

What health service support do families need for optimal breastfeeding? An in-depth exploration of young infant feeding practices in Cambodia

Alessandra N Bazzano¹
 Richard A Oberhelman¹
 Kaitlin Storck Potts¹
 Leah D Taub¹
 Chivorn Var²

¹Department of Global Community Health and Behavioral Sciences, Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, USA; ²National Institute of Public Health, Tuol Kork, Phnom Penh, Cambodia

Background: Appropriate and timely breastfeeding practices markedly improve lifelong health outcomes for newborns, children, and mothers. Exclusive breastfeeding is reported to be widely practiced in Cambodia, and important progress has been made toward achieving improved child health outcomes, but newborn mortality has been slow to reduce and breastfeeding practices remain suboptimal.

Methods: Formative research was conducted in Takeo province, Cambodia to describe the practical, cultural, and social factors underlying current breastfeeding behaviors to inform the design of a newborn survival intervention that may improve breastfeeding. In-depth interviews, observations, a collection of visual media, and focus groups were employed to gather qualitative data.

Results: The results revealed knowledge and practice gaps in behavior that likely contribute to breastfeeding barriers, particularly in the areas of infant latch, milk production, feeding frequency, and the use of breast milk substitutes. The predominant theme identified in the research was a dearth of detailed information, advice, and counseling for mothers beyond the message to exclusively breastfeed for 6 months.

Conclusion: Future newborn survival interventions and postnatal care counseling in this area must go beyond the exclusive breastfeeding message. To achieve further impact, it will be necessary to disseminate comprehensive and locally appropriate information on breastfeeding and to improve counseling in order to support successful breastfeeding and to contribute to population-level health gains.

Keywords: formative research, health education, lactation, behavior change, newborn

Background

Despite the lifelong health benefits of breastfeeding for children and mothers alike, the reported prevalence of appropriate breastfeeding practices in many countries continues to lag.^{1,2} Suboptimal breastfeeding endangers the ability to establish a strong foundation for the future health of the population and to make progress toward achieving Millennium Development Goals. Maternal and child nutrition and adult health are all strongly correlated with improved breastfeeding in both high- and low-income settings.³⁻⁷ Newborn mortality in low-income countries has also been closely linked with the initiation of breastfeeding.⁸

Over the last 10 years, there has been substantially less progress in reducing newborn mortality in Cambodia than maternal or under-5-year-old mortality, which have both reduced dramatically.⁹⁻¹² Despite population-level survey data demonstrating high rates of exclusive breastfeeding among the population, gaps remain in breastfeeding practices. One-third of newborns in Cambodia are not breastfed within 1 hour of birth

Correspondence: Alessandra Bazzano
 Department of Global Community Health and Behavioral Sciences, Tulane University School of Public Health and Tropical Medicine, 1440 Canal St, New Orleans, LA 70112, USA
 Tel +1 504 988 2338
 Fax +1 504 988 3540
 Email abazzano@tulane.edu

and, on average, 20% receive a prelacteal feed, with those residing in urban areas (26%) and in higher-wealth quintiles (25%) more likely to receive prelacteal feeding.¹⁰

A recent study identified lower rates of exclusive breastfeeding in Bangladesh than those reported in the country-level Demographic and Health Surveys based on a 24-hour recall assessment.¹³ Similarly, a study in Ethiopia found lower rates of timely initiation of breastfeeding (43% of mothers began breastfeeding within 1 hour of birth), as compared with national-level data (52%), and qualitative findings illustrated that the timing of initiation was impacted by social beliefs and traditional practices.¹⁴ While population-level surveys may provide a snapshot of breastfeeding practices, in-depth research is needed to understand the drivers and barriers for this complex behavior, particularly as it is related to environmental, social, and individual factors.

This study aimed to provide a more in-depth understanding of breastfeeding practices in order to appropriately design a scalable newborn health intervention incorporating expanded breastfeeding counseling and support. For a newborn survival intervention to be successful, understanding and addressing the underlying barriers to improved breastfeeding is a crucial step.

Methods

A package of qualitative methods was implemented to collect data based on a rapid ethnographic approach. Study participants included primary caregivers of children under 2 years of age (including mothers, grandmothers, and fathers), as well as health providers. Purposive sampling was used to identify participants representing a range of characteristics likely to influence the experiences, perspectives, and behaviors most relevant to the research questions. Demographic characteristics identified as pertinent to the research topic included urban/rural residence, socioeconomic status, age, and parity.

