Work outside the home is the primary barrier to exclusive breastfeeding in rural Viet Nam: insights from mothers who exclusively breastfed and worked

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Abstract

*This study assessed barriers to exclusive breastfeeding in rural Viet Nam and identified how a few mothers were able to exclusively breastfeed despite barriers. A cross-sectional quantitative and qualitative assessment was carried out among 120 mothers of infants less than six months old in northern Viet Nam. Only 24% of the mothers exclusively breastfed. Adjusting for infant's age and who attended delivery, the risk of not exclusively breastfeeding was 14.0 times greater for women who had returned to work than for women who had not. Exclusively breastfeeding mothers (*n = *4) who worked differed from other mothers in important ways. They all felt they had enough milk, all knew the appropriate time to introduce foods and liquids, and most were supported in their breastfeeding decisions by commune health workers and family members. This research suggests strategies that can be implemented now to increase exclusive breastfeeding in rural work environments. These include improving knowledge about the introduction of water and semi-solids, addressing perceptions of milk insufficiency, securing support from others, and presenting mothers with options for exclusively breastfeeding, even when they work outside the home.*

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Key words: positive deviance, breastfeeding, behavioral determinants, Viet Nam

Background and rationale

Breastfeeding is critical for sustaining the health and well-being of newborns and infants. Infants who are properly breastfed grow better and experience less sickness and fewer deaths than infants who are not breastfed [1–4]. In Viet Nam, the causes of growth faltering are poorly documented but are likely to include inadequate breastfeeding. The 1997 demographic and health survey conducted in Viet Nam [5] indicated that exclusive breastfeeding rates for infants less than 2 months old, 2 to 3.9 months old and 4 to 5.9 months old were 53.5%, 8.6%, and 1.3%, respectively. Little is known about the barriers to practicing optimal breastfeeding behaviors in Viet Nam [6]. In industrialized countries, work outside the home is a key barrier to breastfeeding. Numerous studies indicate that women who return to work in the first year postpartum stop breastfeeding sooner than women who do not [7–10]. In developing countries, less is known about how work—especially work outside the formal sector—affects breastfeeding practices, including exclusive breastfeeding [11–13].

Since 1990, Save the Children Federation/US has implemented nutrition programs in Viet Nam reaching more than 2,000,000 individuals. These programs have used the "positive deviance" approach to reduce severe childhood malnutrition by approximately 75% [14, 15]. "Positive deviants" (PD) are resource-poor, well-nourished children. Save the Children identifies PDs through growth monitoring and, through positive deviance inquiries (PDI) learns how the parents of PD children are able to keep their children well-nourished in spite of tremendous poverty. Volunteers and health staff promote good behaviors identified during positive deviance inquiries among caretakers of malnourished children. Two-week sessions are held in health volunteers' homes or community facilities to allow mothers to practice such locally identified PD behaviors as feeding children shrimp and crabs, giving them greens taken from local paddies or bought cheaply at local markets, active feeding, and clipping children's finger-

nails and washing their hands to reduce the spread of disease. While this approach has been highly successful, PD has not yet been used to prevent malnutrition by improving feeding and child care practices during early infancy. This paper describes formative research, carried out to document existing knowledge, attitudes, and practices related to early initiation of breastfeeding as well as exclusive breastfeeding. It also explores the possibility of using the positive deviance approach to identify options and strategies for improving breastfeeding practices.

Methods

This cross-sectional quantitative and qualitative assessment was carried out in three phases. The first phase took place in late November and early December of 1999, a period when maternal labor demand was expected to be low. The second phase occurred in June, 2000, when demand for women's labor was expected to be higher. Because the actual amount of time women spent away from home as well as overall results for each phase were similar, data from both phases were combined. Phase II results are reported only when they differed considerably from phase I. Both phases took place in rural northern Viet Nam, two hours northwest by car from Hanoi. Based on findings from this study, in October of 2000 we carried out additional formative research (phase III) in a province in north central Viet Nam, an area approximately eight hours south of Hanoi by car. Formative research was designed to guide Save the Children's work before pilot-testing a project integrating breastfeeding with on-going maternal and child health programs, using the positive deviance approach.

