Women and Birth 29 (2016) 12–17

Contents lists available at ScienceDirect

Women and Birth

journal homepage: www.elsevier.com/locate/wombi

ORIGINAL RESEARCH – QUANTITATIVE

Prevalence and factors associated with prelacteal feeding in Western Nepal

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ARTICLE INFO

Article history:
Received 28 December 2014
Received in revised form 5 June 2015
Accepted 12 July 2015

Keywords:
Breastfeeding
Cohort study
Infant feeding
Nepal
Prelacteal feeds

ABSTRACT

Background: Newborn infants are often given prelacteal feeds in Nepal despite government policies encouraging exclusive breastfeeding for the first six months of life.
Aim: This study investigated the prevalence, reasons, types and factors associated with prelacteal feeding in the south-western region of Nepal.
Methods: Information on prelacteal feeding was obtained from 735 recently delivered women who were recruited for a prospective community-based cohort study conducted during 2014 in the Rupandehi district of Nepal. Factors associated with prelacteal feeding were assessed using logistic regression analysis.
Findings: A total of 225 (30.6%) mothers reported giving prelacteal feeds to their infants. The most popular prelacteal food was formula milk (41.7%), followed by cow or buffalo milk (26.6%), and sugar/glucose water (12.4%). Caesarean delivery (17.3%), cultural preference (16.4%) and being tired after childbirth (10.6%) were the most commonly cited reasons. Almost half (48%) of the mothers were advised by their mother/mother-in-law on prelacteal feeding method. Higher parity (adjusted odds ratio (OR) 2.05; 95% confidence interval (CI) 1.18–3.54), low birthweight (OR 1.97; 95% CI 1.23–3.16), caesarean delivery (OR 3.70; 95% CI 2.37–5.80) and wealthy status (OR 2.49; 95% CI 1.52–4.06) were associated with prelacteal feeding.
Conclusion: Nearly one-third of the infants in this study were given prelacteal feeds. Future breastfeeding promotion programmes should focus on the mothers with low birthweight infants, of high parity, from a wealthy family and those who had caesarean delivery.

Summary of relevance:

What is already known

- Prelacteal feeding is a common practice in Nepal. Honey and ghee have been the main traditional prelacteal foods given to Nepalese infants.

What this paper adds

- Infant formula has emerged as a popular prelacteal food in Nepal. Half of the mothers received advice from their mother/mother-in-law on prelacteal feeding. Women from a wealthy family, with high parity, and those who delivered by caesarean section, tended to give non-breastmilk as the first feed. Newborns with a low birthweight were also at risk of receiving a prelacteal feed.

1. Introduction

Prelacteal feeding interferes with the establishment of 'any breastfeeding' and a healthy gut microbiome.[1] Prelacteal feeding may also delay the initiation of breastfeeding and reduce the benefits of colostrum. In addition, it has no immunological benefit, contains potentially harmful and contaminated ingredients, and may contain solid or semi-solid food items which cannot be

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http://dx.doi.org/10.1016/j.wombi.2015.07.006
1871-5192/

digested by infants.[2] Prelacteal feeds include any food items, primarily liquid other than breastmilk, that are provided to newborn infants before the initiation of breastfeeding. Sugar-water, tea, formula milk, animal milk, honey, and butter have been used as prelacteal foods in different cultures.[3–5]

The practice of prelacteal feeding is a cultural part of infant feeding in Nepal,[6] India,[7] Vietnam,[4] China[8] and other developing countries.[2,3] It has been reported to be as high as 53.1% in rural China,[9] 73% in Vietnam[4] and 16.9–34.9% in India.[7,10,11] Mothers with a low level of education,[5] living in urban areas,[3] and having a caesarean delivery,[4,7] are at risk of providing prelacteal feeds to their newborns.

Breastfeeding has been universally adopted in Nepali society,[12] though prelacteal feeding remains a common infant feeding practice. Similar to other countries, variations in prelacteal feeding rates have been reported in Nepal, with 26.5% at national level,[13] 39% in Kapilvastu district,[6] and 9.1% in Kaski district,[14] yet these estimates share a common limitation of being retrospective and having a long recall time. The rate of initiation of breastfeeding within the first hour was 44.5% nationally,[15] 54.7% in Kapilvastu district[6] and 67% in Kaski district.[14] While the 24-h prevalence of exclusive breastfeeding among 0–5 month infants was 70% nationally,[15] a much lower rate of exclusivity (29.7%) was reported at six month in the Kaski district.[14] Nepal is diverse in its topography ranging from the Himalayas highland to the Southern Plains, with different cultures scattering across the country. There are more than 100 different castes that define the ethnic groups.[16] The population living in the Northern Himalayas resembles closely to the Tibetan culture,[2] while those residing in the Southern Plains (Terai) are culturally similar to Indians. However, changes in transportation and living standard, the influence of media, and migration from hilly and mountain regions to the plains and urban areas, have made the populations in different regions of Nepal heterogeneous in nature. Early infant feeding practices in the Southern Plains, including prelacteal feeds, are different from those in the north.

