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Awareness And Acceptance Of Human Milk Donation Among Lactating Mothers Attending A Tertiary Care Hospital In South India

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ABSTRACT:-

INTRODUCTION:-

Breastfeeding for at least two years is advocated by the World Health Organization (WHO) as optimal for infant growth and development, with exclusive breastfeeding recommended for the first six months. Breast milk provides essential nutrients, growth hormones, and immune factors vital to a child's health. However, issues like lactation insufficiency, work commitments, and socio-cultural influences may hinder breastfeeding, leading to an increase in formula milk usage. Mother milk banks (MMBs) have emerged to provide donated breast milk for infants in need, especially when a mother's milk is unavailable. WHO, along with UNICEF, endorses donated human milk as the preferred alternative. Globally, around 500 milk banks exist, with notable growth in Europe, Africa, and Asia. This study explores the knowledge and acceptance of breast milk donation among mothers to boost donations and improve breastfeeding practices.

AIMS AND OBJECTIVES:-

This study aims to examine mothers' knowledge and attitudes regarding breast milk donation, with an emphasis on understanding their acceptance of the practice. By evaluating the awareness and perspectives of mothers, the research intends to collect essential data to support the establishment and growth of breast milk banks, ultimately facilitating broader access to donated human milk for infants in need.

MATERIALS AND METHODS:-‘

This 12-month study by the Department of Paediatrics at Sree Balaji Medical College and Hospital includes 300 lactating mothers from the Postnatal ward and immunization clinic. Participants are either mothers who delivered at the hospital or have children under two years visiting the clinic. Data analysis will be performed using SPSS software, with categorical variables reported as frequencies and percentages, and continuous variables as means with standard deviations. Univariate analysis will be used to identify risk factors, and associations between variables will be assessed using the Chi-square test and independent samples t-test. A p-value of less than 0.05 will indicate statistical significance.

RESULTS:-

In this study, 67.3% of participants were aged 21-25, with 14.3% being illiterate and 18% having only completed middle school. Higher education was linked to greater awareness of breast milk donation. Most participants (70.7%) were unemployed, potentially contributing to lower awareness. A large portion (88%) lived in nuclear families, while joint families seemed more inclined to donate. The majority (68.7%) came from low to middle socio-economic backgrounds,

and 63.7% had only one child. Although 89.7% had four or more antenatal visits and 61.3% initiated breastfeeding immediately after birth, only 28.3% knew about breast milk donation, and 11.7% were aware of milk banks. However, 56.5% expressed willingness to donate with proper guidance. Key concerns included milk supply (74.8%) and infection fears (66.1%).
CONCLUSION:-
In conclusion, the majority of breastfeeding mothers showed a positive outlook toward donating breast milk. The study emphasizes the importance of healthcare professionals, especially nurses, in expanding their knowledge of breastfeeding and donation to promote awareness and support the establishment of breast milk banks. Further research should explore healthcare professionals' perspectives, as their input is essential for the success of milk donation programs.

INTRODUCTION:-

Breastfeeding for at least two years is recognized by the World Health Organization (WHO) as the ideal method for promoting the healthy growth and development of infants. WHO also recommends exclusive breastfeeding for the first six months[1], meaning that the infant receives only breast milk, with no additional liquids or solids, not even water. Breast milk contains growth hormones, nutrients, enzymes, and immune factors essential for a child's development[2]. However, various factors—such as hypogalactorrhea, lactation insufficiency, agalactia, work commitments, lack of knowledge, and socio-cultural influences—may prevent some mothers from breastfeeding[3]. These challenges contributed to the rise of the formula milk industry, which in turn has reduced global breastfeeding rates. Mother milk banks (MMBs) or human milk banks (HMBs)[4] have existed for many years but may have seen a decline in their use due to the growing formula milk market.

An MMB is a facility that collects and distributes human milk donated by lactating mothers who are not the child's biological mother. Over recent decades, several guidelines and milk banks have been established in Europe to provide nutrition to infants in need[5]. In collaboration with UNICEF's Baby-Friendly Hospital Initiative, WHO emphasized in 1980 that donated human milk is the preferred alternative when a mother's milk is unavailable[6]. Previously, the "wet nursing" method, where a woman breastfeeds another's child, was a common practice for addressing breast milk shortages. In 1989, formal milk banking was introduced, establishing the use of pasteurized donor human milk (PDHM) as a standard[7].

