

ORIGINAL ARTICLE

Expressed Breast Milk Feeding: Knowledge and Attitude of Employed Mothers

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ABSTRAK

Pengetahuan yang baik tentang teknik perahan, penyimpanan dan penggunaan susu perahan ibu adalah sangat penting kepada ibu-ibu yang ingin meneruskan penyusuan ibu selepas kembali bekerja. Objektif kajian ini adalah untuk menilai pengetahuan dan sikap ibu bekerja terhadap perahan, penyimpanan dan penggunaan susu ibu. Kajian hirisan lintang ini disertai oleh 300 ibu bekerja sepenuh masa yang melahirkan bayi di sebuah hospital tertiar di Kuala Lumpur, Malaysia. Kajian ini menggunakan soal selidik yang mengandungi 28 soalan menguji pengetahuan dan 9 soalan menilai sikap yang telah disahkan kandungannya. Skor tertinggi adalah 28 untuk pengetahuan dan 45 untuk sikap. Skor purata untuk pengetahuan adalah 20.47 (SD 4.06). Ibu yang mendapat skor ≥ 21 ($\geq 75\%$ skor maksimum) dikategorikan sebagai mempunyai "pengetahuan yang baik" manakala mereka yang mendapat skor < 21 dikatakan mempunyai "pengetahuan yang rendah". Sebanyak 170 (57%) orang ibu mempunyai tahap pengetahuan yang baik. Pengetahuan yang baik mempunyai perkaitan yang signifikan dengan etnik Melayu, pendidikan tertiar, multipariti dan pengalaman penyusuan ibu. Seramai 219 (73%) orang ibu mempunyai sikap positif (skor ≥ 34). Etnik Melayu, pendidikan tertiar, multipariti, pengalaman memberi susu perahan dan mempunyai kemudahan memerah susu ditempat kerja mempunyai asosiasi signifikan dengan sikap positif. Lebih separuh ibu mempunyai tahap pengetahuan yang baik dan lebih ramai mempunyai sikap yang positif terhadap perahan, penyimpanan dan penggunaan susu ibu. Sokongan tambahan dan pendidikan harus diberikan kepada ibu-ibu yang: berbangsa selain Melayu, tidak mendapat pendidikan tertiar dan melahirkan anak pertama kerana faktor-faktor ini berkait dengan pengetahuan yang rendah dan sikap negatif.

Kata kunci: bekerja, pemerahan susu ibu, pengetahuan, sikap, wanita

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ABSTRACT

Appropriate knowledge on expressing, storing and use of breast milk are essential for mothers to continue breastfeeding when they return to work. The objective of this study was to assess the knowledge and attitude of employed mothers towards breast milk expression, storage and usage. This cross-sectional study was conducted among 300 full-time employed mothers who delivered at a tertiary hospital in Kuala Lumpur, Malaysia. A content-validated questionnaire consisting of 28 questions testing knowledge and nine questions assessing attitude was used. The highest possible scores for knowledge and attitude were 28 and 45, respectively. The mean score for knowledge was 20.47 (SD 4.06). Mothers who scored ≥ 21 ($\geq 75\%$ of maximum score) were categorized as having "good knowledge" while those who scored < 21 were considered to have "poor knowledge". One hundred and seventy (57%) mothers had good knowledge. Good knowledge was significantly associated with Malay ethnicity, tertiary education, multiparity status and prior breastfeeding experience. Two hundred and nineteen (73%) mothers had a positive attitude (scored ≥ 34). Malay ethnicity, tertiary education, multiparity status, prior experience in giving expressed milk and feasibility of expressing breast milk at the workplace were significantly associated with a positive attitude. More than half of the mothers had good knowledge, and a higher proportion had a positive attitude towards breast milk expression, storage and usage. Additional support and education should be given to mothers who are: non-Malay, non-tertiary educated and having their first child as these factors were associated with poor knowledge and negative attitude.

Keywords: attitude, breast milk expression, knowledge, women, working

INTRODUCTION

Breastfeeding confers short and long-term health benefits to mothers and their infants. The benefits in infants include reduced risk of infectious diseases during infancy and a positive effect on intellectual and motor development. Mothers who breastfeed have reduced risk of premenopausal breast and ovarian cancers and breastfeeding provides a natural form of contraception (León-Cava et al. 2002).

