding was better than artificial feed. Even though a general awareness and understanding of breast feeding existed among the nursing personnel, there are still areas like expression and storage of breast milk in which they could be reeducated and redirected.

## **2. 3 part 3: Studies related to effectiveness of technology integrated**

### **teaching On human milk storage**

Balkam JA., et al (2011) conducted a cross sectional study on effectiveness of components of lactation program on breast feeding by giving positive attitude among employees of a public sector . 128 mothers were selected for study. After the lactation programme, they returned to work and exclusively breast fed their babies for 6 months. Study concluded that bringing positive impact, can improve the duration of breast feeding. Sisk PM., et al (2010), Conducted a study on lactation counseling for mothers of very low birth weight infants. 115 initial breast feeding group (IBG) and 81 initial formula feed group (IFG) were taken for study. During this session maternal stress was measured and counseling was given regarding benefits of human milk storage. Results showed that, after the counseling knowledge level increased to 100% in IBG and 85% in IFG groups. Igumbor. ED et al., (2010) conducted a cross sectional study on effectiveness educational programme on temperature, storage and duration of microbial growth in stored human milk among employed postnatal mothers. Freshly expressed human breast milk contained microbial non-pathogens of skin flora. The study concluded that the knowledge on temperature, storage and duration of expressed breast milk was adequate and alleviated the fear concerning microbial growths in human milk after the educational programme. Forte A et. al (2009) conducted a descriptive study on Breast milk collection and storage practices among 51 mothers of hospitalized neonates, San Francisco Bay Area. The researcher concluded that over 50% stored frozen milk in glass.



Over 50% of the mothers identified the need for additional information about breast-feeding upon returning home from the hospital, particularly in relation to pumping and storage techniques. Although 88% of the mothers received information on breast-feeding from NICU nurses, 47 % were not provided with written take-home instructions. Jennifer lou L et al (2009) conducted a study to assess the knowledge and attitude of employed mothers regarding breast feeding among 60 employed mothers at Bangalore. The study reveals that 46. 60% of the mothers knew that working mother can continue breast feeding by feeding with expressed breast milk and can be stored at room temperature for 6-8 hours. The researcher has also recommended an education programme to be developed with regard to expression and storage of breast milk for employed mothers. TengkuAlina T Ismailet al (2009) conducted a qualitative method of study using in-depth interviews and video recording regarding expressed breast milk among Malay women . 20 mothers were selected. Results showed lack of feasibility of expressing breast milk, Negative feelings about expressing breast milk, and doubts about the safety and hygiene of expressed breast milk. Moral support and education were given. The study concluded that, by encouraging them to express their breast milk as a way to improve milk production and to change their negative attitude towards human milk storage has motivated the mothers to store the breast milk and feed their babies.

MahadevPrasad(2009) conducted a study on effectiveness of self instructional module on knowledge and attitude regarding expression and storage of breast milk among employed antenatal mothers in selected hospitals, Mangalore. A closed ended structured questionnaire was used to

assess the knowledge and attitude among 50 ante natal mothers. The study results revealed that 86.5% of mothers had adequate knowledge and 60% of mothers had moderately favourable attitude. The study concluded that self instructional module was found to be an effective strategy in increasing the knowledge of ante natal mothers. Becker, Genevieve (2008), conducted a study to assess the effectiveness on techniques of breast milk expression among employed mothers. In the techniques of breast milk expression, a three-round Delphi exercise was conducted with experts. The results showed that, after learning the techniques 85% of them had wide improvement in knowledge and skills to express the breast milk. Study concluded that, effective teaching will improve knowledge and positive attitude towards breast milk storage. Swetha Kiran (2008), conducted a quasi experimental study to assess the effectiveness of teaching programme on knowledge and practice on expressed breast milk among working mothers, Mangalore. 50 working mothers taken from garment factories as a sample. Structured Interview Schedule was used to assess the knowledge and practice by observation checklist on expressed breast milk. Structured teaching program was conducted using audio visual aids and model of a breast. The findings shown that, 92% of mothers had adequate knowledge with practice. Study concluded that, effective teaching will enhance the best practice on human milk storage. Vijayalakshmi (2007) study was conducted on effectiveness of structured teaching programme regarding infant rearing practice among postnatal mothers. 40 mothers were selected for the study, in that 34 mothers had 50% knowledge in feeding and 6 mothers had below 50% knowledge. Pre-test knowledge score was 58.2% and post test

knowledge score was 87.9%. The study concluded that the knowledge level increased after the structured teaching programme. Shu-Shan Lin et. al (2007) quasi-experimental study was done with the experimental group included 46 women who received a 90-minute group educational programme on storage of human milk during their 20th -36th week of pregnancy. Data were collected through self-administered questionnaires at pre intervention, post intervention, 3 days postpartum and one month postpartum. The study concluded that the experimental group scored high in both knowledge and attitude regarding storage of human milk.