Research was conducted between February 2014 and April 2014 in six health center catchment areas located within five operation districts in Takeo province. Takeo province is a primarily rural agricultural region located in the south of Cambodia, bordering Vietnam. Data were collected from 27 semistructured interviews with caregivers, photos and videos taken with explicit permission, and 14 observation sessions (lasting between 1 hour and 4 hours), of which ten were conducted in the postdelivery waiting area of health centers and four with recently delivered women and their newborns at home. Data from two focus group discussions with health providers were also included for triangulation.

All interviews were audio recorded and notes were taken by researchers and assistants with multiple transcribers for cross-checking.

Ethical approval for this study was obtained from the Cambodian National Ethics Committee for Health Research and the Internal Review Board of the lead author's institution. Written consent was obtained from all study participants.

Thematic analysis was used by one experienced researcher and one assistant to identify the most pertinent themes from the data. Interviews were transcribed and observations were carefully explored to pinpoint the relevant patterns associated with suboptimal breastfeeding practices.

Results

The nonprobabilistic study sample included participants from rural villages and towns with varied socioeconomic statuses and occupations, including farmers, housewives, and factory workers, ages ranging from 21–55 years, and parity ranging from one to seven among mothers (see Table 1 for select demographic characteristics of the interview participants).

Exclusive breastfeeding

Women in the study overwhelmingly reported having heard the message that they should exclusively breastfeed for 6 months, and all women reported during interviews that they practiced this behavior. The message of exclusive breastfeeding was known universally by all participants, including mothers and caregivers, older women in the community, and health center staff.

Table 1 Characteristics of the interview participants (N=27)

	n
Participant	
Mother	22
Father	3
Grandmother	2
Occupation*	
Factory worker	4
Housewife	10
Farmer	3
Sewer/weaver	4
Other**	3
	Median (range)
Age, years	29 (21–55)
Parity among mothers	2 (1–7)
Years of education*	6 (0–16)
Age of youngest child in months*	7 (0–24)

Notes: *Missing occupation, n=3; missing years of education, n=2; missing age of the youngest child, n=2. **Other occupations included small convenience store worker, clothes seller, nighttime guard (father), and high school teacher.

Abbreviations: N, total number; n, sample number.

The majority of women said that they exclusively breastfed. One new mother with a 2-month-old baby described her experiences of and thoughts about breastfeeding, which were very typical of the participants interviewed throughout the course of the study.

I breastfed immediately after birth when the baby was placed on my chest. This is because baby was crying and hungry. So far I have exclusively breastfed and will continue until the baby is 6 months old. My baby drinks a lot of milk. The number of times I breastfeed depends on the baby but about 3–4 times in the day and about four times at night. I know when baby is full because he doesn't cry and he sleeps. My mother in law taught me how to hold the baby, to support his head during feeding and to make sure he doesn't drink too much too fast as he might choke. Both the health center staff and village chief told me to breastfeed exclusively. I didn't have any problems breastfeeding except that the baby sometimes bites my nipples. [Mother, 31 years old, housewife, Takeo province]

Breast milk substitutes and water

In many instances, participants would state that they did exclusively breastfeed, but on probing, they would also disclose that they used breast milk substitutes for some period of time as well. These mothers ranged from low to high socioeconomic status with varying levels of education.

For example, one university-educated mother in a rural area described using powered infant formula and described the expenses related to mixed feeding:

They did give me the baby after birth so that I could give the colostrum, but I felt that I didn't have enough milk so I bought formula and then after 2 weeks, the milk was enough so I began to breastfeed. I bottle fed using Dumex, it costs about 22,000 per can [\$5.40] and lasts 1 month. The expensive brand of feeding bottles [Farlin] costs \$2.50/bottle and 3–4,000 riel [\$0.75–\$1.000] for the cheaper ones. I only have one bottle. [Mother, 29 years old, housewife, Takeo province]

Another mother with a primary education initially stated that she exclusively breastfed, but then described mixed feeding:

