

QUALITATIVE STUDY ON NUTRITION- AND HEALTH-RELATED KNOWLEDGE ATTITUDES AND PRACTICES IN FOUR HIGH STUNTING REGIONS OF LAO PDR

DISCUSSION PAPER

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WORLD BANK GROUP
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Health, Nutrition and Population (HNP) Discussion Paper

Qualitative Study on Nutrition- and Health-related Knowledge, Attitudes, and Practices in Four High Stunting Regions of Lao PDR

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The Government of Japan provided financial support for this work through the Japan Trust Fund for Scaling Up Nutrition

ABSTRACT: Despite the Lao People’s Democratic Republic (Lao PDR)’s significant economic growth over the last decade, poor nutritional outcomes remain a concern. Rates of malnutrition are particularly high in remote, rural, and upland areas. Redressing these high rates of malnutrition is critical in reversing inequalities in mortality and ill-health throughout people’s lives. This report presents the results of a qualitative study to investigate the knowledge, attitudes, and practices related to maternal and child health and nutrition in local communities in four provinces of Lao PDR with high levels of childhood undernutrition.

While study participants were aware of the importance and benefits of antenatal care, facility-based birthing, and postnatal care, they also reported significant barriers to accessing these services. These barriers included poor road conditions and lack of transportation, long distances to health facilities, language difficulties, and lack of spousal support. With regard to infant and young child feeding, many mothers were aware of the benefits of colostrum for the first 24 hours and exclusive breastfeeding for the first six months of life and tried to put this into practice. However, some ethnic minority women stated that at times it was hard to prevent grandmothers from giving the infant water or a little chewed rice. There were mixed results when it came to growth monitoring of children. Even though mothers did participate in growth monitoring and promotion activities, most did not fully understand the reasons behind those activities. Access to clean water and appropriate sanitation facilities depended on location, but few families had access to safe water. While messages regarding handwashing and desisting from open defecation were well known in most villages, poverty and lack of support for providing safe and sustainable sanitation systems diminished the ability of many families to practice safe hygienic practices.

Keywords: Knowledge attitudes, and practices; Undernutrition; KAP; Lao PDR; Qualitative study

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ACRONYMS AND ABBREVIATIONS

AFN	Agriculture for Nutrition
ANC	Antenatal care
ASEAN	Association of Southeast Asian Nations
FGD	Focus group discussion
GAFSP	Global Agriculture Food Security Program
GDP	Gross domestic product
GoL	Government of Lao PDR
HGNDP	Health Governance and Nutrition Development Project
IDI	In-depth interview
KAP	Knowledge, attitudes, and practices
Lao PDR	Lao People's Democratic Republic
MCH	Maternal and child health
M&E	Monitoring and evaluation
MOH	Ministry of Health
NNSPA	National Nutrition Strategy and Plan of Action
NSEDP	National Socio-economic Development Plan
PNC	Postnatal care
SBCC	Social and behavior change communication
UNICEF	United Nations International Children's Emergency Fund
WASH	Water, and Sanitation, and Hygiene

EXECUTIVE SUMMARY

Lao PDR has experienced significant economic growth over the last decade with its economy growing at about 7.5 percent (Lao PDR 2016). The economy has begun to slow, however, with growth in 2019 projected to be about 6.5 percent (Asian Development Bank 2018). Despite this economic growth, poor nutritional outcomes remain a concern. Rates of malnutrition are particularly high in remote, rural, and upland areas, as well as in areas without all-weather roads and market access. Redressing these high rates of malnutrition is critical in reversing inequalities in mortality and ill-health throughout people's lives. Research suggests that adequate nutrition in the first 1,000 days of life, from conception until two years of age, is critical for avoiding irreversible negative health and nutritional outcomes.

The government of Lao PDR's (GoL) commitment to finding solutions to the pressing issues of poverty and malnutrition is clearly spelled out in its National Development Strategy. Notably, among the key objectives of the Eighth National Socio-economic Development Plan (NSED) 2016–2020 are developing human capital, graduating from less-developed country status by 2020, and achieving a reduction in poverty to 15 percent by 2020 through sustained and inclusive growth. The NSED calls for poverty reduction among all ethnic groups and equal access to education and health for both genders in all ethnic groups as well as for decreased malnutrition.

In support of the GoL's health and nutrition programs, the World Bank (WB) has provided funds to support the government of Lao PDR to implement the Health Governance and Nutrition Development Project (HGNDP). The objective of HGNDP is to increase coverage of reproductive, maternal and child health, and nutrition services in target areas and to support health- and nutrition-related social and behavior change communication (SBCC) interventions in more than 800 villages in northern provinces of Lao PDR. The SBCC component includes messages on nutrition and dietary intake, as well as on the determinants of health and nutrition, such as indoor air pollution, and water, sanitation, and hygiene (WASH). The project also includes utilizing results-based financing for the availability of nutrition commodities, incentivizing growth promotion (through growth monitoring and counseling), and integrated outreach in the 14 target provinces. The purpose of this report is to provide qualitative data to complement the Knowledge, Attitudes, and Practices (KAP) Quantitative Baseline Survey also conducted under the HGNDP and to provide a foundation for a subsequent impact evaluation. In addition, the WB and the Global Agriculture Food Security Program (GAFSP) have been supporting the Agriculture for Nutrition (AFN) Project, which aims to reduce extreme poverty and malnutrition in the poorest communities in northern Laos by strengthening public services, establishing community-driven services, providing agriculture-based nutrition interventions, and forming sustainable and inclusive market-driven partnerships. These two projects are being implemented in 12 targeted districts of four northern provinces: Phongsaly, Oudomxay, Xiengkhuang, and Huaphanh. Ethical approval was provided by the Ministry of Health Research Ethics Committee.

A total, eight out of twelve districts (two districts per province) and three villages per district were chosen. Districts were selected based on three criteria: (i) location in a remote or

rural area where one village had a connected road; (ii) one village had no connected road; and (iii) both villages had received project interventions (including monthly health- and nutrition-related social and behavior change communication sessions). “Phase I” villages were selected from among those villages that had begun (or had been scheduled to begin) implementation of AFN and/or HGNDP activities at the time of the survey. The “Phase II” villages were selected from the remaining villages, which were scheduled to be late implementers of the HGNDP and AFN SBCC activities. The included villages also had to be multiethnic, classified as poor or of low socioeconomic status, and have pregnant women and women with children 0–23 months and 24–59 months of age. A multimethod qualitative approach was employed for this study. Focus group discussions (FGDs), as well as key informant in-depth interviews (IDIs), were used to gather the required information. In total, 47 FGDs and 110 IDIs were conducted for this study.

FINDINGS

On the issues of knowledge, practice, and capacity to maintain a nutritionally diverse diet, findings were mixed, with similarities observed in both Phase I and Phase II villages. In all Phase I villages, participants reported that the uptake of antenatal care (ANC) and institutional delivery had increased, although some women in both project and control villages continued to prefer home birthing. Factors associated with low use of ANC and home deliveries included poor physical access due to lack of all-weather roads or lack of transport and women going into labor quickly. Furthermore, women who did not speak Lao very well experienced challenges in understanding the health care staff. In both Phase I and Phase II villages, women of Hmong ethnicity felt that they had limited autonomy in decision-making regarding maternal and child health (MCH) service use.

As a qualitative study, it was not feasible to quantify changes in knowledge, self-reported practices, or improvements in determining infants’ weights for their height and age. However, in Phase I villages, many women were able to recall key messages and describe optimal breastfeeding and introduction of complementary feeding practices. Participants reported, however, that achieving optimal nutritional intake was challenging due to limited access to all the food groups, with mother and infant nutritional intake being seasonally dependent. At different times of the year, participants reported having a more monotonous diet, consisting mostly of rice and seasonally available vegetables. Learning about food products that grow locally, knowing their nutritional value, and seeing cooking demonstrations were valued by mothers. Almost all mothers in the study said their physical workload remained high during pregnancy but said that their workload was also seasonally dependent. Mothers in Phase I villages said they valued community-based growth monitoring. Some women, however, were unclear on exactly what the different colors on the growth chart meant. To sum up, the SBCC seems to have made gains in increasing knowledge regarding maternal and infant feeding practices, and in promoting increased utilization of MCH services, due to the use of the basic and intermediate determinants. However, there often still remained a knowledge-practice gap.

Regarding WASH-related behaviors and practices, while messages regarding handwashing and desisting from open defecation were well known in most villages, a lack of

disposable income and a lack of support for providing safe and sustainable water supply and sanitation systems diminished the ability of many families to practice safe hygienic practices. Access to portable water and sanitation was beyond the means of many families included in the study, especially those in remote and rural areas. Moreover, although many families had consistent access to soap for handwashing, many Hmong and Khmou participants stated it was difficult for them to have soap all the time when they had to stay in their rice fields in the remote mountainous areas for a month before they returned to their village.

Overall, the study showed mixed results. There were some similarities in Phase I and Phase II villages regarding knowledge and practice, and also similarities in that the capacity to enact project educational messages was largely dependent on the level of livelihood assets and disposable income. In both Phase I and Phase II villages, there were qualitatively similar levels of knowledge related to key project messages that mirror government priorities, such as, for example, water and sanitation, uptake of ANC, institutional delivery, and optimal breastfeeding practices.

INTRODUCTION

COUNTRY CONTEXT

The Lao People's Democratic Republic (Lao PDR) has experienced rapid economic growth over the past decade, driven largely by mega projects in the natural resource sector, which have created limited employment opportunities. After a period of high economic growth, the country's gross domestic product (GDP) has declined by about 6.5 percent in recent years. However, economic growth has not been particularly inclusive. With the rate of poverty declining from 33.5 percent to 23.2 percent between 2002–03 and 2012–13, the pace of poverty reduction has been modest compared to neighboring countries (for example, a 1.0 percent increase in GDP in Cambodia translated to 1.2 percent poverty reduction, whereas in Lao PDR, the increase in GDP was only 0.4 percent). Furthermore, inequality has widened over the last decade with the Gini coefficient increasing from 32.4 (2002) to 36.2 (2012).

Economic growth has been heavily concentrated in urban areas,⁷ while in rural areas, high levels of poverty and inequality prevail. The incidence of poverty is estimated at 23.2 percent nationally, but is 40.0 percent in rural areas without roads, compared to 10.0 percent in urban areas. Poverty, along with lack of access to basic social services, remains entrenched in remote and highland areas in the northern part of the country even though some improvements have been observed. Infrastructure in remote areas is particularly limited, and many communities are inaccessible during the annual rainy season. These remote areas also continue to be characterized by poor access to publicly provided social services, such as health and education.

SECTORAL AND INSTITUTIONAL CONTEXT

Despite economic growth, chronic childhood undernutrition (stunting) levels have remained high. About 33 percent of children under five years are stunted,⁸ 21 percent are underweight, and 9 percent are wasted. The persistence of high levels of childhood undernutrition present a staggering loss of human and economic potential for Lao PDR. For example, according to the World Bank's Human Capital Project, a child born in Lao PDR today will only be 45 percent as productive as she could have been if she had optimal education, good health, and a well-nourished childhood. Furthermore, at the current levels of maternal and childhood malnutrition, the burden on the national economy has been estimated to be at least US\$200 million annually, representing about 2.4 percent of the country's GDP.⁹ Furthermore, while there have been marked improvements in stunting over time, Lao PDR still performs poorly compared to other countries with similar income levels, and compared to other countries in the Association of Southeast Asian Nations (ASEAN) (Figure 1.1). If malnutrition

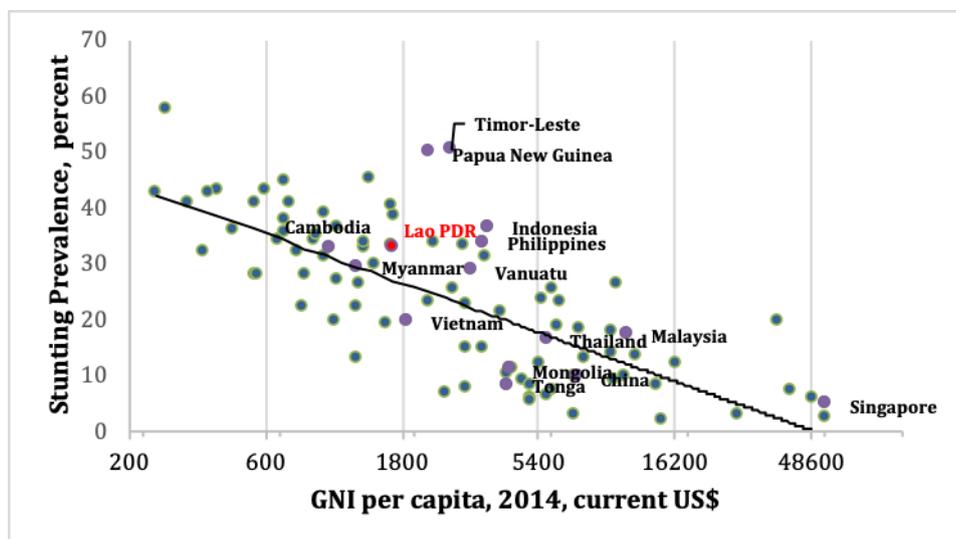
7. World Bank 2014.

8. Stunting is a reflection of chronic malnutrition as a result of failure to receive adequate nutrition over a long period and of recurrent or chronic illness. It is measured by height-for-age. Children whose height-for-age is more than two standard deviations below the median of the reference population are considered short for their age and are classified as moderately or severely stunted. Those whose height-for-age is more than three standard deviations below the median are classified as severely stunted (Ministry of Health, Lao Statistics Bureau 2018).

