Review

A situational review of infant and young child feeding practices and interventions in Viet Nam

Phuong Hong Nguyen PhD[1], Purnima Menon PhD[2], Mariel Ruel PhD[3], Nemat Hajeebhoy MHS[4]

[1]*International Food Policy Research Institute (IFPRI), Hanoi, Viet Nam*
[2]*International Food Policy Research Institute (IFPRI), New Delhi, India*
[3]*International Food Policy Research Institute (IFPRI), Washington, DC, USA*
[4]*Academy for Educational Development, Hanoi, Viet Nam*

Sub-optimal infant and young child feeding (IYCF) practices are likely a significant contributor to high undernutrition rates in Viet Nam. To date, however, there has been no comprehensive review of IYCF practices in Viet Nam. The objectives of this paper were to review: 1) patterns/trends in IYCF in Viet Nam; 2) the barriers and facilitators to IYCF practices; and 3) interventions and policies and their effectiveness. Methods used include reviewing and analyzing existing data, summarizing and organizing the evidence into broad themes based on a pre-defined conceptual framework. Findings show that the proportion of children ever breastfed is almost universal and the median duration of breastfeeding is 13-18 months. However, exclusive breastfeeding for the first six months is low (8-17%) and appears to be declining over time. Information on complementary feeding is limited, but two key challenges are: early introduction, and low nutrient quality of complementary foods. Facilitators of optimal IYCF were support from 1) government progressive policies, 2) non-profit organizations and 3) family members. Barriers to optimal IYCF included 1) the lack of enforcement of, and compliance with the code of marketing breast milk substitutes, 2) inadequate knowledge among health care providers; and 3) maternal poor knowledge. These findings indicate that the evidence base on complementary feeding is weak in Viet Nam and needs to be strengthened. The review also reinforces that program and policy actions to improve IYCF in Viet Nam must target multiple stakeholders at different levels: the family, the health system and the private sector.

Key Words: review, Viet Nam, breastfeeding, complementary feeding, infant

INTRODUCTION

In the past two decades, Viet Nam has experienced remarkable economic growth and rapid reductions in poverty.[1] This progress had led to significant improvements in the health status of many Vietnamese, particularly the nutritional status of Vietnamese children. The prevalence of stunting declined from 56.5% in 1990 to 29.3% in 2010,[2,3] while for underweight, the prevalence dropped from 51.5% to 17.5%. On average, stunting declined by 1.5% per year and underweight by 1.2% per year.[4] Despite these improvements, childhood malnutrition remains a significant public health problem in Viet Nam, affecting nearly a third of children under 5 years of age. Recently, the pace of reduction in stunting, in particular, has slowed down, while problems of overweight have started to emerge.

Among several factors contributing to the poor nutritional status of Vietnamese children, inadequate breastfeeding (BF) and poor complementary feeding (CF) practices are likely to be major causes.[5] Current United Nations Children's Fund (UNICEF) data[6] show that Viet Nam is not only one of the countries with the highest child undernutrition in Southeast Asia, it is also one of the countries with the lowest prevalence of exclusive breastfeeding (EBF) among infants less than 4 or 6 months old (Table 1). The benefits of BF and optimal CF for child survival, growth, and development have been well documented in the literature. Globally, an estimated 1.4 million child deaths and 10% of disease burden could be prevented each year with improved BF practices.[5] While BF promotion has substantial positive impacts on child survival, optimal CF practices are critical for promoting growth and preventing stunting.[7]

In spite of the recognition of the impact of optimal infant and young child feeding (IYCF) practices for child health and nutrition, to date, there has been no comprehensive review of IYCF patterns, determinants, and programs/policies in Viet Nam. Therefore, this review was conducted with three objectives: to document the patterns and trends in IYCF in Viet Nam; to review the barriers and facilitators to IYCF practices in Viet Nam; and to review policies and programs related to IYCF in Viet Nam.

Corresponding Author: Dr Phuong Hong Nguyen, Alive &Thrive Project, Room 203-204, E4B, Trung Tu Diplomatic Compound, No 6, Dang Van Ngu, Hanoi, Viet Nam.
Tel: 84-4-35739066 ext 123; Fax: 84-4-35739063
Email: P.H.Nguyen@cgiar.org
Manuscript received 25 January 2011. Initial review completed 2 March 2011. Revision accepted 11 April 2011.

Table 1. Health, nutrition, and IYCF practices in Viet Nam and other Southeast Asian countries based on latest data available†

	Mortality rate/ 1,000 live birth		Child Nutrition under 5 years (%)					EBF Proportion (%)		Timely CF Proportion (%)	Continued BF Proportion (%)	
	Infant	<5 years	Maternal mortality ratio	Low birth weight	Under-weight	Stunted	Wasted	<4 months	<6 months	6-9 months	12-15 months	20-23 months
Bangladesh	47.0	60.5	570	22	41	36	16	50	37	52	95	89
Cambodia	70.2	90.9	540	14	28	37	7	68	60	82	90	54
China	18.7	21.9	45	2	6	11	–‡	77	51	32	43	15
India	54.3	71.8	450	28	43	43	17	58	46	57	88	77
Indonesia	24.8	31.2	420	9	23	–	–	41	32	75	80	50
Laos	56.0	70.2	660	11	31	40	7	33	26	70	82	48
Malaysia	9.6	11.2	62	9	8	–	–	29	29	–		12
Myanmar	73.8	103.0	380	15	32	32	9	15	15	66	85	67
Nepal	43.1	54.7	830	21	39	43	12	70	53	75	98	95
Pakistan	73.1	90.4	320	19	31	37	13	44	37	36	79	55
Philippines	22.8	28.2	230	20	21	30	6	42	34	58	56	32
Sri Lanka	16.5	20.5	58	22	23	14	14	75	53	–	89	73
Thailand	6.4	7.0	110	9	7	12	4	8	5	43	32	19
Viet Nam	12.5	14.9	150	7	20	36	8	21	17	70	78	23

† Data source: UNICEF. Childinfo. Monitoring the Situation of Children and Women. Statistics by Area / Child Nutrition. 2009. Available at: http://www.childinfo.org/nutrition.html.[6]
‡ No data available.

Figure 1. Conceptual framework of the multi-level factors that may influence IYCF in Viet Nam

MATERIALS AND METHODS

This literature review included three major steps: 1) searching and reviewing the published and non-published literature on child nutrition and IYCF practices in Viet Nam; 2) gathering data/reports on IYCF and nutrition and synthesizing findings on trends in tables; 3) synthesizing literature based on the major themes of the conceptual framework for this literature review (described below).

Conceptual framework

The conceptual framework used for this review was adapted from Labbok and Taylor,[8] and depicts the multi-level factors that may influence IYCF in Viet Nam (Figure 1). The factors are 1) political/social factors such as current national health, nutrition policy, and international support; 2) health care providers' knowledge, attitude, and level of support for optimal IYCF practices; 3) community/family who might influence feeding practices

based on cultural beliefs, ethnicity, and food availability; and 4) mothers/caregivers who often ultimately feed their infants and whose decisions may be based on their knowledge, education level, socioeconomic status, age, occupation, and health status. Interactions between these factors are bidirectional and influence can be exerted between various levels.

Literature search methods

Several sources were used to identify materials for the literature review: 1) electronic databases such as PubMed (1966-present) and Google Scholar; 2) official websites of various organizations in Viet Nam for non-peer reviewed papers and program reports. Search keywords included **"**breastfeeding," "complementary foods," "complementary feeding practices," "infant," "child," and "Viet Nam." Unpublished reports were also obtained from the National Institution (NIN) and Save the Children's libraries, as well as through personal contacts with other experts. Our primary inclusion criterion was to include studies and reports that presented data on children less than 2 years of age and their mothers.

The following types of studies/reports were included in this review: 1) survey and surveillance reports; 2) descriptive studies on IYCF practices and nutrition; 3) studies on interventions to improve IYCF practices such as behavior change communication, private/public partnerships, and the production and promotion of fortified complementary foods; and 4) official documents describing the policies and programs from the Ministry of Health (MoH) and NIN. Materials in English and Vietnamese were included in the review.