I fed the baby both formula and breast milk but I breastfed more often than formula. During the day time I breastfed the baby about four times and formula two times. I also breastfed when she woke up at night. She woke up a lot to feed – about every 2 hours. I boiled and kept water for

formula in a container to keep it warm. The brand of formula was France BéBé costing about 26,000 per can (\$6.40). One can lasts 1 week. I think breast milk is better but I add the formula because my breast milk is not enough. [Mother, 27 years old, housewife, Takeo province]

Many participants reported initiation of breastfeeding soon after birth and described putting the baby to breast as the health center midwife advised. But in some cases, women provided prelacteal feeds or waited to breastfeed “until the milk arrived”. In one interview, a father described the story of his daughter, who was born preterm at a referral hospital:

During the first 2 days when the baby couldn't suck the breast, we gave her condensed milk mixed with warm water (the brand was 'Roopchap' it has a picture of a bird on it). I used a cup and spoon to feed her with the condensed milk. Little by little she learned to taste the milk after I would put a little on her mouth and she started to learn how to drink. I didn't know about formula at that time, just thought to give her the condensed milk with my own ideas. After 1 month of giving the condensed milk, some people suggested that the baby was still small so I changed to formula milk. I was advised by friends to give the Dumex brand and it helped the baby grow bigger. During that first month, the baby only received condensed milk mixed with water, but we did keep trying to put baby to the breast to learn how to breastfeed. We taught her how to breastfeed in this way. [Father, 30 years old, farmer, Takeo province]

One grandmother also described a story about delayed initiation but did not mention the use of any breast milk substitutes.

[My daughter] breastfed, but had some problems. She was engorged ('leah duh' or 'clammed up'). The reason she was engorged is that the baby had fever and would not take the breast at first. Though she still put baby to breast as many times as possible to try to relieve the engorgement. We used a hair comb to move over the skin from upper chest down toward the nipple to try and get the milk to move. It was not a big problem because they knew that when the baby was well she would take the breast again[...] [Grandmother, 55 years old, farmer, Takeo province]

She stated that exclusive breastfeeding was the norm with only a few exceptions.

Now they do exclusive breastfeeding for 6 months. This is the best way, if the mother is free [not working] she can just breastfeed. It is easier and cheaper to breastfeed. We don't

have money to afford formula. Formula costs \$10–\$11/can. We are farmers who cannot afford formula, but we just know this from seeing others buy it. [Grandmother, 55 years old, farmer, Takeo province]

Other mothers described breastfeeding without the use of breast milk substitutes but did give water to newborns.

I breastfeed – I also give some water, sometime the baby cry and deny to drink the milk, so I think she might need some water. My baby woke up so often, every 1 or 2 hours, 5–6 time during night time. [Mother, 23 years old, housewife, Takeo province]

I also gave the newborn a little water after each breastfeeding because my mother told me to do this. Boiled water was given soon after birth, only few drops. My mum tell me that we will not know if the baby was thirsty or not because she could not tell us, but as every human being, we need water. [Mother, 27 years old, housewife, Takeo province]

In contrast, a grandmother in the community stated:

They don't give water to babies anymore, they only used to do that in the old days. But it wouldn't have made the baby sick because they only gave boiled water. [Grandmother, 55 years old, Takeo Province]

Advice on breastfeeding

Health center midwives reported that they always advised the women who deliver with them on breastfeeding. Specifically, they stated that they tell women to exclusively breastfeed the baby for 6 months. During interviews, midwives described their experiences with a typical patient.

We always tell mothers about breastfeeding. We don't know whether they already have knowledge about breastfeeding or not but after birth, the practice is to tell them about breastfeeding. [Primary midwife, 46 years old, Takeo province]

Most mothers don't breastfeed right after the delivery because they are in pain. Also they wait for everything to be cleaned and finished. The first time mothers sometimes don't know how to breastfeed. I would tell them to put the baby very close to the nipple and stay there for a while. When the baby stops sucking by himself, then they can take the baby away from the breast. It is not embarrassing to talk about breastfeeding and we don't feel shy. But it is a little bit difficult to advise women on breastfeeding because I have not done it myself, though I learned at midwifery training. I do need more training on breastfeeding because

I am only a primary midwife. [Primary midwife, 24 years old, Takeo province]

We advise the mothers to breastfeed exclusively for 6 months and to feed the baby ten times or more during the day. The baby is brought to the mother after delivery for breastfeeding. [Midwife, age not reported, Takeo province]

Mothers who were interviewed stated most often that their own mothers, or older female relatives such as mothers-in-law, taught them how to breastfeed. Some also reported that midwives had advised them after the delivery to breastfeed their newborns. One mother noted that the midwife told her to exclusively breastfeed, but the midwife did not provide her with instructions on how to carry out the practice.