Currently, there are about 500 human milk banks worldwide, with over 200 in Europe and the USA, 70 in Africa, 44 in Asia, and four in Australia. In Africa, South Africa has 60 banks, Cameroon has six, Kenya has one, and Nigeria also has one[8].

With increasing political commitment to expanding milk banks globally, it is crucial to identify the factors that influence the acceptance and donation of breast milk. This study aims to identify the acceptance and knowledge about breast milk donation among mothers. The findings will help to increase breast milk donations and support the establishment of more milk banks, ultimately promoting better breastfeeding practices.

AIMS AND OBJECTIVES:-

This study aims to examine mothers' knowledge and attitudes regarding breast milk donation, with an emphasis on understanding their acceptance of the practice. By evaluating the awareness and perspectives of mothers, the research intends to collect essential data to support the establishment and growth of breast milk banks, ultimately facilitating broader access to donated human milk for infants in need.

MATERIAS AND METHODS:-

The present study is a cross sectional study conducted in Sree Balaji Medical College And Hospital in the Postnatal ward, Immunisation clinic for a duration of 12 Months. The study population were mothers who delivered in Sree Balaji Hospital and mothers having a child less than two years of age attending the immunization clinic. The sampling method followed was purposive sampling

Sample size calculation was done by the following method:-

Dobson's formula

$$n = Z^2_{(1-\alpha/2)} PQ / d^2$$

n= 300

$Z^2_{(1-\alpha/2)}$ – Level of confidence 95% which is 1.96

P- Approximate proportion of outcome.

d^2- Expected error margin

The sample size is 300

ELIGIBILITY CRITERIA:-

INCLUSION CRITERIA :

Mothers in postnatal ward and mothers having a child less than two years of age attending the immunization clinic.

EXCLUSION CRITERIA:

Those not willing to participate in the study

A semi-structured questionnaire will be used as the primary tool to gather data from 300 lactating mothers in postnatal wards or immunization clinics, with voluntary participation. Data analysis will be carried out using SPSS, where categorical variables will be presented as frequencies and percentages, and continuous variables as means with standard deviations. Univariate analysis will examine potential risk factors for recurrence, employing the Chi-square test and independent sample t-test to evaluate variable associations, with statistical significance set at $p < 0.05$. Data will be collected through structured interviews, entered into Microsoft Excel, and analyzed in SPSS version 27, with results displayed in pie and bar charts. The principal investigator will handle data collection and entry.

RESULTS:-

Table 1 : Socio-demographic details of the study participants

Socio-demographic details		Frequency (N=300)	Percentage (%)
Age (years)	<20	21	7
	21-30	245	81.6
	31-40	35	11.4
Education	Illiterate	42	14
	literate	258	86
Employment status	Unemployed	212	70.7
	Employed	88	29.3
Family type	Nuclear	264	88.0
	Joint	36	12.0
Socio-economic status	Lower	47	15.7
	Lower middle	206	68.7

	Middle	27	9.0
	Upper middle	20	6.7
Number of children	≤2	286	95.3
	>2	14	4.7
Number Of ANC Visits	< 4	31	10.3
	4 or more	269	89.7
Type of Delivery	Vaginal	122	40.7
	Assisted vaginal	9	3.0
	Caesarean	169	56.3
Place of Delivery	Government institutions	66	22.0
	Private institutions	234	78.0

Table 1 presents the socio-demographic characteristics of the study population. Age distribution showed that 7% were 18-20 years old, 67.3% were 21-25, 14.3% were 26-30, 10% were 31-35, and 1.3% were 36-40. Regarding education, 14% were illiterate, 11.7% completed primary school, 18% middle school, 47.3% higher education, and 9% were graduates or above. Employment status revealed 70.7% were unemployed, and 29.3% were employed.