Data extraction methods

IYCF indicators

Indicators of IYCF practices were collected from three main data sources:

- The Demographic Health Survey (DHS): DHS 1988,[9] DHS 1994,[10] DHS1997,[11] and DHS 2002.[12] The Viet Nam DHS is a nationally representative survey of ever-married women 15-49 years old selected from sampling clusters throughout Viet Nam.
- The NIN surveillance 2000,[13] 2002,[14] 2004,[15] and 2005.[16] These nationally representative surveillance data are collected to assess status and trends in the nutritional status, quality of child feeding, and health care for children under 5 years of age.
- The Viet Nam Multiple Indicator Cluster Survey (MICS) 2000 and 2006.[17,18] These surveys are also nationally representative and collect data/information on the situation of children and women in Viet Nam.

Data from these different sources and time points were used to compile information on patterns and trends in IYCF indicators (Table 2).

Barriers and facilitators to IYCF

For the barriers and facilitators to IYCF practices, information was synthesized around the four broad areas of influence in the conceptual framework, which included 1) political/social factors; 2) health care providers and service utilization; 3) community/family support; and 4) mothers/caregivers (Table 3).

Interventions addressing IYCF and their effectiveness

Information on government programs, policies, and strategies in relation to IYCF was organized chronologically to depict the evolution of IYCF policy in Viet Nam. Data on community-based interventions were summarized into a structured table to describe different aspects of the interventions.

Structure/organization of the review

We first describe patterns and trends in IYCF in Viet Nam using existing data from different sources. Second, we present known barriers and facilitating factors using the conceptual framework, and finally, we review current interventions and their effectiveness. We end with a summary of key insights from this review, and emphasize the gaps in literature and potential areas for research and action.

RESULTS

Patterns and trends in IYCF in Viet Nam

The patterns and trends in IYCF in Viet Nam since 1988 are presented in Table 2. As noted previously, the data came from three different sources, the DHS, the NIN surveillance, and the UNICEF MICS. The three data sources are not entirely comparable due to differences in sampling frames, data collection tools, and variables selection. For this reason, we look at trends in IYCF over time *within* each data source (e.g., from 1988 to 2002 for DHS data; or from 2000 to 2005 for NIN data), rather than looking at trends across data sources (e.g., comparing 1988 DHS with 2006 MICS).

Early initiation and exclusive breastfeeding

Breastfeeding is a common practice in Viet Nam. Data from different studies show that the proportion of children ever breastfed is high and consistent over time with approximately 98% of children aged 0-24 months being breastfed. However, data beyond 2002 are not available, so it is difficult to assess whether this practice has improved or deteriorated since then. The proportion of children ever breastfed varies slightly by geographic region, ethnic group, and maternal education, but differences are not statistically significant (data not shown).[12]

Early initiation of BF within one hour after birth seems to have improved over time. Overall, there have been some improvements in the proportion of children being put to the breast within one hour after birth since the late 1980s, but the exact prevalence of this practice at this time is unclear because of differing prevalence in different sources.

Although the proportion of children ever breastfed is high, exclusive BF among 0-5.9 month old babies is low, even among the 2-month old age group.[11,12] The data on trends also indicate a downward trend in EBF over time (Table 2). As expected, the proportion of exclusively breastfed infants differs significantly between urban and rural areas, with lower EBF in urban areas.[17,18] There are also considerable differences in EBF rates by region (Figure 2a).

In parallel with the decline in EBF, there appears to have been an increase in bottle feeding. The proportion of children less than 12 months of age fed with a bottle has increased several folds over time according to the NIN

Table 2. Summary IYCF indicators in different studies in Viet Nam

Indicators	Demographic and Health Surveys (DHS)				NIN national nutrition surveillance				MICS	
	1988[9]	1994[10]	1997[11]	2002[12]	2000[13]	2002[14]	2004[15]	2005[16]	2000[17]	2006[18]
WHO IYCF Indicators†										
Children ever BF	98.0	98.0	97.8	97.7	–‡	–	–	–	–	–
Initiation of BF 1 hour after birth	–	18.0	27.9	57.0	–	–	75.2	–	–	57.8
Exclusive BF among children under 6 months	–	–	1.0	7.7	–	–	12.4	12.2	9.0	16.9
Continued BF among children 12-15 months	–	–	–	–	82.0	71.3	81.1	82.9	87.8	77.7
Continued BF among children 20-23 months	–	–	–	–	–	–	2.2	3.5	20.0	22.9
Median duration of breastfeeding (months)	14.5	15.9	16.7	18.0	–	–	–	–	–	–
Complementary feeding in children aged 6-9 months	–	–	93.7	85.1	–	82.0	–	87.7	–	70.4
Minimum dietary diversity	–	–	–	–	–	–	–	–	–	–
Minimum acceptable diet	–	–	–	–	–	–	–	–	–	41.8
Bottle feeding for under 1 year	–	–	–	–	3.0	12.1	21.9	25.6	–	–
Other IYCF Indicators										
Exclusive BF among children under 2 months	–	–	54.0	31.0	–	–	–	–	–	–
Exclusive BF among children under 4 months	–	–	9.0	12.0	29.0	29.2	18.9	18.9	31.2	20.5
Introduction of solid, semi-solid or soft foods at 0-1 month	–	–	15.2	29.6	–	–	38.7	–	–	–
Introduction of solid, semi-solid or soft foods at 2-3 months	–	–	54.7	50.8	–	–	–	–	–	–
Introduction of solid, semi-solid or soft foods at 4-5 months	–	14.0	81.2	67.9	–	–	–	9.2	37.5	–

† All data are presented as percentage except for median duration of BF that is presented as months.
‡ No data available.

Table 3. Known facilitators and barriers for IYCF practices in Viet Nam

Political/social factors	Health care providers/ service provision	Community/Family	Mothers/Caregivers
Early Initiation Breastfeeding			
Facilitators	***Facilitators***	***Barriers***	***Barriers***
The Baby Friendly Hospital Initiative[23]	- 79.6% mothers are encouraged by health workers to BF infants right after birth during their stay at the hospital or community health center [21]	Cultural belief: - use water to clean baby's mouth, avoid tongue diseases[32]	Health problem: - inverted or sore nipple.[19] Feel tired, weak, pain after delivery or C-section, unwilling to BF.[38]
Barriers	- Delivery at district or CHC had higher rate of early initiation of BF vs. delivery at home (73.6 and 85% vs. 24.6%)[19]	- use honey to paste to the tongue to avoid fungus	Mother's perception - After C-section, babies are taken away, mothers use antibiotic, the perception of milk become contaminated[19]
Aggressive marketing of infant formula in hospital and maternal ward [26]	Mothers delivered in district hospital or CHC are more likely EBF than those deliver at home (OR = 6.8 and 2.3)[19]	- babies need lemon juice or honey to clean babies' intestine before they are breastfed[37]	- Lack confidence on the capability to produce milk after birth[38]
	- Women who had nurses, midwives, or assistant doctors in attendance at delivery were 10 times more likely to EBF[29]	- Traditional herb to protect children from diarrhea[37]	- Mothers are concerned that children are hungry and thirsty when mother's milk is not available[32]
	Barriers		Mother's cultural belief - Colostrum is spoiled, can cause diarrhea[37]
	- Lack knowledge about BF - Advice mothers to use formula - Get commission from the milk company for pre-scribing milk product[26]		- Colostrum has little value or even harms the baby's health, it may bring "bad luck"[19]

Table 3. Known facilitators and barriers for IYCF practices in Viet Nam (con.)