The Malaysian National Breastfeeding Policy recommends exclusive breastfeeding for babies in the first six months from birth (Suleiman & Abdul Moin 2015). World Health Organization (2009) defines exclusive breastfeeding as feeding infants with only breast milk from their mother or a wet nurse or expressed breast milk. The infant does not receive other fluids or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicine (World Health Organization 2009).

The Malaysian National Health and Morbidity Survey 2016 reported that the overall prevalence of infants below six months old who had ever been breastfed was 98.1%. However, only 47.1% of infants below six months were exclusively breastfed. The survey also reported a lower rate of exclusive breastfeeding among employed mothers (46% and 43% among public sector employed and self-employed mothers, respectively) compared to non-employed mothers (54.3%). Work-related factors such as tiredness due to work, difficulty in finding the time and a suitable place for breastfeeding or expressing breast milk, and difficulty in storing expressed breast milk at work were among the factors that caused the employed mothers to stop breastfeeding before six months (Institute for Public Health 2016). A study among employed mothers attending government health clinics in a Malaysian city found that 54% of working mothers breastfed their infants for less than three months (Amin et al. 2011). The lower rate of breastfeeding among employed mothers is also encountered in other countries. The Singapore National Breastfeeding Survey (2001) reported that only 20% of employed mothers breastfed their infants up to six months, compared to 31% among non-employed mothers (Ong et al. 2005). A cross-sectional study among 998 mothers working in a Taiwan semiconductor manufacturing company showed that 66.7% initiated breastfeeding, but only 10.6% continued breastfeeding after returning to work (Chen et al. 2006).

Infants of employed mothers can be

fed with expressed breast milk (EBM) by the babies' caretakers when they are away at work. A cohort study among 587 mothers in Perth, Australia, found that mothers who expressed breast milk were more likely to breastfeed up to six months than those who had never expressed milk (Win et al. 2006). EBM feeding could be one of the means to help employed mothers to achieve the goal of a minimum of six months of breastfeeding. Breast milk expression, storage and use, however, must be carried out according to guidelines to ensure it is efficient and safe.

Poor knowledge of the appropriate way to express, store and use breast milk and negative attitude towards the practice are potential barriers to EBM feeding by employed mothers. Rai (2017) study among working mothers in India reported that only 36% of the respondents had satisfactory knowledge of breast milk expression and EBM feeding was practised by only 11% of them. A study among 246 Nigerian employed mothers revealed that only 13% of them had fair/good knowledge of EBM feeding and 33.7% practised it. The main reasons cited for not practising it were; they did not know how to express their breast milk and not aware of the benefits of EBM feeding (Attahiru et al. 2018). Another study among 217 employed mothers in Uganda reported that 79.3% of respondents were knowledgeable about breast milk expression, but only 26.3% of them practised breast milk expression. The majority had a poor perception of EBM feeding; 62.7% of the respondents doubted the safety and hygiene of EBM and 76% of them

said they would feel embarrassed if someone saw them expressing milk (Okonya et al. 2017). A qualitative study among 20 women in Kelantan, Malaysia, revealed that the belief of expressing milk was not feasible, having negative feelings and doubting its safety and hygiene were the reasons of not expressing breast milk (Ismail et al. 2012).

Having a good knowledge and positive attitude is the first step towards the practice of expressing breast milk feeding that will help in achieving the goal of exclusive breastfeeding among employed mothers. This study was conducted to determine the knowledge and attitude of employed mothers towards expression, storage, and usage of breast milk.

MATERIALS AND METHODS

This cross-sectional study was conducted at Universiti Kebangsaan Malaysia Medical Centre (UKMMC), a tertiary hospital in the capital city of Malaysia from 15th March to 31st May 2018. Ethical approval to conduct the study was granted by the institution's Research and Ethics Committee (FF-2018-129). The study population was all employed mothers who delivered their babies at UKMMC within the study period. Employment was defined as working for a salary and away from home for at least six to eight hours a day. The questionnaire was prepared in Bahasa Malaysia, the official language of the nation. The questionnaire was developed by the investigators after a thorough review of guidelines and recommendations in the literature.

Two neonatologists validated the content of the questionnaire. Mothers with contraindications to breastfeeding were excluded from this study. Mothers who were not proficient in the language were also excluded. All mothers who fulfilled the inclusion criteria were approached for consent and completion of the questionnaire at a convenient time between delivery and hospital discharge. Pilot testing among 20 neonatal nurses revealed a good internal consistency with Cronbach's alpha of 0.85.

