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Exclusive breastfeeding among mothers in Tripura Sundari rural municipality, Dhading, Nepal

Elina Achhami¹✉

¹Resident, Department of Community Medicine, Chitwan Medical College, Nepal



Peer reviewed

Abstract

Introduction: The World Health Organization recommends exclusive breastfeeding (EBF) for the first six months of life. The study aims to conduct an exploratory assessment of EBF practices and associated factors among a sample of mothers in Tripura Sundari rural municipality (TSRM) Dhading, Nepal.

Method: A quantitative household survey was conducted in TSRM, enrolling 390 breastfeeding mothers of children aged 6 to 12 months as per the calculated sample, with adjustment for potential incomplete data. Ethical approval was obtained. Data were collected from 27 Aug 2023 to 04 May 2024. Mothers with permanent residency were included, while those unable to communicate due to language barriers or health issues were excluded. Convenience sampling was used to select participants. Questionnaires were administered face-to-face through door-to-door surveys using structured tools. Descriptive and bivariate analyses (x2 test) were performed to examine variables such as the mother's age, education, occupation, place and mode of delivery, and utilization of antenatal and postnatal care. A $p \leq 0.05$ was considered statistically significant.

Result: Out of total 390 mothers, the prevalence of EBF was 232(59.49%). The EBF was significantly associated with maternal age (p -value=0.01), place of delivery (p -value=0.04), and mode of delivery (p -value=0.03).

Conclusion: This exploratory study found an EBF prevalence of 59.49% among mothers accessible in TSRM, while not generalizable to the entire municipality due to non-random sampling, this warrants further investigation and can inform local awareness programs.

How to cite

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Correspondence

Dr. Elina Achhami, Department of Community Medicine, Chitwan Medical College, Nepal.
Email: elinaachhami02@gmail.com, Telephone: +977 9845945246

Introduction

Exclusive breastfeeding (EBF) means that the infant receives only breast milk. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines.¹ Globally, 40% of infants under six months are exclusively breastfed, far below the 70% target by 2030.² In low- to middle-income countries, EBF prevalence during the first six months ranges between 14% and 64%.³⁻⁸ In the South Asian region, including Nepal, EBF practices are influenced by socio-demographic, economic, and healthcare factors.⁵⁻⁹ In Nepal, studies show an average EBF prevalence of 43%, with the highest at 71.5% in Bharatpur, Chitwan, and the lowest around 43-45% among working women in hospital settings.⁹⁻¹² National surveys report a decline in EBF rates from 70% in 2011 to 56% among infants aged 0–5 months.¹³

However, limited studies exist in Nepal, including Tripura Sundari Rural Municipality (TSRM) and other Dhading district municipalities as well as similar geographical locations in other districts.

This study aims to conduct an exploratory assessment of EBF practices and associated factors among a sample of mothers in TSRM, to generate preliminary data for local health programming. The findings will help TSRM, Dhading, and relevant stakeholders to assess the EBF status in the area and design cost-effective interventions to promote EBF, ultimately improving maternal and child well-being.

Method

A quantitative cross-sectional study was conducted in Tripurasundari Rural Municipality (TSRM), Dhading District, Nepal. The rural municipality (RM) is located about three hours by bus from the district headquarters. Although Dhading District is semi-urban, TSRM is a rural area. Majority of TSRM were speak Nepali language. The study was carried out among mothers of children aged 6 to 12 months after obtaining ethical approval from the Institutional Research Committee at Chitwan Medical

College, CMC-IRC/081/082-062. Data was collected from 27 Aug 2023 to 04 May 2024.

The questionnaires were adapted from the Community Health Diagnosis field of Chitwan Medical College. Non-probability convenient sampling was used for the assessment in TSRM, Dhading, Nepal.

Due to logistical constraints of three-week community health diagnosis field period for data collection and the lack of a comprehensive, up-to-date household listing in the municipality, a non-probability convenience sampling approach was employed to feasibly reach the target sample size within the available timeframe.