9. Bagriansky and Voladet 2013.

continues at current rates, the country’s ambitious national goal of 8 percent annual GDP growth will be difficult to attain.

Figure 1.1. Stunting Prevalence by Income Levels in Select East Asia and the Pacific Countries



Source: World Bank 2015

As is the case involving poverty, the national aggregates of childhood undernutrition also mask wide inequalities, with far worse outcomes in some provinces than in others. For example, stunting rates are higher in provinces such as Phongsaly (54.0 percent), Xiengkhuang (48.3 percent), Oudomxay (42.7 percent), and Huaphanh (40.7 percent), the four target provinces for this study, which also constitute the “multisectoral nutrition convergence provinces.” There are also significant variations across income levels; both stunting and underweight rates among children in the poorest wealth quintile (48 percent stunted) are close to three times the rates for children in the richest quintile (14 percent stunted). These percentages are also disproportionately high for ethnic groups (that is, stunting among Hmong is about 50 percent).

GOVERNMENT STRATEGIES TO ADDRESS MALNUTRITION

The government of Lao PDR’s commitment to address the pressing issues of poverty and malnutrition is laid out in its National Development Strategy. Notably, among the key objectives of the Eighth National Socio-economic Development Plan (NSED) 2016–2020 are developing human capital, graduating from lower-income country status by 2020, and achieving a reduction in poverty from 18.8 percent in 2018 to 18.0 percent by 2020 through sustained and inclusive growth. The NSED calls for poverty reduction among all ethnic groups and equal access to education and health for both genders, as well as addressing malnutrition. In terms of nutrition, the NSED is also supported by the first National Nutrition Policy, promulgated in 2008. Based on this policy, the 2016–2025 National Nutrition Strategy (2016–2025) and Plan of Action (2016–2020) (NNSPA) was formulated.

The NNSPA is the guiding framework for addressing malnutrition and establishes a multisectoral convergence approach. The NNSPA was designed to accelerate the reduction

of stunting in children under five years of age from 44 percent to an ambitious target of 25 percent by 2025. The NNSPA has four strategic directions: addressing the immediate, underlying, and basic causes of malnutrition, and addressing their links.¹⁰ Its 11 strategic objectives include (among others): improving nutrient intake; achieving adequate food consumption, particularly emphasizing the first 1,000 days of life; improving availability and access to nutritious foods; improving maternal and child health practices; improving water, sanitation, and environments; and improving access to health and nutrition services. To achieve these objectives, 29 interventions for improved nutrition have been identified, 22 of which are considered first-order priority interventions. These priority interventions are “assigned” to specific sectors, such as health; agriculture; water, sanitation, and hygiene (WASH); and education; plus a few cross-cutting ones. The strategy emphasizes working through and strengthening community-level platforms. Coverage of the 22 priority actions, however, is scattered and fragmented due to limited resources.

WORLD BANK MULTISECTORAL ACTION PLAN TO REDUCE STUNTING

In response to the multidimensional causes of malnutrition in Lao PDR and in support of the government of Lao PDR (GoL)’s NNSPA, the World Bank has made a commitment to a multisector action plan to support the government’s efforts in tackling childhood stunting. The long-term vision for the World Bank nutrition agenda is aligned with the GoL’s objective of reducing stunting prevalence at the national level from 44 percent to 25 percent by 2025.¹¹ This “convergence approach” ensures that World Bank–supported nutrition-sensitive and nutrition-specific interventions in Lao PDR will be coordinated to the extent feasible in four key areas: (i) geographic convergence of nutrition-specific and nutrition-sensitive interventions in the same communities and households; (ii) use of common nutrition social and behavior change communication (SBCC) strategies, action plans, and tools for consistent messaging; (iii) leveraging of each other’s delivery platforms, for example, preestablished community structures; and (iv) exploring possibilities for common monitoring and evaluation (M&E) frameworks.

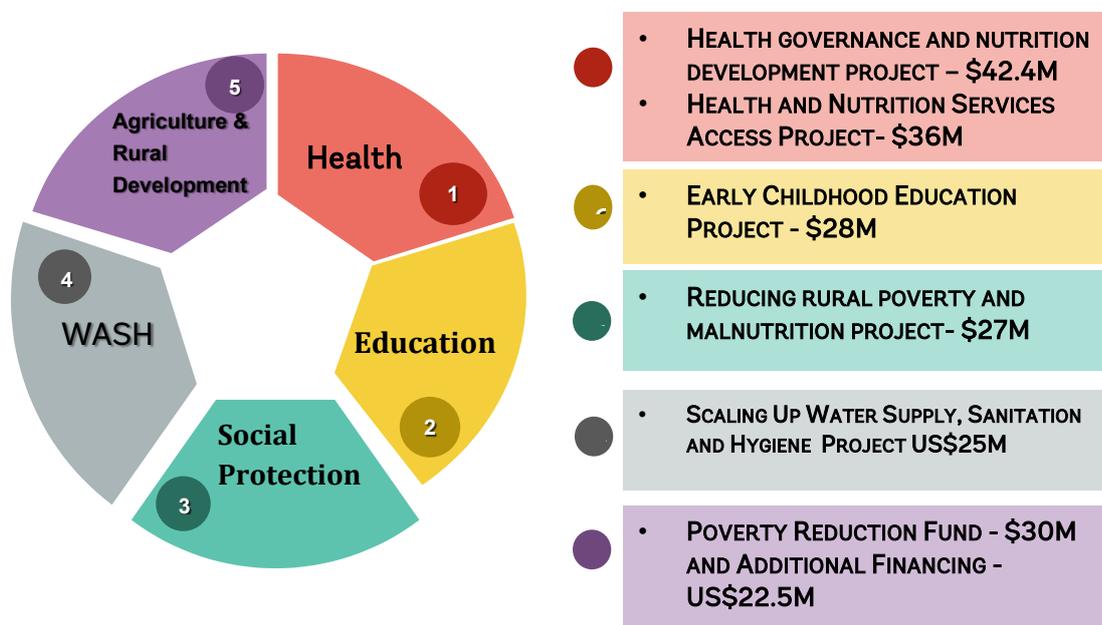
In this regard, World Bank–financed projects in the health; agriculture; education, social protection; and water, sanitation, and hygiene sectors were identified as key to addressing the immediate as well as underlying causes of maternal and child undernutrition in Lao PDR (Figure 1.2). Through simultaneous implementation in the same geographic regions and targeting the same households, opportunities to reduce stunting prevalence are being maximized. Twelve target districts in the four multisectoral nutrition convergence provinces were selected, covering a total of 881 villages. Each of these interventions would address a key cause of undernutrition in Lao PDR: poverty and vulnerability; limited access to quality health and nutrition services; limited access to water and sanitation; and limited knowledge of adequate maternal and child health practices, good nutrition practices, and practices of early childhood development at the household level. In addition, these projects will help address issues that cut across sectors, particularly gender dynamics that contribute to high levels of stunting. A critical project for this convergence approach is the Health

10. The NNSPA causal framework for undernutrition is based on the 1990 UNICEF Conceptual Framework of Undernutrition, which specifies the main causes for malnutrition in children at different levels: immediate, underlying, and basic.

11. World Bank 2017.

Governance and Nutrition Development Project (HGNDP), which was already active when the data collection for this study took place.

Figure 1.2. World Bank—Lao PDR Portfolio with Nutrition-specific and Nutrition-sensitive Interventions



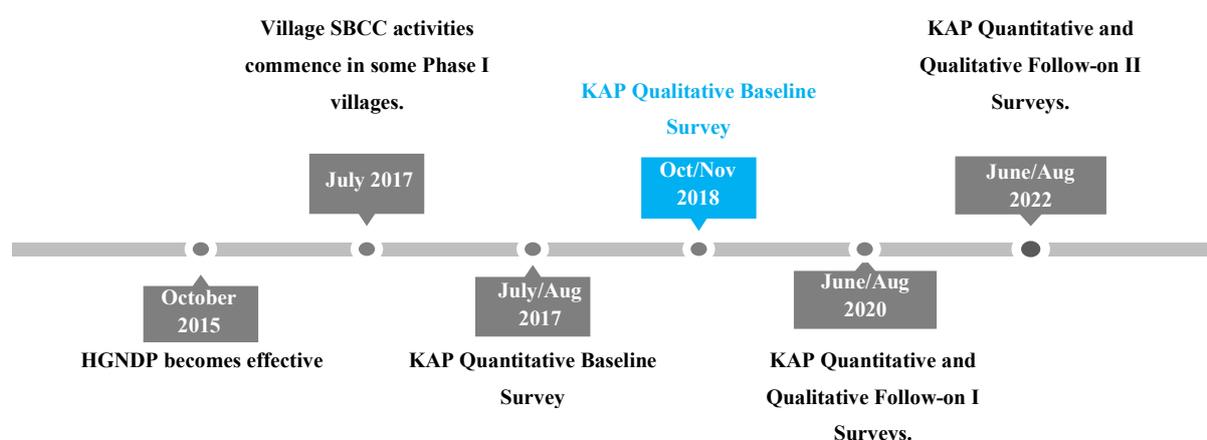
Source: Authors' calculations

The overall objective of HGNDP is *to help increase coverage of reproductive, maternal and child health, and nutrition services in target areas in Lao PDR*. The project focuses on improving access to and utilization of reproductive, maternal and child health, and nutrition services. A key component of this project (**Component 3: Nutrition Social and Behavior Change Communication**) supports the implementation of the National SBCC strategy at national as well as at the village level. At the village level, the project supports community-based SBCC activities aimed at contributing to improvements in maternal nutrition and related caring practices; infant and young child feeding and caring practices; appropriate sanitation and personal behavior as well as environment-related hygiene practices; and dietary diversification. Village-based facilitators, who are mostly female village health volunteers (VHVs) and/or members of the Lao Women's Union, lead the SBCC implementation at the village level, under the guidance of district health staff. The village-based facilitators organize at least monthly communications sessions and conduct home visits for follow-up with pregnant women and children under two years old. Although the implementation of village-level SBCC will cover a relatively small geographic area—881 villages in the 12 target districts—should the approach prove to be successful, the delivery mechanism and implementation are expected to be replicated in other provinces.

This Knowledge, Attitudes, and Practices (KAP) Qualitative Baseline Study therefore constitutes one of several studies that will be utilized to assess the effectiveness of the innovative village-level SBCC approach. Findings of this study will serve as a baseline for tracking possible changes in health- and nutrition-related knowledge, attitudes, and practices,

and which will be reassessed during follow-on studies (see Figure 1.3 for time line of the studies). This study also complements the KAP Quantitative Baseline Survey, which was carried out in the same target districts and villages in 2017. Most KAP themes that formed the basis of the focus group discussions and in-depth interviews (for example, use of antenatal care [ANC] services, growth monitoring and promotion, institutional deliveries, breastfeeding practices, etc) were aligned with those also assessed in the KAP quantitative study. Some key findings of the quantitative study are shown in Table 1.1.

Figure 1.3. Time Line for Health Governance and Nutrition Development Project Studies



Source: Authors

Note: SBCC = Social and behavior change communication; KAP = Knowledge, attitudes, and practices; HGNDP = Health Governance and Nutrition Development Project.

Table 1.1. Key Findings from the Knowledge, Attitudes, and Practices Quantitative Baseline Survey

Indicator	All	Village type		Province			
		Ph-I	Ph-II	Huaphanh Xiengkhuang	Oudomxay	Phongsaly	
Breastfeeding							
Exclusive breastfeeding among children 0–6 months (%)	68	69	68	64	57	77*	77*
Minimum Acceptable Diet among Children 6–23 months							
Breastfed children 6–8 months (%)	13	10	14	7*	15	11	25*
Breastfed children 9–23 months (%)	34	30	35	39	34	24*	37

Nonbreastfed children (%)	7	3	8	11	1	4	9
Received vitamin A Supplement in the past 6 months (6–59 months) (%)	78	79	77	77	79	83*	79
Received deworming tablets in the past 6 months (12–59 months) (%)	67	68	66	73*	72	58*	68
Water, sanitation, and hygiene (WASH)							
Households with access to improved sanitation (%)	58	50	60	57*	62	77*	66
Households practicing open defecation or using unimproved sanitation (%)	40	48	38	40*	35	22*	30*
Children under 5 defecated or had feces deposited into an improved toilet or latrine (%)	36	31	38	45*	32	22*	42
Households with handwashing station/facility (%)	61	62	60	59*	65	67	49*
Health- and nutrition-related knowledge, attitudes, and practices							
Has home garden (%)	72	67*	73*	68	79*	81*	71*
Mothers who can identify at least 1 reason why fruits and vegetables are important for the body (%)	64	61	65	64*	67*	50*	75*
Mothers who can identify at least 1 reason why animal foods are important for the body (%)	63	61*	63*	64*	64	48*	73*
Made at least 4 ANC visits (%)	52	49	53	59	64	29*	59*
Delivered at home during last pregnancy (%)	58	63	57	59	45*	74*	48*

Received PNC within 48 hrs during last pregnancy (%)	27	23	27	31	19*	16*	35*
Took at least 90 iron tablets during pregnancy (%)	35	30	35	43*	28	39	35*
Up-to-date growth chart among children 0–23 months (%)	7	7	7	7*	8*	1*	10*
Has a pink vaccination book (0–59 months)	48	47	48	53*	41*	28*	67*
Satisfaction with social and behavior change communication activities in their communities (%)	99	97*	99*	99	99	96*	99

Source: WB KAP Quantitative Survey

Note: ANC = Antenatal care; PNC = Postnatal care.

* Significant difference in proportions across groups, $p < 0.05$.