The first section of the questionnaire comprised 28 questions that assessed the knowledge of EBM (12, seven and nine questions on expression, storage and usage of EBM, respectively). Each correct response was given a score of '1', while a wrong response or a non-response was given a score of '0'. This gave a minimum score of '0' and a maximum score of '28'. The second section assessed attitude comprised of nine questions with 5-point Likert scale of responses. For each statement, responses reflecting positive attitudes were given a higher score, while responses reflecting negative attitudes were given a lower score. This gave a minimum score of '0' and a maximum score of '45'. Scores of ≥ 21 ($\geq 75\%$ of total score) were chosen as a cut-off score to categorise participants as having good knowledge. Similarly, scores of ≥ 34 ($\geq 75\%$ of total scores) were chosen as a cut-off score to categorise participants as having a positive attitude.

Statistical Package for Social Science version 20 (SPSS, Inc., Chicago, IL) was used for data analysis. Frequency

distribution was determined, and descriptive analysis was reported using mean, standard deviation, median and interquartile range. The chi-square and Student's T-tests were used to compare normally distributed categorical and continuous data, respectively. Mann-Whitney U test was used to compare two groups of non-normally distributed continuous data. P-value of <0.05 was taken as statistical significance.

RESULTS

Three hundred employed mothers had participated in this study. The ethnic distribution of respondents was similar to the country's ethnic composition, where 87% were Malays, 10.4% were Chinese and 2.6% were Indians. The mean age of respondents was 31.96 (Standard Deviation, SD 4.261) years. The majority of mothers (70.4%) received tertiary education. Their mean working hours were 8.32 (SD 0.94) hours per day, and the

median of monthly household income was Malaysian Ringgit (MYR) 6000 (Interquartile Range: IQR 4000, 7870).

Two hundred and fourteen (71.3%) mothers were multiparous, while 86 (28.7%) of them were first-time mothers. Among multiparous mothers, 208 (97.2%) had prior breastfeeding experience, while 177 (82.7%) had practised breast milk expression in the past. Two hundred ninety-one (97%) mothers had heard of EBM feeding from various sources, with social media being the commonest (85.6%), followed by books and magazine (66.7%), acquaintance (65.6%), healthcare workers (48.5%) and television or radio broadcast (24.4%). One hundred and seventy-two (57.3%) mothers had an allocation of break time for breast milk expression at their workplace. A dedicated room for milk expression and refrigerator for EBM storage were available at the workplace of 152 (50.6%) and 190 (63.3%) mothers, respectively.

Table 1: Questions on knowledge, which less than 75% of respondents answered correctly

| No | Statement (correct answer) | Answered correctly, n (%) |
|----|---|---------------------------|
| 1. | The initial milk expressed during every episode of breast milk expression has to be discarded (False) | 212 (70.7) |
| 2. | Breast and nipples have to be washed before every episode of breast milk expression (False) | 13 (4.3) |
| 3. | Expressed breast milk is safe to be stored in the freezing compartment of 1-door fridge for up to 2-week duration (True) | 192 (64.0) |
| 4. | Freezing of breast milk will lead to the loss of some nutrients in the breast milk (True) | 47 (15.7) |
| 5. | Heating the thawed breast milk on the stove is one of the recommended ways to warm the milk before feeding (False) | 194 (64.7) |
| 6. | Heating the thawed breast milk in the microwave oven is one of the recommended ways to warm the milk before feeding (False) | 184 (61.3) |
| 7. | Thawed breast milk can be used up to 24 hours (False) | 65 (21.7) |
| 8. | Methods of giving expressed breast milk to the infants | 193 (64.3) |

Table 2: Comparison of factors between respondents with good and poor knowledge

| | Good knowledge N=170 | Poor knowledge N=130 | P-value |
|--|-------------------------|-------------------------|---------|
| Malay race, n (%) | 157 (92.4) | 104 (80.0) | 0.002 |
| Mean age of mothers (SD), years | 32.33 (4.05) | 31.48 (4.49) | 0.089 |
| Median Monthly Income (IQR), MYR | 6000 (4950, 8000) | 5900 (4000,7000) | 0.32 |
| Tertiary educated, n (%) | 135 (79.4) | 83 (63.8) | 0.003 |
| Multigravida, n (%) | 130 (82.4) | 74 (56.9) | <0.001 |
| *Breast fed previous child/children, n (%) | N = 140 138 (98.5) | N = 74 68 (91.9) | 0.014 |
| *Gave EBM to the previous child, n (%) | N = 140 124 (88.6) | N = 74 53(71.6) | 0.002 |

