

# Determinants of Expressed Breast Milk Awareness Among Mothers in Siddharthnagar Municipality of Rupandehi District, Nepal

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## ABSTRACT

**Introduction:** Expressed breast milk is the practice of squeezing breast milk for the purpose of further use. Infant and young child feeding is very important in promoting healthy growth and development, particularly during the first two years of child's life. The awareness of mothers regarding expressed breast milk has a direct impact on the life of infants and feeding practices. The study aimed to find out possible determinants of awareness regarding expressed breast milk among mothers.

**Methods:** Descriptive cross-sectional study was conducted among 255 mothers from January 2020 to May 2020 by using probability simple random sampling technique. A validated and pre-tested semi-structured interview schedule was used. The data was collected data and analysed.

**Results:** Mean age of mothers was 26 years. 54.1% of the respondents had low awareness regarding expressed breast milk. After adjustment some of the variables such as age of respondents (AOR = 0.03, CI = 0.01 - 0.08,  $p < 0.001$ ), religion (AOR = 0.36, CI = 0.14 - 0.99,  $p < 0.001$ ) and educational status of respondents (AOR = 4.40, CI = 1.72 - 11.26,  $p < 0.001$ ), were significantly associated with level of awareness regarding expressed breast milk.

**Conclusions:** More than half of the mothers had low awareness regarding expressed breast milk. Age of the respondents, religion and educational status were found to be associated factors that influence mother's awareness regarding expressed breast milk. It is recommended to concerned authority to conduct awareness program regarding expressed breast milk among mothers.

**Key words:** awareness; expressed breast milk; mother



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## INTRODUCTION

Exclusive breast feeding has massive health and socio-economic benefits for child, mothers as well as families.<sup>1,2</sup> Evidence showed that maternal employment is the major cause for the termination of breastfeeding.<sup>3</sup> Breast milk expression is the squeezing of milk from mother's breasts either by use of hand or with an efficient breast pump, so as to store it for future feeding of the baby.<sup>4</sup> Expressed breast milk is a possible way of feeding child with breast milk in the absence of mother.<sup>5</sup> Breast milk expression is important because the baby can have the benefits of breast milk even if mother is not available all the time. Expressed breast milk also helps to produce more milk, as expressing can boost the supply. It also helps to prevent from breast engorgement. Feeding expressed breast milk is best feeding for infants with feeding difficulty and infants in intensive care units.<sup>6</sup>

Under nutrition is estimated to cause 3.1 million child deaths annually or 45% of all child deaths. Optimal breastfeeding could save over 800000 under 5 child lives every year.<sup>5</sup> A study on knowledge, attitude and intending practice of female undergraduates about breastfeeding in Nigeria shows 50.5% of respondents had knowledge about expressed breast milk.<sup>7</sup> Another study on self-instruction module is effective in improving knowledge of mothers regarding expression and storage of breast milk in Pune, India shows more than half (53.3%) of respondents didn't have knowledge about expressed breast milk.<sup>8</sup>

Adequate knowledge on breastfeeding, its expression and storage helps to reduce infant morbidity and mortality. However limited studies had been conducted to find out the reason of having low awareness about expressed breastfeeding. Thus this study was conducted to find out possible determinants of awareness regarding expressed breast milk among mothers.

## METHODS

Cross-sectional descriptive study design was conducted among mothers in Siddharthnagar Municipality ward number 1, Rupandehi district, Province-5, Nepal. Total sample of 255 mothers of

children under two years of age were selected by using probability simple random sampling technique. According to municipal office of Siddharthnagar Municipality, there are 700 under two year's children in Siddharthnagar Municipality ward number 1. By using Solvin formula sample size (255 samples) was calculated. With the help of Female Community Health Volunteers (FCHV) and community leader of Siddharthnagar municipality pre survey was done before data collection to find out the household of mothers with under two years children. Households having under two years children were numbered. After numbering of household, house number were selected through non replacement lottery method. This process was continued until sample reached to 255. Pretesting was done in Siddharthnagar Municipality ward number 7, Rupandehi district, Province-5, Nepal. Data were collected in four weeks period from March 20 to April 20, 2020 by using pretested semi-structured interview schedule. Ethical approval was obtained from Institutional Review Committee, Universal College of Medical Sciences Institutional Review Committee (UCMS/IRC/011/20). Administrative approval was obtained for data collection from concerned authority of Siddharthnagar Municipality. Written informed consent was obtained from each respondent by explaining the objectives of the study. Data was collected through pretested semi-structured interview schedule by reaching one by one mother of numbered household who were selected through non replacement lottery method.