OBJECTIVE OF THE STUDY

This KAP Qualitative Study was conducted with the overall objective to “*provide qualitative data to better understand health- and nutrition-related behaviors, attitudes, and practices* in project areas,” and to provide evidence of the village-level SBCC activities being implemented with support from HGNDP and the Agriculture for Nutrition (AFN) project.¹² Specifically, the study sought to assess the project beneficiaries’ perceptions of undernutrition; their use of essential health and nutrition services; infant and young child feeding practices; their water, sanitation, and hygiene practices, as well as their food production and expenditures.

METHODOLOGY

STUDY SITES

The selection of districts and villages for this study followed exactly the same approach as that of the quantitative study. Both surveys were conducted in the 12 target districts in the multisectoral nutrition convergence provinces. A total of 881 villages in the 12 target districts are expected to be reached through implementation of HGNDP and/or (AFN) activities at some point over the five-year project rollout. The Phase I group of villages was selected from among those villages scheduled to begin activity implementation in mid-2017. The Phase II group was selected from the remaining villages, which were scheduled to be late implementers of project activities (beginning in early 2020).

In total, eight out of twelve districts (two districts per province) and three villages per district were selected for inclusion in this study. The criteria used for districts to be selected for inclusion were (i) that the district was located in a remote or rural area where at least one village had a connected road and at least one village in the district was without a connected road,¹³ and (ii) at least two villages had also received project interventions at the time of the study. Selected villages also had to meet the criteria of being multiethnic, and have a population of low socioeconomic or poor financial status, and have pregnant women and women with children either less than two years (0–23 months) or less than five years (0–59 months) old. Table 1.2 provides the names of the provinces, districts, villages, and ethnic groups that participated in this study.

12. AFN is an International Fund for Agriculture Development (IFAD)–financed project, which has the overall objective to reduce extreme poverty and malnutrition in the poorest communities in northern Laos by strengthening public services, establishing community-driven development, providing agriculture-based nutrition interventions, and forming sustainable and inclusive market-driven partnerships. Activities include the establishment of nutrition-sensitive agriculture production infrastructure, particularly micro-irrigation systems, the creation of Farmer Nutrition Schools (FNSs), and the financing of investments to support availability and use of nutritious food for female-led households.

13. Villages without connected roads refers to those villages that have unpaved or dirt roads, which are inaccessible by car or motorbike, rather than walking by foot, during raining season. Those villages also might not have electricity and still use water from a borehole or well.

Table 1.2. Names of the Provinces, Districts, Villages, and Ethnic Groups that Participated in the Study

No.	Province	District	Attribute of village	Selected villages	Ethnic groups	Distance from town
1	Xiengkhuang	Kham	Rural village connected with road	Nameung (District Hospital)	Kh mou	11 km
			Rural village with no connected road	Naphanh (Namsai Health Center)	Kh mou Hmong Tai Dam, Tai Deng, Lao Tai	40 km
			Phase II village	Naxay (Naxay Health Center)	Kh mou Hmong Lao Tai	32 km
		Nonghed	Rural village connected with road	Korthong (Phakkea Health Center)	Hmong	35 km
			Rural village with no connected road	Phonxay (Jamauin Health Center)	Kh mou	35 km
			Phase II village	Nongkob (Phouhoauxang Health Center)	Hmong	47 km
2	Huaphanh	Xamtay	Rural village connected with road	Dan	Lao Hmong	40 km
			Rural village with no connected road	Sopsang	Lao	4 km
			Phase II village	Korlu	Lao	20 km
		Kuan	Rural village connected with road	Phalem (Nanang Health Center)	Hmong	15 km
			Rural village with no connected road	Navin (Moungna Health Center)	Hmong, Kh mou Lao	37 km
			Phase II village	Houyheng	Lao	10 km

No.	Province	District	Attribute of village	Selected villages	Ethnic groups	Distance from town
3	Oudomxay	La	Rural village connected with road	Namlang (That Moun Health Center)	Kh mou	26 km
			Rural village with no connected road	Hoauthong (That Moun Health Center)	Kh mou	22 km
			Phase II village	Kokmaiyai (Kokmaiyai Health Center)	Akha	20 km
		Namor	Rural village connected with road	Paknamthong (Pangxa Health Center)	Lao Tai Hmong	4 km
			Rural village with no connected road	Heuyhok (Pangxa HC)	Kh mou	24 km
			Phase II village	Heuyxang (Nakham HC)	Kh mou Hmong Lantand	15 km
4	Phongsaly	Boon tai	Rural village connected with road	Phialek (District Hospital)	Kh mou	5 km
			Rural village with no connected road	Nongbounkang (District Hospital)	Kh mou Lao Tai Pounoy Lao	2 km
			Phase II village	Xingxay (District Hospital)	Pounoy	11 km
		Khua	Rural village connected with road	Hadnang (Ladxang Health Centre)	Kh mou	43 km
			Rural village with no connected road	Hadxeuy (Ladxang Health Center)	Yang Kh mou	25km
			Phase II village	Jakoud	Kh mou	15 km

No.	Province	District	Attribute of village	Selected villages	Ethnic groups	Distance from town
				(Ladxang HC)		
		8	24 (8 Phase II villages)	24		

Source: Field work conducted as part of this study

SAMPLING STRATEGY

Target participants for the focus group discussions (FGDs) were pregnant women, women with children younger than two years (0–23 months), and women who had children between two to five years (24–59 months) residing in the selected villages. For in-depth interviews (IDIs), eligible target interviewees were women/caregivers with children less than 24 months (two years) and who were of low socioeconomic status; fathers of children less than 24 months (two years) and who were of low socioeconomic status; fathers of children 24 to 59 months who were of low socioeconomic status; and grandmothers from low socioeconomic households or from ethnic minority backgrounds. A list of these potential participants was obtained from the village heads. Additionally, other FGD participants were identified by using the family registration book as well as family classification information based on the census classification. Potential participants were then invited by the village heads to participate in the study. The inclusion criteria for participants in the various FGDs were pregnant women, women/caregivers with children younger than 24 months, mothers/caregivers (and fathers) classified as being of low socioeconomic status based on the family registration book, and women/caregivers with disabled children less than 60 months (five years). Moreover, each FGD had to be made up of participants from at least two ethnic groups.

DATA COLLECTION

A multimethod qualitative approach was employed for this study. FGDs, as well as key informant IDIs, were used to gather the required information.¹⁴ Key informants, made up of village health volunteers, village committee members, health center staff, grandmothers, and male caregivers, were purposively selected based on their likelihood to provide relevant information. Key topics covered during these discussions and interviews included perceptions of malnutrition; food consumption of mothers during pregnancy and postpartum; infant and young child feeding, including breastfeeding; women’s workloads during pregnancy and postpartum; water, sanitation, and hygiene practices; and food production and expenditures. For FGDs, between five to seven mothers were convened to allow for greater disclosure and more in-depth discussions of personal experiences. This enabled the facilitators to flesh out these experiences in detail, and at the same time, to foster group dynamics that encouraged the sharing of opinions and the building of ideas. Since the FGDs included people of different

¹⁴. The FGDs and IDIs were conducted in October 2019.

ethnicities, special attention was given to ensure that all participants had opportunities to give their opinions. With permission, FGDs and interviews were audio-recorded using a digital recorder, and detailed hand notes were also taken. The number of FGDs per theme and category is shown in Table 1.3.

Table 1.3. Number of Focus Group Discussions Covering Select Themes and Categories

Topic	No. of FGDs	No. of Villages	Districts	Provinces	Ethnic groups
1. GoL service and project service delivery and satisfaction	20	20	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Hmong, Khmou, Akha, Pounoy, Lao, Tai Deng
2. Perception of malnutrition	22	22	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Khmou, Tai Yang, Pounoy, Akha, Lantand
3. Food consumption for mothers during pregnancy and postpartum	21	21	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Lantand, Khmou, Hmong, Akha, Lao Tai, Pounoy, Tai Yang
4. Infant and young child feeding (including breastfeeding)	20	20	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Khmou, Tai Yang, Pounoy, Akha, Lantand, Tai Deng
5. Women's workload	22	22	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Hmong, Khmou, Akha, Pounoy, Lao
6. Water and sanitation	21	21	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Hmong, Khmou, Akha, Pounoy, Lao Tai
7. Food production and expenditures	20	20	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Hmong, Khmou, Akha, Lao, Tai Deng
8. HGNDP project activities	18	18	La, Namor, Boon tai, Khua, Nonghed, Kham, Xamtay, Kuan	Oudomxay, Phongsaly, Xiengkhuang, Huaphanh	Khmou, Lao, Tai Yang, Hmong, Lantand, Tai Deng

Source: Field work conducted as part of this study

Note: HGNDP = Health Governance and Nutrition Development Project.

DATA ANALYSIS

The data collected through the FGDs and IDIs were transcribed verbatim and analyzed using thematic analysis techniques, guided by the themes of interests identified a priori that largely aligned with KAP themes from the quantitative study as well as in available literature. Transcripts were first read to identify relevant information, with data manually coded using a mainly inductive approach and clustered into themes. While key issues, concepts, and themes were identified a priori, this did not prevent other themes from emerging as the transcripts were read and reread. Throughout the analytic process, the researchers moved back and forth between the entire data set, coding extracts and discussing and resolving any issues that arose, as well as checking field notes for clarification. Participant quotes are displayed throughout the results section of this paper to provide a narrative presentation of key findings.

LIMITATIONS OF QUALITATIVE RESEARCH DESIGN

Being qualitative in nature, findings from this study are not meant to provide a conclusive quantitative description about the knowledge, attitudes, and practices of stakeholders regarding health and nutrition. Rather, the study aims to provide indications on the possible understandings and perceptions of various stakeholders regarding nutrition and on the possible behavioral outcomes that result from these understandings and perceptions. The magnitude of the knowledge, attitudes, and practices indicated in this study cannot be quantified definitively, although recurring patterns are highlighted to provide indications of what behaviors and practices are shared. Moreover, there was no randomization process to determine phased allocation or time frame, which could have resulted in selection bias apparent in differences between Phase I and Phase II groups

ETHICAL CLEARANCES

This study was approved by the Ministry of Health Research Ethics Committee. The research team followed standard research ethical processes in finalizing the research tools, data collection methods, sampling of villages, and selection of interviewees from selected target villages. In keeping with international research ethics for research with human subjects, a consent form was read and signed by study participants prior to the FGDs or interviews. If participants could not read, the interviewers read the consent form and asked participants to initial or sign the form. Where people could not write, a thumbprint was obtained instead of a signature. All interviewees were advised that their statements, comments, and opinions would be kept anonymous. All audio recordings were de-identified and deleted once transcribed to written notes.

FINDINGS

In total, 16 Phase I and 8 Phase II villages were included in the study (Table 1.4 below). Forty-seven FGDs were conducted with women who had children between 0 to 24 months and 25 to 60 months from 24 villages in eight districts (two districts in each of the four provinces). At least two FGDs were conducted with women with children 0 to 24 months on topics related to food consumption during pregnancy and postpartum, including undernutrition in children under five years (60 months); infant feeding and accessing maternal and child health (MCH) services; workload distribution; access to water, sanitation, and hygiene; and food production. In addition, FGDs with women who had children between 25 to 60 months were conducted in some villages, and these explored workloads; water, sanitation, and hygiene; food production; and perceptions of malnutrition.

Table 1.4. Focus Group Discussions and In-Depth Interviews per Village

Provincial Names	District Names	Village Names	FGDs	IDIs
Xiengkhuang	Nonghed	Phonxay	2 FGDs	4 IDIs
		Korthong	2 FGDs	3 IDIs
		Nongkob (Phase II village)	2 FGDs	4 IDIs
	Kham	Nameung	2 FGDs	5 IDIs
		Naxay (Phase II village)	2 FGDs	5 IDIs
		Naphanh	2 FGDs	5 IDIs
Huaphanh	Xamtay	Korlu (Phase II village)	2 FGDs	6 IDIs
		Sopsang	2 FGDs	4 IDIs
		Dan	2 FGDs	5 IDIs
	Kuan	Houyheng (Phase II village)	2 FGDs	6 IDIs
		Navin	2 FGDs	5 IDIs
		Phalem	2 FGDs	5 IDIs
Oudomxay	Namor	Paknamthong	2 FGDs	5 IDIs
		Heuyhok	2 FGDs	4 IDIs
		Heuyxang (Phase II village)	2 FGDs	5 IDIs
	La	Namlang	2 FGDs	4 IDIs
		Hoauthong	2 FGDs	5 IDIs
		Kokmaiyai (Phase II village)	2 FGDs	5 IDIs
Phongsaly	Boon tai	Xingxay (Phase II village)	1 FGDs	5 IDIs
		Nonbounkhang	2 FGDs	4 IDIs
		Phialek	2 FGDs	4 IDIs
	Khua	Jakoud (Phase II village)	2 FGDs	4 IDIs
		Hadxeuy	2 FGDs	4 IDIs
		Hadnang	2 FGDs	4 IDIs
4 Provinces	8 Districts	24 villages (8 Phase II villages)	47 FGDs	110 IDIs

Source: Field work conducted as part of this study

Sociodemographic Characteristics of the Respondents from FGDs in Phase I and Phase II Villages

In total, 264 women with children aged between 0 to 23 months and 24 to 59 months from 24 villages participated in the FGDs. The women's ages ranged from 15 to 45 years, with the mean age of 25 years for both Phase I and Phase II villages. About 18 percent of female FGD participants had not received any education (16 percent in Phase I and 23 percent in Phase II villages), while 63.6 percent had attended school or completed first to sixth grades of primary school. About 11.2 percent of female FGD participants had finished secondary school, with only a few receiving vocational trainings, completing a four-year college degree, or receiving an undergraduate degree. Seven ethnic groups were included in the FGDs (Table 1.5). Among the seven ethnic groups, people of the Khmou ethnic group made up 41.3 percent of the participants (49 percent in Phase I and 26 percent in Phase II villages), while Lao Tai and Hmong were the next largest groups. The other population groups, Akha, Pounoy, Lantand, and Tai Yang were less well represented in the FGDs, mainly due to the survey taking place during the monsoon season when participants from these population groups were staying outside of their villages on their farmlands. The Akha, Pounoy, Lantand, and Tai Yang groups live mostly in Phongsaly and represent a small number of people within the HGNDP areas compared to the other groups. Of those women included in the FGDs, most were married (99.9 percent). Most female FGD participants were farmers and were from poor households. The average number of people living in one household ranged from 1 to 18 persons. The age for first giving birth ranged from 13 to 30 years.