Most participants (88%) came from nuclear families, and 12% from joint families. Income levels indicated 15.7% were from lower socioeconomic status, 68.7% were lower middle class, 9% were middle class, and 6.7% were upper middle class. Family size showed 63.7% had one child, 31.7% had two, and 4.7% had more than two. For antenatal care, 10.3% had fewer than four visits, while 89.7% had four or more. Delivery methods were 40.7% vaginal, 3% assisted vaginal, and 56.3% caesarean, with 22% in government and 78% in private institutions.

Table 2 : Distribution Based on Knowledge About Breast Milk Donation

Knowledge About Breast Milk Donation		Frequency (N=300)	Percentage (%)
Has heard of breast milk donation	Yes	85	28.3
	No	215	71.7
Awareness of Breast Milk Bank	Yes	35	11.7
	No	265	88.3
Source of information	Health institution	25	71.4
	Mass media	6	17.1

	Friends and relatives	4	11.4

Table 2 highlights the distribution of study participants based on their knowledge of breast milk donation. It shows that 28.3% were aware of breast milk donation, while 71.7% had never heard of it. Regarding breast milk banks, only 11.7% had knowledge of them, with 88.3% unaware. The sources of information about breast milk donation varied, with 72.9% receiving information from health institutions, 9.4% from mass media, and 17.6% from friends and relatives.

Willingness to accept Donated Breast Milk

52 (17.3 %) were willing to accept donated breast milk and 248 (82.7) were not willing to accept donated breast milk.

