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Original Research Article

A study to assess the knowledge regarding expressed breast milk among working mothers attending outpatient departments in a selected hospital at Mangaluru, Karnataka, India

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ABSTRACT

Background: Breastfeeding is the gold standard for infant feeding. Breastfeeding is essential for child survival and health. Employment is one of the most common barriers to discontinue breast feeding after childbirth. Expressed breast milk (EBM) serves as a practical solution for mothers who cannot be physically present to breastfeed due to work commitments. The aim of the study was to assess the knowledge regarding EBM and find the association between knowledge and their sociodemographic variables among working mothers attending outpatient departments in a selected hospital at Mangaluru, Karnataka, India.
Methods: A non-experimental descriptive study. Purposive sampling technique was used to select 30 working mothers. Data was collected using a structured knowledge questionnaire. Data was analysed using descriptive and inferential statistics.
Results: The study findings showed that the mean knowledge score with standard deviation was 12.76±3.58 and the mean knowledge score percentage was 42.5% regarding EBM. There was no significant association between mother's knowledge level and sociodemographic variables.
Conclusions: The study highlights the urgent need for educational programs and support systems to empower working mothers with the right knowledge regarding EBM and ensuring better nutrition and growth for their infants.

Keywords: Assess, Expressed breast milk, Knowledge, Out-patient departments, Working mothers

INTRODUCTION

Breastfeeding is widely acknowledged as the gold standard for infant feeding.[1] Breast milk is the most natural method, offering complete nutrition and essential emotional and psychological support for infants.[2] Breast milk contains vital antibodies that protect infants from common illness such as diarrhoea and respiratory infections.[3] The world health organization and United Nations international children's emergency fund recommends exclusive breastfeeding for the first six months of life, with continued breastfeeding and complementary foods upto two years of age.[4] Exclusive breastfeeding is not only beneficial for infants but also for mothers, as it promotes uterine involution, delays subsequent pregnancies and reduces the risk of breast and ovarian cancers.[5] Globally, 48%of infants under six months are exclusively breastfed, close to the WHO target of 50% by 2025.[6]

Early return of mothers to the workforce and the lack of supportive environments for breastfeeding, particularly

EBM, create substantial challenges to maintaining breastfeeding practices.[7] UNICEF estimates that inadequate breastfeeding leads to one million of preventable child deaths per year.[2] EBM serves as a practical solution to support breastfeeding among working mothers and allows infants to continue receiving the benefits of breast milk during maternal absence.[3] Evidence suggests that awareness, knowledge and practice regarding EBM remain inadequate. Workplace related barriers such as lack of lactation rooms, inflexible work schedule and insufficient maternity leave significantly hinder exclusive breastfeeding.[8-10]

Storage and expression techniques of breast milk manually or by using breast pumps, must be properly taught to ensure hygiene and preservation of nutrients of EBM.[11,12] Global and national surveys highlight the need for interventions, maternity-friendly policies, conducive work environment and structured education for mothers to promote exclusive breastfeeding and proper EBM practices.[13]

The investigator, during clinical experience observed that many mothers lacked knowledge about expressing, storing and using breast milk. Review of literature also revealed that there was a lack of knowledge about EBM among working mothers, hence to bridge the gap, the investigator planned to assess the knowledge level regarding EBM among working mothers and to promote best practices through structured information booklet. The information booklets enabled mothers to provide breast milk for their infants even while balancing work responsibilities.

Objectives

The objectives of study were to assess the knowledge regarding EBM among working mothers, to find out the association between knowledge score of working mothers with the socio-demographic variables such as age, religion, educational qualification, occupation, monthly income, type of family, number of children, residential area, working hours, duty shifts, sources of information, Crèche facility and duration of maternity leave and to prepare an information booklet regarding EBM.

METHODS

The present study was a quantitative descriptive research study conducted at Yenepoya Medical College hospital Deralakatte, Mangaluru, Karnataka, India from April 2025 to May 2025.

All mothers who attended the maternal and child health departments with infants upto 6 months of age were identified, among these mothers, the working mothers meeting the inclusion criteria were selected as the study population using the purposive sampling technique. The mothers who were housewives, admitted in ward, not willing to participate in the study were excluded. The 30 working mothers were finally shortlisted and the structured knowledge questionnaire in either Kannada or English was administered based upon their language comprehension. The questionnaire consisted of two parts. First part was the socio-demographic data of the working mother and the second part was the structured knowledge questionnaire regarding EBM. The collected demographic data and knowledge score of the working mothers were analyzed using descriptive statistics such as percentage, frequency, mean, and standard deviation. The "chi-square test" was used to find the association of knowledge scores with various demographic variables.

Sample size for a given mean is;

$N=(Z1-\alpha/2)2\sigma2/E^2$

σ is the standard deviation and E is the margin of the error.

Previous study result showed that the standard deviation is 3.58.

Here $\sigma=3.58$

$z=1.96$ (95% confidence level)

$E=1.3$

$N=z\ 2\ \sigma2/E^2$

$=1.962\times3.58/1.32^2=29.1$

The sample size for the study is rounded to 30.