As part of this study, 60 women (10 each from six communes) were interviewed in phases I and II. All six communes were participating in a larger prospective study of the impact of Save the Children's program on nutritional status, which included intervention and comparison communes. Phase I data collection preceded Save the Children's programmatic work in the area but phase II began after program start-up. Even so, breastfeeding was not yet an explicit focus of Save the Children's work. The breastfeeding study included communes with a mixed ecology (lowland, midland, and highland) with women coming from the Kinh (majority) ethnic group.

Women were randomly selected to participate in the breastfeeding study from a list, provided by commune authorities, of all mothers with children less than six months of age. If the selected mother was not home at the time of interview, the mother living closest to the randomly selected mother was chosen to replace her. Only five of the 120 mothers (4% of the total) were replaced because of unavailability. The final sample for phase I included 60 mothers of infants less than six months of age. The sampling strategy for phase II was identical to phase I and also included 60 mothers.

Phase III formative research included a series of focus groups with mothers of infants less than six months of age, husbands, parents, and parents-in-law. Research during phase III went beyond an exploration of knowledge, attitudes, and practices to negotiate with groups of mothers options for exclusively breastfeeding their infants. During group sessions, mothers were presented with alternatives for exclusively breastfeeding, even if they worked far from home. Options included returning from work, taking the infant to work, expressing milk so that other caregivers could give it to the infant while the mother was away, and wetnursing.

In order for the infant to be considered currently exclusively breastfed, the infant had to be breastfeeding at the time of interview and not receiving any plain water, sugar water, juices, or other liquids, cow's milk, tinned milk, or infant formula, semi-solid or solid foods, or any other substance in the previous 24 hours [16, 17]. In addition, the child could not have been fed by a bottle with a nipple in the previous 24 hours. Unless otherwise indicated, "exclusive breastfeeding" refers to the prevalence of exclusive breastfeeding as measured by 24-hour recall (not breastfeeding practices in the previous week or since birth). "Returned to work" meant the mother had begun working outside the home two or more hours per day—with or without pay—after the birth of the child.

The data collection instruments used for this study were developed by a team of individuals with expertise in qualitative methods and reviewed by senior staff from Save the Children Federation/US. After pre-testing, instruments were modified to make them more culturally appropriate and understandable. About two-thirds of all questions to mothers were open-ended. The instruments included questions about breastfeeding knowledge, attitudes, and practices, advice from others about breastfeeding, perceived milk insufficiency, perceptions about whether an exclusively breastfed child can be well-nourished, factors encouraging or discouraging women from exclusively breastfeeding, care and feeding of the child when the mother is away, and options for promoting exclusive breastfeeding. All interviews were tape recorded. Five interviewers with previous experience conducting in-depth interviews about maternal and child health in Viet Nam were selected and trained. Once collected, qualitative data were transcribed, translated, and entered into the Microsoft Excel spreadsheet program verbatim.

Table 1 provides a theoretical framework for analyzing data in accordance with the positive deviance approach. In table 1, women are categorized according to outcomes and barriers. Rows indicate whether

TABLE 1. Analysis of results using the positive deviance approach

Barrier	Outcome	
	Not exclusively breastfeeding	Exclusively breastfeeding
Yes	A	B
No	C	D

or not mothers are exposed to barriers to exclusive breastfeeding. Columns represent practice of an optimal behavior, in this case, exclusive breastfeeding. Barriers include mothers' return to work outside the household, making it more difficult for her to exclusively breastfeed. Using this example, the cells are as follows: group A—women who were not exclusively breastfeeding and had returned to work postpartum; group B—women who were exclusively breastfeeding and had returned to work; group C—women who were not exclusively breastfeeding and had not yet returned to work; and group D—women who were exclusively breastfeeding and had not yet returned to work

Using Save the Children's framework, positive deviants are individuals from group B (women who exclusively breastfeed even though they work outside the home). Group C represents "negative deviants," those with low risk and a negative outcome. Groups A and D are women with a high risk and a negative outcome and a low risk and positive outcome, respectively. The focus of analyses is on group B—mothers who had returned to work outside the home yet had found a way to continue exclusively breastfeeding.

Qualitative data were sorted by breastfeeding status and work and women were compared across groups to determine similarities and differences with respect to knowledge, social support and other facilitators, and barriers to exclusively breastfeeding. Quantitative data were entered into EpiInfo (Centers for Disease Control and Prevention, Atlanta, Ga., USA), then exported to SPSS (SPSS Inc., Chicago, Ill., USA). Quantitative analyses were used to compare mothers who exclusively breastfed and mothers who did not. Chi-squares and odds ratios were calculated for key variables. Sociodemographic variables and factors found significant in bivariate analyses were included in logistic regression equations to identify the most parsimonious model for predicting exclusive breastfeeding.

