Determinants of Timely Initiation of Breastfeeding among Disadvantaged Ethnic Groups in Midwest Nepal

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ABSTRACT

Background: Timely initiation of breastfeeding has the potential to prevent 22% of neonatal deaths if breastfed within an hour after birth. Although breastfeeding is almost universal in Nepal, ranges of regional differences in timely initiation of breastfeeding have been documented. The aim of this study was to identify the prevalance and the determinants of early initiation of breastfeeding among disadvantaged ethnic women in Midwest Nepal.

Methods: The data was obtained from a household survey of women who had their last child less than one year of age. Descriptive statistics were used to analyze respondents' demographic, socioeconomic, obstetric and health services related characteristics. Determinants of timely initiation of breastfeeding were assessed using univariate analysis and further evaluated using multivariable logistic regression analysis.

Results: Of 362 mothers, 65.5% initiated breastfeeding within one hour of childbirth. Mothers belonging to Tharu ethnic groups (aOR 1.788; 95% CI: 1.014, 3.152), health facility delivery (aOR 3.381; 95% CI: 1.795, 6.369) and mothers who were counseled on breastfeeding during ANC attendance (aOR 2.898; 95% CI: 1.038, 8.096) were more likely to initiate breastfeeding within the first hour of child birth.

Conclusions: Almost two in every three mothers had initiated breastfeeding within one hour of childbirth. The factors influencing timely initiation of breastfeeding were Tharu ethnic mothers, health facility delivery and Ante Natal Care counseling. We need to aim at increasing institutional deliveries and counseling during ANC which may increase the early initiation of breastfeeding among disadvantaged ethnic groups.

Keywords: Breastfeeding; determinants; Nepal; prevalence; timely initiation

INTRODUCTION

Timely initiation of breastfeeding is defined as putting the newborn to breast within one hour of birth.[1] Early initiation of breastfeeding has the potential to prevent 22% of neonatal deaths if all infants were breastfed within an hour after birth.[2] In Nepal, Nearly half (45%) of babies do not receive breastfeeding within the first hour of birth with wide regional differences.[3]

Various factors are found associated with breastfeeding initiation: biomedical, socio-demographic, psychosocial, community factors, healthcare as well as government policies. The relative magnitude of each of these domains differs across different communities, countries and regions and also varies across population sub-groups.[4] Factors determining timely initiation of breastfeeding among disadvantaged ethnic mothers in Midwest Nepal have not been previously reported. Therefore, the objective of this study was to identify the rate and the determinants of early initiation of breastfeeding among disadvantaged mothers in Midwest Nepal.

METHODS

The study design was a cross sectional and descriptive type which was conducted from September 2017 to April 2018 in Bardiya district. Bardiya district lies in Province number five, Mid Western Nepal. According to the national population and housing census 2011, more than 67% of the populations in the district are disadvantaged ethnic groups.[5]

The study followed cluster random sampling method of 362 women who had delivered a baby within one year preceding the study. Bardiya district was firstly divided into four clusters based on the areas defined as electoral constituency comprising five to eleven wards. Two wards from the each cluster were then selected using simple random sampling and total enumerations of women with a child younger than one year of age were done.

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Combining the record of Bacille Calmette Guerrin (BCG) immunization register with the records from Female Community Health Volunteer (FCHV) and discussion with FCHVs if any respondents were missed in the list yielded a complete list of mothers.

Methodological coherence of the study was ensured through the consultation with supervisors, subject experts and the review of previous similar studies. A structured questionnaire was developed based on the indicators for neonatal care practice adapted from the WHO minimum neonatal care package[6], Nepal Demographic and Health Survey[7] and the review of similar studies and with appropriate contextualization. The questionnaire was pretested among 36 disadvantaged ethnic mothers residing in non-sampled wards of Bardiya district.

The outcome variable for this study was timely initiation of breast feeding and independent variables were divided into socio-demographic and economic factors and obstetric and health service related factors.

Data entry was done in EpiData and entered data was exported to Statistical Package for Social Sciences (SPSS) version 23.0. The rate of early initiation of breastfeeding and its distribution by independent variables was reported as frequency and percentage. Chi square tests (c^2) were performed to evaluate the association of the independent variables with the timely initiation of breastfeeding. Variables with a p-value less than or equal to 0.25[8,9] in bivariate analysis were entered into multivariable logistic regression model. Unadjusted and adjusted odds ratios with their 95% confidence interval (CIs) were reported. A p-value <0.05 was considered statistically significant. Before inclusion in the multivariate analysis, the study was assessed for collinearity of the explanatory variables by assessing Variance Inflation Factor score (VIF>10 were considered as suggestive of existence of multicollinearity). The Hosmer and Lemeshow's goodness-of-fit test was used to assess how the final model fit the data.