The inclusion criteria were those mothers of children under 2 years of Siddharthnagar Municipality ward number 1, Rupandehi district, Province-5, Nepal and who are available during the data collection period. The exclusion criteria were those who were not willing to participate. The collected data were checked for completeness, coded and was analyzed using descriptive (frequency, percentage, mean and standard deviation) and inferential statistics (chi square, crude odds ratio, adjusted odds ratio) with Statistical Package for Social Sciences (SPSS) version 20.0.

## RESULTS

Regarding background related characteristics of respondents 52.9% were of age greater than 25

**Table 1.** Socio demographic characteristics of respondents (n = 225)

Variables	Frequency	%
<b>Age in years</b>		
Lesser than equal to 25	120	47.1
Greater than 25	135	52.9
Mean age $\pm$ SD =		26.225.78
<b>Caste</b>		
Brahmin, Chhetri	42	16.5
Janjati	42	16.5
Dalit	50	19.6
Madhesi	76	29.8
Muslim	45	17.6
<b>Religion</b>		
Hindu	165	64.7
Christian	45	17.6
Muslim	45	17.6
<b>Type of family</b>		
Nuclear	150	58.8
Others (joint and extended)	105	41.2
<b>Educational status</b>		
Illiterate	145	56.9
Literate	110	43.1
<b>Working status</b>		
Non working	143	56.1
Working	112	43.9
<b>Age of index child</b>		
Lesser than equal to 1	129	50.6
> 1 year	126	49.4
<b>Spouse education</b>		
Illiterate	86	33.7
Literate	169	66.3
<b>Spouse occupation</b>		
Job holder	146	57.3
Other than Job Holders	146	57.3

years, 29.8% were madhesis, 64.7% were Hindu, 58.8% were from nuclear family, 56.9% were illiterate, 56.1% were not involved in any work (job), 50.6% had index child of age one and lesser than one. Likewise 66.3% of respondents' spouses were literate and 57.3% of respondents' spouses were jobholders (Table 1).

Regarding awareness on expressed breast milk, 60.4% of the respondents answered collecting

**Table 2.** Respondents' awareness regarding expressed breast milk (n = 255)

Characteristics	Frequency	%
<b>Meaning</b>		
Collecting breast milk for further purpose	154	60.4
<b>Importance</b>		
Can be fed in the absence of mother	198	77.6
Helps to store extra milk	62	24.3
<b>Duration of breastfeeding</b>		
2 years	198	77.6
<b>Considerations before expressing breast milk</b>		
Wash hand properly	238	93.3
Daily shower and stay tidy	127	49.8
Clean areola to nipple with boiled water	66	25.9
<b>Way of Expressing breast milk by hand</b>		
Hold breast in C shape	114	44.7
Squeeze nipple and areola	67	26.3
<b>Best container for storing</b>		
Baby feeding bottle	117	45.9
<b>Cleaning the container</b>		
Boiling	230	90.2
Air dry	124	48.6
<b>Storage in room</b>		
Storage in room for 4 hours	18	7.1
<b>Storage in refrigerator</b>		
Storage in refrigerator for 72 hours	14	5.5
<b>Storage in freezer</b>		
Storage in freezer for 3 months	20	7.8
	8	3.1
<b>Treating Expressed Breast Milk</b>		
Luke warm water	121	47.5
<b>Container for feeding</b>		
Small bowl and spoon	106	41.6
<b>Feeding once stored breast milk</b>		
Feeding once stored breast milk within 1-2 hours	225	88.2
	29	11.4
<b>Benefit to mother</b>		
Prevent breast engorgement	88	34.5
Prevent mastitis	48	18.8
Enhance milk supply	99	38.8
Prevent breast cancer	98	38.4
<b>Benefit to baby</b>		
Easy to digest	123	48.2
Provide immunity to baby	78	31
Protect against allergies	81	31.8
Increase baby's intelligence	95	37.3

**Table 3.** Respondents' overall level of awareness regarding expressed breast milk (n = 225)

Awareness level	Frequency	%
Low (< 14)	138	54.1
High (≥ 14)	117	45.9
Total	255	100
Total Score = 30	Total Score = 30	

breast milk for further purpose as meaning of expressed breast milk, 77.6 % answered can be fed in the absence of mother as importance of expressed breast milk and 77.6% answered duration of breastfeeding is two years. Likewise 93.3% of the respondent knew washing hand properly as consideration that should be taken before expressing breast milk, 44.7% of the respondent answered hold breast in C shape as way of