Results

Mothers in this sample were young (25 ± 4.0 years old) and educated (all had completed at least five years of schooling). Fifty-three percent of infants in phase I and only 28% of infants in phase II were male.

Breastfeeding behaviors and categorization of respondents

All 120 women had breastfed in the previous 24 hours. However, only 24% exclusively breastfed the previous day (see table 2). Rates of exclusive breastfeeding for phases I and II were 28% and 20%, respectively.

Comparing mothers who exclusively breastfed and those who did not

Sociodemographic background

There were no significant differences between non-exclusively breastfeeding mothers and women who exclusively breastfed with respect to a wide range of sociodemographic variables, including child's sex, housing construction, availability of a toilet or latrine, and ownership of a variety of possessions.

Early initiation of breastfeeding

Thirty-five percent of all mothers put their babies to the breast within one hour of birth. Mothers who exclusively breastfed were no more likely to initiate breastfeeding in the first hour after delivery (31% vs. 36% for non-exclusively breastfeeding mothers; $p = .607$, by χ^2). However, they were more likely to give nothing to eat or drink besides breastmilk shortly after birth (69% vs. 45%, $p = .025$, by χ^2). Only one woman from group B (exclusively breastfeeding and returned to work) gave honey; the rest gave nothing else to eat or drink shortly after birth. Women from groups A, C, and D gave honey, sugar water, another woman's breastmilk, powdered milk, lemon juice, and licorice. Mothers from groups A, B, C, and D mentioned that health workers, doctors, and the media had influenced their decision about when to start breastfeeding.

Factors affecting exclusive breastfeeding

Sixty-four percent of mothers had returned to work

TABLE 2. Exclusive breastfeeding according to 24-hour recall, by work status

	Not exclusively breastfeeding		Exclusively breastfeeding		Total		
	n	%	*n*	%	*n*	%	*p* (for χ^2)
Returned to work postpartum	73	95	4	5	77	64	< .001
Had not yet returned to work	18	42	25	58	43	36	
Total	91	76	29	24	120	100	

outside the home two or more hours per day after their children were born (table 2). Of those who returned to work, 45% did so when infants were less than two months of age. Work outside the home (usually on rice paddies owned by the husband's extended family) was an important deterrent to exclusive breastfeeding ($p < .001$, by χ^2) (table 2). Five percent of women who had returned to work postpartum exclusively breastfed as compared with 58% of mothers who had not yet returned to work. The risk of not exclusively breastfeeding was 25.4 times greater for women who had returned to work than for women who had not.

Factors in addition to work also influenced exclusive breastfeeding in the previous 24 hours. In particular, the following women were significantly more likely to exclusively breastfeed: women who had nurses, midwives, or assistant doctors in attendance at delivery, mothers of younger infants, and women who felt they had sufficient milk for their infants (table 3). Socioeconomic status could potentially confound the relationship between presence of health personnel at delivery and exclusive breastfeeding status. However, mothers delivered by nurses, midwives, and assistant doctors were not significantly different with respect to a wide range of socioeconomic variables.

In addition to nurses' presence at delivery, according to responses from open-ended questions, mothers who exclusively breastfed at the time of interview were also more likely than mothers who did not to mention that nurses had advised them to put the child to the breast shortly after delivery (53% vs. 46%). With respect to infants' age, no mother with a child 4 to 5.9 months of age exclusively breastfed.

Results from logistic regression analyses are presented in table 4. Three factors significantly predicted whether mothers exclusively breastfed: whether a nurse, midwife, or assistant doctor was in attendance at delivery, age of the infant, and the mother's return

TABLE 3. Factors influencing exclusive breastfeeding according to 24-hour recall

	Exclusively breastfeeding ($n = 29$) %	Not exclusively breastfeeding ($n = 91$) %	p (for χ^2)
Gave birth:			
At home	14	18	.633
At a facility	86	80	
Elsewhere	0	1	
In attendance at delivery:			
Husband	62	71	.342
Parents	48	55	.531
In-laws	55	62	.542
Other relatives	79	86	.411
Doctor	10	12	.799
Nurse/midwife/assistant doctor	97	74	.008
Age of infant (mo)			
0–1	83	10	< .001
2–3	17	36	
4–5	0	54	
Mother feels she has sufficient milk to feed her child	100	86	.031
Mother feels child can be well-nourished if given only breastmilk for the first 4 months of life	79	59	.061