The ethical clearance for this study was obtained from Institutional Review Board (IRB) of Institute of Medicine (IOM), Tribhuvan University. The study was abided by ethical guidelines developed by Nepal Health Research Council. Written informed consent was obtained from the study participants before the interview. Anonymity of participants and confidentiality of information was maintained by coding interviewee and not mentioning their name in any record.

RESULTS

The mean age of study population was 23.75 where nearly one-third (32.9%) of the mothers had no formal education. Almost two in every three (66%) mothers

represented the Tharu ethnic group, while vast majority were Hindus (89%). Almost half (50.8%) were involved in the agriculture sector and almost 25% mothers represented from rural residence. Women's autonomy and wealth quintile consisted of approximately equal proportion (33% and 20% respectively) of respondents (Table 1).

Table 1. Socio-demographic and economic characteristics of underprivileged ethnic mothers in Bardiya, Midwest Nepal 2018.

Characteristics		Number (n= 362)	Percent
Maternal age (years)	<20	46	12.7
	20-24	181	50.0
	25-29	90	24.9
	≥30	45	12.4
	Mean± SD = 23.75±4.306		
Educational status	No formal education	119	32.9
	Primary	119	32.9
	Secondary	107	29.6
	Certificate and above	17	4.7
Ethnicity	Tharu	240	66.3
	Dalits	75	20.7
	Muslim	19	5.2
	Magar	12	3.3
	Others	16	4.5
Religion	Hindu	322	89.0
	Christian	21	5.8
	Islam	19	5.2
Occupation	Unemployed	151	41.7
	Agriculture	184	50.8
	Paid work	27	7.5
	Service	3	0.8
Place of residence	Urban	265	73.2
	Rural	97	26.8

More than half mothers (53%) were multiparous. Nearly seven in every ten (69.1%) women reported attending the recommended four or more ANC visits. Nearly one quarter (24.6%) of mothers reported a home delivery for their most recent birth, and almost six percent of mothers had not got counseling regarding practice of timely initiation of breastfeeding during their antenatal care visits (Table 2).

Table 2. Obstetric and health service related characteristics of disadvantaged ethnic mothers in Bardiya, Midwest Nepal 2018.

Characteristics		Number (n=362)	Percent
Birth Order	1	170	47.0
	2-3	164	45.3
	3 and above	28	7.7

Birth weight	Low (<2,500gm)	70	19.3
	Normal (2500-400gm)	231	63.8
	High (>400gm)	61	16.9
Frequency of ANC visit	≥4	250	69.1
	<4	112	30.9
Place of delivery	Health facility	273	75.4
	Home	89	24.6
Counseling on timely initiation of breastfeeding during ANC	Yes	342	94.2
	No	21	5.8

A total of 237 women (Proportion 65.5%; 95% CI: 60.3%-70.4%) had initiated breastfeeding within one hour of delivery. Ethnicity, wealth quintile, ANC visit,

place of delivery and counseling on timely initiation of breastfeeding during antenatal care were found statistically significant in Chi-square test (Table 3).

Statistically, mothers belonging to Tharu ethnic groups (OR 1.788; 95% CI: 1.014, 3.152) were 1.8 times more likely to initiate breastfeeding within one hour than other (minority) ethnic groups. Health facility delivery had a positive influence on early initiation of breastfeeding, with the infants who were delivered in health facilities were more likely (OR 3.381; 95% CI: 1.795, 6.369) to be breastfed within one hour than their counterparts born at home. Mothers who were counseled on breastfeeding during ANC attendance (OR 2.898; 95% CI: 1.038, 8.096) were almost three times more likely to be breastfeed within one hour than those who were not counseled. Educational status, religion, occupation, residence, wealth quintile, ANC visit and size of the baby were however not statistically significant with timely initiation of breastfeeding (Table 4).

Table 3. Factors associated with timely initiation of breastfeeding among disadvantaged ethnic mothers in Bardiya, Midwest Nepal 2018.