I don't have problem with breastfeed, I know how to breastfeed from my mum, and the Health Center staff only tell me to breastfeed but not how to do it. My mum told me and brought the baby to my breast and put the baby mouth on my nipple. [Mother, 23 years old, housewife, Takeo province]

As soon as I left delivery room, I breastfed. Midwife told me to not squeeze out milk and to let baby feed. Before, the midwives would squeeze milk out (in the old days). [Mother, 38 years old, Takeo province]

They [midwives] told me it is important to breastfeed and to put the baby on the chest to breastfeed. [Mother, 29 years old, Takeo province]

Concerns about milk

Many participants ascribed milk supply to the health of the mother or to the mother's nutrition. One mother expressed concern about transferring illness to her baby through breast milk.

Sometimes we eat something not good and then baby breastfeeds from us and then they get fever. [Mother, 26 years old, Takeo province]

A few mothers candidly expressed their concerns about not having enough breast milk to feed their newborns. One mother (29 years old) said that she knew someone who had no milk after the baby was born, so that mother took herbal medicine to help with the breast milk; she fed formula until the breast milk came in. Other mothers expressed similar concerns or frustrations around waiting for milk to come in.

After delivery, the milk was not coming out so I asked the midwife to give an injection to produce milk. It took 1 day to produce milk. The baby cried and I couldn't sleep. I felt

very annoyed, felt tired and sleepy. Worried that baby was not getting enough breast milk. I felt frustrated that breast would not make baby full. I never heard from others how to keep the baby quiet. [Mother, 38 years old, Takeo province]

I breastfed the baby the first month but did not have enough milk, so I gave Dumex [infant formula]. Breast-feeding is easier but the milk was not enough. When baby breastfed she was crying and doesn't want to suck, at same time I brought to private clinic and they advised that it was a sore throat, and also thinking the baby was not getting enough milk. [Baby] cry a lot and lose weight so we started formula. [Mother, 33 years old, Takeo province]

One mother had some knowledge of the demand and supply aspect of breast milk production, but she still considered breast milk substitutes as a potential solution to the problem of supply.

I tried to keep baby mouth on nipple so milk would come out. From older people I heard that the more baby suck, the more milk would come out. I heard that people who could not produce milk for 2 days, they temporarily used condensed milk or powdered milk. [Mother, 38 years old, Takeo province]

In contrast, some mothers and caregivers seemed concerned that breastfeeding too much could give the baby bad habits or cause them to want to breastfeed too often.

When the baby falls asleep it is full. So it is like just a 'bad habit' for them to keep sucking. [Mother, 21 years old, Takeo province]

Other participants indicated that newborns, who are small, would need less milk than older babies and therefore would typically have shorter feedings on only one breast, for example.

Small baby will need less milk and if the mother has so much milk the baby may not even finish the first breast. Especially a 1-month-old baby may not finish the first breast but will be already full without finishing the first breast. After 3–4 months, the baby may not be full after only one side, so use both and even some babies may still want more[...] The maximum hunger for milk is around 3–6 months. [Grand-mother, 55 years old, Takeo province]

Smaller babies only need a small amount of milk. They need more milk as they get bigger. [Father, 30 years old, Takeo province]

You can see that the baby has had enough milk by looking at his tummy, it will be flat before breastfeeding and swollen after. [Mother, 29 years old, Takeo province]

I breastfeed only one side of the breasts at a time, I think the baby would be full because she fall asleep after one breast. [Mother, 23 years old, Takeo Province]

Some participants indicated a reluctance to rouse a sleepy newborn to feed.

If the baby is sleeping we wouldn't like to remove the cloth or wake baby up, if the baby takes a few sips and falls asleep then we can consider that the baby has had enough milk. [Mother, 22 years old, Takeo province]

You don't need to wake a newborn baby to feed unless it has been sleeping for a very long time such as hours (morning til noon). [Mother, 29 years old, Takeo Province]

Breastfeeding concerns

Many women reported concerns about the impact of breastfeeding on their breast shape and size. The data indicated that many mothers fear that breastfeeding will "deform" their breasts or cause the size and shape to change if they used both sides at one feeding session.