*Multigravida mothers only
MYR: Malaysian Ringgit (currency), EBM: expressed breast milk

The mean score for knowledge on breast milk expression, storage and usage were 20.47 (SD 4.06). There was 170 (57%) mothers who had good knowledge (scored ≥ 21). Seven questions were answered correctly by less than 75% of the respondents. Four of these questions were on methods of warming the EBM before feeding and methods of giving the milk to the infants (Table 1). Malay ethnicity, tertiary education, multiparity, previous experience in breastfeeding and giving EBM were significantly associated with good knowledge (Table 2).

The mean score for attitude was 36.1 (SD 5.16). Two hundred nineteen (73%) mothers had a positive attitude (scored ≥ 34). However, only 56.7% of the mothers planned to continue breastfeeding after their maternity leave ended. A total of 72.3 % of the mothers felt that expression, freezing and thawing of breast milk is very time-consuming (Table 3). The positive attitude was significantly associated with Malay ethnicity, tertiary education, multiparity, previous experience in

giving EBM and the availability of refrigerator and break time to express breast milk at the workplace (Table 4).

DISCUSSION

Our study found that 57% of mothers had good overall knowledge and a higher proportion (73%) had a positive attitude towards expressed breast milk feeding. The mothers' knowledge of indications and methods of breast milk expression and storage of EBM was satisfactory. However, their knowledge of the correct methods to prepare EBM, how to feed the infants with EBM and the maximum duration of thawed EBM for safe consumption was rather poor. This was similar to a study conducted among 217 employed mothers in Uganda, which reported that 79.3% had good knowledge about breast milk expression, but only a small percentage had good knowledge about the usage of expressed breast milk (Okonya et al. 2017). Perhaps more emphasis should be given to these aspects of EBM feeding when providing breastfeeding

Table 3: Proportion of respondents with a positive attitude for each statement that assessed attitude towards EBM feeding

| Statement | Number (%) of mothers with positive attitude N=300 |
|--|---|
| I would continue breastfeeding after maternity leave (positive statement) | 170 (56.7) |
| Expressed breast milk is not safe for the baby (negative statement) | 290 (96.7) |
| Expenses for expression, freezing and thawing of breast milk is much higher compared to buying formula milk (negative statement) | 254 (84.7) |
| I feel embarrassed to express or pump breast milk at workplace (negative statement) | 280 (93.3) |
| Expression, freezing and thawing of breast milk is very time consuming (negative statement) | 217 (72.3) |
| Expression, freezing and thawing of breast milk will affect my concentration at work (negative statement) | 272 (90.7) |
| Taking a break during work time to express breast milk will have a negative effect on my job status (negative statement) | 272 (90.7) |
| My husband or family member will feel embarrassed when they accidentally noticed me expressing breast milk (negative statement) | 287 (95.7) |
| I would only express my breast when there is breast engorgement (negative statement) | 243 (81) |

education to mothers.

Malay ethnicity was significantly associated with good knowledge and a positive attitude. Several Malaysian studies have reported that Malays were more likely to breastfeed compared to the other ethnic groups of the country, namely Indians and Chinese (Radzniwan et al. 2009). Ishak et al. (2014) found that Malay mothers had a more favourable attitude towards breastfeeding compared to Chinese, and Malay ethnicity was a significant determinant in the success of breastfeeding. The different breastfeeding practices among ethnic groups in Malaysia could be due to differences in culture and religion. Islam, the religion of most Malays, encourages breastfeeding in its teaching. Being in the families and communities with high breastfeeding rates could expose Malay mothers

to the practice of breastfeeding and breast milk expression, hence, leading to a better knowledge and attitude.