Factors		Time interval at which breastfeeding was initiated		p-value
		≤ 1 hour N (%)	> 1 hour N (%)	
Mothers age	>25	46 (34.1)	89(65.9)	0.88
	≤24	79 (34.8)	148 (35.2)	
Educational status	Secondary and higher	87(70.2)	37(29.8)	0.175
	Below secondary	150(63.0)	88(37.0)	
Ethnicity	Tharu	173(72.4)	66 (27.6)	<0.001*
	Others†	64 (52.0)	59 (48.0)	
Religion	Hindu	215 (66.8)	107(33.2)	0.140
	Christian/Islam	22(55.0)	18(45.0)	
Occupation	Unemployed	92(60.9)	59(39.1)	0.094
	Agriculture	130(70.7)	54(29.3)	
	Paid work	15(55.6)	12(44.4)	
Place of residence	Urban	180 (67.9)	85(32.1)	0.104
	Rural	57(58.8)	40(41.2)	
Wealth quintile	Rich	43(65.2)	23(34.8)	0.034*
	Medium	120(71.9)	47(28.1)	
	Poor	74(57.4)	55(42.6)	
Mothers autonomy	High	78(64.5)	43(35.5)	0.664
	Medium	83(68.6)	38(31.4)	
	Low	76(63.3)	44(36.7)	
Birth order	1-2	187(65.8)	97(34.2)	0.774
	3 and more	50(64.1)	28(35.9)	
Size of baby	Small	40 (57.1)	30 (42.9)	0.240
	Large	42 (68.9)	19 (31.1)	

	Average	155 (67.1)	76 (32.9)	
Frequency of ANC visit	≥4	175 (70.0)	75 (30.0)	0.007*
	<4	62 (55.4)	50(44.6)	
Place of delivery	Health facility	202(74.0)	71(26.0)	<0.001*
	Home	35(39.3)	54(60.7)	
ANC Counseling on initiation of breastfeeding	Yes	230(67.4)	111(32.6)	0.001*
	No	7(33.3)	14(66.7)	

†Dalit, Muslim, Magar, Terai Madheshi, Sonaha *Statistically significant at 95% CI

Table 4. Bivariate and multivariable logistic regression showing determinants of timely initiation of breastfeeding among disadvantaged ethnic mothers in Bardiya, Midwest Nepal 2018.

Variables	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)
Educational status		
Secondary and higher	1.379 (0.866-2.199)	0.810 (0.471-1.391)
Below secondary	1	1
Ethnicity		
Tharu	2.416 (1.536-3.802)	1.788(1.014-3.152)*
Others†	1	1
Religion		
Hindu	1.644 (0.846-3.196)	0.599 (0.263-1.367)
Christian/Islam	1	1
Occupation		
Unemployed	1.247 (0.546-2.851)	1.458 (0.591-3.597)
Agriculture	1.926 (0.846-4.385)	1.810 (0.742-4.414)
Paid work	1	1
Residence		
Urban	1.486 (0.920-2.401)	1.417 (0.837-2.398)
Rural	1	1
Wealth quintile		
Rich	1.390 (0.751-2.570)	0.656 (0.321-1.344)
Medium	1.898 (1.168-3.083)	1.220 (0.686-2.170)
Poor	1	1
Frequency of ANC visit		
≥4	1.882 (1.187-2.982)	1.067 (0.602-1.893)
<4	1	1
Counseling on timely initiation of breastfeeding during ANC		
Yes	4.144 (1.627-10.557)	2.898 (1.038-8.096)*
No	1	1
Place of delivery		
Health facility	4.390 (2.652-7.266)	3.381 (1.795-6.369)*
Home	1	1
Size of baby		
Small	0.654 (0.378-1.130)	0.643 (0.350-1.182)
Large	1.084 (0.590-1.990)	1.073 (0.554-2.079)
Average	1	1

†Dalit, Muslim, Magar, Terai Madheshi, Sonaha *Statistically significant at 95% CI, CI: Confidence Interval

DISCUSSION

This study found a higher prevalence (65.5%) of timely initiation of breastfeeding compared to previous studies done in the Central Nepal (63.0%),[10] Western Nepal (57.9%)[11] and NDHS 2016 (55%).[3] Similarly, the rate seems higher when compared with previous studies from other countries; 36.4% in India,[12] 24% in Bangladesh,[13] 52.4% in Ethiopia,[14] 8.5% in Pakistan[15] and 54.2% in Sudan.[16] The higher rate found in this study could possibly be attributed to the continued implementation of community and facility based neonatal and child survival strategies and governments commitment towards implementation of nutrition interventions including breastfeeding promotion. To illustrate, the evaluation of community based neonatal care package in 2012 showed that community based neonatal program contributed in increasing the rate of timely initiation of breastfeeding from 44% to 75%.[17]

Mothers belonging to Tharu ethnic groups were 1.8 times more likely to initiate breastfeeding within one hour than others (minority ethnic groups). Ethnic minorities in China[18] and scheduled castes/tribes in India[19] have also been shown to use less neonatal cares including timely initiation of breastfeeding compared to majority ethnic groups. These differences in initiation of breastfeeding may be due to the socio- cultural differences and level of awareness regarding breastfeeding. However, this study suggests more studies to explore why minority ethnic groups such as Muslims, Dalits and Terai Madhesi had lower rate of early initiation of breastfeeding in Midwest Nepal.