Political/social factors	Health care providers/ service provision	Community/Family	Mothers/Caregivers
Exclusive Breastfeeding			
Barriers	***Barriers***	***Facilitators***	Mothers' health:
Marketing of infant formula - Wide advertisement on formula - Companies violated code regulation, donate milk for children, donate furniture for hospital, give incentives for staff to attend workshop, vacation[26] - Mothers constantly approached by milk companies in prenatal and postpartum period. In one study, 98% women were exposed to advertisement of infant formula via mass media[30] and 53% decided to buy products after seeing commercial advertisement.[21]	- Health care providers have little confidence in quality of breast milk - Get little training on BF counseling[30] - Provide insufficient support to BF mothers - Low commitment and counseling skills - Constantly approached by formula companies and in many cases to cooperate with them to promote formula use, so they can get commission from product sales	Supporting from community and family members: - Women's Union role in provide support to breastfeeding[34,35] - Children are more likely to be fed with solid food at week 16 if parents live independently compared to those live in extended family (OR = 1.7, 95% CI 1.1-2.8)[21] - Grandmothers often serve as caregiver for both mothers and infants in the first few months. They are important to influence mothers[30] - Husband and senior members of the family are critical source to provide physical and emotional support[32]	- Vaginal delivery had higher rate of EBF than C-section (OR = 18.5, 95% CI: 5.5, 62.7)[19] - Infants' temperament (crying at night) made mother tired, influence mother's decision to give him complementary food to comfort him[30] Mothers perception - Mothers more likely to BF when they have positive perception of BF: enjoyable, satisfied, comfortable,[19] and mother felt they had sufficient milk for their infants[29] - Many mothers concerned that mother's milk is not enough for the infant's demand.[21,32] Insufficient breast milk supply was the most common reasons to give mixed feeding.[22] Ninety-seven percent of women believe that formula is necessary whenever they cannot produce enough milk[21] - Breast milk contains mostly water, babies will get hungry after he urinate; therefore infant needs early solid food/rice powder other than breast milk to satisfy their needs[37] - 65% believe that feeding formula at 1 month would not reduce the amount of milk produced by mothers[21] - Mother understand that formula is better than breast milk[32] or combining BF and formula is better than BF alone[32] Mothers education - Mothers achieved higher education level were 6.5 times more likely to EBF[30] - Maternal education level showed significant negative association with mixed feeding at 3 months (OR = 0.6 and OR = 0.4) for 10-12 y and ≥13 y education compared with ≤9 y[22] - BF duration is shorter for children whose mothers had lower education[40] Barriers related to work - Mothers tend to introduce CF before going back to work after 4 months or earlier[18,19,29,32]; 30.9% of mothers at HCM city were unable to BF at schedule times because of work.[22] - The risk of not EBF was 14 times greater for women who had returned to work than for women who did not[29] - Milk expression is rarely practiced. Most women thought expressing and storing milk is not good, not hygienic, can become sour and cause diarrhea[29] - Women who feel uncomfortable to BF infants in public places were unlikely to maintain EBF practice (OR = 0.45[30]) Mothers' poor diet[30] Lack of proper information about BF and EBF - 22% mothers received information, education, and communication materials on BF, 7.5% had individual consultation or discussion with health workers on BF[21]
Complementary Feeding Practices (timing of introduction of food, meal frequency, dietary diversity)			***Barriers*** - Children's food normally include rice and meat, while fish, vegetable, and oil were less used[21] - Infant <2 months were fed with boiled rice water with sugar or condense milk[20] - Traditional belief that fish or oil could cause diarrhea[21] - Poor people rarely buy animal food sources because they are too expensive[37] ***Facilitators*** - Children were 2.4 times more likely to accept bites[51] when getting positive comments - Positive caregiver behaviors were significantly associated with higher child acceptance of food[33]

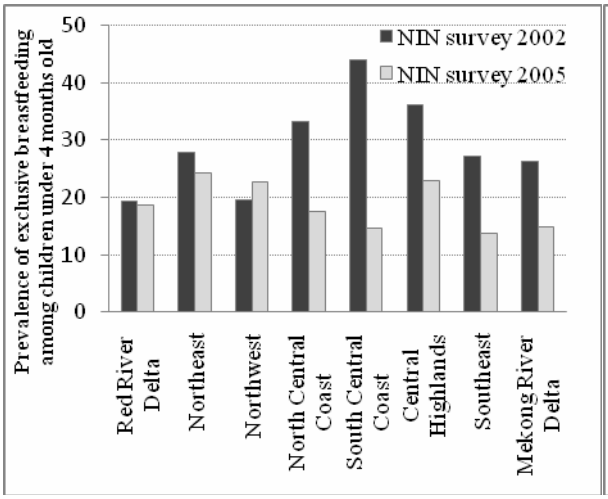

Figure 2a. Prevalence of exclusive breastfeeding, by ecological region in 2002-2005 (data extracted from NIN survey 2002 and 2005).

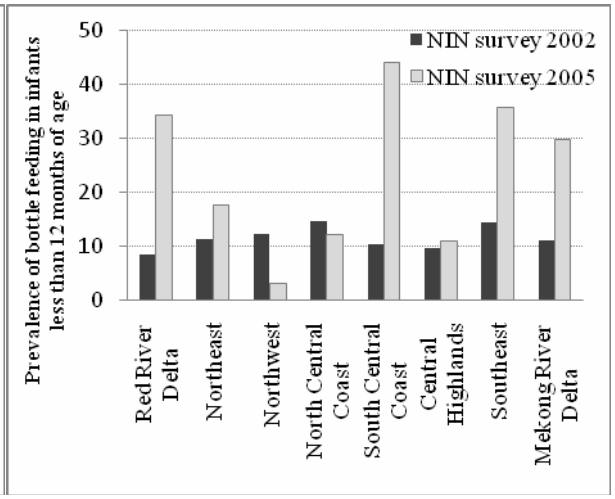

Figure 2b. Prevalence of bottle feeding, by ecological region in 2002-2005 (data extracted from NIN survey 2002 and 2005).

surveillance, from 3% in 2000 to 26% in 2005. There are also significant differences in bottle feeding by region (Figure 2b).

Small studies in different regions of the country also show similar patterns of suboptimal IYCF practices. For example, a study in rural Thanh Hoa Province documents the rapid drop in EBF between the first week after birth and the 16th week (from 84% to 44%).[19] Another study in Hanoi also showed that only one in four infants under 2 months of age were exclusively breastfed, and that these rates dropped rapidly to reach a low 3% at 6 months of age.[20]

Continued breastfeeding

The data sources reviewed are consistent in showing that the majority of Vietnamese women tend to continue BF into the second year of their child's life, with more than 70% of women reportedly still BF when their child is 12-15 months. Some deterioration seems to have occurred in this practice over time, but wide variations between the different data sources make the results difficult to interpret. No information from a nationally representative survey is available on this practice since 2002.

Complementary feeding

The traditional pattern of feeding for Vietnamese children is a progression from breast milk and/or infant formula to different complementary foods such as gruels (*bot*), porridges (*chao*), and rice (*com*). Data and literature on CF are, however, limited. Two key known challenges to optimal CF are very early introduction, and poor nutrient quality of complementary foods. Very early introduction of CF is documented in all the surveys reviewed, as well as in the literature.[21,22] The few studies on the quality of complementary foods suggest that complementary foods fed to babies in Viet Nam have low energy density as well as low protein and micronutrient content. Rice flour is the most common food first offered to children, followed by formula and rice porridge.[23] Studies have also shown a low consumption of animal source foods such as meat or eggs and other food such as fruit.[23,24]

Known barriers and facilitating factors

Several studies have been conducted in Viet Nam (mostly in rural communities) to better understand the factors that influence IYCF practices. As seen in Table 3, there is more literature available on the constraints and facilitators for optimal BF practices than for CF practices.

The barriers to and facilitators of optimal IYCF practices are divided into four categories, based on the conceptual framework presented in Figure 1.

Political/social factors

Although BF has been promoted in Viet Nam since the early 1980s and the recommendation to breastfeed exclusively until 6 months of age has been included in the 2001–2010 National Nutrition Strategy, the rate of EBF in the first six months is very low,[18] as highlighted in the previous section.