I only used one breast per feeding session in order to keep them the same size. [Mother, 29 years old, Takeo province]

I heard about some women don't breastfeed, I think maybe they want to keep their breast in the same shape not to deform them, and some other mothers need to go back to work. I was told that the breast milk is better and I believe, but for the others, they may think that the formula is better. [Mother, 23 years old, Takeo province]

I heard of other women who do not want to breastfeed. Maybe it's because they feel afraid that their breast won't look attractive after. [Mother, 31 years old, housewife, Takeo province]

Positioning of the newborn for feeding caused difficulties for some women.

[Breastfeeding was] difficult, and baby doesn't suck, so my mother and sister helped. The pain [from delivery] made it hard to sit up to breastfeed, so I lay down to do it. [Mother, 22 years old, Takeo Province]

Other challenges

Overall, interviews and observations with participants indicated an underlying need for increased support and advice around the complex practice of breastfeeding. During observations in the postdelivery area of health centers and in homes of the interview participants, breastfeeding of newborns was documented and photographed (where explicitly allowed by participants).

Observers noted that in some cases, even among mothers experienced with breastfeeding, suboptimal breastfeeding practices occurred. In observation with two mothers, the infant was poorly latched and cried or refused the nipple. One mother reported nipple pain and was seen to be in pain with a newborn who was not positioned optimally. All women who were observed fed the newborn on only one breast, including women who stated that they did not have enough milk. Many women only fed the newborn for a short period of time (6–8 minutes), though this may have been related to the presence of the observer. These observations were consistent with specific practices described by the interview participants.

Discussion

Although the message of exclusive breastfeeding has been adequately promoted in Cambodia, there is a need for further counseling and support for mothers and families beyond this message. Breastfeeding is a complex behavior that requires knowledge, practice, support, and time. The data reported here highlight the issues and concerns that influence breastfeeding practices, as experienced by Cambodian mothers. The results identified gaps where more comprehensive breastfeeding support could potentially influence experiences and outcomes at the community level, and ultimately improve maternal and newborn health outcomes.

The evidence base for interventions that improve breastfeeding practices is robust. A recent systematic review¹⁵ found that facility and combined facility- and community-based interventions lead to greater improvements in breastfeeding outcomes. The same review also concluded that combined individual and group counseling appeared to be superior to either alone.¹⁵ Another review that focused on low-income countries with subgroup analyses indicated that breastfeeding promotion interventions led to a 1.89-fold and sixfold increase in exclusive breastfeeding rates at 4–6 weeks and at 6 months, respectively.¹⁶ Midwives in Cambodia receive information and education on breastfeeding during their midwifery training, but no specific breastfeeding promotion intervention is currently implemented in the study area.

The recommendation for improved counseling to support mothers in breastfeeding practices, such as that found in this study, is not uncommon.^{17–20} A formative research study on breastfeeding practices in Cambodia reported mothers' knowledge of ideal practices to be very good in general, but it also noted that actual practices and beliefs have been slower to change.²¹ Interventions that support counseling and problem solving may assist in closing this knowledge–practice gap.

Specific areas in this study where potential gaps in breastfeeding practices were identified included the initiation and use of breast milk substitutes or water; milk supply concerns; and practical aspects such as positioning, latch, frequency, and duration of feeding. Breastfeeding counseling and support could be strengthened at several levels in this context in order to address the needs of families. The crucial points of contact are prenatally, at the time of birth, and postnatally.

Prenatal counseling may improve the timely initiation of breastfeeding and decrease the use of prelacteal feeds.^{22,23} Though we did not specifically investigate prenatal exposure to breastfeeding counseling in this study, participants did not mention such counseling when discussing sources of advice or knowledge about breastfeeding. A study in India found that nearly 80% of women had not received any counseling on breastfeeding during pregnancy.²⁰

Some mothers in this study reported mixed feeding of breast milk substitutes and breast milk, which can impact the learning curve for newborns and decrease maternal milk supply. Taveras et al²⁴ found that mothers who discontinued breastfeeding and used breast milk substitutes were more likely to report breastfeeding problems, including poor infant latch and sucking. Mothers who continued to breastfeed reported having received encouragement from their health care provider.²⁴