The sample size was calculated using Cochran's formula for infinite population $n = z^2 \times p \times q / e^2$, where n is the required sample size, $z = 1.96$ at a 95% Confidence Interval (CI), p is the prevalence from the Nepal demographic health survey, which is 0.56,¹³ $q = 1 - p$ and $e = 0.05$ is the margin of error. This calculation resulted in a required sample size of 379 participants. According to the TSRM report, the total population of mothers of children aged 6 to 12 months was 700. Nevertheless, 390 mothers were enrolled in the study, and written informed consent was obtained from all respondents. The reason for enrolling 390 is to account for potential incomplete data. College provided three weeks to collect data, which was completed within this time frame.

Data collection occurred daily from 9 AM to 5 PM, with each interview taking approximately 10 minutes. We expected to collect data from about 20 participants each day, concluding the data collection within three weeks of the community health diagnosis field period. Questionnaires were administered face-to-face through door-to-door surveys using structured tools during the designated time for community health diagnosis. And data were collected sitting proper position at the ground floor of the house. The inclusion criteria were mothers of children aged 6 months to 12 months and be permanent residents of TSRM. Permanent residents were those residing in the area for >6 months. Mothers of children aged 6 to 12 months were included to mitigate recall bias.

Who were unable to communicate due to language barrier or health issues were excluded. Health issues were defined as conditions contraindicating breastfeeding — for example, breast abscess or maternal intake of antituberculosis drugs.

Data were entered into IBM SPSS version 21, for univariate analysis frequency and percentage was calculated and bivariate analysis chi-square test or Fisher's exact test was used to identify association between EBF and sociodemographic and health related variable. Statistical significance was declared at $p < 0.05$ with corresponding 95% CI. The validity and reliability of the study tools were ensured by formulating questionnaires based on the Community Health Diagnosis field as per curriculum guidelines. Consultation with supervisors, co-supervisors, and faculty members helped verify and organize obtained data for accuracy, completeness, and consistency.

For this study outcome variable EBF is defined as the practice of feeding infants exclusively with breast milk for the first six months of life, without any other liquids or solids except for necessary vitamins, minerals, or medications.¹ Sociodemographic variables included are the age of the mother, categorized into teenager and above teenager. In this study teenager was defined as less than or equal to 19 years. Education level of the mother, categorized into primary, secondary, 12th grade, and bachelor level and occupation of the mother, categorized

into homemaker, agricultural worker, service, and business.

Health-related variables include place of delivery, categorized into government and private. Government hospitals include health posts and basic health care centres. Mode of delivery is categorized into vaginal delivery and caesarean section. Vaginal delivery is considered normal delivery, while assisted deliveries include forceps and vacuum. Antenatal care (ANC) utilization is categorized as less than 4 ANC visits and more than or equal to 4 ANC visits, Postnatal service (PNC) utilization is also categorized as one, two and three PNC visits.

Result

Out of total 390 mothers, 232(59.49%) said that they did EBF, Figure 1.

Majority of respondents were adult 343(87.90%), 168(43.10%) had primary level of education, and 192(49.2%) were engaged in agricultural works. Regarding ANC utilization, 189(48.50%) mothers had completed four or more visit, 295(75.6%) were delivered in Government hospital, 375(96.20%) were Vaginal delivery included both normal and assisted. Maternal factors such as maternal age (p -value=0.001), place of delivery (p -value=0.04), and mode of delivery (p -value=0.03) were found to be significantly associated with EBF, Table 1.

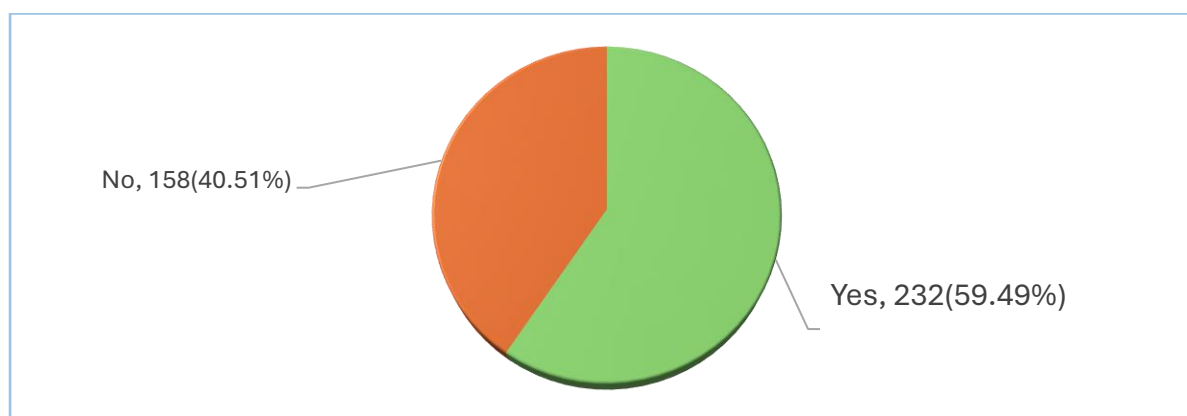


Figure 1. Exclusive breastfeeding status among mothers in Tripurasundari rural municipality, Dhading, Nepal, n=390