The Baby Friendly Hospital (BFH) Initiative was implemented in Viet Nam in 1993. To date, 57 provincial hospitals have been certified as BFHs. However, the quality of IYCF services at several of these facilities has deteriorated after achieving BFH certification.[23] The most common concerns identified in a study of these facilities were the lack of counseling services on IYCF for pregnant and lactating mothers; the aggressive advertisement and marketing of breast milk substitutes by infant formula companies within their facilities, resulting in bottle feeding of newborn babies by mothers in hospitals; and hospital managers and staff showing little support for mothers to practice exclusive breastfeeding.[23]

Prior to 1993, women were allowed six months of maternity leave. However, this period was shortened to four months after the government's Decree No. 43/CP dated June 22, 1993, based on temporary regulations related to Social Insurance.[25] This current four-month maternal leave is likely to be unfavorable for women who may be

willing to exclusively breastfeed their babies for the first six months of life.

The violation of marketing regulations of breast milk substitutes is common in Viet Nam. Results from a monitoring study conducted by Save the Children and MoH in 2001 reported that among the 30 brands of breast milk substitutes reviewed, none of them fully met the legal requirement for labeling.[26] In addition, there are various violations, such as sales of formula in a store adjacent to maternity units and hospitals, provision of furniture/ equipment for waiting rooms and playgrounds, and even commissions to health care providers for prescribing products.[27] Furthermore, advertising of infant formulas is aggressive and persistent through various types of media.[27] In a review of the implementation status of Decree 21 (the National Code on breast milk substitutes),[28] common violations found were 1) bold and inaccurate advertising claims; 2) not meeting requirements for labeling and 3) promotion of purchase of commercial complementary foods for children less than 6 months of age.

No information is available on political/social factors that affect the duration of BF and specific practices related to CF and the use of baby bottles.

Health care providers and service utilization

Some studies have shown the positive influence of health care providers on BF practices in Viet Nam (Table 3). Compared to mothers who delivered at home, those who delivered at a district or commune health center had a higher rate of early initiation of BF, and were more likely to exclusively breastfeed.[19] In addition, women who had nurses, midwives, or assistant doctors in attendance at delivery were ten times more likely to exclusively breastfeed than women who delivered at home.[29]

However, BF counseling services are not widely offered in Viet Nam and there is a lack of support and counseling services from health care providers to women. The lack of support could be due to 1) very little training on BF counseling;[30] 2) poor BF counseling skills;[31,32] 3) a lack of time;[33] 4) unsupportive attitudes toward BF[31, 32]; 5) commissions from formula companies[27]; or indeed, a combination of these factors.

Community/family support

Vietnamese mothers often get support from family members for feeding and caring for their children. Grandmothers are known to serve as caregivers for both mothers and infants in the first few months post-delivery and to have influence on the mothers' decisions regarding BF and child feeding practices more generally.[30] The husband and older family members are also reported to be sources of physical and emotional support.[32] In a study in rural Viet Nam, mothers who lived with extended family arrangements were more likely to exclusively breastfeed their babies compared to those who lived in nuclear families.[21] The role of women's social networks is particularly relevant among minority communities living in the mountainous and remote areas where access to health facilities is more difficult and the culture is very different.[36] The Viet Nam Women's Union, with a total membership of over 13 million women, has been reported to be active in IYCF education and as a network for IYCF support and referral of mothers to health facilities.[34,35]

The lack of economic resources is also a known barrier to optimal IYCF practices. In Quang Tri, animal source food was rarely given to children because it was considered too expensive to purchase.[37] In one qualitative study, women said that they were financially unable to purchase formula (which could actually have a positive impact on BF practices) or baby food products because a package of such a product could cost up to 10% of a family's monthly income.[21]

Mother's/caregiver-level factors

Poor knowledge and cultural barriers

Our literature review shows that there are many barriers that prevent Vietnamese women from adopting ideal IYCF practices. These are related to cultural beliefs, poor knowledge, and a lack of proper information about BF (Table 3). The types of beliefs that emerged were 1) the perception that mother's milk becomes contaminated if she uses antibiotics[19] 2) the belief that colostrum may bring bad luck[19] or cause diarrhea,[37] or 3) the belief that formula is better than breast milk, a possible result of aggressive advertising of formula.[30] In addition, the mothers' lack of confidence about their capacity to produce milk right after birth,[38] or their perceived inability to produce enough milk later on, appears to lead to suboptimal practices.[21,22,30]

The lack of knowledge also appears to lead to inappropriate choices in the selection of complementary foods. A typical diet for young children includes rice-based preparations,[35] which are low in energy and micronutrient density. Fruit, vegetable, fish, and oil appear to be used infrequently,[21,24] possibly due to a traditional belief that fish and oil cause diarrhea,[21] or because of their high cost. Finally, feeding frequency is low because infants and young children are fed according to the scheduled family meals rather than to meet infants and young children's special needs.[23]

Maternal employment

In a survey of rural households, mothers indicated that a key barrier to EBF was working outside the home; the probability of not EBF was 14 times greater for women who had returned to work than for women who had not.[29].In Viet Nam, mothers often go back to work after four months of maternity leave, some even earlier,[18, 19, 29, 32] and studies suggest that they tend to try and habituate their children to complementary foods before going back to work. Close to one-third (31%) of mothers in Ho Chi Minh city said that they were unable to exclusively breastfeed at scheduled times because of work.[22]

Expressing breast milk is rarely practiced mainly due to cultural norms suggesting that storing milk is non-hygienic as it can become sour and cause diarrhea.[29] In addition, it is considered inconvenient because of the unavailability of breast pumps and refrigerators to store milk and because most working environments do not have policies and/or facilities to support breast milk expression.[39] A survey carried out in rural areas showed that women who feel uncomfortable to BF infants in public places or in work places, where lactation rooms are usu-

ally absent, were unlikely to maintain EBF for six months.[30]

Other maternal factors

Mothers who achieve higher levels of education are more likely to exclusively breastfeed and less likely to practice mixed feeding.[22,30] BF duration is also longer for children whose mothers have higher levels of education.[40] Maternal health status is also shown to affect EBF. Feeling weak, tired, and being in pain after delivery or after a caesarean section are documented barriers to early initiation of BF.[38] Caesarean delivery, inverted/sore nipples, or lack of sleep due to children waking at night are known to affect EBF.[19,30] Mothers who have poor diets due to food insecurity also tend to be concerned about their capacity to produce breast milk in sufficient quantity and quality to meet their infant's demand.[21,32] In Viet Nam, mothers are usually provided with a relatively good diet in the few weeks after delivery, but return to the family diet after two to three months.[30]

Current IYCF strategies, policies, and programs and their effectiveness

The main IYCF strategies, policies, and programs implemented by the government and associated support activities by international organizations are summarized in Table 4 and described below. Some recent developments on the nutrition policy landscape, and the factors that influenced change have also been analyzed in Lapping.[41]

Interventions and strategies/policies that address political and social issues

Nutrition has been a focus of the MoH since the 1960s and has been prioritized in national programs since 1991. The Protein Energy Malnutrition Control (PEMC) program, which aimed at reducing childhood malnutrition, was established in 1993; one of its key components was the promotion of BF. The National Plan of Action for Nutrition, which set the nutrition priorities and goals for 1996-2000, was approved in 1995 and a ten-year National Nutrition Strategy, which included IYCF goals, was approved in 2001. An IYCF action plan was approved by the government in December 2006, following which, in 2007, the MoH established a coordinating committee for the implementation of the IYCF action plan. In 2008, activities to develop the Plan of Action to Accelerate the Reduction of Child Stunting (PAARS) were initiated. Currently, NIN is preparing the National Nutrition Strategy for the period of 2010-2020 that includes elements from the IYCF action plan as well as the PAARS.