Health facility delivery had a positive influence on early initiation of breastfeeding, with the infants who were delivered in health facilities were almost two times more likely to be breastfed within one hour than their counterparts born at home. This finding is consistent with previous studies done in; Goba district Ethiopia,[14] Nepal[20] and Tanzania.[21] Such differences may be due to the cultural or traditional practices and low sensitivity of women and family members towards the early initiation of breastfeeding in case of home delivery.

Mothers who were counseled on breastfeeding during ANC attendance were more likely to be breastfed within one hour than those who were not counseled. This finding was also consistent with the study conducted in Brazil, India and Ethiopia.[12,22,23] This might be due to the fact that counseling about the timely initiation of breastfeeding during ANC period enabled mothers to give emphasis on timely initiation of breastfeeding after delivery and led them to practice as compared to those who did not get the service.

Although the timely initiation of breastfeeding was associated with wealth quintile in bivariate analysis, it was however not statistically significant in multivariate analysis. This result was consistent with a study on trends and determinants of early initiation of breast feeding in Vietnam and Nambia.[24,25] Such result in this study might be because the study included all underprivileged ethnic groups who are likely to share relatively similar socio-economic background. Similarly, in multivariate analysis, we did not find a significant association between ANC attendance and timely initiation of breastfeeding, which is consistent with the results from earlier studies in Nepal,[20] Ethiopia,[23] and Vietnam.[25] However, this findings contradicts to the findings of studies conducted in other countries,[12,26] wherein ANC attendance were reported significant towards the timely initiation of breastfeeding. Therefore, the role of ANC attendance in timely initiation of breastfeeding cannot be ruled out. This study provides important findings that ANC attendance alone may not promote appropriate breastfeeding practices if there is inadequate counseling on early initiation of breastfeeding during pregnancy.

Findings in this study showed the practice of timely initiation of breastfeeding is suboptimal. UNICEF and WHO are implementing a global initiative to improve breastfeeding outcomes with a goal of improving the average early initiation of breastfeeding rate to 70% globally.[27] Therefore, for policy and program implications, a substantial increase in timely initiation of breastfeeding practice can be achieved by targeting the national infant and young child feeding (IYCF) intervention, particularly among disadvantaged minority ethnic women so as to improve child nutrition and thereby child survival. The strength of the study is that it is a community based study which enables a minimum selection bias. It also considered only mothers with recent delivery within the last one year and used important postpartum events. However the limitation of this study still is; the study only focused on disadvantaged ethnic groups of Bardiya district. So, there was no comparison with other ethnic groups within the district. Although the ethnicity is statistically associated with early initiation of breastfeeding in our study, drawing conclusion based on this evidence may be less appropriate due to variation in the number of women between Tharu and other ethnic groups. Nevertheless, this study provides an important evidence base which could contribute to reaching the unreached population of Nepal.

CONCLUSIONS

Almost two in every three mothers had initiated breastfeeding within one hour of childbirth. Among different socio-demographic, economic, obstetric and

health services related factors studied; the ethnicity, place of delivery and counseling about timely initiation of breastfeeding were identified as determining factors for the timely initiation of breastfeeding among disadvantaged women. Hence, we need to aim at increasing institutional deliveries and counseling during ANC which may increase the early initiation of breastfeeding, particularly among disadvantaged and minority ethnic women in Midwest Nepal.

REFERENCES

1. World Health Organization, UNICEF. Indicators for assessing infant and young child feeding practices part 3: country profiles. Geneva: WHO; 2008. [Full Text]

2. Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. Pediatr. 2006;117(3):e380-e6. [PubMed]

3. Ministry of Health, Nepal; New ERA; and ICF. Nepal Demographic and Health Survey 2016. Kathmandu, Nepal: Ministry of Health, Nepal; 2016. [Full Text]

4. Amin T, Hablas H, Al Qader AA. Determinants of initiation and exclusivity of breastfeeding in Al Hassa, Saudi Arabia. Breastfeed Med. 2011;6(2):59-68. [PubMed]

5. District Development Committee (DDC). District profile and resource map. DDC Bardiya; 2071. [Full Text]

6. World Health Organization (WHO): Infant and young child feeding (IYCF) Model Chapter for textbooks for medical students and allied health professionals. WHO; 2009. [Full Text]

7. Paudel D, A. Thapa, P. R. Shedain, and B. Paudel. 2013. Trends and determinants of neonatal mortality in Nepal: Further analysis of the Nepal Demographic and Health Surveys, 2001-2011. [Full Text]