Table 1.5. Focus Group Discussion Participants' Demographics of Phase I and Phase II Villages

Name	Village Type	
	Phase I	Phase II
With connected road (%)	57	30
With no connected road (%)	43	70
Age in years	25.01 (5.38)	25.63 (6.21)
15–20 (%)	21.6	23.5
21–30 (%)	64.7	58.2
31–45 (%)	13.6	17.8
Education (average in years)	4.5 (3.31)	3.4 (3.16)
No education (%)	16.0	22.5
1–6 yrs education (%)	64.0	71.9
7–12 yrs education (%)	15.3	0
Vocational school or 2–3 years college (%)	4.6	4.5
University degree	0	1.1
Ethnicity		
Lao Tai (%)	22.9	32.6

Khmou (%)	49.1	25.8
Hmong (%)	18.3	24.7
Lantand (%)	3.4	0
Akha (%)	0	11.2
Pounoy (%)	0	5.6
Tai Yang (%)	6.3	0
Average age at giving 1st birth (yrs)	18.54 (3.09)	18.42 (3.18)
13–18 (%)	60.6	61.8
19–25 (%)	35.9	22.2
26–30 (%)	3.5	3.3

Source: Field work conducted as part of this study

IN-DEPTH INTERVIEWS (IDIs)

There were 110 participants in the IDIs. Participants included grandmothers, husbands, health center staff, village health volunteers, village leaders, and mothers with children between 0 to 24 months and 25 to 60 months from 24 villages in eight districts (two districts per province). The number and percentage of representatives from each group is shown in Table 1.6 below.

Table 1.6. In-depth Interview Participants

Name	N	Percentage
Grandmother	13	11.8
Husband	10	9.1
District Health Office/Health Center	15	13.6
Mother with children < 2 years old with knowledge of malnutrition, nutrition during pregnancy, and postpartum	15	13.6
Mother with children > 2 years old with MCH services, feeding, and workload	10	9.1
Village health volunteer	24	21.8
Village leaders	23	20.9

Source: Field work conducted as part of this study

Note: MCH = Maternal and child health.

Among the 110 IDI participants, 61 were female and 49 were males. The age range was 19–80 years with a mean age of 36 years. The highest educational level was completion of an undergraduate degree (mainly restricted to health care workers). Farmers, on the other hand, either had no education or had not studied above grade five primary education. In the IDIs, six different ethnic groups were represented: Lao Tai, Khmou, Hmong, Akha, Pounoy, and Tai Yang. Detailed information of IDIs is shown in Table 1.7 below.

Table 1.7. In-depth Interview Participant Demographic Details

Demographic characteristics	
Average age in years (<i>n</i> = 110)	36.13 (11.27)
Gender	
Female (%)	61
Male (%)	49
Average years of education	5.22 (3.78)
No education (%)	9.1
1–6 years education (%)	69.1
7–12-year education (%)	9.9
College and vocational (%)	11.9
Ethnicity	
Lao Tai (%)	33.6
Khmou (%)	39.1
Hmong (%)	16.4
Akha (%)	3.6
Pounoy (%)	5.5
Tai Yang (%)	1.8
Occupation	
Farmer (%)	86.4
Midwife (%)	10.9
Physician assistant (%)	0.9
Primary health care staff (%)	1.8

Source: Field work conducted as part of this study

CATEGORIES AND MAJOR THEMES ARISING FROM THE QUALITATIVE DATA

In the sections below, we present the key themes that emerged from the qualitative data. Where quotes are provided, we note whether they were from in-depth interviews (IDI) or focus group discussions (FGDs).¹⁵

Importance and Uptake of ANC Services

In all Phase I and Phase II villages, women were aware of antenatal (ANC) services, with most knowing that they should have at least four visits during their pregnancy. According to IDI participants, district and health center health care providers, village health volunteers,

15. Because the quotes were often translated in broken English, for the purpose of fully understanding the villagers' points of view, we have edited them for grammar and full sentences.

and village leaders in both Phase I and Phase II villages were very active in promoting ANC and other maternal and child health (MCH) services. A 21-year-old Hmong woman from the Phase I village in Nonghed District, Xiengkhuang, explained from her observations over the last three years that more women were attending antenatal services due to outreach and advice from health care staff and the village leader. As she explained:

Over the last few years, women in our village were more likely to go for ANC to a health center because the health center is nearby, and the health staff are available to provide care. The village health volunteer also advised us that to be safe, we should go for antenatal care to the health center or hospital for the care of both mothers and their babies. (41-year-old Hmong woman from Phonxay Village, Nonghed, Xiengkhuang)

A similar observation and description of the treatment provided at ANC was shared by a woman from a treatment village in Oudomxay, who said:

We know that if we are pregnant, we must go for ANC to the health center because it could save the mother and child during pregnancy. We go for ANC at least once a month. When we go for ANC, the doctor checks our blood pressure, listens to the baby's heart, and does a blood test for the mother. Where the mother or child has a problem that cannot be solved in the health center, they refer us to the district hospital. We are very satisfied with the ANC services that we have received from the health center. (17-year-old Khmou woman from Heuyhok Village in Oudomxay-FGD)

Most women who participated in FGDs in the Phase II villages in the four different provinces said similar things to those as women from Phase II villages regarding ANC. A Tai Deng woman in the Phase II village, for example, said in an FGD:

These days, almost every woman in our village goes for ANC to the health center because we understand that it is safer for both the mother and the baby. Mothers should receive ANC at a hospital, or any health service so that a specialist in ANC can monitor the mother's health and the baby's development in the mother's womb. The district hospital provides good services. The doctors also advise women to go in for ANC at least four times. Anytime there are any abnormal symptoms in between, mothers should go back to the hospital. Overall, the services are good, and I am mostly satisfied with the services at the hospital. (FGD with Tai Deng woman in Xingxay Village, Huaphanh)

Women in the Phase II village of Jakoud District, Phongsaly, reported similar experiences:

Our village falls under the responsibility of the health center, which is three kilometers away. Most pregnant women went there for ANC because they want their babies to be healthy and they want to maintain their own health. I have gone there for ANC every month since I was three-months pregnant. Receiving ANC did not cost me any money. I received ANC both at the district hospital and at the health center. Doctors at both the hospital and the health center were very nice." (21-year-old Khmou woman from FGD in Jakoud Village, Phongsaly)

During the FGDs, most women were able to explain the purpose of ANC and the services provided. As one woman in an FGD in the project village of Sopsang (Huaphanh) explained:

The purpose of ANC is to track the growth of baby to see if it is large or small, to check the presentation of the fetus, and to see if the fetus has any abnormalities. Each mother who goes in for ANC gets a follow-up ANC booklet, and the doctor records in the

booklet the amount of palpation of the abdomen, the condition of the baby, the weight of the mother, and the date of the next appointment. (Fmother, Sopsang, Huaphanh, Tai Deng ethnic)

Access to free MCH services facilitated ANC utilization, and most people felt indirect costs such as travel were affordable. Opportunity costs, however, were sometimes high, especially where there were few labor units within the household and during busy seasons in the agrarian cycle. Even where the health center was close to the village, attending ANC sessions was challenging for households whose agricultural land was far from the village, and at busy times of the year.

When I was pregnant, it was the time when we had to prepare for corn farming. The farm is far from our village, so I had to stay there overnight for several months. Therefore, I was not able to go in for ANC. (Fmother, Korlu, Huaphanh, Hmong ethnic)

To go in for ANC, it takes me one day because I can't ride a motorbike. I sometimes asked my husband to accompany me. But he couldn't go because if he took me, there would be no one to work on the farm, which would mean two people would not work on that day. Thus, in some months, where we had urgent work to do, I decided not to go in for antenatal care. (Fmother Korthong, Xiengkhuang, Hmong ethnic)

In all villages, increased utilization of ANC was reported to be due mainly to improved awareness of the benefits of ANC, which had been widely promoted by the health staff and local authorities. In some villages, especially the Phase I villages, men and women agreed that the HGNDP had further increased their understanding of the purpose of ANC, especially for the men, as the following quotes illustrate:

After the project on nutrition was implemented in our village, men were counseled that they needed to understand about the importance of ANC in order to support their wives in going in for ANC. After that, men were more supportive in taking their wives for ANC. This was different from previous years. (Fmother, Phalem, Huaphanh, Hmong ethnic)

Before the project was begun, I didn't see the benefit of encouraging my wife to go in for ANC because I didn't understand the point of it. But when the project started, we were told that we should encourage our wives to go for ANC for their own safety and for the safety of the baby, and so that the baby would be born healthy. ANC at the hospital is safe because there are doctors there to take care of us, tracking our baby until the day of delivery. For this reason, I have changed my opinion and now encourage my wife to go for ANC during her pregnancy. (Husband, Hadnang, Khua, Phongsaly, Lao Tai ethnic)

In interviews with husbands in the Khmou ethnic group in the Phase II village of Naxay, several husbands who went with their wives for ANC expressed their excitement and interest in supporting their wives with follow-up care, as demonstrated below.

I see medical staff checking my wife, listening to the heart of the baby in the womb and of my wife, weighing, measuring the height, and giving her medicine to take home. (Husband, Heuyxang, La, Oudomxay, Khmou ethnic)

After the project on nutrition was implemented in our village, men were trained to understand about the importance of antenatal care in order for them to allow their wives to attend. After that, they would bring their wives for ANC, which was different than in previous years. (Fmother, Workload, Phongsaly, Huaphanh, Hmong ethnic)

Barriers to Uptake of ANC Services

Physical access to ANC services was one of the key barriers to utilization by the majority of FGD participants. Where ANC services were within walking distance, many women reported making the recommended four ANC visits.

Most pregnant women went in for ANC when their pregnancy was at about three to four months, mostly to the health center because it is not far and not too difficult to travel to. . . . They attended only four or five times. (Fmother, Workload, Paknamthong, Oudomxay, Hmong ethnic)

I went to the health center for ANC. If the road was very rough. I walked there on foot, and one round trip would take a half a day. It was difficult going to the health center because of the rough road conditions and because of our lack of a vehicle. (Fmother, Workload, Heuyhok, Oudomxay, Khmou ethnic)

In rural and remote villages, including both Phase I and Phase II villages, or where ANC was not within easy walking distance for women, the uptake of ANC was reported as being less than the recommended four visits (the quantitative survey had found that only 48 percent of women with children one to two years had made at least four ANC visits compared with 72 percent of women from urban areas). The frequency of the ANC visits depended to an extent on the individuals, their attitude toward ANC, their previous experiences, and the season, in addition to the condition of the road and the distance to the health facility (for example, in the rainy season it is harder for women to go to the center for ANC if there is no all-weather road). Typically, however number of ANC visits was at least one to three times.

Sometimes, I went for ANC at the health center. I used ANC at the health center for my second and third pregnancy, going to the center two to three times before giving birth. For the fourth pregnancy, I used ANC twice and I gave birth at the health center with a health care assistant. A difficulty in accessing ANC is transportation because the road is cut off in the rainy season and also because there are landslides. My attitude is that I do not want to use ANC because I think my baby and I are strong, and therefore it is not necessary to use ANC many months. (Fmother, Workload, Heuyxang, Oudomxay, Khmou ethnic)

We went for antenatal care only three times because the roads were extremely difficult. It takes one day to go in and then go back because I can't ride a motorbike. Sometimes I asked my husband to accompany me, but he didn't go because if he took me, there would be no one to work on the farm. When we had urgent farm work to do, I did not go for antenatal care. Another reason was that my husband didn't see antenatal care as being important. Also the road is extremely difficult, and the center is far away. Furthermore, in the past, with my first child, I didn't go for antenatal care. I didn't deliver the baby at a hospital and the doctor didn't say anything. If I did go and I would have to walk back and forth, it would take many hours. Also I am not fluent in Lao, I sometimes found it hard to understand what the doctors were saying to me. Whether I went for ANC or didn't go seemed to have the same value. (Fmother, Workload Korthong, Xiengkhuang, Hmong ethnic)

In the FGDs, women in these more remote villages also said that they felt that the distance, poor quality roads (which were worse and sometimes unusable in the rainy season), and limited access to transport were major barriers to ANC use. As the majority of women in rural and remote villages typically do not drive motorbikes, women were reliant on their

husbands to take them to the health care facility, with associated opportunity costs. In both Phase I villages of Phonxay, Xiengkhuang Province and Navin, Huaphanh Province, for example, access was described as very difficult.

But the road to health center is quite remote, mountainous, and difficult, especially during the rainy season. Because the road is very mountainous, during the rainy season, there are occasionally landslides that block the road. (Fmother, Workload, Phonxay, Xiengkhuang, Khmou ethnic)

We did not go in for ANC because traveling was difficult for us. The distance is far, and the road condition during the rainy season is difficult. Often the road is cut off. We do not have a motorcycle. In addition we also feel shy with a male doctor, and are afraid of medical equipment. (Fmother, Workload, Navin, Huaphanh, Hmong ethnic)

An important factor in ANC utilization was language—which over 90 percent of the FGD ethnic minority participants reported to be a constraint. Where staff only spoke the Lao language, women who were non-Lao speakers relied on their husbands to translate for them, and some women suggested that visuals would be easier to understand. Several women also said that the health staff should use lay language rather than medical terms.