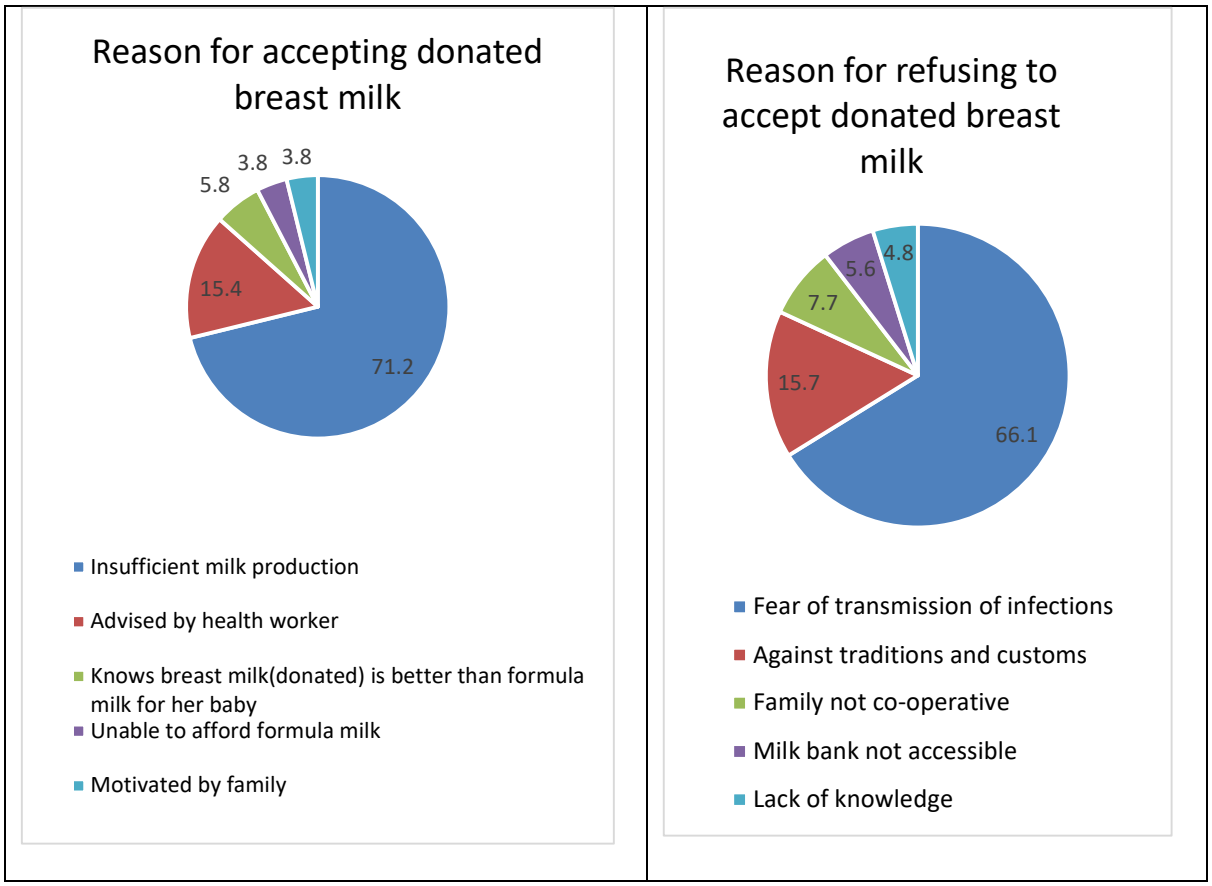

Fig 1 (a) : Reason for accepting donated breast milk

Fig 1 (b): Reason for refusing to accept donated breast milk

Willingness to Donate Breast Milk

62 (20.7%) were willing to donate and 238 (79.3%) of the study participants were not willing to donate.

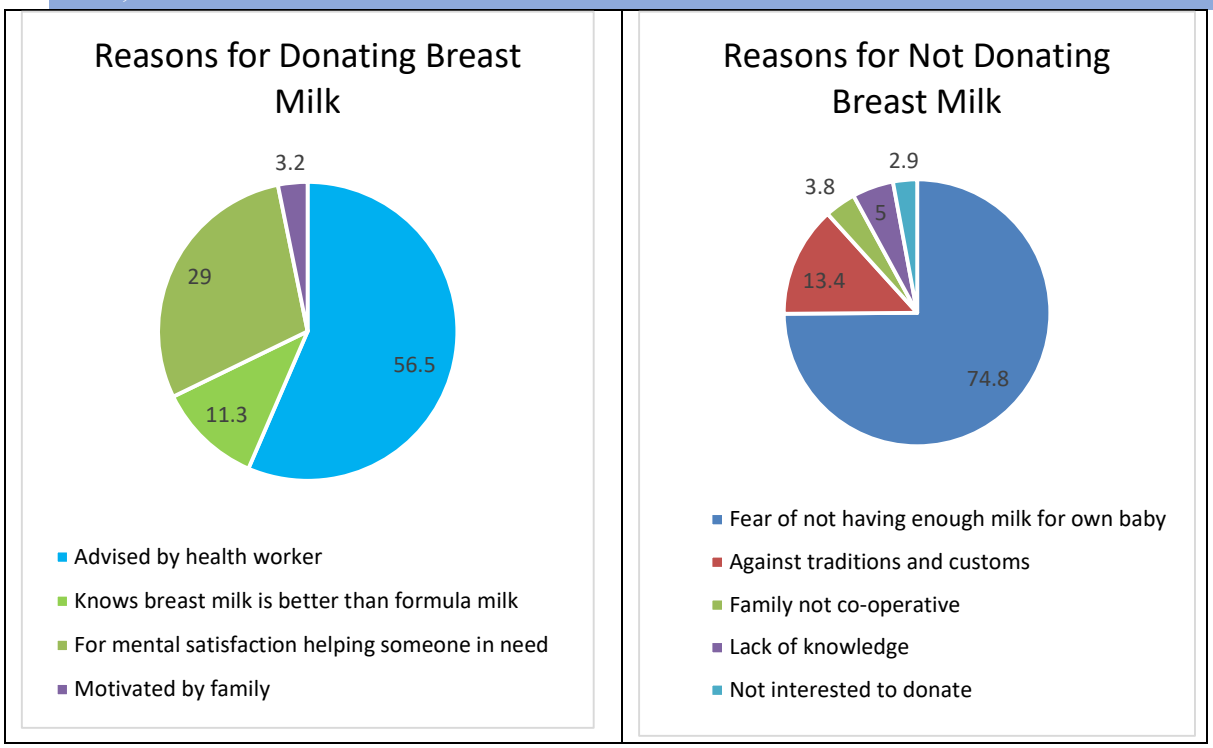

Fig 2 (a) : Reasons for Donating Breast Milk
Fig 2 (b): Reasons for Not Donating Breast Milk