**Table 4.** Factors associated with level of awareness in bivariate and multivariate analysis

Characteristics	Awareness Level (%)		p-value	aCOR 95%CI	bAOR 95% CI
	Low Awareness	High Awareness			
<b>Age of Respondents</b>					
< 25 years	14 (11.7)	106 (88.3)		1	1
> 25 years	124 (91.9)	11 (8.1)	< 0.001*	0.01 (0.005 - 0.03)	0.03 (0.01 - 0.08)
<b>Ethnicity</b>					
Dalit	14 (28.0)	36 (72.0)		1	1
Non Dalit	124 (60.5)	81 (39.5)	< 0.001*	0.25 (0.13 - 0.50)	0.30 (0.09 - 1.03)
<b>Religion</b>					
Hindus	76 (46.1)	89 (53.9)		1	1
Non Hindus	62 (68.9)	28 (31.1)	< 0.001*	0.39 (0.22 - 0.66)	0.36 (0.14 - 0.99)
<b>Types of family</b>					
Nuclear	76 (50.7)	74 (49.3)		1	-
Joint and Extended	62 (59.0)	43 (41.0)	0.186	0.71 (0.43 - 1.18)	
<b>Educational status</b>					
Illiterate	117 (80.7)	28 (19.3)		1	1
Literate	21 (19.1)	89 (80.9)	< 0.001*	17.71 (9.44 - 33.23)	4.40 (1.72 - 11.26)
<b>Spouse's Education</b>					
Illiterate	53 (61.6)	33 (38.4)		1	-
Literate	85 (50.3)	84 (49.7)	0.086	1.59 (0.94 - 2.69)	
<b>Working Status</b>					
Non Working	61 (42.7)	82 (57.3)		1	1
Working	77 (68.8)	35 (31.3)	< 0.001*	0.34 (0.20 - 0.57)	0.52 (0.21 - 1.28)
<b>Spouse Occupation</b>					
Other than Job Holder	86 (78.9)	23 (21.1)		1	1
Job Holders	52 (35.6)	94 (64.4)	< 0.001*	6.76 (3.82 - 11.97)	1.37 (0.50 - 3.77)
<b>Age of Index Child</b>					
≤ 1 Year	61 (47.3)	68 (52.7)	< 0.027*	1	1
> 1 Year	77 (61.1)	49 (38.9)		0.57 (0.35 - 0.94)	0.47 (0.19 - 1.15)

\*Significant at  $p < 0.05$ , 1 = Reference category, <sup>a</sup> Crude Odds Ratio, <sup>b</sup> Adjusted Odds Ratio

expressing breast milk by hand and 45.9% knew baby feeding bottle as best container for storing. Similarly 90.2% of the respondent answered boiling as method for cleaning the container, 47.5% knew expressed breast milk can be treated by luke warm water and 41.6% answered small bowl and spoon as container for feeding. In the same way 67.8%, 63.1% and 7.8% of the respondents answered expressed breast milk can be stored in room, refrigerator and freezer respectively. Likewise 88.2% answered once stored breast milk can be fed, 38.8% knew enhance milk supply as benefit of expressed breast milk to mother and 48.2% knew easy to digest as benefit of expressed breast milk to baby (Table 2).

Regarding respondents' overall level of awareness on expressed breast milk, 54.1% of the respondents have low awareness level and 45.9% have high awareness level (Table 3).

Regarding factors associated with level of awareness in bivariate and multivariate analysis, those variables which were found statistical significant with p value lesser than equal to 0.05 in bivariate analysis, were entered into the multivariate regression analysis model which identified age of respondents, religion and educational status of women as associated factors with awareness regarding expressed breast milk. Mothers who were greater than 25 years were 0.03 times less likely (AOR = 0.03, CI = 0.01 - 0.08) to have high level of awareness regarding expressed breast milk. The odds of having high awareness level regarding expressed breast milk were less among mothers who were from non Hindu (Muslim and Christians) religion (AOR = 0.36, CI = 0.14 - 0.99). Similarly, the odds of having high level of awareness regarding expressed breast milk increased 4.4 times (AOR = 4.40, CI = 1.72 - 11.26) among mothers who were literate in comparison to their counterparts (Table 4).

## DISCUSSION

The present study revealed that more than half (54.1%) of respondents had low awareness regarding expressed breast milk which is in line with another study conducted in Kathmandu Nepal.<sup>9</sup> However study conducted in Patan, Lalitpur, Nepal found lower portion (39.6%) of the

mothers had inadequate awareness regarding expressed breast milk.<sup>10</sup> In contrast to this study, other studies such as study conducted in Hyderabad, India and Sokoto Nigeria found more proportion of the women (64%) were less aware about expressed breast milk.<sup>11,12</sup> This may be due to improvement in education activities, different methodology adopted and various study setting.