Good knowledge and a positive attitude were significantly associated with mothers who received tertiary education. Ishak et al. (2014) reported that tertiary education was significantly associated with favourable attitudes towards breastfeeding. Several other studies also reported that tertiary-educated mothers had better breastfeeding knowledge compared to non-tertiary educated mothers (Ogunlesi 2009; Waghmare 2013). There were a higher proportion of highly educated mothers breastfed exclusively for six months (Ogunlesi 2009; Waghmare 2013). Mothers with higher education levels were more likely to perceive the information about the beneficial effects of breastfeeding from media and books and turn it

Table 4: Comparison of factors between respondents with positive and negative attitude

| | Positive attitude N=219 | Negative attitude N=81 | p-value |
|--|----------------------------|---------------------------|---------|
| Malay race, n (%) | 196(89.5) | 65(80.2) | 0.03 |
| Mean Age of mothers (SD), years | 31.81 ± 3.790 | 32.37 ± 5.337 | 0.315 |
| Median Monthly Income (IQR), MYR | 6000 (5000,8000) | 5000 (3850,7000) | 0.076 |
| Tertiary educated, n (%) | 168 (76.7) | 50 (61.7) | 0.01 |
| Multigravida, n (%) | 164 (74.9) | 50 (61.7) | 0.025 |
| *Breast fed previous child/children, n (%) | N = 164 160 (97.6) | N = 50 46 (92.0) | 0.09 |
| *Gave EBM to previous child/children, n (%) | N = 164 143 (87.2) | N = 50 34 (68.0) | 0.002 |
| A dedicated room for breast milk expression available at workplace, n (%) | 117 (53.4) | 35 (43.2) | 0.12 |
| Refrigerator for EBM storage available at work place, n (%) | 150 (68.5) | 40 (49.4) | 0.002 |
| Allocation of time to express milk expression at the workplace is available, n (%) | 136 (62.1) | 36 (44.4) | 0.006 |

*Multigravida mothers only
MYR: Malaysian Ringgit (currency), EBM: expressed breast milk

into practice. They also tend to make better use of the internet to gain more information about EBM and other health issues (Ogunlesi 2009).

Multiparity and prior experience in breastfeeding and giving EBM were significantly associated with good knowledge and positive attitude. A study conducted in Terengganu, a state on the east coast of Peninsular Malaysia, demonstrated that the more children the women had, the more awareness they had for breastfeeding (Daud et al. 2017). Primigravida was reported to be a factor for the dropouts of breastfeeding because of the inadequate exposure and knowledge of the mother towards exclusive breastfeeding (Laantera et al. 2010). Therefore, more support and attention should be given to first-time mothers in breastfeeding education.

A total of 73% of the respondents had a positive attitude towards breast milk expression, storage and usage. However, only 56.7% of the mothers planned to continue breastfeeding after their maternity leave ends. This could be related to the feasibility of breast milk expression at workplaces as only about 60% of the mothers have refrigerators to store EBM and allocated time for breast milk expression. These two factors were also significantly associated with a positive attitude towards breast milk expression. Amin et al. (2011) found that the availability of a refrigerator at the workplace was an important factor for maintaining breastfeeding among employed mothers. In addition, the absence of flexible time during work to express breast milk was a significant factor for the discontinuation of

breastfeeding. The establishment of a more supportive breastfeeding environment at the workplace is of paramount importance. These include access to a separate room and break time for breastfeeding or breast milk expression and employers' support. A study among 10,000 employees working in a semi-conductor factory in Taiwan revealed that mothers who were aware of the lactation rooms and allocation of the time were more likely to continue breastfeeding (Chen et al. 2006). A retrospective study among 462 employed women who were involved in employer-sponsored lactation programs reported that 97.5% of mothers initiated breastfeeding, with 57.8% of them continued for six months, 78.9% attempted pumping milk at the workplace and 98% were successful. The mean duration of breast milk expression at the workplace was 6.3 months (Ortiz et al. 2004).

Among mothers who have heard of breast milk expression, storage and usage, less than 50% of them obtained information from healthcare workers during their antenatal clinic visits. The effort to educate and create awareness among healthcare staff and mothers on this matter should be enhanced. Social media was the commonest source of information among the respondents. Therefore, public health agencies and other organizations related to breastfeeding education should use this platform to disseminate adequate and accurate information on breastfeeding, including EBM feeding.

This study was conducted in an urban, metropolitan setting, therefore its results may not be representative

of the country's working women population.

CONCLUSION

In conclusion, more than half of the mothers had good knowledge while a higher proportion had a positive attitude towards breast milk expression, storage and usage. Additional support and special emphasis in education should be given to mothers who are non-Malay, non-tertiary educated and having their first child as these factors were associated with inadequate knowledge and negative attitude. The provision of a working environment that supports breastfeeding is of paramount importance.

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