8. Hosmer Jr DW, Lemeshow S, Sturdivant RX. Applied logistic regression: John Wiley & Sons; 2013. [Link]

9. Mukunya D, Tumwine JK, Nankabirwa V, Ndeezi G, Odongo I, Tumuhamye J, et al. Factors associated with delayed initiation of breastfeeding: a survey in Northern Uganda. Glob Health Action. 2017;10(1):1410975. [PubMed]

10. Osrin D, Tumbahangphe KM, Shrestha D, Mesko N, Shrestha BP, Manandhar MK, et al. Cross sectional, community based study of care of newborn infants in Nepal. BMJ. 2002;325(7372):1063. [PubMed]

11. Sreeramareddy CT, Joshi HS, Sreekumaran BV, Giri S, Chuni N. Home delivery and newborn care practices among urban women in western Nepal: a questionnaire survey. BMC Pregnancy Childbirth. 2006;6(1):27. [PubMed]

12. Patel A, Banerjee A, Kaletwad A. Factors associated with prelacteal feeding and timely initiation of breastfeeding in hospital-delivered infants in India. J Hum Lact. 2013;29(4):572-8. [PubMed]

13. Haider R, Rasheed S, Sanghvi TG, Hassan N, Pachon H, Islam S, et al. Breastfeeding in infancy: identifying the program-relevant issues in Bangladesh. Int Breastfeed J. 2010;5(1):21. [PubMed]

14. Setegn T, Gerbaba M, Belachew T. Determinants of timely initiation of breastfeeding among mothers in Goba Woreda, South East Ethiopia: A cross sectional study. BMC Public Health. 2011;11(1):217. [PubMed]

15. Hanif HM. Trends in breastfeeding and complementary feeding practices in Pakistan, 1990-2007. Int Breastfeed J. 2011;6(1):15. [PubMed]

16. Haroun HM, Mahfouz MS, Ibrahim BY. Breast feeding indicators in Sudan: a case study of Wad Medani town. Sudanese J Public Health. 2008;3(2):81-90. [Link]

17. Child Health Division. Assessment of the Community Based Newborn Care Package. Kathmandu, Nepal: Child Health Division, Ministry of Health and Population; 2012. [Full Text]

18. Short SE, Zhang F. Use of maternal health services in rural China. Popul Stud. 2004;58(1):3-19. [PubMed]

19. Navaneetham K, Dharmalingam A. Utilization of maternal health care services in Southern India. Soc Sci Med. 2002;55(10):1849-69. [PubMed]

20. Adhikari M, Khanal V, Karkee R, Gavidia T. Factors associated with early initiation of breastfeeding among Nepalese mothers: further analysis of Nepal Demographic and Health Survey, 2011. Int Breastfeed J. 2014;9(1):21. [PubMed]

21. Exavery A, Kanté AM, Hingora A, Phillips JF. Determinants of early initiation of breastfeeding in rural Tanzania. Int Breastfeed J. 2015;10(1):27. [PubMed]

22. El-Gilany A-H, Sarraf B, Al-Wehady A. Factors associated with timely initiation of breastfeeding in Al-Hassa province, Saudi Arabia. East Mediterr Health J. 2012;18(3). [PubMed]

23. Tilahun G, Degu G, Azale T, Tigabu A. Prevalence and associated factors of timely initiation of breastfeeding among mothers at Debre Berhan town, Ethiopia: a cross-sectional study. Int Breastfeed J. 2016;11(1):27. [PubMed]

24. Ndirangu M, Gatimu S, Mwinyi H, Kibiwott D. Trends and factors associated with early initiation of breastfeeding in

Namibia: analysis of the Demographic and Health Surveys 2000–2013. BMC Pregnancy Childbirth. 2018;18(1):171. [PubMed]

25. Thu HN, Eriksson B, Khanh TT, Petzold M, Bondjers G, Kim CNT, et al. Breastfeeding practices in urban and rural Vietnam. BMC Public Health. 2012;12(1):964. [PubMed]

26. Kalisa R, Malande O, Nankunda J, Tumwine JK. Magnitude and factors associated with delayed initiation of breastfeeding among mothers who deliver in Mulago hospital, Uganda. Afr Health Sci. 2015;15(4):1130-5. [PubMed]

27. United Nations Children's Fund. World Health Organization: Global Breastfeeding Scorecard. In: 2017: Tracking Progress for Breastfeeding Policies and Programmes. New York: United Nations Children's Fund (UNICEF) and World Health Organization (WHO); 2017. [Full Text]