The Vietnamese government has made significant policy efforts to ensure that the International Code of Marketing and Use of Breast Milk Substitutes is respected. Some of the efforts include a 1994 policy on regulating

Table 4. Summary IYCF strategies, policies and activities in Viet Nam

Time	Organization	Policy/Strategies/Activities	Comments
1993	MOH, NIN	Protein Energy Malnutrition Control (PEMC): One of strategies is improved BF and complementary feeding.	
1993 to now	UNICEF, MOH	Baby Friendly Hospital Initiative[52]	57 hospitals have been adopted BFHI
1995	NIN, MOH	National Plan of Action for Nutrition 1996-2000 prioritized protein energy malnutrition, micronutrient deficiencies, and household food security.	
2000	MOH	Decree No. 74/2000/NDCP in 2000: Regulation on the marketing and use of breast milk substitutes	
2003	MOH	National Standards and Guidelines for Reproductive Health care Services including guidelines on counseling on breast feeding	
2005	MOH	Decree No. 45/2005/ND-CP regulating administrative punishments on violations in the health sector, in which Article No 17 on breast milk substitutes	
2006	MOH	Decree No. 21/2006/ND-CP in 2006 by the Prime Minister (National Code #21): Regulation on the marketing and use of nutrition products for young children	
2006	WHO	Work with MoH to adapt the WHO generic training manuals on IYCF	The adapted training manual on IYCF produced
2007	WHO	Work with MoH to hold three training of trainers courses on IYCF	Regional trainers trained
2008	UNICEEF	Support Training course on monitoring and enforcement of Decree #21/2006 on Marketing and Usage of Nutrition Products for Infants and Young Children (June 24-July 3, 2008)	Two training courses were held in Hanoi and Hochiminh City
2006-2008 and before	WHO, UNICEF	The MOH and lines ministries support the development and revision of the National Decree on marketing of breast milk substitute and the development of the IYCF action plan Policymakers at central level. Socio-Mobilization and advocacy on nutrition. Development and dissemination of the nutrition profile, production of communication tools for nutrition advocacy Mass communication on World Breastfeeding Week	Policy related documents available[23, 53, 54] IEC tools available for facilitating the nutrition advocacy activity
2008 to present	MOH, NIN	Plan of Action to Accelerate the Reduction of Child Stunting	
2009	NIN	Nutrition strategies 2010-2020	

trading and use of breast milk substitutes (revised in 2000), a policy to regulate punishments for violations in the health sector (issued in 2005); and the National Decree on Marketing of Nutritious Food for Young Children (revised in 2006). However, implementation of some of these policies has been challenging, especially policies related to enforcement of, and compliance with the Code. Some of the documented challenges include 1) an apparent lack of political will to make policies work;[28] 2) limited district-level action of health inspectors whose work on code-monitoring has focused on the provincial level;[23] 3) inadequate communication and coordination between Departments of Health Inspection (the body that enforces such policies), the Department of Food Administration (the body that vetoes and approves advertisement and labeling), and other related government agencies (e.g., Department of Maternal and Child Health, Health Education Center).[28]

In addition to government support, Viet Nam has received support from several international and nongovernmental agencies to improve IYCF through several activities, including 1) development of the IYCF action plan; 2) development and revision of the National Decree on marketing of breast milk substitute; and 3) social mobilization and advocacy in nutrition development. The World Breastfeeding Week (August 1-7) is celebrated every year using mass media channels to disseminate several communications messages.

In summary, many efforts have been made to improve child nutrition and IYCF practices in Viet Nam. This is reflected in the large number of policies, decrees, and programs, but several constraints still exist with regard to the implementation and enforcement of these programs and policies.

Interventions targeted to health care providers/service provision

In 1993, the World Health Organization (WHO) and UNICEF together with the MoH launched the BHF Initiative in support of the promotion of BF. To date, 57 (out of 940) provincial hospitals have been certified as BFHs.[42] WHO has also worked with the MoH to adapt the WHO generic training manuals on IYCF for the Vietnamese context and has provided several training courses on IYCF practices. The adapted training manuals are now widely used in the country.

At the provincial level, several organizations have focused on raising child nutrition awareness among health workers and provided training courses on nutrition and child care to hamlet and commune health workers. These include World Vision Viet Nam (a project in Thanh Hoa Province in 2006-2008),[43] Save the Children US (Early Comprehensive Child Development program in Quang Tri Province in 1997), Save the Children Japan (Integrated Child Nutrition Project in the five communes in Yen Bai 2003 – 2006).

Community-based interventions targeting community, family, and mothers/caregivers

The main activities implemented in Viet Nam that focused on community/family and mothers/caregivers to improve IYCF were behavior change communication (BCC) and the production and marketing of fortified complementary foods. Table 5 summarizes these interventions in Viet Nam.

Behavior change communication

Since 1990, Save the Children US in Viet Nam has implemented several poverty alleviation and nutrition programs that included activities such as 1) growth monitoring and promotion program for children under 3 years of age; 2) positive deviance inquiry to identify key growth promoting behaviors; and 3) a nutrition education and rehabilitation program. During the mid- to late-1990s, some of these programs were scaled-up to several parts of Viet Nam. The program has reached more than 2 million individuals, has had a significant impact on the prevention of growth faltering among young, severely malnourished children (age <15 months, WAZ <-2),[44] improved children's food and energy intake,[45] and achieved sustained nutritional and behavior change impacts.[46]

Several other programs implemented by nongovernmental organizations (NGOs) in the past 10 years focused on improving IYCF. These include the Save the Children Japan (2003-2006) Integrated Child Nutrition Project originally implemented in five communes in one district and later expanded to another district. This program included nutrition rehabilitation based on nutrition education for mothers/caregivers, cooking demonstrations, and the distribution of handbooks on care practices to mothers. A Save the Children US Child Survival project (2002-2007) targeted to ethnic populations in Quang Tri Province used strategies such as community mobilization, positive deviance approach, BF support groups, and behavior change communication to improve IYCF practices. Finally, a World Vision Viet Nam project based on BCC activities, and focused on best practices in antenatal care, EBF, and CF, also supported local people to set up "nutrition gardens," created nutritious meal models, distributed information materials, and provided health stations with baby scales. The lack of rigor in the evaluation of these three programs, however, prevents a definitive assessment and the attribution of impact to the respective programs on their targeted populations.

Fortified complementary foods

Two of the major fortified complementary food projects implemented in Viet Nam were the Fasevie project (1994-2003) and a recent project funded by the Asian Development Bank (ADB) (2006-2009).[35,48] The Fasevie project, was implemented in Hanoi and four other provinces. The goals of the project were to develop, test, and market affordable fortified complementary food and promote their purchase by low-income families, with the ultimate aim of preventing undernutrition among children less than 2 years of age. Working with local business, the project developed two types of good quality, affordable complementary food: infant flours (*Favilo* and *Favina*) and quick-cooking flours (*Nufavie*). Both of these products were fortified with vitamins and minerals and made available to mothers to purchase. The project also worked with community volunteers and the Viet Nam Women's Union to train them in teaching mothers on appropriate

Table 5. Summary IYCF community-based interventions in Viet Nam

Organization/Years of Implementation	Province/Districts and Target population	Intervention(s)/ Strategies/Policies	Outcomes/Effectiveness	Comments on evaluation design
Save the Children 1990-1995	Thanh Hoa, Phu Tho Mothers, caregivers, children < 24 months	Integrated Nutrition Program Positive deviant (PD) approach/Hearth interventions	Intervention children who were < 15 months and WAZ < -2 at baseline had significantly better growth than children in comparison group.[44] Intervention improved children's food and energy intake[45] PD approach achieved sustained nutritional impact and sustained behavior change to the benefit of future children[46] - former program children were better nourished 3-4 years later than matched controls - caregivers in intervention reported better feeding, health, and child care than control caregivers - Former program caregivers reported applying PD practices learned in the program to younger children	Longitudinal, prospective randomized design[55] Cross-sectional surveys[46] (compared those participated in the program 3 years before and those who did not) were used to evaluate the sustainability of the program.
IDR, GRET, NIN 1994-2003[35]	Ha Noi, Ha Tinh, Da Nang, Quang Nam, Bac Nan Mothers, children < 24 months old	Fasevie project Producing and selling infant food Improving population's nutrition education	Increase intake of energy, iron, and zinc Increase frequency and quantity consumed Improve Hb, iron, and zinc status Impact on caregiver's knowledge of nutrition (BF, CF, perception of malnutrition) Do not see significant effects on children nutritional status	- Food consumption survey - Randomized controlled trial (RCT) to evaluate the efficacy of Fasevie products - Overall impact evaluation (RCT, 2 cross-sectional survey) on a pilot scale to assess the impact on nutrition situation
Save the Children – USA 2002-2007 [36]	Quang Tri Children (0-59 months); Women (15-49 years)	Strengthened facility-based and outreach services Group counseling or BCC for EB and CF Peer counseling for EB and CF	The rate of mothers who breastfed their babies within one hour of birth increased from 74.2% at baseline to 92.2% at endline. EBF for infants under 4 months increased from 39.3% to 51.9%. - There were gains in knowledge of appropriate CF practices for children age 6 – 24 months. - The project had a modest impact on reduction of malnutrition rates among children < 2 years (from 35.4% at baseline to 27.2 at endline).	Baseline- endline survey, no comparison groups