However, communication is a barrier between doctors in the health care center and women because the doctors don't explain things very well, and women in our village have a fairly poor understanding of the Lao language. Therefore, a Hmong doctor is needed for our village so that we can understand and communicate comfortably. (Fmother, Workload, Phalem, Huaphanh, Hmong ethnic)

Some Hmong women felt that they should seek their husband's permission before using ANC birthing services. In the village of Korlu, Xamtay District, Huaphanh, the importance of husbands understanding and supporting women's access to maternal health services was highlighted.

Hmong women do not attend ANC at the hospital because their husbands do not allow them to attend the sessions. Like myself, my husband didn't allow me to go in for ANC; I also delivered my baby at home because my husband didn't allow me to deliver my baby at the hospital because we were shy around the doctors and also because I cannot speak Lao fluently. (Fmother, Korlu, Huaphanh, Hmong ethnic)

Facility-based Birthing

As was the case with ANC, the majority of FGD participants were aware of the benefits of facility-based birthing and reported an increase in deliveries within health facilities. Participants were typically encouraged to give birth in a health facility by health staff, the village health volunteer, and the village head. In both rural and remote villages, however, the same challenges as those of accessing ANC services were reported as constraints to accessing facility-based birthing. For example, one woman in Dan Village, Huaphanh explained that language was an impediment:

People of the Hmong ethnic group most of the time do not understand what the doctor is saying because many of them do not speak and understand the Lao language very well. When we went to see doctors, we had to bring our husbands with us. But sometimes they were busy and couldn't go with us. We did not understand the doctor's

recommendations of what they wanted us to do, especially for first-time mothers who had never delivered before. (Fmother, Workload, Dan, Huaphanh, Hmong ethnic).

Similar challenges and experiences related to language barriers and road conditions, as well as transportation issues, were raised by a Hmong woman in a Phase I village in Xiengkhuang, which she explained as follows:

There are some challenges such as language barriers. The health staff speaking Lao and Hmong, and we receive translations when there are Hmong staff around. But if the Hmong staff are not there, it is hard to understand. If my husband comes with me, he can speak Lao. Another barrier is having to wait too long to see staff. While we are waiting, at least the staff should explain things to us, particularly when our womb is hurting. But they don't explain things to us, and don't come to us to check on anything, and we are just kept waiting until delivery time. Another problem is the road condition, especially in the rainy season. Traveling on the road is extremely difficult. Also we can't ride on motorbikes when our abdomen or womb gets bigger. All of these problems make most women prefer to deliver their babies at their homes. (Fmother, Workload, Korthong, Xiengkhuang, Hmong ethnic)

Barriers to facility-based delivery are also related to experiences of villagers who had uncomplicated home deliveries. This was also corroborated by health staff. In some project villages, the village health volunteers (VHVs) reported working with the husbands, for example via home visits, to help reduce resistance to institutional delivery.

For me, I did not give birth at either the health center or the district hospital because I had an easy delivery. I gave birth many times, and I had home delivery with an assistant, such as a Traditional Birth Attendant, and sometimes I had the assistance of a health staff member from the health center, or of a grandmother and husband. (Fmother, Workload, Nongkob, Xiengkhuang, Hmong ethnic)

We experienced some challenges in working in the MCH because some families do not come in to deliver babies at the health facilities because they had previous experiences of delivering at home. In such cases the health staff should visit the mother and newborn after delivery. (27-year-old Health Staff)

Other barriers cited for nonuse of health facilities for child delivery were poor road conditions, lack of transportation, and cost-related issues.

The main reasons why women did not go to the health center were transportation issues and poor road conditions. It took one day to travel to the health center and come back home again. Delivery is so painful and it will be more painful if we have to travel by tractor. Therefore, delivery at home is better if we feel that we are strong and that it will be an easy delivery. Many women gave birth at home because it would cost us money to hire a tuk tuk or tractor to go to the health center. We would have to pay about 500,000 to 800,000 kip for a tractor to take us to the health center. Therefore, we delivered the baby at home and it cost us only one chicken for a Traditional Birth Attendant to deliver the baby. (Fmother, Workload, Heuyxang, Oudomxay, Khmou ethnic)

Similar experiences related to problems of transportation, road conditions, and lack of spousal support preventing her from giving birth at the health facility were also described by a Hmong woman:

About half of the pregnant woman in our village have never delivered in the hospital, because their husbands did not want to go, and because the road conditions on the

way to the health center were very difficult, particularly in the rainy season. We would have to hire a car, and if we did not have money, this would be difficult. So we delivered the baby at home because there were a mother-in-law and other mothers to help us and therefore we could deliver the baby by ourselves. After birth, doctors came to give vaccinations to the child at home. (Fmother, Workload, Nonghed, Xiengkhuang, Hmong ethnic).

Other factors such as embarrassment toward a male health care provider, and perceived support from the husband and mother-in-law assisting in delivery at home, have contributed to women not wanting to give birth at the health center. An Akha woman described her opinion as follows:

I did not give birth at the health center because I was embarrassed with a male doctor. Also, our villagers do not like to give birth outside of our homes. We prefer to deliver at home rather than at other places because we feel more comfortable when we give birth with our family. When I delivered at home, I did not call a doctor to assist because my mother and my husband were there to assist. I think, however, that if the birth was difficult, I would go to the health center. After my baby was born, the baby received vaccinations from a doctor. Before nine months of age they have to have their vaccination injection, but I do not remember how many injections were needed. (Fmother, Workload, Kokmaiyai, Oudomxay, Akha ethnic)

And a Hmong woman opined:

Half of the Hmong women in this village delivered at home with their husbands, mothers, or mothers-in-law assisting. Our husbands don't allow us to deliver at the hospital because they do not want doctors to see the private parts of their wives. They also reasoned that in the past, babies were born at home, and no problems happened, and the mother and baby are still healthy. My four children were born at home by having my mother-in-law assist in the delivery. After giving birth, doctors from the district hospital came to the home to provide vaccinations. (Fmother, Workload, Korlu, Huaphanh, Hmong ethnic)

In Nonghed District, a Hmong village, most women delivered their children at home, assisted by their husbands and grandmothers. Going into labor quickly and not having time to get to the health center was a common reason for home delivery, regardless of type of village. Another reason was going into labor at night.

For me, I did not give birth at the health center or the district hospital because I had an easy delivery. I gave birth many times, and each time I had a home delivery with an assistant, such as Traditional Birth Attendance, a grandmother, and my husband. I did not know the baby's birthweight. The reason for having home delivery was because I had many experiences with home delivery and my babies did not have any health problems and are all healthy. (Fmother, Workload, Nonghed, Xiengkhuang, Hmong ethnic)

I went for ANC at the health center in our village, but I delivered my baby at home because my labor happened too fast, and it was at night, and I could not go to the health center at that time. After the delivery, we called the health staff from the health center for help and to check out both the baby and the mother. If the health center was not too far away, and it was not during the rainy season, a doctor usually arrived at my house within 15 or 20 minute after we called them. After the delivery, the doctor recommended that the mother have another examination at the health center. When the doctor came to assist us at home, we did not have to pay anything. People are very

happy to have the health staff assist us in home delivery when we cannot go to the health center. (Fmother, Workload, Nonghed, Xiengkhuang, Hmong ethnic)

Barriers of Access and Uptake of Postnatal Care

There was less awareness of postpartum care, especially among those mothers who had not delivered in a health care facility. Most women who were included in the study did not attend postnatal care (PNC) and thought PNC referred to the examination by the health care staff prior to discharge. In addition, they usually were not provided with a follow-up appointment.

We think the PNC service took place about two hours after the birth. The doctor assisting with the birth checked the vagina to see whether there was any bleeding; whether the suture that they cut off the baby was dry and did not bleed; whether the mother had any discomfort, headache, numbness, abdominal pain, weakness; or chest pain, and to perform a palpation of the abdomen to check whether there was any mass. (Fmother, Workload, Phalem, Huaphanh, Hmong ethnic)

The capacity to access services depended on a number of factors, as illustrated by the narrative below.

I did not receive postnatal care because I gave birth at home. I think that only mothers who delivered their babies at the health center should go back there for checkups. I did not have any problem because my health was very good. When I was pregnant, I was well nourished because I ate fruits, such as papaya, and meats, and fish. After the delivery, my baby and I were fine; my baby could suck breast milk well. I did not squeeze and throw away the yellow breast milk because the doctor advised us that we should give the yellow breast milk to the baby because it contains vitamins. (Fmother,¹⁶ Workload, Kokmaiyai, Phase II village, Oudomxay, Akha ethnic)

I didn't deliver my baby at the hospital, so I didn't go there for a health checkup after delivery. I did not know that after delivery, mothers should go in for a health checkup. Whenever doctors came to work in our village, however, I took my baby to them for vaccination. While working in our village, doctors have not advised us that the mother should go for a health checkup after delivering their baby. (Fmother, Workload, Korlu, Phase II village, Huaphanh, Hmong ethnic)

Growth Monitoring and Promotion

In Phase I villages, regular growth and weight monitoring was being implemented, and several participants felt that the number of undernourished infants within their village had decreased. Furthermore, seeing their child looking fatter motivated families to implement the project's advice on infant feeding practices. Women with infants under two years (24 months) in the Phase I villages reported that the nutrition project staff educated them on child development as well as on weight and height monitoring. The majority of participants from both Phase I and II villages found it difficult to explain the growth charts and monitoring procedures in any detail, although they were able to describe what each color in the growth chart means, as well as what a healthy baby's weight and height should be. This understanding, however, was obtained primarily by memorizing the meaning of each color in the growth charts. The growth charts also helped motivate some women to take their babies to

16. Fmother is a mother who participated in FGD.

health centers for weight and height measurement. Most women from different ethnic groups described their understanding of growth charts in a similar way.

I remember that the chart is composed of three lines. The red line means there is malnutrition or insufficient food consumption, so the baby is unhealthy. The yellow line means that the child is unhealthy and that they must get better nourishment. The green line means the baby is healthy and strong and has less illness or health problems. (Fmother, Workload, Lao Tai, Khmou ethnic)

The health center staff came to the village to give vaccinations to our babies. The health staff also weighed the children and measured their heights and plotted the growth chart of the children to show which line they were in. They explained to us that the green line means that the children are growing well and fully developed, that the yellow means that children are at risk of poor nutrition, and that the red line indicated severe malnutrition. If the children were in the yellow line, the health care staff advised the mothers to give the child more nutritious food. (Fmother, Workload, Paknamthong, Oudomxay, Hmong ethnic)

In one FGD in a Phase II village of Phonxay (Xiengkhuang), one mother proudly explained how her child's growth was monitored and that she could see progress in her child's growth due to improved feeding practices.

I can see whether our children have grown up well or not because of the children's growth monitoring. It showed that the baby's height and weight had increased compared to previous months. My child was one year and six months old and the child's weight was 9.89 kg. My baby was at the perfect point in the green line because I had given him a lot of rice porridge with meat, fruits, fish, and so on. In the past, children did not like eating rice and usually they ate only a half a cup of rice; but now they ate a whole cup. After feeding the child rice porridge, I then gave the child bananas and, sweet potatoes. (Fmother, Workload, Phonxay, Xiengkhuang, Khmou ethnic)

In Nonghed, having available trained project facilitators who were Hmong helped women understand health messages. One person in a Phase I village, Phalem, Huaphanh, explained that before the project was implemented, many people did not understand about height and weight monitoring or which foods were beneficial for child growth. One mother explained:

We didn't know if the health care center had a child-growth monitoring system. They only told us to measure the weight and height of our children. Also, after we gave birth in the hospital, the doctor only told us about vaccination but didn't explain or provide details about growth monitoring. Therefore, we didn't know what we should we do, or what was the purpose of monitoring the child's growth until the project on nutrition was implemented. Then, the staff provided us with knowledge about nutrition, and we were trained on how to measure the child's weight and height, and how to draw in the child's growth chart. Now we know what to monitor and for what purpose. (Fmother, Nutrition, Phalem, Huaphanh, Hmong ethnic)

However, in the Phase II villages of Korlu, Xamtay District, Huaphanh, and Naxay, Xiengkhuang (where no SBCC or growth monitoring and promotion (GMP) were currently being implemented), women explained they did not really understand the growth-monitoring chart:

I know that at the back of the ANC record book is a child development chart, but I don't know what it means because the doctors have never explained it. But I also never

asked them. Every time I take my baby to have a vaccination, the doctor will measure weight and height and note the figures in the book, but they never told me what it means, and I do not know. (Fmother, Korlu, Huaphanh, Lao-Tai Deng ethnic)

In another Phase I village, Houyheng, Huaphanh Province, where there had previously been a different project, which also included growth monitoring, this practice had not been sustained, and only a few people reported they were currently monitoring child growth and weight.