Table 1. Association of exclusive breastfeeding with sociodemographic and health related variables among mothers in Tripura Sundari RM, Dhading Nepal, n=390

Variables		n(%)	Exclusive breast Feeding		Test statistics	p-value
			Yes n(%)	No n(%)		
Mother Education	Primary	168(43.1)	110(65.5)	58(34.5)	12.567	0.06
	Secondary	148(37.9)	26(17.5)	122(82.4)		
	12 class	64(16.4)	26(40.6)	38(59.4)		
	Bachelor	10(2.6)	5(50)	5(50)		
Mother Occupation	Housemaker	89(22.8)	54(60.7)	35(39.3)	7.301	0.63
	Agricultural	192(49.2)	124(64.6)	68(35.4)		
	Service	51(13.1)	28(54.9)	23(45.1)		
	Business	58(14.9)	31(53.4)	27(46.6)		
Mother Age	Teenager	47(12.1)	20(42.6)	27(57.4)	6.230	0.01
	Above Teenager	343(87.9)	212(61.8)	131(38.2)		
Place of delivery	Government	295(75.6)	184(62.4)	111(37.6)	4.137	0.04
	Private	95(24.4)	48(50.5)	47(49.5)		
Mode of delivery	Vaginal delivery included both normal and assisted such as vacuum /forceps	375(96.2)	227(60.5)	148(39.5)	4.340	0.03
	Caesarean section	15(3.80)	5(33.3)	10(66.7)		
Number of ANC visits	Less than 4 visits	172(44.1)	101(58.7)	71(41.3)	0.075	0.78
	Equal or more than 4 visits	218(55.9)	131(60.1)	87(39.9)		
Number of PNC visits	One visit	88(22.6)	51(58)	37(42)	4.819	0.09
	Two visits	271(69.5)	157(57.9)	114(42.1)		
	Three visits	31(7.9)	24(77.4)	7(22.6)		

ANC=Antenatal care, PNC=Postnatal care

Discussion

This study was conducted in TSRM, Dhading district, Nepal which aims to conduct an exploratory assessment of EBF practices and associated factors among a sample of mothers in TSRM, to generate preliminary data for local health programming. The study showed more than half 232(59.49%) of the respondent were exclusively breastfeeding their babies. The prevalence of EBF of this study aligned with Nepal demographic health survey 2022,

multilevel analysis of nationally representative household survey data; a study conducted in Nepal, study in Slum of Pokhara, study in Tertiary Level Hospital, Kathmandu and aligned with study conducted in Dhaka, Bangladesh.^{5,6,13-15}

In contrast to present study findings, a study conducted in Bharatpur Chitwan showed a higher EBF of 71.5%¹¹ but much lower EBF of 14.2%⁴ from Vietnam and 5.3%¹⁶ from Saudi were reported. Reason for contrast result may

be due to insufficient maternity leave, a lack of private and clean spaces to express milk, inadequate break times, pressure from employers and co-workers, work-related stress that can reduce milk supply, and influence by formula milk company promotions that emphasized on benefits of formula feeding, lack of awareness to EBF and the influence of cultural practices.

This study found a significant association between EBF and mother age ($p < 0.01$), which align with study conducted in Dhaka, Bangladesh with significant level of $p < 0.027$ and another study in in Bangladesh with significant level $p < 0.05$.⁵ In contrast, a study done in Bharatpur Chitwan, low–middle income country Eastern Cape South Africa and Bangladesh ,showed no significant association with age of mother.^{4,11,13-15,17}

Moreover, this study found a significant association between exclusive breast feeding and place of delivery ($p < 0.04$) and mode of delivery ($p < 0.03$). Like this, the study in Brikama District Hospital, West Coast Region, Gambia also showed significant relation with mode of delivery ($p = 0.023$) and place of delivery ($p = 0.001$).¹⁸

In this study mother education was not found significant with EBF. Which is align with Study conducted in in Bangladesh.¹⁹ Which is contrast with study conducted in Eastern cape South Africa showed significant association with mother education ($p = 0.017$).¹⁴ It may be due to better education system and awareness about EBF.