The data obtained was processed using Microsoft excel software for data entry and statistical analysis was done using statistical package for social software (SPSS). P value less than or equal to 0.05 was considered statistically significant.

RESULTS

Frequency and percentage distribution of 30 working mothers according to their socio-demographic data showed that the majority of 12 (40%) were in the age group of 26-30 years, 19 (63%) belonged to Hindu religion, 12 (40%) had PUC (undergraduate) level of education, 26 (87%) was private job holders, 15 (50%) had monthly income less than Rs 10000, 16 (53%) belongs to joint family, 20 (67%) have one child, 18 (60%) was living in urban areas, 21 (70%) were working up to 8 hours, 21 (70%) were working for full day i.e. from morning to evening, 14 (47%) had received information through family. Friends, neighbours, 18 (60%) do not have creche or baby care facilities, 18 (60%) received maternity leave among that 44.4%had three months duration of maternity leave (Table 1).

Frequency and percentage distribution of working mother's knowledge level revealed that, among 30 working mothers, 20 (67%) mothers had moderate

knowledge, 10 (33%) mothers had inadequate knowledge and none of the mothers are had adequate knowledge regarding EBM (Figure 1).

The knowledge distribution of EBM among 30 working mothers showed that the mean knowledge score with standard deviation was 12.76±3.58 and mean knowledge score percentage was 42.5% regarding EBM (Table 2).

There was a no significant association between mother's knowledge level regarding EBM and sociodemographic variables. Therefore, the formulated research hypothesis H_0 was accepted (Table 3).

Item-wise analysis of knowledge score among 30 working mothers regarding meaning, purpose and method of EBM revealed that 27 (90%) working mothers were not aware of correct technique for manual expression of breast milk, 24 (80%) was unaware of purpose and frequency of expressing breast milk to maintain adequate supply, 21 (70%) did not know the duration of expressing breast milk from each breast, 20 (64%) were not aware of meaning and placing the thumb and index finger during the manual expression, 18 (60%) working mothers did not know about method of expressing milk using hands.

Item-wise analysis of knowledge score among 30 working mothers regarding storage, feeding and sterilization of EBM revealed that majority of 29 (97%) were not aware of best place and duration of storing EBM in a refrigerator, 28 (93%) was not familiar with the method of feeding EBM, 20 (67%) were unaware of the method of cleaning the EBM storage container, 19 (63%) was not aware of the duration of storing EBM at room temperature, 18 (60%) did not know the safe way to warm frozen breast milk and was not aware of step after thawing EBM and 16 (53%) were not aware of labelling container of EBM. Item wise analysis of knowledge score among 30 working mothers regarding preparation, transportation, problems related to EBM showed that majority 28 (93%) were not aware of time of initiation of EBM feeding before re-joining to work, 21 (70%) was not familiar with importance of using correct size funnel with a breast pump and benefits of EBM, 19 (63%) did not know method of transportation of EBM from work place to home, and 17 (57%) were not familiar with the problems faced due to EBM.

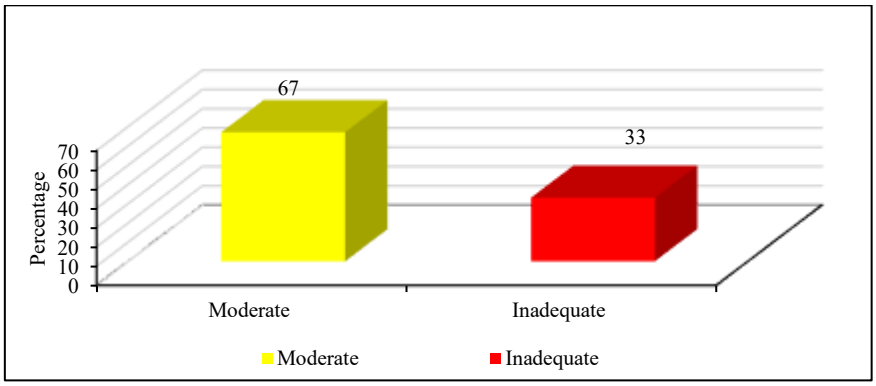

Figure 1: Assessment of the knowledge regarding EBM among working mothers.

Table 1: Sociodemographic data of working mothers, (n=30).

Characteristics	Categories	N	Percentages (%)
Age (in years)	20-24	8	27
	25-29	12	40
	30-34	6	20
	Above 35	4	13
Religion	Hindu	19	63
	Muslim	5	17
	Christian	6	20
Educational qualification	Primary education	1	3
	Secondary education	6	20
	Undergraduates	12	40
	Graduates/postgraduate	11	37
Type of occupation	Private job holder's	26	87
	Govt job holder's	1	3
	Daily wagers	3	10
Monthly income (in INR)	Rs ≤10000	15	50
	Rs 10001-20000	10	33
	Rs 20001-30000	5	17

Continued.