Table 5. Summary IYCF community-based interventions in Viet Nam (con.)

Organization/Years of Implementation	Province/Districts and Target population	Intervention(s)/ Strategies/Policies	Outcomes/Effectiveness	Comments on evaluation design
Save the Children – Japan 2003-2007	Yen Bai (Luc Yen District-five communes) Children < 6 years old	Group counseling or BCC for complementary feeding	6-8% decrease in malnutrition rate	Baseline-endline survey
	Yen Bai (Tran Yen District-five communes) Children < 3 years old	- Promoted growth monitoring for children < 3 years - Provided nutrition rehabilitation program - Promoted home gardening - Introduced saving and credit activities	Prevalence of underweight among children < 3 years old decreased from 41.8% in 2003 to 25.2% in 2006. Not have enough data to document BF Big improvement of food diversification; 66% mothers fed children with more than food groups/day, double compared to the baseline (33%)	Baseline-endline survey. No comparison groups.
Save the Children – UK 2005-2007	Dien Bien Quang Ninh Children < 6 years old	- Mass promotion or social marketing of EBF and CF -Group counseling or BCC for IYCF	WAZ	NA
World Vision 10 to 15 years from 2006	Quang Tri, Thanh Hoa, Yen Bai, Hung Yen, Thua Thien Hue, Quang Nam, Da Nang, Quang Ngai, Binh Thuan, Ho Chi Minh Children < 5 years old	Group counseling or BCC for EBF and complementary feeding. Capacity building for health workers	Pilot project in Lang Chanh, Thanh Hoa showed that malnutrition rate among children under 5 years old has fallen to 31% from the previous 34% in the district (report 2006). In Quang Nam, malnutrition rate among children under 2 reduce from 28.8% in 2006 to 23/9% in 2007.[47]	Baseline-endline survey, no comparison groups
Asian Development Bank [48] 2007-2010	Quang Nam, Ha Tinh, Ha Noi, Phu Tho, Vinh Phuc, Quang Ngai, Nam Dinh, Tay Binh, Thanh Hoa Children 6-24 months and their mothers	Community-based production of fortified complementary food + social marketing and enhanced nutrition education.	Indicators: 325,000 mothers of young children reached through food distribution and nutrition education networks established in 60 districts.	NA

IYCF practices, as well as to promote the products and motivate mothers to purchase and use products.

After ten years, the project was successful in locally producing two infant flour products that are nutritious, sanitary, and affordable. The nutrition education and product promotion system was set up in 134 communes, reaching 13,500 women. A rigorous evaluation design—a randomized controlled trial with three groups (receiving instant flours, quick-cooking flours, or a traditional complementary food)—was used to assess the impact of the intervention. The results showed that the nutrition knowledge of caregivers increased significantly on several topics,[35] that children aged 6 to 9 months in the intervention communities improved their intake of energy, iron, and zinc, and that children who consumed the complementary food regularly had better iron and zinc status compared to the baseline and control groups, but were not different from the control group in terms of anthropometric indicators.[35]

Currently, ADB is supporting a three-year project to 1) expand localized, commercial production of a fortified, low-cost complementary food; 2) develop and expand the system of community-based complementary food sales, distribution, and enhanced nutrition education; 3) address barriers to accessing complementary food among the most poor and vulnerable; and 4) address policy development and advocacy for long-term support for fortified complementary food. The project has formed alliances with the private sector and NGOs to facilitate increased production capacity by expanding scale and reducing cost, thus ensuring sustainability. The project, which is expected to increase access by poor communities to fortified complementary food, has not yet been evaluated.

DISCUSSION

Patterns and Trends in IYCF

Our review of data on patterns and trends in IYCF suggests that the proportion of children aged 0-24 months ever breastfed is high and has remained consistent over time in Viet Nam. The median duration of BF is less than recommended by WHO, but there appears to have been some improvements between 1988 and 2002. EBF for the first six months is very low, however, with wide regional variability, and apparent declines over time. As seen in most developing countries, there are substantial differences in EBF rates between urban and rural areas[49] and by geographical region. EBF rates are lower in urban areas compared to rural areas. For women working outside of the home, exposure to aggressive breast milk substitute advertising, available income to purchase these products, and possibly less support from extended family members are potential reasons for the lower EBF found in urban areas.

Early introduction and poor quality of complementary foods are also of substantial concern in Viet Nam but data on other aspects of complementary feeding are not available. Overall, our review reveals that data on IYCF indicators are patchy and information is missing on several recommended IYCF indicators, such as feeding frequency, dietary diversity, and consumption of iron-rich foods. The methods and indicators used to assess IYCF practices were also inconsistent across studies, making comparisons and documentation of trends over time difficult to interpret.

Facilitators and barriers to IYCF

Using a conceptual framework to analyze barriers and facilitators to IYCF practices in Viet Nam, our findings indicate that the main facilitators for IYCF include 1) the commitment and support from government for nutrition and IYCF; 2) the support from NGOs and international organizations; 3) the strong and active Viet Nam Women Union's grassroots-level health workers; and 4) the strong and consistent support from family members.

On the other hand, the main factors negatively influencing IYCF in Viet Nam include 1) a lack of political will and coordination in enforcement and compliance of the Code on marketing and usage of infant formula; 2) aggressive marketing of breast milk substitutes from private companies; 3) poor knowledge, an unsupportive attitude, and poor IYCF practices among health providers; and 4) maternal factors such as the perception of insufficient milk, cultural beliefs restricting the use of colostrum, poor knowledge and practical skills related to IYCF, financial constraints, and barriers related to mother's work outside the home, lack of facilities to extract and store breast milk at work, and short maternity leave.

There are many gaps in the available literature regarding facilitators and constraints related to IYCF in Viet Nam. For instance, little information exists on factors influencing colostrum feeding and meeting energy requirements, feeding frequency, or diet diversity. There are also gaps in understanding how the mothers' workload, type of employment, and time away from home affects breastfeeding and on how support in terms of paid maternity leave and workplace facilities for breastfeeding could help improve practices.

Policies, Programs, and Interventions

A large number of policies, decrees, and strategies have been issued in Viet Nam in an effort to improve child nutrition and IYCF practices. However, the implementation and enforcement of these programs and policies are known challenges. Insufficient resources and lack of coordinating bodies to implement policies remain a challenge, and thus, violations of the Code are common, as is poor or noncompliance with BFH standards. It is important, therefore, to strengthen political will as well as improve communication and coordination among government bodies to ensure that the policy and strategies are enforced and complied with and monitored.

In reviewing the numerous nutrition programs targeting IYCF and nutrition, it is apparent that there are efforts being made to address this issue. However, there are several programs that overlap in terms of interventions and geographic areas, thus creating possible inefficiencies. More importantly, the low investment in rigorous impact and process evaluation results in a poor evidence base for action and advocacy.