TABLE 4. Results of logistic regression, factors significantly associated with exclusive breastfeeding according to 24-hour recall

Variable	Estimate	SE	p	Odds ratio	95% confidence intervals
Nurse, midwife, assistant doctor in attendance at delivery	2.309	1.173	.049	10.1	1.0, 100.4
Age of infant (mo) (0–2 vs. 3–5)	2.071	.673	.002	7.9	2.1, 29.7
Mother returned to work since the birth of her infant	2.640	.667	< .001	14.0	3.8, 51.7
Intercept	–5.610	1.586	< .001		

to work. Other variables that were entered into logistic regression models and found insignificant included whether the mother felt she had enough milk, the total number of children the mother had, the mother's age and years of schooling, the child's sex, and roof, wall, and floor construction of the home. According to odds ratios, presented in table 4, mothers without a nurse at delivery were 10.1 times (95% C.I. 1.0, 100.4) as likely as mothers who had been attended to by nurses not to have exclusively breastfed in the previous 24 hours. Likewise, women who had returned to work were 14.0 times (95% C.I. 3.8, 51.7) as likely as mothers who had not to fail to exclusively breastfeed. Because confidence intervals were large, results need to be interpreted cautiously.

Table 5 lists categories of open-ended responses mothers gave about what they thought made it easy to exclusively breastfeed. Facilitators that mothers mentioned the most were considered of high importance. Most mothers in groups A and C (not exclusively breastfeeding) and all mothers in groups B and D (exclusively breastfeeding) felt they had enough milk to feed their infants. Most mothers from groups A through D also cited numerous reasons they knew they had sufficient milk, including full breasts, plenty of milk "coming down," and the ability to satisfy infants' appetites. In addition, most mothers in all groups knew the nutritional benefits of breastmilk and many were able to name specific nutrients in it. Mothers who exclusively breastfed (groups B and D) were far more likely to indicate that commune health workers' advice influenced their decision to exclusively breastfeed. Several also mentioned that they had time at home or worked close to the house.

Table 6 lists barriers to exclusive breastfeeding. Concern about mothers' work outside the household was common in all groups. While at least some mothers from groups A, C, and D indicated that women who did not get enough nutrients would not produce sufficient milk, no mother from group B indicated mothers' nutrient intake would affect milk quality and quantity. Mothers in phase II were also asked whether they received support from others to continue eating as well during lactation as they did during pregnancy. Regardless of whether women exclusively breastfed, most mothers indicated that husbands and in-laws supported an improved diet up to about three months postpartum. However, several women indicated that while mothers generally ate well in the first month after delivery, thereafter, if economic conditions did not improve, their diets deteriorated.

At least some mothers from groups A, C, and D (but none from group B) indicated that "eating something unsuitable" could compromise the quantity and quality of breastmilk. Unsuitable products included unripe bananas, beans, insecticides, and antibiotics. Additionally, non-exclusively breastfeeding mothers (groups A and C) frequently indicated that mothers' bodies did not support exclusive breastfeeding. Two barriers that were mentioned in this regard were mothers' menstrual

TABLE 5. Facilitators to exclusive breastfeeding

	Exclusively breastfeeding ($n = 29$)	Not exclusively breastfeeding ($n = 91$)
High importance	Sufficient milk to feed infant Breastmilk is nutritious	Sufficient milk to feed infant Breastmilk is nutritious
Medium importance	Encouragement of commune health workers	
Low importance	Encouragement of in-laws Advice not to give water	Encouragement of commune health workers Encouragement of in-laws

Table 6. Barriers to exclusive breastfeeding

	Exclusively breastfeeding ($n = 29$)	Not exclusively breastfeeding ($n = 91$)
High importance	Work outside the home Poor maternal diet	Work outside the home Poor maternal diet
Medium importance	Mother eats something unsuitable	Mother eats something unsuitable Mother's body does not support exclusive breastfeeding
Low importance	Mother is ill Mother's body does not support exclusive breastfeeding Mother does not breastfeed enough	Mother is ill Mother does not breastfeed enough

periods and milk glands that did not produce enough breastmilk.