Representatives of the Red Cross Project used to come to our village, and they told us that we need to monitor children under two years old for their weight, height, and nutrition. But we did not do it because we did not have a scale or a measure line. We usually went to the health center when we wanted to measure our children. But most people never monitored their children's height and weight, even at the health center, because it was too far to go. Also, we didn't know how to monitor the children's growth. What does "the child's growth" mean? If you ask me how satisfied I am with the health center's services, I don't know the answer because I never use their services and I don't know where or how I can monitor children's growth. (Fmother, Houyheng, Huaphanh, Lao ethnic)

In both Phase I and Phase II villages, few women understood the concept of the first 1,000 days, and they only had a general idea of key concepts. For example, in a Phase I village in Huaphanh, a mother opined:

Children from birth up to two years old must be monitored for their weight and height every month, and receive vaccinations required for their age. Most women are now aware that mothers with a two-year-old child must be involved in the nutrition program to monitor their child's development and to promote child health by having them eat enough in the six healthy food groups. Children under six months of age must be exclusively breastfed, and children over six months of age must be given boiled soup rice with a variety of other foods in order for the baby and the child to keep receiving good nutrition. The nutrition project in our village is very good, and many women are involved in this project. (Fmother, Sopsang, Huaphanh, Lao-Tai Deng ethnic)

Similarly, in a Phase II village FGD:

I never heard about the counseling services for 1,000 days after birth, or about the nutrition recommendations for children from birth until they are two years old. (Fmother, Korlu, Huaphanh, Lao-Tai Deng ethnic)

Awareness of Signs and Symptoms of Malnutrition

In the FGDs many women demonstrated an understanding of the signs and symptoms of malnourishment. These included being inactive, frequently ill, having a limited appetite, having low energy, and showing delayed development; and in more severe cases, swollen stomachs. In FGDs with mothers in Phase I villages in Huaphanh and Phongsaly, it was estimated that approximately 10 – 20 percent of children under two years were malnourished. In contrast, in other Phase I villages in the same district, most people felt cases of child malnutrition had been reduced.

About 10–15 percent of children in the village were malnourished. Families are poor and were not exclusively breastfed. The children are thin, jaundiced, and pale, have big bellies, do not like eating food, and often get diseases. (Fmother, Hadxeuy, Phongsaly, Tai Yang ethnic)

The village got much better. The children were healthy, beautiful, and strong, and their growth development was good. . . . The program helped to solve a lot of problems. We were encouraged to raise chickens, ducks, and fish in order to have food for our children. (Fmother, 0–23 nutrition, Phalem, Huaphanh, Khmou ethnic)

In Oudomxay, women with children aged two to five years (24–59 months) generally understood the signs and symptoms of children with malnutrition. As one woman who participated in an in-depth interview from a Phase I village explained:

Babies with malnutrition are skinny, sweat all the time, are smelly, and have diarrhea and lung infections. Within our village, 20 to 30 percent of the children are malnourished because of poverty and insufficient food. (IMother, 0–23 nutrition, Paknamthong, Oudomxay, Khmou ethnic)

Breastfeeding and Nutrition during the First 1,000 Days

Most mothers in Phase I villages, and especially those who delivered in health facilities, were aware of the importance of colostrum. They stated that the health staff had helped in initiating early breastfeeding and in explaining that they should exclusively breastfeed for the first six months. The health staff also told them what their baby's weight was, explained the importance of growth and weight monitoring, and said that they should eat from each of the different food groups.

After delivering the baby at the hospital, the health staff checked whether there was any bleeding, palpated the abdomen to see if there was any mass, asked if I had any abdominal pain or abdominal contraction, examined my nipples, and checked whether there was breast milk. The health staff also taught me how to breastfeed and explained the benefits of colostrum, such as that it would create immunity for the child. The health staff also told us our baby's weight and height, and when to bring the baby back for vaccination. (Fmother, Nutrition, Paknamthong, Oudomxay, Hmong ethnic)

It was not difficult to give first breast milk (colostrum) to the baby in the first hour because I gave birth in the health care center, and the doctors had told me to give breast milk to the baby immediately in the first hour. Nowadays, every mother knows that breast milk is not to be scooped but should be given to her baby. This was different from what our parents' generation did. They did not give the first breast milk to the baby because they thought it would cause the baby to have abdominal pain. Before we had a health care center available here, when I delivered my first and second child, I squeezed out breast milk because my grandmother told me that's what I should do. But after the doctor's visit, and my follow-up for antenatal care, they all told us to give the baby breast milk immediately after giving birth. They told me that the first breast milk is very useful because it can help the baby grow faster, develop fat, and be stronger. Mothers then gave their babies only breast milk, without water and other food for six months after birth. (Fmother, Nutrition, Nongkob, Xiengkhuang, Hmong ethnic)

In almost all interviews, in both Phase I and Phase II villages, mothers could explain the importance of exclusive breastfeeding during the first six months of life and the appropriate introduction of complementary feeding. Many women stated they received advice on breastfeeding and infant feeding from health staff at the health center or in district hospitals. Women of the Lantand ethnic group explained that health staff told them during their visits that when they deliver, the newborn should be encouraged as soon as possible to find the mother's breast and begin sucking to get the first colostrum to protect their baby's health:

We think it is simple to breastfeed and to give newborn babies the first drop of milk (colostrum) because colostrum is beneficial, protects children from disease, and improves their immune system. We learn this because doctors are always telling us this during antenatal care, and because we all delivered babies at the health center. Everybody believes and practices the health staff's advice related to colostrum. In the past, newly delivered mothers threw the colostrum away because they believed it contained diseases from the mothers. Now women understand the importance of colostrum. (Fmother, Nutrition, Paknamthong, Oudomxay, Lantand ethnic)

Most women also reported that in the past it was common to discard colostrum and introduce water and rice within the first six months of life, but these practices were changing due to information provided by the project staff and outreach by the health staff. As a female participant in the FGD in a Phase II village of Nongkob in Nonghed, Xiengkhuang Province, explained:

Nowadays, every mother knows that breast milk should be given to their baby. . . . But during the doctor visits and our follow-up visits for antenatal care, they told us to give breast milk immediately after giving birth because the first breast milk is very useful, and can make a baby grow faster, and be fat and stronger. (Fmother, Nongkob, Nonghed, Xiengkhuang, Hmong ethnic)

A Hmong woman in Heuyxang, Oudomxay also explained:

According to the health staff's recommendation at the health center, babies should only have breast milk until six months. After six months of age, a baby could get a little bit of water, yellow fruit, and rice porridge, with eggs, fish, meat, and vegetables, or all these things mixed and boiled together. (Fmother, Nutrition, Heuyxang, Oudomxay, Hmong and Khmou ethnic groups)

However, during a FGD at a Phase II village, Nongkob, in Nonghed, Xiengkhuang Province, women mentioned that it was hard to exclusively breastfeed for six months because they had to return to work in the fields, which were often far from their family house. A woman from the village of Naxay described, as follows:

Only about half of new mothers can breastfeed for up to six months because most mothers after one month have to return to work in the field. For about one to three months, most of these mothers take their baby with them to the fields and feed the baby in the fields. But after that, they leave the babies at home with their own mothers. Most of these grandmothers have usually begun to use rice or mashed/chewed rice to feed children at that age. (Fmother, Nutrition, Naxay, Xiengkhuang, Tai Deng ethnic)

During an in-depth interview in the Phase II village of Korlu, a husband whose wife had regularly attended ANC explained that his wife, who delivered twins by cesarean, did not produce enough breast milk, so they first used formula:

On the first day after giving birth, my wife did not have any breast milk yet, so we gave formula milk to the baby. After the third day, breast milk came out, and it was enough for the baby. (In-depth, Husband, Korlu, Hmong ethnic)

However, another husband stated that he has helped his wife to produce enough milk using traditional methods.

When my child was born, my wife breastfed immediately. I boiled water for my wife to drink to produce more breast milk. The water for boiling came from the river, and we did not add anything to the boiled water. My wife had a lot of breast milk, and the breast

milk was enough for my child. (In-depth, Husband, Houxang, Oudomxay, Hmong ethnic)

Some husbands in Phase II villages in Phongsaly were also able to explain the importance of exclusive breastfeeding for infants until they were six months, although they also mentioned that sometimes infants were given mashed rice if the child was crying, or if their wives seemed not to be able to produce enough breast milk.

There was breast milk, but my child did not drink enough of it. My child always cried, and I did not know what to do. So my mother mashed rice to feed the child, and then the child stopped crying. The health staff told us to only give the breast milk to the child, but the child was not full and so he cried. Therefore, we had to give him the mashed rice type of food. (In-depth, Husband, Xingxay, Phongsaly, Khmou ethnic)

Several grandmothers interviewed in Phase I villages also supported breastfeeding. When breast milk did not come for the first few days after delivery, grandmothers advised mothers to drink a lot of hot water or traditional herbal medicine, as well as to have chicken soup and black chicken meat along with ginger to get more breast milk.

Breastfeeding is the best and has more nutrients for the baby's growth and height. I didn't know what kind of nutrients were in breast milk, but I did know that it is good for the baby and helps the baby have good immunity. (In-depth, Mother-in-law, Heuyxang, Oudomxay, Khmou ethnic)

Grandmothers said they encouraged their daughters-in-law to eat more nutritious foods and to drink more to produce more breast milk and encouraged their sons to find food for their wives— such as vegetables, meat, fish, and fruit—if there was no chicken at home.

Many women also stated that they have had to take their babies to work rather than leave the infant at home with grandparents who might feed the infant water or chewed rice. The following quotation from a Hmong woman helps to illustrate this.

Before the project began, some of us had to get back to work and leave our babies with our parents. When we did this, there was no milk for the babies to drink, and so we had to feed rice to the babies. (Fmother nutrition, Nongkob, Xiengkhuang, Hmong ethnic)

Another example from a Phase II village in Oudomxay highlights the tendency of grandmothers, believing infants are hungry, to give complementary foods early.

The doctor recommended that the baby be exclusively breastfed without giving them other foods. But the children cry a lot, so we add honey with warm water and give the children a powdered milk mixture with warm water to feed them. (In-depth, Mother-in-Law, Kokmaiyai, Oudomxay, Khmou ethnic)

Similar sentiments were heard in some Phase II villages and were confirmed by health workers and village heads. This underscores the importance of educating older women on contemporary understanding of good nutrition, since these women are often the main caregivers of infants during the day while mothers are out working, as described by one mother below:

It would be good if health care workers could come during the preschool period and educate elderly people with guidance about how to provide food or milk. Moreover, we need to educate elderly people on how to mother young children or infants in the right way in order to prevent an infant from being malnourished. The main topics of breast

feeding, the benefits of colostrum, and when to start to feed food to the children need to be understood by elderly people. (Fmother, 0–23 nutrition, Xiengkhuang, Hmong ethnic)

Introducing Solid Foods

Focus group discussion participants were able to explain that solids should be introduced after the first six months of exclusive breastfeeding. One mother in Nonghed explained:

One of the things that I did for my smallest baby of eight months was in the last month to cook boiled rice and add meat, fish, eggs, and pumpkin, and feed that to my child. He had to eat before the father and the other siblings ate. I thought that my child had to get full first before the other members ate in order to prevent child malnutrition. Before six months of age, I exclusively breastfed and provided the colostrum to make my child strong and healthy. (In-depth, Mother, Korthong, Xiengkhuang, Hmong ethnic)

Most participants mentioned that complementary foods should include boiled rice with added meat, fish, eggs, and pumpkin or similar foods, with eggs being a suitable replacement for meat protein. During one focus group discussion, one mother shared her opinion about homemade complementary food for children, as follows:

We think parents should be active and pay more attention to feeding their children. When the child is six months old, the diet should include porridge (rice soup) mixed with eggs, pork, buffalo beef, poultry, and fish, depending on the ability of the family to find this food and make it available for the family. The porridge can be mixed with various vegetables from the garden or from a nearby paddy field, for example, top pumpkin bush, top zucchini bush, melientha, and so forth, which are available on nearby roads or in a nearby forest. In addition, ripe fruits should be provided for children, such as, for example, bananas, papaya, steam pumpkins, and steam sweet potato. We need to make sure that the children have sufficient food for them to grow healthy and so that their weight and height is right for their ages. This is important because a child between six months and two years needs good nutrition in order to grow. (Fmother nutrition, Paknamthong, Oudomxay, Lantand ethnic)

Another mother explained the kind of food that children between six to nine months should have.

If the baby is six to nine months old, the parents can boil rice with eggs, vegetables, fish, and bones, but they have to chop or mash it carefully so the child can swallow and not get abdominal pain., We will be afraid the child will be malnourished if we gave food to the child too late in the child's life. (Fmother nutrition, Heuyhok, Oudomxay, Khmou ethnic)

Mothers also explained how, at about 12 months, children should eat plenty of food, including rice porridge (Khao Piak, in local terms) and that they could include the six food groups by boiling Khao Piak with meat, sweet potato, pumpkin, fish, eggs, and various diets. Unhealthy food was listed as sweetened milk, fish with fishbone, uncooked meal, fermented food, spicy or salty food, and spoiled food. One person explained that if women left their infant with a caregiver while they went to the rice fields, they should include the steps described below:

We cook rice porridge, but not a big amount, only enough for three meals a day. If mothers do not take their babies to the fields with them, they just cook porridge for the

husband or somebody else at home to feed the babies. (Fmother, 0–23 months, Naphanh, Xiengkhuang, Khmou ethnic)

Husbands also helped their wives to find complementary foods for infants. One husband explained:

I try to make sure that my wife and my child eat more nutritious foods. Specifically, I find wildlife meat to supplement the diet, such as bird oysters or squirrel, which are found in the rice fields. My baby and my wife also eat meat, vegetables, and fruit. Today I did household work, fed my baby, and carried him around. (In-depth, Husband, Hoathong, Oudomxay, Khmou ethnic)

Grandmothers also assisted mothers in feeding their children. They recognized good foods as being rice soup boiled with fish and meat, fruits and vegetables, sweet potato, taro, and pumpkin. As one grandmother explained:

I just prepared and boiled the rice soup and then fed the child rice and fruits. We first started to feed the complementary food when the baby was six months of age. The mother just boiled simple rice with nothing for the baby. Then, at seven months, the mother began to mix in other foods, such as sliced meat, and boiled it with meat and vegetables. (In-depth, Mother-in-law, Hoathong, Oudomxay, Khmou ethnic)

FGD participants in Korlu, where HGNDP activities had just begun, mentioned that the village facilitator (VF) was teaching women who had just delivered babies about breastfeeding and the introduction of complementary foods. In this village one person explained how grandmothers in particular tend to introduce other foods earlier than recommended:

At three months, the grandmother began to feed the baby grilled sticky rice wrapped in banana leaves because of a lack of breast milk. The baby seemed to like it and also drank water to be full. (In-depth, Grandmother, Korlu, Huaphanh, Tai Deng ethnic)

A grandmother in the Phase I village of Dan in Huaphanh, also explained:

When the daughter-in-law went to work at the rice farm, she brought the baby to the grandmother to take care of. The grandmother fed the baby with formula milk, fruit, and rice porridge. After the daughter-in-law returned from the rice farm, she continued to feed her baby by breastfeeding. (In-depth, Grandmother, Dan, Huaphanh, Lao Tai ethnic)

Mothers from Phase I villages in Phongsaly reported that children aged two to five years ate two to three meals per day with the family, although sometimes, due to eating many snacks during the day, children did not always want to eat three meals.