Table 3 : The Influence of Educational Status and occupation and Its Impact on The Knowledge About Breast Milk Donation

Factor	Category	Knowledge about breast milk donation		*p* value
		Absent n (%)	Present n(%)	
Educational status	Literate	204(79.1)	54(20.9)	0.0001*
	Illiterate	11(26.2)	31(73.8)	
Occupational status	Unemployed	154(72.6)	58(27.4)	0.0546*
	Employed	61(69.3)	27(30.7)	

*p value <0.05- statistically significant

Table 3 represents the influence of educational status and occupation and its impact on the knowledge about breast milk donation, where the p value was 0.0001 and 0.0546 which is statistically significant

Table 4 : Statistical Significance for Willingness for Breast Milk Donation Based on educational status and Occupational Status

Factor	Category	Willingness for breast milk donation		*p* value
		Absent n (%)	Present n (%)	
Educational status	Literate	211(81.8)	47(18.2)	**0.01***
	Illiterate	27(64.2)	15(35.8)	
Occupational status	Unemployed	161(75.9)	51(24.1)	**0.02***
	Employed	77(87.5)	11(12.5)	

*p value <0.05- statistically significant

Table 4 represents the Statistical Significance for Willingness for Breast Milk Donation Based on educational status and Occupational Status, where in the p value is 0.01 and 0.02 respectively which shows statistical significance

Table 5 : Statistical Significance for Willingness to Accept Donated Breast Milk Based on Educational status and Occupational Status

Factor	Category	Willingness for accepting donated breast milk		*p* value
		Absent n (%)	Present n (%)	
Educational status	Literate	219(84.9)	39(15.2)	**0.01***
	Illiterate	29(69)	13(31)	
Occupational status	unemployed	175(82.6)	37(17.4)	0.88
	employed	73(82.9)	15(17.1)	

*pvalue <0.05- statistically significant

Table 5 represents theStatistical Significance for Willingness to Accept Donated Breast Milk Based on Educational status where the p value is 0.01 which shows statistical significance and Occupational Status with a p value of 0.88 which does not show statistical significance

Table 6 : Statistical Significance for Willingness for Breast Milk Donation and Knowledge About Breast Milk Donation

Factor	Category	Knowledge about breast milk donation		*p* value
		Absent n (%)	Present n (%)	
Willingness for breast milk donation	Yes	14(22.6)	48(77.4)	**0.0001**
	No	201(84.5)	37(15.5)	

*p value <0.05- statistically significant

Table 6 represents the Statistical Significance for Willingness for Breast Milk Donation and Knowledge About Breast Milk Donation which is 0.0001 which is statistically signifant

DISCUSSION:

Breastfeeding offers numerous benefits for infants, including nutritional, developmental, psychological, immune, social, economic, and environmental advantages. It helps prevent conditions such as sudden infant death syndrome, diabetes, Crohn's disease, lymphoma, leukemia, and respiratory infections, while also reducing the severity of issues like diarrhea, asthma, and ear infections. Breastfeeding enhances cognitive and neurodevelopmental outcomes (Dennis et al)[9] and promotes maternal health (Heinig et al)[10]. It also plays a vital role in preventing childhood obesity and chronic diseases (Davis et al)[11].

UNICEF reports an increase in exclusively breastfed infants under six months, rising from 65% in 2015-2016 (NFHS-4) to 76% in 2019-2021 (NFHS-5), indicating improved attitudes toward breastfeeding in India. While many breastfeeding mothers produce adequate milk, some, especially those with premature or ill infants, may struggle to meet their babies' nutritional needs (Walker et al)[12]. In these cases, donated breast milk becomes essential. Research shows that milk from banks is an effective alternative (World Breastfeeding Week, 2016). Mothers donate milk for various reasons, including positive experiences, altruism, surplus production, awareness of need, waste reduction, and support for hospitals and milk banks.(Arnold et al)[13].