In a Cambodian study that evaluated the predictors of exclusive breastfeeding,²⁵ the authors highlighted the need to educate pregnant women on the benefits of breastfeeding through trained midwives, after an association was found between cessation of exclusive breastfeeding during the first 6 months and the lack of a maternal antenatal plan. Given the limited time available for antenatal care visits with overburdened health providers, it is likely that little breastfeeding counseling may be possible. Community sensitization and the use of community outreach strategies may prove an effective alternative,^{14,26,27} particularly when the focus is on counseling and practical skills.²⁸

There are likely to be significant associations between a mother's breastfeeding concerns during the infant's first week of life and the cessation of breastfeeding,²⁹ highlighting the need for providers to address a mother's concerns in the immediate postpartum period, either at the facility where delivery occurs, or at home, utilizing community health worker visits. Some of the concerns identified in this study included insufficient milk, the need to go back to work, and the impact of lactation on breast appearance. Wren and Chambers³⁰ identified other challenges to breastfeeding in Cambodia including “baby crying”, “baby won't breastfeed”,

“not enough milk”, and “sore nipples”. These concerns may be best addressed in the home and community setting, where breastfeeding itself occurs. A study from Nigeria found that a mother’s desires to follow best breastfeeding practices are often compromised by the mother’s workload or need to return to work, fear that the child needs more food or will become addicted to breast milk, and maternal health problems.³¹ Trained community health workers may offer problem-solving approaches to support women in these concerns, and they can influence community norms.²⁸

The Ten Steps to Successful Breastfeeding program, developed by the World Health Organization (WHO) and the United Nations Children’s Fund,³² provides an ideal template for improving breastfeeding support. While the Baby Friendly Community Initiative has reportedly been implemented in more than 4,000 villages in Cambodia, further scale up of the Ten Steps is urgently required, and community outreach strategies should also be scaled up in the Cambodian setting.³³

The increased use of breast milk substitutes in Cambodia has been noted,³⁴ and the findings of our study echo this as a major concern; many women readily described the brand and availability of breast milk substitutes they used. The country-level implementation of the International Code on the Marketing of Breastmilk Substitutes in Cambodia has resulted in some provisions.³⁵ However, a 2010 report found substantial evidence of breaches of the Cambodian Sub-Decree on Marketing of Products for Infant and Young Child Feeding and of the WHO International Code of Marketing of Breastmilk Substitutes by some baby food companies.^{33,36}

An important population of women that will need extra support for breastfeeding includes garment factory workers who must return to work soon after childbirth – a number of whom were interviewed for this study. An estimated 394,262 workers are employed in the garment sector in Cambodia according to the International Labour Organization and Better Factories Cambodia,³⁷ and these are almost exclusively women of reproductive age. During the conduct of this qualitative research, some participants were garment factory workers, while others were the spouses of garment factory workers who were tasked with childcare while the mother was formally employed, implying the need to bring community- and provider-level counseling approaches to the family and support system of the newborn, not only to the mother.

The results from the current study indicate that families are in need of enhanced breastfeeding counseling that uses a practical, problem-solving approach. Additionally, counseling should encompass topics such as proper positioning, how

often and for how long to feed, feeding with both breasts in the first week to stimulate milk production, waking the baby when necessary, and how to tell if baby is receiving enough milk. Incorporating the training and counseling strategies used in evidence-based materials, such as the Ten Steps to Successful Breastfeeding,³² into midwifery in-service training, and expanding community outreach through visits by volunteers may meet the needs identified.

While the study was able to utilize the unique benefits of ethnographic and observational methodology to provide an enhanced understanding of the barriers and facilitators to breastfeeding, the results presented here are not intended to be widely generalizable to other settings. In the context of intervention planning, the study provides important data for the design of behavior change content, but it was limited in duration and scope by resource constraints.

Conclusion

Enhanced breastfeeding support – notably, counseling and practical, problem-solving approaches implemented at the community level – are likely to be important to improve breastfeeding in Cambodian communities.

Possible intervention strategies that have demonstrated effectiveness in other settings, such as improving health provider counseling skills, involving family members, and providing community outreach through home visits and training of community health workers, should be adapted for the local context and scaled up to improve newborn health outcomes.