We bought snacks in the small store in the village and sometimes at the market, mostly biscuits, dessert, and DIDO juice. . . . We can't prohibit the children from eating snacks because they see other children eating them. (In-depth, Mother 2–5 years, Phialek, Phongsaly, Khmou ethnic)

Nonetheless, women in almost all the villages seemed to know what foods to eat and understood the need for diversity. However, achieving this was difficult due to food scarcity. This was supported by a village health volunteer who agreed that while providing knowledge was important, people were not always able to act on it.

One issue is the availability of goods, like vegetables, eggs, fish, and the like, that women need for the preparation of food for their babies. If it is possible, we would like

to promote home gardens, raising poultry, food processing, and so forth, which will meet our demand for food with a surplus. (In-depth, Village Health Volunteer, Phonxay, Xiengkhuang, Khmou ethnic)

Managing Common Illnesses

Common illnesses reported by mothers with children aged two to five years in Oudomxay and Phongsaly included common colds and diarrhea.

The most common disease in children two to five years old was a cold with a cough. This was because our village is a little bit cold. If someone gets the cold, it could be spread easily to other members in the family. The illnesses in our village were seasonal, and the diseases were not too serious. (In-depth, Mother, 2–5 years, Phialek, Phongsaly, Khmou ethnic)

In the Phase II village of Kokmaiayai in Oudomxay Province, a woman during an in-depth interview explained:

A common disease among children is diarrhea. My child, who is four years old, had diarrhea two or three times this year. My three-year-old and one year old also had diarrhea many times within one month. (In-depth, Mother, 2–5 years, Kokmaiayai, Oudomxay, Akha ethnic)

When their child was ill, most mothers brought their sick child to the health facilities, and fed them soft, nonspicy food.

If the child had a cold, or a fever, or a cough in the first day, we immediately brought the child to the health center., But if the child had a high fever, then we went to the district hospital. Our village is close to the health center, so there are no problems making the trip there. (In-depth, Mother, 2–5 years, Phialek, Phongsaly, Khmou ethnic)

Nutrition during Pregnancy and Postpartum

Many women reported being aware of the importance of a diverse, low-sugar diet during pregnancy. In Phase I villages, women were able to name the best foods for the mother and child during pregnancy and postpartum, including vegetables, fruits, proteins, meat, milk, eggs, fat, oil, coconut juice, beans, vitamins, oranges, pineapples, flour, rice, and corn. Women avoided spicy food during pregnancy, and while breastfeeding avoided alcohol and cigarettes. Women from Phase I villages also learned from HGNDP staff how they could achieve a diverse diet by eating food products grown locally or naturally, including food from within their own environment, making achieving a diverse diet seem more possible.

We think it is totally different from previous years, especially food consumption by pregnant women. These days, they can consume a variety of all kinds of food, such as all types of fruits and vegetables, including young pumpkin bush, top zucchini bush, top calabash bush, or water chestnut; different kinds of fish, including shrimps, snails, and crabs; and all types of meat. Moreover, pregnant women should also take vitamin and mineral supplements, such as iron, to prevent anemia. There are all kinds of food that pregnant women are not prohibited from taking during the pregnancy that can ensure that pregnant women and their children are healthy. In the past, pregnant women were prohibited from eating many kinds of food such as duck, wildlife, and pork because people believed then that these foods can cause an unborn baby to become disabled or to die in the womb. (Fmother, Paknamthong, Oudomxay, Lantand ethnic)

A Hmong woman described how she ate differently during pregnancy compared to before pregnancy. She explained:

We stayed with our parents-in-law during my pregnancy and they would cook a good dish such as meat, vegetable, fruit, and egg for us to eat. Also, we would receive more than other family members did, but it also depended on what we had in the daily meal. She would keep that meal for us so that the mother and child could stay healthy and strong until delivery. It was different from when I was not pregnant. (Fmother, Heuyxang, Oudomxay, Hmong ethnic)

However, some Hmong women also discussed that they had experienced challenges dealing with their mothers-in-law who were concerned that if they ate a lot during pregnancy, the baby would be bigger and lead to a complicated delivery. These women were also keenly aware of the limited budget and food availability and were concerned that if they ate too much, there would not be sufficient food for the rest of family.

Mother-in-laws complain that if pregnant women eat healthy food, they will become fat, and that if women are fat, then the milk will contain a lot of fat and cause babies to be obese. They also ask if women eat more healthy food such as meat, fish, and pork for many months, then what foods are my husband and my children going to eat if there is only me who is eating healthy food. (Fmother, Korthong, Xiengkhuang, Hmong ethnic)

Just as with relatives like a mother-in-law, their mothers always did not want them to eat a lot because they were afraid that their daughters might then experience a difficult labor. (Fmother, Nonghed, Xiengkhuang, Hmong ethnic)

There are no food taboos, but we do not have food to eat, or money to buy good food, and no convenient place to buy food. We look for natural food every day, but this is difficult nowadays, no matter whether it is a kind of natural vegetable or fish or a very rare species of wildlife. (Fmother, Heuyhok, Oudomxay, Khmou ethnic)

Some women during the postpartum period tried to find a balance between advice from project staff, health workers, and elders and the everyday realities of food availability. For most, as has already been mentioned, eating a healthy diet rich in vitamins and protein is difficult due to limited financial resources. As one person in a village in Kham District explained:

The reality is quite difficult because we do not have enough food, and there is no market nearby. For animal raising, we only raise chicken and ducks, and sometimes they die from bird flu. Hunting for crabs and fish is quite difficult. Thus, the main course is usually rice and vegetables. (Fmother, Nutrition 0–23 months

, Naphanh, Xiengkhuang, Khmou ethnic)

As some women noted, to follow the projects' (HGNDP/AFN) advice on nutritional intake, more attention is needed regarding nutrition-sensitive programs, such as agricultural interventions. The issue of food security was raised by several village heads and VHVs as being a barrier to sustainable nutritious diets. On the other hand, some women reported that the messages from the project on healthy eating helped them identify nutritious foods that were readily available in the environment.

This is more convenient because I eat the foods that I used to eat and that are easy to find. (Fmother, Xiengkhuang, Hmong ethnic)

The doctors, village health volunteers, and project facilitators advised us to eat healthy foods for the mother and baby, especially meat, such as pork, poultry, and beef; or wildlife, such as squirrel, pig, birds, deer, and wild pigs; or fish, such as farm fish and natural fish; or every type of fruit from the markets or from nature. If the families are quite wealthy, they will be able to eat healthy foods for three to six months, whereas if the family is quite poor, they will only be able to eat for about one or two months. (Fmother, Nutrition, Korthong, Xiengkhuang, Hmong ethnic)

For me, I do not have trouble finding food because I have a garden and grow vegetables such as cabbages, morning glory, chayote, cucumbers, and pumpkin. In addition, I have small livestock such as duck, chicken, and pigs. I also have a fishpond in our dry rice field and garden. What I buy from the market is meat, beef, buffalo meat, pork, and oranges. What I can get from wildlife is bamboo. (Fmother Workload, Nongkob, Xiengkhuang, Hmong ethnic)

Food Taboos

Some food taboos were reported to still exist. For example, in Xiengkhuang, one mother explained that papaya, fermented fish, and vegetables were bad during pregnancy for her growing fetus. Some women also said they tried to avoid fat, which seemed partly to be to stop the baby from being too big or being imperfect. During an FGD at a Phase II village of Naxay (Xiengkhuang) a mother stated:

Prohibited foods and taboos include fishy food, raw food, rotten food, and fermented fish and eels. Also, they are forbidden from drinking alcohol, beer, and Pepsi. They are afraid that eating these foods might cause their fetus to be weak, and that the baby would be unable to walk, or it would have a big head and thin limbs, and that there would be an imperfect baby. They also had a taboo on any type of medicine, namely antibiotics, because they were afraid it might affect the fetus. (Fmother, Naxay, Xiengkhuang, Tai Deng ethnic)

In another Phase II village of Korlu in Huaphanh, the skin of cows or buffalo, and taro and rice were taboo during pregnancy. As the two respondents below noted, however, not everyone restricted their food intake due to the general lack of sufficient foods:

During pregnancy, there are some restricted foods, such as skin of cows or buffalo, taro, or rice with soup, that are not allowed because of concern that they will cause difficulties in the delivery of the baby, particularly out of concern that those foods have too much fat. They are able to eat the rest of the foods, but we don't always have sufficient food. Each meal is pumpkin, cucumbers, cabbage, cassava leaves, rice, bamboo shoots, with meat once every three to four weeks and fish every week. (Fmother, Nutrition, Korlu, Huaphanh, Hmong ethnic)

Usually, I do not restrict my diet during my pregnancy. There is no food to eat, and thus most pregnant women have insufficient foods. (Fmother, Nutrition, Korlu, Huaphanh, Tai Deng ethnic)

In most Phase I villages, aside from tobacco, alcohol, and sugar-sweetened beverages, study participants said there were few taboos these days. The women tried to follow the advice of the HGNDP/AFN project, and often a mother would want to eat more food

than normal, especially after the first three months of pregnancy. Postpartum, however, more people reported food taboos, especially in Phase II villages. An example in one Phase I village in Kham District is described below:

Most of the time, postpartum women can eat boiled cabbages, rice, and boiled vegetable after one or two weeks. After three to six months, they can eat chicken, eggs, some types of fish where the tail is not red, vegetables, and fruits. They do not eat restricted foods – the taboo - wildlife, any type of animal that crawls, fermented fish, and other fermented foods because they will cause sickness. (Fmother, 0–23 months Naphanh, Xiengkhuang, Khmou ethnic)

Workload during and after Pregnancy

The distribution of workload in most households depends partly on the size of the household, the number of work units, and gender. Typically, parents do the fieldwork, especially if the children are in school. Men tend to do heavier work, such as ploughing, preparing the land, fishing, driving tuck tuck (or motorbikes), and cutting firewood, while women help with land preparation and weeding. Women and girls may also look after small livestock, collect water, and do household chores, while boys look after the larger animals (although in some villages, such as some in Huaphanh, boys also collect water). Girls may also look after younger children. Housework is typically seen as women's work.

I agreed with all of them. The housework is the women's responsibility. The housework includes washing clothes, kitchen work, and cleaning the house. The children are still little and cannot help with household chores as yet. My husband goes out for work all day. He only has a holiday on the weekend. Thus, my husband sometimes helps me cook on the weekend, and he also does some gardening. (Fmother, Workload, Nonbounkhang, Phongsaly, Khmou ethnic)

Households that do not have many people living together and only have a husband and wife face challenges because, although a pregnant woman's abdomen is getting bigger, she must still work. (Fmother, Workload, Naphanh, Xiengkhuang, Khmou ethnic)

As another woman explained:

When my gestation was over eight months, I was still working, but I worked only a little because of the big abdomen. As my pregnancy progressed further, my husband helped me with everything, such as maintaining a dry rice field, the garden, and the cooking, washing, fetching water, cutting firewood, fishing, and feeding animals. Also, I still helped him with some work, such as washing, cooking, housework, cleaning house, and feeding animals (chickens, ducks, and pigs). (Fmother, Workload, Nameung, Xiengkhuang, Khmou ethnic)

In most villages, men were reported to take on some of women's traditional tasks during the first few weeks after birth, including water and firewood collection, finding food, raising animals, and doing general housework. Women resumed work when they felt up to it, beginning with household chores.

After discharge from the hospital, I did small work such as washing my clothes and my baby, cooking for myself, and looking after my baby at home. After 15 days I did housework such as cleaning and wiping the house, cooking, feeding animals, and washing clothes. I kept doing this until my baby was two or three months old, and then

I had to return to work as usual, such as going to the rice field, maintaining the dry rice field, gardening, and preparing food for dinner. (Fmother, Workload, Nameung, Xiengkhuang, Khmou ethnic)

As mainly self-employed farmers, with minimal or low income, seasonally variable output, limited access to food, and no maternal leave, the men, women, children, and grandparents all share the tasks that need to be done to keep the family afloat and healthy and to minimize the workload of pregnant women in the last two to three months of their pregnancies.