Human breast milk donation began in 1909 when the first milk bank was established in Vienna, Austria (Kim et al.)[14]. Milk banks, following strict protocols set by organizations such as the Human Milk Banking Association of North America, recruit and screen donor mothers, process, test, store, and distribute the milk (Human Milk Banking Association of North America, 2008).

Well-established milk banks in countries like Europe, America, Australia, and Britain have robust guidelines to ensure the safety and nutritional quality of donated milk, especially for neonatal intensive care unit (NICU) patients. These protocols cover donor screening, milk collection, pasteurization, and distribution (Hartmann et al)[15]. Pasteurization, which heats donor milk to 62.5°C for 30 minutes, is vital for maintaining its nutritional integrity while ensuring it is safe for medically fragile infants (Kim et al)[14]. Consequently, donor milk is recommended for infants with specific medical conditions.

In medical settings, donated breast milk is crucial for infants with conditions like immunodeficiencies, malabsorption, prematurity, gastrointestinal surgeries, and feeding intolerances. Research indicates that preterm infants receiving formula face a higher risk of necrotizing enterocolitis (NEC) compared to those fed donor breast milk (McGuire et al., 2016), highlighting the vital role of donor milk.

Mothers often cite altruism, surplus milk, and healthcare support as reasons for donating their milk (Hegney et al)[16]. The benefits of milk donation and banks are substantial, ensuring that infants receive optimal nutrition for growth and development.

In India, formal breast milk donation systems are inadequate, leading many mothers to discard excess milk or share it informally, increasing contamination risks. This practice not only wastes valuable milk but also poses health hazards. Research on Indian perceptions of milk donation and banks is limited.

Establishing formal breast milk donation channels and banks is essential, especially for nursing mothers, as it would ensure safe access to donated milk for infants in need. In a recent study, 67.3% of participants were aged 21-25. Additionally, 18% completed only middle school, and 14% were illiterate, reflecting findings by Volin et al. that literacy improves awareness of breast milk donation. Moreover, 70.7% of participants were unemployed, which may contribute to lower awareness of milk donation.A high proportion (88%) lived in nuclear families, consistent with Livin et al.'s study[17], which suggested that mothers in joint families were more willing to donate milk. Around 68.7% of participants were from low- to middle-income backgrounds, and 63.7% had only one child, a finding consistent with Bao et al.'s research[18], which linked multiparity to greater awareness of breast milk donation. Positive trends included the fact that 89.7% of mothers attended more than four antenatal care visits, and 56.3% delivered via C-section, with 78% giving birth in private institutions.

Ensuring safety is crucial for maintaining high standards in breast milk donation and bank operations, including donor screening, milk collection, and storage practices. Many participants in our study expressed a willingness to donate, particularly when safety concerns were addressed. They stressed the need for government oversight to maintain hygiene, proper donor screening, and effective milk handling procedures.

Challenges such as donor eligibility, logistical hurdles, and time constraints—especially for mothers with full-time jobs—were recognized as obstacles. Participants pointed out the necessity of improved workplace policies, financial support for milk transport, and the availability of nursery facilities.

Public education campaigns and professional training, particularly for nurses, were identified as critical to promoting breast milk donation. Nurses play an essential role in encouraging both breastfeeding and donation. Overall, participants strongly advocated for creating a supportive environment for breastfeeding and the establishment of milk banks.

CONCLUSION:

Previous studies on breast milk donation have primarily focused on policies and monitoring across different countries. This study, however, offers new insights into how mothers perceive breast milk donation. The majority of breastfeeding mothers expressed a positive outlook towards donation, with a recommendation for healthcare professionals, especially doctors and nurses, to improve their knowledge of breastfeeding practices to promote both exclusive breastfeeding and milk donation.

Nurses play a crucial role in increasing public awareness about breast milk donation. The study emphasizes the importance of understanding local perspectives and the key role of healthcare professionals in fostering supportive environments for breastfeeding and donation.

Further research is needed to examine healthcare professionals' perspectives on breast milk donation and milk bank operations. Their input is essential in supporting mothers, ensuring the safety of donated milk, and shaping policies for effective donation initiatives.

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