Acknowledgments

The study was funded through the Partnerships for Enhanced Engagement in Research (PEER) mechanism by the National Institutes of Health (NIH) and the United States Agency for International Development (USAID).

Author contributions

ANB conceived the study design, conducted data collection and processing, and drafted the manuscript. KSP assisted with analysis and drafting of the manuscript. LDT transcribed many of the interviews and assisted with analysis. RO and CV provided critical feedback to the writing process and interpretation of the findings. All authors contributed toward data analysis, drafting and revising the paper and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

References

- World Breastfeeding Trends Initiative (WBTi). *The State of Breast-feeding in 33 Countries: 2010*. Delhi, India: Breastfeeding Promotion Network of India (BPNI)/International Baby Food Action Network (IBFAN) Asia; 2010.
- World Breastfeeding Trends Initiative (WBTi). *Are Our Babies Falling Through the Gaps? The State of Policies and Programme Implementation of the Global Strategy for Infant and Young Child Feeding in 51 Countries*. Delhi, India: Breastfeeding Promotion Network of India (BPNI)/International Baby Food Action Network (IBFAN) Asia; 2012.
- Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality. *Lancet*. 2000;355(9202):451–455.
- World Health Organization. *Global Strategy for Infant and Young Child Feeding*. Geneva, Switzerland: World Health Organization; 2003.
- Mullany LC, Katz J, Li YM, et al. Breast-feeding patterns, time to initiation, and mortality risk among newborns in southern Nepal. *J Nutr*. 2008;138(3):599–603.
- Allen J, Hector D. Benefits of breastfeeding. *NSW Public Health Bull*. 2005;16(3–4):42–46.
- Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS; Bellagio Child Survival Study Group. How many child deaths can we prevent this year? *Lancet*. 2003;362(9377):65–71.
- Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics*. 2006;117(3):e380–e386.
- National Institute of Public Health and National Institute of Statistics, Phnom Penh, Cambodia. *Cambodia Demographic and Health Survey 2005*. Calverton, MD: ORC Macro; 2006.
- National Institute of Statistics, Ministry of Planning, Phnom Penh, Cambodia; Directorate General for Health, Ministry of Health, Phnom Penh, Cambodia. *Cambodia Demographic and Health Survey 2010*. Calverton, MD: ICF Macro; 2011.
- UNICEF. *Levels and Trends in Child Mortality: Report 2014. Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation*. New York, NY: United Nations Children's Fund; 2014.
- World Health Organization. *Trends in Maternal Mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division*. Geneva Switzerland: World Health Organization; 2014.
- Joshi PC, Angdembe MR, Das SK, Ahmed S, Faruque AS, Ahmed T. Prevalence of exclusive breastfeeding and associated factors among mothers in rural Bangladesh: a cross-sectional study. *Int Breastfeed J*. 2014;9:7.
- Adugna DT. Women's perception and risk factors for delayed initiation of breastfeeding in Arba Minch Zuria, Southern Ethiopia. *Int Breastfeed J*. 2014;9:8.
- Haroon S, Das JK, Salam RA, Imdad A, Bhutta ZA. Breastfeeding promotion interventions and breastfeeding practices: a systematic review. *BMC Public Health*. 2013;13 Suppl 3:S20.
- Imdad A, Yakoob MY, Bhutta ZA. Effect of breastfeeding promotion interventions on breastfeeding rates, with special focus on developing countries. *BMC Public Health*. 2011;11 Suppl 3:S24.
- Haider R, Rasheed S, Sanghvi TG, et al. Breastfeeding in infancy: identifying the program-relevant issues in Bangladesh. *Int Breastfeed J*. 2010;5:21.
- Moussa Abba A, De Koninck M, Hamelin AM. A qualitative study of the promotion of exclusive breastfeeding by health professionals in Niamey, Niger. *Int Breastfeed J*. 2010;5:8.
- Arts M, Geelhoed D, De Schacht C, Prosser W, Alons C, Pedro A. Knowledge, beliefs, and practices regarding exclusive breastfeeding of infants younger than 6 months in Mozambique: a qualitative study. *J Hum Lact*. 2011;27(1):25–32; quiz 63–65.