In the literature, there have been no reports as to whether mothers are aware of the risks associated with prelacteal feeds, such as increased rates of infection, especially gastroenteritis. The National Nutrition Strategy (2004) of Nepal[17] strongly recommends exclusive breastfeeding for the first six months of life including colostrum feeding. However, specific recommendations to avoid prelacteal feeding have not been made, which may be due to inadequate evidence available for the country. Studies to address this knowledge gap are important towards the design and implementation of effective breastfeeding education programmes.

The present study aimed to investigate the prevalence, reasons, types and factors associated with prelacteal feeding in south-western Nepal. The findings should provide useful information for the development of breastfeeding promotion strategies to curtail the prelacteal feeding practice.

2. Methods

2.1. Study setting

While Nepal is mainly a mountainous country, it has plain areas in the Southern part that shares an open border with India. This study was conducted in the Rupandehi district of Nepal located in the Southern Plains (Terai) of Western Nepal. The Rupandehi district was chosen because it has one of the highest maternal mortality ratios in the country, with a heterogeneous population that includes 'hill people' (*Pahadi*), local indigenous groups (*Tharu*) and *Madhesi* caste groups. Their infant feeding practices are quite different from the Central regions, such as the Kaski district.[14] The Rupandehi district is the major economic centre for the western region. The population of this district in 2011 was 880,196 (Male: 432,193; Female: 448,003) according to the most recent census.[18] The district is primarily rural with only 21.1% of the population living in urban areas. There were two municipalities and 69 village development committees in the district at the time of the survey. The public health programmes in rural areas are implemented through five primary health care centres, six health posts, and 58 sub-health posts.[19] These programmes are monitored by the District Public Health Office. One referral public hospital (zonal hospital), one district hospital, two medical colleges, and one maternal children hospital are located in the urban areas,[19] whereas the majority of the rural population have to rely on health posts and sub-health posts staffed with health assistants (with 36 months of training), auxiliary medical assistants (with 15 months of vocational training), and auxiliary nurse midwives (with 18 months of vocational training). Most rural areas are linked to the cities by unpaved roads with little access to public transport. The existing public transport is irregular and non-functional during the rainy season due to river flooding and consequently cannot be relied upon medical emergencies.

2.2. Study design and participants

A community-based prospective cohort study was conducted between January and October 2014. Mother-infant pairs were recruited within the first month of delivery and followed up through fourth and sixth months postpartum. Fifteen rural village development committees and two urban municipalities were randomly selected for the survey, encompassing 15 rural and 12 urban locations within the district. For each location, proportionate sampling was implemented in the recruitment process until the desired number of participants was met. Adjacent village development committees or wards (in municipalities) were also used whenever insufficient subjects were available from the selected areas.

A total of 735 mother-infant pairs (rural 378, urban 357) were recruited. In the urban areas, 18 (4.8%) mothers declined to participate; the most common reason given was possible migration to another district. In the rural areas, all mothers gave their informed consent to participate. The calculation of sample size was based on the following assumptions. Given the total number of <1 year old infants for the target year 2013/2014 was 20,061 [Source: District Public Health Office, Rupandehi, Annual Target 2013/2014], the sample required for detecting a clinically significant difference of 10% in prelacteal feeding between the Rupandehi district and the neighbouring Kapilvastu district[6] with similar demographic profile would be 645 with 80% power at 5% level of significance, and a loss to follow up rate of 10%.[20] Our final sample size comprised 22% of all births (n = 3343) that occurred during the two months of recruitment. Only mothers residing in the enumeration areas who gave birth to a singleton living baby at the time of recruitment were eligible for the study.

2.3. Data collection

Personal interviews were conducted by trained data enumerators using a standardised structured questionnaire, with questions taken from the Nepal Demographic and Health Survey 2011[15] and another cohort study of maternal health.[14] The Nepali version of the questionnaire was pretested to ensure cultural appropriateness and content validity. The study was reviewed and approved by the Human Research Ethics Committee of Curtin University (HR 184/2013) and the Nepal Health Research Council (773/2014). The study protocol was also accepted by the District Public Health Office, Ministry of Health. Mothers provided consent for themselves and their infants after being briefed verbally about the study