Limitations of this review

There are certain limitations of this review, which we acknowledge here. First, differences in definitions of key indicators, sampling frames, and survey instruments in

different data sources limit comparability between studies and interpretation of trends over time. Second, much of the data on the barriers and facilitators to IYCF practices in Viet Nam come from small-scale qualitative research in selected rural areas. There is, therefore, a substantial lack of robust representative research and data on this issue, especially in urban areas. Lastly, there have been few evaluations of the impact of different interventions to improve IYCF and nutrition, thus limiting the overall evidence base. In spite of these limitations, this review is the first comprehensive review of IYCF practices, programs, and policies in Viet Nam that can be used to inform policy and program actions to improve IYCF practices in Viet Nam and help identify key research gaps.

Recommendations for program and policy action

The findings of the review, especially on the factors that constrain or facilitate optimal practice, indicate that the following types of issues must be addressed to improve IYCF practices in Viet Nam:

- Ensuring adequate access to appropriate and high-quality health and nutrition education for mothers and families/communities during the vulnerable period from pregnancy through the first two years of life.
- Ensuring that health care providers are well trained in IYCF and nutrition, and that their skills in providing counseling to mothers and families are built.
- Providing adequate postpartum support to mothers through their families and communities but also through workplace support and maternity leave. Mobilizing communities and families to support IYCF practices through the media, and through networks such as the Viet Nam Women's Union.
- Strengthening monitoring of compliance with the Code in health facilities, media, and by health care providers.

Recommendations for future research

The review highlighted a number of gaps in information related to IYCF patterns, trends and determinants, and the effectiveness of interventions to improve IYCF practices in Viet Nam. The following areas of research and evidence-building are therefore important to address in order to strengthen the evidence base for action:

- Understanding patterns and trends: It is critical to strengthen and harmonize data collection on IYCF and nutrition through the use of standard sampling frames and indicators (e.g., WHO IYCF indicators) across studies and over time.
- Determinants of IYCF practices: There are large gaps in information regarding the factors that enable or constraint optimal IYCF practices in Viet Nam. It is, therefore, important to strengthen the evidence base in this area and to capture the variability between different geographic, ethnic, and economic groups.
- Effectiveness of policies and programs: Investing in strengthening the evaluation of policies and programs to improve IYCF practices will be crucial to improve the evidence-base for action. To date, few programs have invested in rigorous evaluation of either their impact or processes, and this constrains interpretation of what will work best in the different sub-contexts of Viet Nam to improve IYCF practices at scale.

CONCLUSION

Our review of current data and literature on IYCF in Viet Nam sheds light on some of the major gaps in IYCF practices, as well as the factors that constrain or enable optimal IYCF practices. Our review shows that the evidence base is slim in terms of availability of good trend data on all IYCF indicators, determinants of these practices, and interventions to improve them. Strengthening the evidence base across these three areas will require substantial investments.

AUTHOR DISCLOSURES

We have no actual or perceived conflicts of interest.

REFERENCES

1. Dollar D, Glewwe P, Agrawal N. Economic growth, poverty, and household welfare in Vietnam. Regional and sectorial studies. Washington, DC: World Bank; 2004.
2. Khan NC, Tuyen le D, Ngoc TX, Duong PH, Khoi HH. Reduction in childhood malnutrition in Vietnam from 1990 to 2004. Asia Pac J Clin Nutr. 2007;16:274-8.
3. NIN (National Institute of Nutrition). Prevalence of undernutrition in children less than 5 years old in 2010 [cited 2010/9/1]; Available from: http://www.nutrition.org.vn/-news/vi/106/61/a/-so-lieu-thong-ke-ve-tinh-trang-dinh-duong-tre-em-qua-cac-nam.aspx
4. Codling K. Plan of action to accelerate the reduction of child stunting in Vietnam. Powerpoint Presentation with National Institute of Nutrition; 2008.
5. Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M et al. Maternal and child undernutrition: Global and regional exposures and health consequences. Lancet. 2008;371:243-60.
6. UNICEF (United Nations Children's Fund). Childinfo. Monitoring the situation of children and women. Statistics by area/child nutrition. 2009 [cited 2010/8/15]; Available from: http://www.childinfo.org/nutrition.html
7. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E et al. What works? Interventions for maternal and child undernutrition and survival. Lancet. 2008;371:417-40.
8. Labbok M, Taylor E. Achieving exclusive breastfeeding in the United States: Findings and recommendations. Washington, DC: United States Breastfeeding Committee; 2008.
9. GSO (General Statistics Office). Vietnam Demographic and Health Survey 1988. Hanoi: Statistical Publishing House; 1989.
10. GSO (General Statistics Office). Vietnam Demographic and Health Survey 1994. Hanoi: Statistical Publishing House; 1995.
11. GSO (General Statistics Office). Vietnam Demographic and Health Survey 1997. Hanoi: Statistical Publishing House; 1998.
12. GSO (General Statistics Office). Vietnam Demographic and Health Survey 2002. Hanoi: Statistical Publishing House; 2003.
13. NIN/UNICEF (National Institute of Nutrition/United Nations Children's Fund). Vietnam 2000-2002: A review of the nutrition situation. Hanoi: National Institute of Nutrition; 2003.
14. NIN/GSO (National Institute of Nutrition/General Statistics Office). Results of nutrition surveillance of children and mothers in 2002. Hanoi: Medical Publishing House; 2003.