Therefore, the EBF has strong association between age of mother, place of delivery, mode of delivery encouraging adult pregnancy, government hospital delivery and vaginal delivery.

The most significant limitation of this study is the use of a non-probability, convenience sampling method that may introduce a high risk of selection bias. Mothers who were at home during daytime hours, more approachable, or living closer to main roads may have been over-

represented, while working mothers, those in remote, or those less inclined to participate may have been under-represented. Therefore, the reported prevalence of 59.49% should not be interpreted as the true prevalence of EBF for TSRM. The estimate is likely biased and its generalizability is limited. Furthermore, the observed associations, e.g. with place of delivery, may be reduced, exaggerated, or confounded by the sampling bias. The findings regarding factors should be considered exploratory and require confirmation through studies employing random sampling designs. Other limitations are recalling bias, cross-sectional design, single geographic area.

Conclusion

Among the studied sample, the EBF was 232(59.49%). The finding suggest that maternal age, place and mode of delivery may be important factors to address this community. Future studies using population-based random sampling are required to establish a true prevalence.

Author contribution

Concept design: EA; Literature search: EA; Data collection: EA; Data analysis: EA; Draft manuscript: EA; Final manuscript and accountability: EA

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None

Conflict of Interest

None

Funding

None

Supplementary material

The data and supplementary material that support the findings of this study are available from the corresponding author upon reasonable request.

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Tools/Questionnaire

Tribhuvan University
Chitwan Medical College
Bharatpur, Chitwan

Title: Exclusive breastfeeding among mothers in Tripura Sundari Rural Municipality, Dhading, Nepal

Form No.....

Date:

S. N	Variables	Responses	Remarks
1.	Exclusive breast feeding		
2.	Sociodemographic Factors		
	a. Age of mother Years	
	b. Educational status of mother	i. Primary or lower basic level: 1 to 5 classes ii. Lower Secondary or upper basic level: 6 to 8 classes iii. Secondary level: 9 to 10 classes iv. Above secondary level:	
	c. Occupation of mother	i. Agriculture ii. Housewife iii. officer, iv. business v. others	
3.	Health service-related factors		
	a. Place of Delivery	i. Government hospital ii. Private hospital iii. Home iv. Others	
	b. Mode of delivery	i. Normal delivery ii. Caesarean section	

	c. Antenatal care utilization	i. One time ii. Two times iii. Three times iv. Four times v. More than four	
	d. Postnatal care utilization:	i. One time ii. Two times iii. Three times iv. Four times v. More than four	

त्रिभुवन विश्वविद्यालय
चितवन मेडिकल कलेज
भरतपुर, चितवन

Title: Exclusive breastfeeding among mothers in Tripura Sundari Rural Municipality, Dhading, Nepal

शीर्षक: त्रिपुरा सुन्दरी गाउँपालिका, धादिङ, नेपालका आमाहरूलाई विशेष स्तनपान

प्रतीक नं	चरहरू	प्रतिक्रियाहरू	टिप्पणीहरू
१.	विशेष स्तनपान		
२.	सामाजिक जनसांख्यिकीय कारक		
	१.आमाको उमेर वर्ष	
	२.आमाको शैक्षिक अवस्था	
	३.आमाको पेशा	
३.	स्वास्थ्य सेवा सम्बन्धित कारकहरू		
	१.डेलिभरी गर्ने ठाउँ	१.सरकारी अस्पताल २.निजी अस्पताल ३.घर ४.अरु	
	२.जन्म को प्रकार	१. सामान्य डेलिभरी २.सिजेरियन सेक्शन	
	३.प्रसवपूर्व हेरचाह उपयोग	१.एक पटक २.दुई पटक	

		३.तीन पटक ४.चार पटक	
	४. प्रसवोत्तर हेरचाह उपयोग	१. एक पटक २.दुई पटक ३.तीन पटक ४.चार पटक	