- Dhandapany G, Bethou A, Arunagirinathan A, Ananthakrishnan S. Antenatal counseling on breastfeeding – is it adequate? A descriptive study from Pondicherry, India. *Int Breastfeed J*. 2008;3:5.
- Doyle S. *Infant and Young Child Feeding Formative Research: Breast-feeding Practices in Cambodia*. The IYCF Working Group, Ministry of Health, Cambodia; Hellen Keller International; and the LINKAGES Project, Academy for Educational Development; Washington, DC; 2005.
- MacArthur C, Jolly K, Ingram L, et al. Antenatal peer support workers and initiation of breast feeding: cluster randomised controlled trial. *BMJ*. 2009;338:b131.
- Ingram L, MacArthur C, Khan K, Deeks JJ, Jolly K. Effect of antenatal peer support on breastfeeding initiation: a systematic review. *CMAJ*. 2010;182(16):1739–1746.
- Taveras EM, Li R, Grummer-Strawn L, et al. Opinions and practices of clinicians associated with continuation of exclusive breastfeeding. *Pediatrics*. 2004;113(4):e283–e290.
- Sasaki Y, Ali M, Kakimoto K, Saroeun O, Kanak K, Kuroiwa C. Predictors of exclusive breast-feeding in early infancy: a survey report from Phnom Penh, Cambodia. *J Pediatr Nurs*. 2010;25(6):463–469.
- Gilmore B, McAuliffe E. Effectiveness of community health workers delivering preventive interventions for maternal and child health in low- and middle-income countries: a systematic review. *BMC Public Health*. 2013;13:847.
- Coutinho SB, de Lira PI, de Carvalho Lima M, Ashworth A. Comparison of the effect of two systems for the promotion of exclusive breastfeeding. *Lancet*. 2005;366(9491):1094–1100.
- Coutinho SB, Lira PI, Lima MC, Frias PG, Eickmann SH, Ashworth A. Promotion of exclusive breast-feeding at scale within routine health services: impact of breast-feeding counselling training for community health workers in Recife, Brazil. *Public Health Nutr*. 2014;17(4):948–955.
- Wagner EA, Chantry CJ, Dewey KG, Nommsen-Rivers LA. Breastfeeding concerns at 3 and 7 days postpartum and feeding status at 2 months. *Pediatrics*. 2013;132(4):e865–e875.
- Wren H, Chambers L. Breastfeeding in Cambodia: mother knowledge, attitudes and practices. *World Health Popul*. 2011;13(1):17–29.
- Agunbiade OM, Ogunleye OV. Constraints to exclusive breastfeeding practice among breastfeeding mothers in Southwest Nigeria: implications for scaling up. *Int Breastfeed J*. 2012;7:5.
- World Health Organization; United Nations Children's Fund. *Protecting, Promoting and Supporting Breast-Feeding: The Special Role of Maternity Services. A Joint WHO/UNICEF Statement*. Geneva, Switzerland: World Health Organization; 1989.
- International Baby Food Action Network. *The Convention on the Rights of the Child: Report on the Situation of Infant and Young Child Feeding in Cambodia*. Session 57. International Baby Food Action Network; Phnom Penh, Cambodia; 2011.
- Prak S, Dahl MI, Oeurn S, Conkle J, Wise A, Laillou A. Breastfeeding trends in Cambodia, and the increased use of breast-milk substitute-why is it a danger? *Nutrients*. 2014;6(7):2920–2930.
- World Health Organization. *International Code of Marketing of Breast-milk Substitutes*. Geneva: World Health Organization; 1981. Available from: http://www.who.int/nutrition/publications/code_english.pdf. Accessed January 7, 2014.
- Commission for Mission: Justice and International Mission. *Unethical Marketing of Infant Formula and Breastmilk Substitutes in Cambodia 2009*. Melbourne, Australia: Justice and International Mission Unit; 2010.
- International Labour Organization; Better Factories Cambodia. *Thirtieth Synthesis Report on Working Conditions in Cambodia's Garment Sector*. Geneva, Switzerland: International Labour Organization, Better Factories Cambodia; 2013.

International Journal of Women's Health**Dovepress****Publish your work in this journal**

The International Journal of Women's Health is an international, peer-reviewed open-access journal publishing original research, reports, editorials, reviews and commentaries on all aspects of women's healthcare including gynecology, obstetrics, and breast cancer. The manuscript management system is completely online and includes

a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/international-journal-of-womens-health-journal>