15. NIN/GSO (National Institute of Nutrition/General Statistics Office). The situation of maternal and child nutrition 1994-2004. Hanoi: Statistical Publishing House; 2005.
16. NIN/GSO (National Institute of Nutrition/General Statistics Office). Nutritional status of children and their mothers in 2005. Hanoi: Medical Publishing House; 2005.
17. GSO (General Statistics Office). Analysis of results of the Multiple Indicator Cluster Survey II (MICS II). Hanoi: Statistical Publishing House; 2000.
18. GSO (General Statistics Office). Vietnam Multiple Indicator Cluster Survey 2006, Final report. Hanoi: Statistical Publishing House; 2006.
19. Duong DV, Binns CW, Lee AH. Breast-feeding initiation and exclusive breast-feeding in rural Vietnam. Public Health Nutr. 2004;7:795-9.
20. Hop LT, Gross R, Giay T, Sastroamidjojo S, Schultink W, Lang NT. Premature complementary feeding is associated with poorer growth of Vietnamese children. J Nutr. 2000; 130:2683-90.
21. Duong DV, Binns CW, Lee AH. Introduction of complementary food to infants within the first six months postpartum in rural Vietnam. Acta Paediatr. 2005;94:1714-20.
22. Li L, Thi Phuong Lan D, Hoa NT, Ushijima H. Prevalence of breast-feeding and its correlates in Ho Chi Minh City, Vietnam. Pediatr Int. 2002;44:47-54.
23. MOH, NIN. Plan of action for infant and young child feeding period 2006-2010; 2006
24. NIN/GSO (National Institute of Nutrition/General Statistics Office). The progress of malnutrition reduction among children under 5 years old and their mothers. Impact of nutritional intervention programmes in Vietnam 1999-2004. Hanoi: Statistical Publishing House; 2005.
25. MoH (Ministry of Health). Decree No. 43-CP of the Government on Temporarily Stipulating the Regime of Social Insurance. 1993 [cited 2010/8/15]; Available from: http://www.unescap.org/esid/psis/population/database/poplaws/law_viet/vi_030.htm
26. Companies exposed for violating Vietnam's regulations. 2002 [cited 2010/4/22]; Available from: http://www.babymilkaction.org/CEM/compfebmar02.html
27. Los Angeles Times. Multinationals selling baby formula in Vietnam break milk law meant to promote breastfeeding. 2009 [cited 2010/7/20]; Available from: http://www.latimes.com/news/nationworld/world/wire/sns-ap-as-vietnam-infant-formula,0,4122299.story
28. ICDC/UNICEF (International Code Documentation Centre/United Nations Children's Fund). Report by International Baby Food Action Network (IBFAN)–ICDC consultants on "Training course on monitoring and enforcement of Decree # 21/2006 on Marketing and Usage of Nutrition Products for Infants and Young Children" supported by UNICEF Vietnam; 2008.
29. Dearden KA, Quan LN, Do M, Marsh DR, Pachón H, Schroeder DG et al. Work outside the home is the primary barrier to exclusive breastfeeding in rural Viet Nam: Insights from mothers who exclusively breastfed and worked. Food Nutr Bull. 2002;23:101-8.
30. Duong DV, Lee AH, Binns CW. Determinants of breast-feeding within the first 6 months post-partum in rural Vietnam. J Paediatr Child Health. 2005;41:338-43.
31. Dearden KA, Quan le N, Do M et al. What influences health behavior? Learning from caregivers of young children in Viet Nam. Food Nutr Bull. 2002; 23: 119-29.
32. Almroth S, Arts M, Quang ND, Hoa PT, Williams C. Exclusive breastfeeding in Vietnam: An attainable goal. Acta Paediatr. 2008;97:1066-9.
33. Ha PB, Bentley ME, Pachón H, Sripaipan T, Caulfield LE, Marsh DR et al. Caregiver styles of feeding and child acceptance of food in rural Viet Nam. Food Nutr Bull. 2002;23: 95-100.
34. Hendrickson JL, Dearden K, Pachón H, An NH, Schroeder DG, Marsh DR. Empowerment in rural Viet Nam: Exploring changes in mothers and health volunteers in the context of an integrated nutrition project. Food Nutr Bull. 2002;23: 86-94.
35. Bruyeron O, Khan NC, Berger J, Salvignol B, Movois C, Treche S. Infants and young child feeding in Vietnam. 10 years of experience and lessons from the Fasevie project. Paris: Research and Technological Exchange Group; 2003.
36. Fullerton JT, Marsh D, Tran Thi Kiem et al. Child Survival 18 – Vietnam. Building Partner Capacity for Child Survival of Vietnamese Ethnic Populations. Dakrong and Huong Hoa Districts, Quang Tri Province, North Central Region, Vietnam. Final evaluation report. Save the Children, Vietnam; 2007.
37. Ha PB, Vu NA, Huong NT, Xuan TT, Marsh DR. Why minority mothers do not practice optimal maternal, newborn, and child health behaviors in Quang Tri Province, Viet Nam: A baseline Behavioral determinants study. A final report of Save the Children Formative Reseach of CS 18 Project; 2003.
38. Morrow M. Breastfeeding in Vietnam: Poverty, tradition, and economic transition. J Hum Lact. 1996;12:97-103.
39. Hanoi Medical School and Alive & Thrive project. Technical report of formative research on Infant and Young Child Feeding in Vietnam; 2010 (unpublished).
40. Swenson IE, Thang NM, Tieu PX. Individual and community characteristics influencing breastfeeding duration in Vietnam. Ann Hum Biol. 1993;20:325-34.
41. Lapping K, Frongillo EA, Studdert LJ, Menon P, Coates J, Webb P. Prospective analysis of the development of the national nutrition agenda in Vietnam from 2006 to 2008. Health Policy Plan; 2011. [Epub ahead of print]
42. NIN (National Institute of Nutrition). National Nutrition Strategy 2001-2010. Nutritional situation and intervention strategies in Vietnam. Hanoi: Medical Publishing House; 2007.
43. World Vision Vietnam. Annual review 2008. Hanoi: World Visiion Vietnam; 2008.
44. Schroeder DG, Pachón H, Dearden KA, Ha TT, Lang TT, Marsh DR. An integrated child nutrition intervention improved growth of younger, more malnourished children in northern Viet Nam. Food Nutr Bull. 2002;23:53-61.
45. Pachon H, Schroeder DG, Marsh DR, Dearden KA, Ha TT, Lang TT. Effect of an integrated child nutrition intervention on the complementary food intake of young children in rural north Viet Nam. Food Nutr Bull. 2002;23:62-9.
46. Mackintosh UA, Marsh DR, Schroeder DG. Sustained positive deviant child care practices and their effects on child growth in Viet Nam. Food Nutr Bull. 2002;23:18-27.
47. World Vision Vietnam. Annual review 2007. Hanoi: World Vision Vietnam; 2007.
48. ADB. Vietnam: Nutritious Food for 6-24 Month Old Children Vunerable to Malnutrition in Poor Areas. Project number 38631. Financed by the Japan Fund for Poverty Reduction; 2005.
49. Smith L, Ruel M, Ndiaye A. Why is child malnutrition lower in urban than rural areas? Evidence from 36 developing countries. Food and Nutrition Discussion Paper No 176. Washington, DC: International Food Policy Research Institute; 2004.
50. WHO (World Health Organization). Indicators for assessing infant and young child feeding practices. Part II: Measurement. Geneva: WHO Press; 2009.

51. Dearden KA, Hilton S, Bentley ME, Caulfield LE, Wilde C, Ha PB et al. Caregiver verbal encouragement increases food acceptance among Vietnamese toddlers. J Nutr. 2009;139: 1387-92.
52. UNICEF (United Nations Children's Fund). The Baby-Friendly Hospital Initiative. 2009 [cited 2010/7/20]; Available from: http://www.unicef.org/nutrition/index_24806.html
53. MOH. Dcree on the trading in and use of nutritious products for infants. No: 21/2006/ND-CP; 2006
54. MOH. JOINT CIRCULAR. Guiding the Implementation of the Government's Decree no. 21/2006/ND-CP of February 27, 2006, on Trading in and Use of Nutritious Products for Babies. No: 10/2006/TTLT/BYT-BTM-BVHTT-UBDSGDTE; 2006"
55. Marsh DR, Pachón H, Schroeder DG, Ha TT, Dearden KA, Lang TT et al. Design of a prospective, randomized evaluation of an integrated nutrition program in rural Viet Nam. Food Nutr Bull. 2002;23:36-47.

Review

A situational review of infant and young child feeding practices and interventions in Viet Nam

Phuong Hong Nguyen PhD[1], Purnima Menon PhD[2], Mariel Ruel PhD[3], Nemat Hajeebhoy MHS[4]

[1]*International Food Policy Research Institute (IFPRI), Hanoi, Viet Nam*
[2]*International Food Policy Research Institute (IFPRI), New Delhi, India*
[3]*International Food Policy Research Institute (IFPRI), Washington, DC, USA*
[4]*Academy for Educational Development, Hanoi, Viet Nam*

越南的嬰幼兒哺餵習慣與介入之狀況回顧

越南不理想的嬰幼兒哺餵習慣(IYCF)似乎是導致高比例營養不良的重要原因。然而到目前為止，並沒有人針對這點做全面地探討。這篇研究主要探討的主題如下：1) 越南嬰幼兒哺餵習慣的模式與趨勢；2) 嬰幼兒哺餵習慣的障礙和成因；3) 介入措施及相關政策的成效。研究方法包括檢視跟分析既有的資料，並且根據預先定義的概念框架來綜整和組織相關證據。結果發現，幾乎所有兒童都曾被哺餵母乳，母乳哺餵期的中位數為 13-18 個月。然而，頭六個月是純母乳哺餵的比例不高(8-17%)，而且此比例隨著時間逐漸降低。關於輔食品的資訊有限，但有兩個關鍵問題待解決，即太早開始餵食輔食品和輔食品的營養品質不佳。理想的 IYCF 養成有賴政府漸進的政策、非營利組織和家人的支持和協助。養成理想的 IYCF 的障礙包括：1) 沒有強制執行和遵守母乳替代品行銷的法規；2) 健康照護提供者缺乏適當的知識； 3) 產婦缺乏相關知識。研究發現顯示越南輔食品餵食的相關基礎資料不足，未來需加強研究。本篇回顧也重申，改善越南嬰幼兒哺餵的政策措施與計畫須分別針對不同層次：家庭、衛生體系和私營部門。

關鍵字：回顧、越南、母乳哺餵、輔食品餵食、嬰兒