Introduction of water, semi-solids, and solids

Mothers from group B felt that the appropriate time to give the child water was from four to six months. Mothers from groups A, C, and D indicated that the child should start receiving water at a variety of ages ranging from less than one month to six months. At least one mother from groups A, C, and D (but not B) felt that water was needed "after eating flour-water mixture," "to clean the mouth after breastfeeding," or "to avoid asthma and coughing." Mothers from group B indicated that the best age to start giving semi-solid foods was four to six months. Mothers from groups A, C, and D responded from one to six months.

Options for increasing exclusive breastfeeding

Returning from work or taking the child to work

Five percent of exclusively breastfeeding mothers and 55% of women not exclusively breastfeeding indicated that in the previous 24 hours they spent time away from their infants. Husbands and in-laws were the most common source of childcare for women who spent time away from home. Few mothers felt they could remain at home for the first six months of their infants' lives.

In phase II, mothers who worked outside the home were asked an open-ended question to determine whether they thought it possible to come home to breastfeed. While many said no ("it is too far," "my supervisor doesn't permit it," "it takes too much time," and "I have too much work to do"), a number of women said they could come home. In fact, some mothers returned home every two or three hours to breastfeed. Most mothers indicated it was not possible to take their infants with them to work: "the field is too far away," "the child may get too much sun," "nobody does that," "there is no place for my child," "pesticides in the field may be harmful for the child," and "there is no one to care for the child."

Expressing milk

Regardless of breastfeeding status, most women thought expressing milk (and in particular, storing it) for the baby to use later was not good. One mother said "expressed milk is not hygienic" and another indicated she "preferred to breastfeed the baby directly." A number of mothers thought "[expressed] milk would be cold and the child wouldn't like it." Others said "expressed milk becomes sour and causes diarrhea" and "nobody does it in the countryside." Those favoring milk expression and storage suggested that "I often express milk and leave it at home," "expressed breastmilk is good; it's better than other foods," it is "better than sugar water," it is "better than formula," "I gave it to the first child and he ate it," "it will keep," and it is "good to express but I need to re-warm the milk before giving it to my child."

Wetnursing

Generally, mothers from all groups had negative impressions about wetnursing. While a few viewed wetnursing as "good" and said there was "nothing to worry about," others said it was "not as good as breastfeeding directly," it was "harmful to the child," "the child is not used to strangers," "others' milk does not have enough nutrients and my child may get diarrhea," and "I am reluctant to ask for help and would rather give formula." No mother mentioned HIV/AIDS as a deterrent to wetnursing.

Results from formative research (phase III) confirmed findings from phases I and II that exclusive breastfeeding was not widely practiced in this rural, north-central province and work outside the home and poor maternal diets were key barriers to giving only breastmilk. With respect to options mothers in phase III were willing to try to exclusively breastfeed, a few mothers who worked near their homes felt they could return home frequently enough to breastfeed their children. Most mothers showed interest in expressing and storing their milk but felt they needed scientific evidence that unrefrigerated breastmilk would keep for up to eight hours, even in a tropical climate. Once assured, they committed to expressing and storing their milk.

Discussion

Northern Viet Nam provides a culture that is generally supportive of breastfeeding. All mothers in this study had breastfed in the previous 24 hours, most felt they had enough milk to feed their infants, most knew the signs of sufficient milk, and most were acquainted with the nutritional benefits of breastmilk. However, in this study of women with infants zero to six 6 months of age, only 24% of women exclusively breastfed their infants in the 24 hours prior to interview. While breastfeeding is known to benefit the infant, numerous studies [18] associate exclusive breastfeeding with the greatest reductions in infant morbidity and mortality. It should be noted that at the time this research was carried out, the Government of Viet Nam recommended exclusive breastfeeding up to about four months (now changed to include exclusive breastfeeding up to about six months). It is thought that the previous policy contributed to low rates of exclusive breastfeeding beyond four months in this sample.

Women's return to work in the first months postpartum—a common practice in this part of Viet Nam—was a major deterrent to exclusive breastfeeding. Five

percent of women who had returned to work postpartum exclusively breastfed as compared to 58% of mothers who had not yet returned to work. Results from logistic regression suggest that the negative impact of work on exclusive breastfeeding persists, even after controlling for the age of the infant. While it is not surprising that work outside the home deters women from exclusively breastfeeding, the strength of this relationship—even in a rural setting—is remarkable.