Characteristics	Categories	N	Percentages (%)
Type of family	Nuclear family	14	47
	Joint family	16	53
No. of children	One	20	67
	Two	7	23
	Three	3	10
Residential area	Urban	18	60
	Rural	12	40
Working hours	6 hours	4	13
	8 hours	21	70
	10 hours	3	10
	12 hours	2	7
Duty shifts	Morning	8	26
	Afternoon	1	3
	Full day (M-E)	21	70
Sources of information	Mass media	4	13
	Health care professionals	9	30
	Newspapers	3	10
	Family/neighbours/friends	14	47
Creches/baby care facility	Yes	12	40
	No	18	60
Duration of maternity leave	Yes	12	40
	No	18	60

Table 2: Area wise knowledge score of expressed breast milk among working mothers, (n=30).

Area	Max. score	Mean deviation	Standard score	Mean score %
Expressed breast-milk	30	12.76	3.58	42.53

Table 3: Association between the knowledge of the working mothers and socio-demographic variables, (n=30).

Variables	Knowledge level			X^2		
	Adequate	Moderate	Inadequate	Value	Df	Inference
Age (in years)						
20-24	0	5	3	4.31	6	NS
25-29	0	9	3			
30-34	0	5	1			
Above 35	0	1	3			
Religion						
Hindu	0	13	6	0.12	6	NS
Muslim	0	3	2			
Christian	0	4	2			
Others, specify	0	0	0			
Educational qualification						
Primary education	0	4	1	0.54	8	NS
Secondary education	0	3	2			
Undergraduates	0	7	4			
Graduates/postgraduate	0	6	3			
Type of occupation						
Private job holder's	0	18	8	2.09	4	NS
Govt job holder's	0	0	1			
Daily wagers	0	2	1			
Monthly income (in INR)						
Rs ≤1000	0	10	6	0.67	6	NS
Rs 10001-20000	0	7	2			
Rs 20001-30000	0	3	2			
Rs 30001 and more	0	0	0			

Continued.

Variables	Knowledge level			X^2		
	Adequate	Moderate	Inadequate	Value	Df	Inference
Type of family						
Nuclear family	0	11	3	1.65	6	NS
Joint family	0	9	7			
Extended family	0	0	0			
No. of children						
One	0	14	6	0.02	6	NS
Two	0	5	2			
Three	0	1	2			
Four or more	0	0	0			
Residential area						
Urban	0	12	6	0	2	NS
Rural	0	8	4			
Working hours						
6 hours	0	1	3	8.83	6	NS
8 hours	0	17	4			
10 hours	0	2	1			
12 hours	0	0	2			
Duty shifts						
Morning	0	4	4	1.71	8	NS
Afternoon	0	1	0			
Evening	0	0	0			
Night	0	0	0			
Full day (M - E)	0	15	6			
Sources of information						
Mass media	0	4	1	0.67	6	NS
Health care professionals	0	6	3			
Newspapers	0	1	1			
Family/neighbours/friends	0	9	5			
Creches/baby care facility						
Yes	0	7	5	0.61	2	NS
No	0	13	5			
Duration of maternity leave						
No	0	9	3	0.61	2	NS
Yes	0	11	7			

*S=Significant, NS=No significant.

DISCUSSION

In the present study, the distribution of 30 working mothers, according to their socio-demographic data showed that the majority of 67% were in the age group of 21-30 years, 63% belonged to Hindu religion, 40% were undergraduates, 87% was private job holders, 50% had monthly income less than Rs 10000, 60% do not have creche or baby care facilities, 60% were received maternity leave among that, 44.4% had three months duration of maternity leave, the findings was consistent with the study conducted in Nigeria among mothers revealed that majority 58.1% of the mothers were aged 20-29 years, 87.4% were Muslims, 97.5% were undergraduates, 100% were civil servants, 4.4% mothers had breastfeeding breaks and convenient place at work. All mothers received at their workplace among that only 8.9% had less than 3 months duration of maternity leave.[14] A study conducted in Kashmir revealed that 66% mothers were aged 20-30 years, 38% were undergraduate, 74% was government job holders and 76% mothers had a monthly income of more than 30,000 rupees.[15]

In the present study, assessment of knowledge regarding expressed breast milk among working mothers revealed that 67% had moderate knowledge, 33% had inadequate knowledge, and none of the mothers had adequate knowledge, aligned with the study conducted in Kashmir among working mothers revealed that 54% had moderate knowledge, 46% had inadequate knowledge and none of the mothers had adequate knowledge.[15]

The present study found that there was no significant association between sociodemographic variable and level of knowledge regarding expressed breast milk.

This is supported by a Gujarat study. There was no significant association between sociodemographic variables and level of knowledge..[16]

Limitations

The study was limited to mothers who were at 20 years and more, who were employed, having infants from 0-6 months of age, present at the time of data collection, who are attending maternal and child health departments, who are able to read and write Kannada and English.

CONCLUSION

The investigator, during clinical experience observed that many mothers lacked knowledge about expressing, storing and using breast milk and review of literature also revealed that there was a lack of knowledge about expressed breast milk among working mothers, hence to bridge the gap, the investigator planned to assess the knowledge level regarding expressed breast milk among working mothers and to promote best practices through structured information booklet. The information booklets enabled mothers to provide breast milk for their infants even while balancing work responsibilities.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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