The study findings showed three-fifth of respondents were aware regarding meaning of expressed breast milk as collecting breast milk for further purpose which is not consistent with the another study conducted in Semnan, Iran where less than one-third of respondents had correct knowledge regarding collection breast milk.<sup>7</sup> The present study revealed that 77.6% of respondents were aware about importance of expressed breast milk as can be fed in absence of mother which is not consistent to the study conducted in South Arabia which found 66.77% of respondents had correct knowledge regarding importance of expressed breast milk as can be fed in absence of mother.<sup>13</sup> Similarly in contrast to this study, another study conducted in Turkey found higher proportion of mothers were aware that milk expression is perform in order to feed infant when baby is separated from mother.<sup>14</sup> The present study found nearly about one-fourth of respondents were aware that expressed breast milk helps to store extra milk. This finding is not consistent to the study conducted in India which found high proportion of respondents had correct knowledge regarding importance of expressed breast milk as helps to store extra milk.<sup>8</sup> The findings of the study showed 77.6% of respondents were aware about duration of breastfeeding as two years which is not consistent with the study conducted in Karnataka, India.<sup>15</sup>

Most of respondents in the present study were aware about washing hands properly, 25.9% knew about cleaning areola to nipple, 49.8% knew about daily shower and being tidy as considerations before expressing breast milk. The finding is not consistent with the study conducted in Turkey.<sup>16</sup> The present study revealed that less than half of respondents were aware about way of breast milk expression by hands as holding breast in 'C' shape which is in line with another study conducted in Nigeria.<sup>12</sup> The present study revealed that less than half of respondents were aware about best container



for storing expressed breast milk as baby feeding bottle which is in line with the study conducted in Hyderabad, India.<sup>11</sup>

Nearly half of respondents in this study were aware about air drying the container to store expressed breast milk which is consistent with the study conducted in Turkey<sup>16</sup>. The study revealed that 7.1% of respondents were aware regarding storage of expressed breast milk in room temperature for 4 hours which is not consistent with the study conducted in Hyderabad, India which shows 34% of respondents had correct knowledge regarding storage of expressed breast milk in room temperature for 4 hours.<sup>11</sup> The findings of the study showed 5.5% of respondents were aware regarding storage of expressed breast milk in refrigerator for 72 hours, however another study conducted in Iran found higher proportion (11.8%) of respondents had correct knowledge regarding storage in refrigerator for 72 hours.<sup>17</sup> The present study found that 3.1% of respondents were aware regarding storage of expressed breast milk in freezer for 3 months, which is not consistent with the study conducted in Iran where 18% of respondents had correct knowledge regarding storage in freezer for 3 months.<sup>17</sup> The study revealed that less than half of respondents were aware regarding treating the expressed breast milk in luke warm water before feeding. However, another study conducted in Turkey found higher proportion of respondents had correct knowledge regarding treating expressed breast milk in luke warm water.<sup>16</sup> The findings of the study showed around two-fifth of the mothers were aware about best container for feeding as spoon and small bowl feeding which is in line with another study conducted in Sokoto, Nigeria.<sup>12</sup> The present study found 11.4% of the respondents were aware about feeding previously stored and once fed milk again without restoring it within one to two hours, the result which is in contrast with the findings of the study conducted in Sokoto, Nigeria.<sup>12</sup>

The present study revealed that 34.5% and 38.8% of respondents were aware about benefits of expressed breast milk to mothers as it prevents breast engorgement and enhances milk supply respectively. The findings of the study is not consistent with another study conducted in India where 62% mothers were aware that expressed

breast milk prevents breast engorgement and 32% were aware that it enhances milk supply.<sup>11</sup> The present study revealed that 3.1%, 48.2% and 37.3% of respondents were aware about benefits of breast milk to baby as provides immunity to baby, easy to digest, increases intelligence respectively which is not consistent with the study conducted in India where higher proportion of mothers were aware about benefits of breast milk to baby as provides immunity to baby, easy to digest, increases intelligence respectively.<sup>11</sup> Similarly nearly about one-third of the respondents were aware about benefits of breast milk to baby as prevents against allergies which is in line with another study conducted in India.<sup>11</sup>

In the present study statistical association was established between age of the mothers and awareness regarding expressed breast milk which is not consistent with several studies such as the study conducted in Patan Hospital Nepal and India.<sup>10,11</sup> In the current study, mother's education was significantly associated with awareness regarding expressed breast milk which is also supported by several studies such as study done in Saudi Arabia and Singapore.<sup>18,19</sup> Age of the index child in this study is found significantly associated with awareness regarding expressed breast milk in bivariate analysis which is in line with the study conducted in Sokoto, Nigeria.<sup>12</sup>

Our study is limited by the fact that it is a questionnaire based study conducted among a limited number of participants in a small part of the country. Hence, it shall be difficult to generalise our findings to the whole population. However, we are hopeful that our research would shed some light in the area of breast feeding and encourage other researchers to conduct larger studies involving relatively larger area.

## CONCLUSIONS

The study concluded that more than half of the respondents have low awareness regarding expressed breast milk. Variables such as age, religion and educational status influence on mothers awareness regarding expressed breast milk. Awareness regarding expressed breast milk is significantly higher among mothers who were less than 25 years. Hindu and literate mothers were

found to have high awareness regarding expressed breast milk.

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