How, then are some women able to exclusively breastfeed even after returning to work? This study suggests that mothers from group B (the positive deviants) differed in important ways from mothers who did not exclusively breastfeed or who breastfed but did not work outside the home. In particular, none of the mothers from group B gave prelacteals. All four group B mothers felt they had enough milk to feed their infants. None were concerned that their own nutritional status would affect either the quantity or quality of their milk. No one from group B indicated that "eating something unsuitable" would compromise the quantity and quality of their breastmilk. Additionally, group B mothers knew the appropriate time to introduce water and semi-solid foods and were supported in their decisions by commune health workers and family members. Furthermore, none had been advised to give water after the child ate flour-water mixture or breastfed.

Mothers who are able to successfully negotiate a later return to work and remain at home to exclusively breastfeed represent a second set of positive deviants. However, in this sample, no mother exclusively breastfed and remained at home longer than three months postpartum.

With respect to study limitations, it is unlikely that interviewer bias affected results from this research as data collection procedures were carefully standardized during interviewer training and practice in the field. Additionally, it is possible, though not likely, that mothers who were not available for interview differed from those selected to replace them. In fact, only 4% of the sample was replaced. Save the Children's programs in study communes after phase I data collection may have influenced breastfeeding rates in the area, but this also seems unlikely given the decline in breastfeeding rates and the lack of explicit programmatic focus on breastfeeding. This study's strengths include the use of qualitative and quantitative methods to cross-check and elucidate findings as well as formative research to test program strategies. The study described here is one of the first in Viet Nam to measure exclusive breastfeeding using internationally accepted standards.

While a growing body of literature focuses on the infant feeding choices of women who work outside the home, most studies focus on paid employment, often in the formal sector. Even so, results from this study are consistent with other research findings that mothers who work far from home and for long periods of time are considerably less likely to breastfeed. For example, using retrospective data in Thailand, Yimyam and Morrow [19] found that the resumption of paid employment generally had negative effects on breastfeeding rates and duration. Most women who worked outside the home for a long period or had shift jobs gave up breastfeeding altogether within one month after returning to work [19]. Our findings were also consistent with results from a study by Rea et al. [20] who reported low rates of exclusive breastfeeding among Brazilian women who had resumed employment. A study in rural Sichuan, China [21] identified barriers to breastfeeding that were similar to the ones we describe, including mothers' perceptions that they do not have sufficient milk and lack of support from families, places of employment, and health systems.

In economies such as Viet Nam's, it is likely that the demand for women's time away from home will increase. With even greater frequency, Vietnamese mothers will be faced with difficult decisions about how to balance their productive and reproductive roles, and in particular, how to feed and care for their infants while they are away. This study identifies knowledge and social support as key enablers of exclusive breastfeeding among working mothers. Programs should improve knowledge about the introduction of water and semi-solids, address perceptions of milk insufficiency, secure support from others, and present mothers with options for exclusively breastfeeding, even when they work outside the home.

Globally, breastfeeding advocates have encouraged policies allowing for longer maternity leave, day-care at workplaces, and breaks for nursing. While each of these advances can facilitate exclusive breastfeeding, it is not likely that in rural Viet Nam such policies will be enacted and implemented in the near future. This study describes one approach—group-level, negotiated behavior change—that can be implemented now to bring about improvements in breastfeeding practices, including exclusive breastfeeding. This research also represents an important departure from previous positive deviance programming which focuses on complementary feeding when children are about six months of age and older. Focusing on optimal breastfeeding and including pregnant mothers and infants less than six months of age in programs provides an opportunity to not only rehabilitate malnourished children but to prevent malnutrition from occurring in the first place.

Acknowledgements

We gratefully acknowledge the interviewers who participated in data collection as well as the input and review provided by David Claussenius, Ardythe

Morrow, Maryanne Stone-Jimenez, Nguyen Thu Phuc, Nguyen Thanh Hien, Tran Thu Ha, and Matthew Frey. This research was funded by LINKAGES (Breastfeeding, LAM and Related Complementary Feeding, and Maternal Nutrition Program). LINKAGES is supported by the G/PHN/HN, U.S. Agency for International Development, under Cooperative Agreement No. HRN-A-00-97-00007-00 and managed by the Academy for Educational Development. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development nor the LINKAGES Project.

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