Most of the women in the Phase II village in Phongsaly reported going back to their normal work duties after about one month, often taking their baby with them so they could breastfeed:

After birth, the mothers had to stay in the postpartum period, which is called “Yukamdeun”—for about one month. After that, the mothers could do the housework and start doing the light and small housework, and then shift to getting to work as normal. (Fmother, Workload, Jakoud, Phongsaly, Khmou ethnic)

Most husbands supported their wives during pregnancy, including reminding them of appointments, seeking to provide a variety of food, and helping with housework, including preventing them from doing much heavy physical work. Husbands supported the wives for about one to two months after delivery by performing tasks such as boiling water, cooking, and seeking food.

I helped with some of my wife's housework, such as carrying water, firewood, fishing, going to the fields, and farming. My wife waited at home and did cooking, and I would not let her work hard. (In-depth_Husband, Heuyxang, Oudomxay, Khmou ethnic)

When my wife was pregnant, she did not have to work hard, and I did most of the hard work, such as lifting, picking up firewood, and collecting water because we had the dynamo to connect the water pipe to our household. (In-depth, Husband, Sopsang, Phongsaly, Pounoy ethnic)

Water and Sanitation

Access to clean water and appropriate sanitation facilities depended in part on location, but most families had to boil water, increasing the amount of firewood required and women's workloads. In Xiengkhuang, participants reported that when going to the rice field, they took bottles of boiled water for drinking, or if the fields were far from the village, they took a pot for boiling water.

While the need for good hygiene was well understood, including handwashing before food preparation, prior to eating, when feeding children, after changing children's diapers, and after using the toilet, it was not always fully practiced in both Phase I and Phase II villages. For example, not everyone had access to soap or knew the most effective means of handwashing. In one FGD in a Phase I village, one person mentioned:

We wash our hands with soap every time after using the toilet, before feeding the baby, and after washing the baby's bottom to prevent diseases. When we are in the rice field or garden, we also use soap, especially when we touch dirt, such as in pulling grass

from the rice field or the upland rice field, cutting firewood, or whenever we touch soil. (Fmother, Workload, Nameung, Xiengkhuang, Khmou ethnic)

In a Phase II village in Huaphanh, however, women said they rarely used soap and that, because of water scarcity, they kept a bucket or bowl of water in the house where people washed their hands. But they said that the water was rarely changed and that generally concepts of hygiene and disease were not well understood. Even where people were aware of the recommendations of food hygiene and handwashing, most of the time pragmatism, and sometimes prior experience, prevailed. As one woman explained:

Sometimes when we cannot cook at home, we cook at the fields. For cooking at the fields, we use water from the river to cook and wash vegetables. When we have leftover food, we don't cover it. We just leave it outside and don't cover it because nothing is going to happen. When we eat again there is no diarrhea or stomachache. (Fmother, Workload, Phalem, Huaphanh, Hmong ethnic)

Most respondents were also aware of the need for a latrine rather than practicing open defecation, and many had built or were installing, or planning to install, latrines. When working in the field, however, open defecation was more practical and remained the norm, even for infants, given the time it would take to return to a family's house. Furthermore, the cost of building a latrine was prohibitive for some households.

All families in our village have a toilet. Our village encourages all families to put in a toilet, so nearly all households have toilets. There are a few households without a toilet, especially the new households who have moved out from their parents' home, so they use their parents' toilet. (Fmother, Workload, Nongbounkang, Phongsaly, Pounoy ethnic)

Every household in our village has a toilet. The toilet is a latrine toilet, which is composed of the toilet, tubs, a cover, and a water tank in the room. The baby's feces are disposed of by flushing them down the toilet by pouring water down it. When the baby's towel is soaked, it is cleaned. When working in the field, we don't use a toilet since we don't have one out there. If our rice field is near our village, when we want to defecate, we just come back home. If it is an emergency case, we just go to the forest to defecate, but we dig a hole to prevent animal and flies. (Fmother, Workload, Nameung, Xiengkhuang, Pounoy ethnic)

In the Phase II village Naxay, participants explained how dry waste was put into a basket out of reach of animals such as dogs, pigs, cats, and chickens, with the contents burned once the basket was full. Leftover food was generally given to animals and the area around the house kept clean, and the village head talked to people who did not maintain clean yards.

For dry waste disposal, we make a basket bin and we put it in a high place to prevent animals like dogs, pigs, cats, and chickens from getting to it. After the basket is full, we burn the rubbish outside of the village. If there is any leftover food, we give it to animals in a plastic bag, which can be washed for the next use. The village chief tells people to clean the village together, and we did that one time per week. In particular, we cleaned our house and swept the ground or yard. We also burned the waste outside our village. If a family member is missing or does not work, the head of the village will be called to educate them on cleaning up their own house. For other villages, we do not know what they do because we don't ever participate in other villages' activities. (Fmother, Workload, Naxay, Xiengkhuang, Lao Phoun ethnic)

Almost all village heads who were interviewed for this study emphasized the importance of water and sanitation, often seeing their role as encouragers, but also sometimes as enforcers. They reported they often reminded villagers of the importance of hygiene and sanitation and of using latrines. The following quote expresses a sentiment repeated by many village heads:

My role in sanitation and hygiene is to monitor the family members who do not practice good hygiene and sanitation. I look at whether households are cleaning on cleaning day at the village, and whether they have enough water for domestic use, have safe drinking water, and have toilet facilities. If there are any households still without good hygiene and sanitation, we will remind them, give them advice, and help them solve the problems together. (In-depth, Village Leader, Phonxay, Xiengkhuang, Khmou ethnic)

Generally, most people said they only kept fowl within their household area and that larger livestock were kept away from the house, except for pigs. Rubbish was typically burned or thrown into the river. Village heads and health workers reported the importance of cleanliness and also reported that people's houses and yards were generally cleaner than in the past.

Food Production and Expenditure

Poverty and seasonal variability were both said to influence food choices and preferences. While those in poorer households understood many direct drivers of good infant nutrition, they reported because of limited resources they could not consume nutritious food.

In our village, we do not have enough food all year long. We rely on natural resources, and we eat food according to the season. During the vegetable seasons, we eat only vegetables. During the bamboo shoot season, we eat only bamboo shoots. Domestic animals such as ducks, chickens, cows, and buffaloes are raised in order to sell to get money for other uses. There are no fish in our village because we do not have ponds for raising fish. We do not have much farming because we just grow vegetables for our domestic use. We have a vegetable garden, but we did not take care of it or water it so there are not many vegetables. For dry food, we just used dry bamboo shoots. (Fmother, Workload, Phonxay, Xiengkhuang, Khmou ethnic)

The food security in our household is enough throughout the year, but we are challenged because people in our village rely mostly on wildlife. We cannot farm fish because there is no space to put in a pond. Raising chickens and ducks is also difficult because our livestock dies from animal diseases. Seeking wildlife animals is also difficult as the local authorities prohibit some types of wild animals for hunting. So there are only vegetables and bamboo shoots. Now there is nothing to eat, and we are not able to buy in the market. But when we find food and earn income, we keep it for when we cannot find anything, and thus we can then buy food in the market. (Fmother, Workload, Nameung, Xiengkhuang, Khmou ethnic)

In addition to the fruits, there is a lack of meat because we have to buy meat in the market and save it because the family does not have enough money to buy meat throughout the year. We eat vegetables for the whole year because we plant vegetables by ourselves. (Fmother, Workload, Phialek, Phongxay, Khmou ethnic)

As previously mentioned, many families also have fragile livelihoods and multiple markers of disadvantage (for example, geography, education, and ethnicity), and there is often a gap between knowledge of what constitutes a healthy diet and actual dietary practices.

Seeking food is a problem and can be difficult for people in our village because basically the main food for the family comes from natural resources, including bamboo shoots, wild vegetables, birds, wild pork, squirrels, and wild pigs that we hunt in the forest. For pork, chicken, beef, and fruit, we have to buy these at the market in the city. We have this kind of food once in a while. Only the rice that we produce will be enough for a year. (Fmother workload, Heuyxang, Oudomxay, Hmong ethnic)

It is also difficult to have sufficient food for the family because there is no land for cultivation, no money to buy seeds, and no knowledge of agriculture or of how to raise animals to prevent them from dying, such as with the bird flu. We have a problem with cultivation being destroyed by insects and there being little production. (Fmother, Workload, Hoauthong, Oudomxay, Khmou ethnic)

Many families do not have market access to a diversity of products and have limited disposable income to spend on food products. Instead, they rely on seasonal food products found naturally within their environment, such as, for example, bamboo shoots.

During the rainy season, we can find a lot of fish, bamboo shoots, and fruits. But during the dry season, it is difficult finding natural food. We sometimes have to buy meat from local markets, particularly pork, fish, and beef. But it is difficult because we do not have money, and the roads are difficult to use to travel to the market. We rely on natural food a lot to feed our family (Fmother, Workload, Paknamthong, Oudomxay, Hmong ethnic)

We could not access different kinds of food because we did not have money to buy food from the market every day. Whether we had money or not, if we wanted to buy foods, we had to go to the market in the city. Road conditions are not good, and we had to travel far away to the market, and it would take a whole day of traveling. It was worse in the rainy season because we could not go out of our village for several weeks or months. Therefore, trying to have different kinds of foods is very difficult for us. Most of the food that we could find included small fish, shell, crab, vegetable, bird, squirrel, chicken, and duck. We could have this kind of food at least every two to three months, and we could have pork every four to six months. (Fmother, Workload, Houahok, Oudomxay, Khmou ethnic)

In Xiengkhuang, however, where families have changed to cash crops, especially corn, some women reported being able to buy meat in the market sometimes:

If we want to have beef, I will go buy it at the market Nonghed, when my family has earned enough money to buy meat from selling the corn. (In-depth, Mother, Phonxay, Xiengkhuang, Khmou ethnic)

Many participants suggested different ways of maintaining food security, such as livestock farming, agricultural extension, and acquiring additional funds to invest in farming.

We must learn effective techniques of how to plant rice and how to grow livestock in order to get enough food for the family. Moreover, we must be active in going to find food from the forest for everyone in our family. (Fmother, Workload, Heuyhok, Oudomxay, Khmou ethnic)

Everyone says that we do not know how to improve our condition because we do not know who will help us and how. If it were possible, we could use some funds for each household to invest in livestock farming, such as ducks and chickens, in order to have

substitute food. However, they must teach us how to prevent animals' diseases. If the weather is hot, animals will die, and likewise in cold weather, animals will also die, and thus we will not have anything to eat. Even when animals grow up, they die due to the climate change, and so we still do not have food. We do not know what they have in other villages and how they improve their conditions. (Fmother, Workload, Heuyxang, Oudomxay, Hmong ethnic)

In Nonghed, where families did both upland and paddy rice farming, women reported being generally rice sufficient and able to grow or find white cabbage, young pumpkin, morning glory, nontimber forest products, and bamboo shoots. Sometimes, they had surplus products they could sell in the market, allowing them to buy meat. People explained that the project helped increase food security by assisting with raising small livestock, gardening, and installing fish ponds, but sustainability was still in question.

In summary, there is a gap between knowledge and capability for preservation of food and for food security. Most participants felt that their lack of income was a major detriment to being able to access food and to invest in increasing their own output. Poverty still plays a major role in the food process, and nutritional security and market access were key determinants in participants' capacity to diversify diet and food production.

Women's Engagement in Health Governance and Nutrition Development Project Activities

Participation in the monthly women's group meetings was generally positive. Most husbands interviewed said they supported their wives' participation in regular meetings and project activities. For many participants, it was seeing the effectiveness of certain project activities and suggestions, especially regarding the feeding of infants, that motivated them and others to participate in the project. According to one FGD female participant:

The mothers whose children are growing up fast are the women who participated in project activities. At the initial project meeting, there were a smaller number of women attending because many women thought that it was a waste of time and that by not working in the fields, they would lose productivity. Sometime later, when women found out that the children of the women who attended project activities were growing up fast, were fat and healthy, and were not being sick like in previous years, then the numbers of women participating in the project began increasing. (Fmother, Korthong, Xiengkhuang, Hmong ethnic)

Village health volunteers also noted the natural desire of families to do the best for their children, and also the curiosity of women to learn more. The VHVs also acknowledged it was often difficult to respond to women's questions as they themselves did not have sufficient knowledge. As one village health volunteer in the project village of Phonxay told us:

The villagers have a wide range of questions. They have questions about pregnancy services, precautions they should take regarding of food consumption before and/or after birth delivery, breastfeeding for children between day one and six months old, the basic nutrition principles for the first 1,000 days and general public sanitation and hygiene. Those issues raised by villagers cannot be answered by us as village health volunteers. For instance, the 1,000 days basic nutrition principles are related to how a child's IQ can be developed. To give answers to these questions, if we are not in a position to correctly answer them, we talk to the district professional staff, who visit us

every three months, and then can give appropriate answers. (In-depth, Village Health Volunteer, Phonxay, Xiengkhuang, Khmou ethnic)

Village health volunteers, health staff, and village leaders in Phase I villages also noted the low level of education and poor literacy among many women, which made it hard for them to understand some concepts related to maternal and child health and nutrition (which also may not translate well). This problem was reported as making educational sessions for women time-consuming and inconvenient. In the village of Nongkob (Xiengkhuang Province), where HGNDP activities had just begun, the VHV expressed some frustration that in the initial stage, few people were interested in engaging in the project. Reasons given for low participation included language, unclear purpose, lack of tangible outcomes, and families being away from their village because they often stay overnight on their farmland.

Working as a VHV is difficult during meetings or while conducting any activities because about 60 percent of the population in this village still do not understand the project and do not cooperate in implementing the project activities, resulting in a delay in implementing our work. It takes time to collect household statistics, and sometimes the target people, especially pregnant women, are not at home because they went out to farm and garden. The social and behavior change communication activities of HGNDP are still problematic in terms of language communication and the budget. The activities and messages are not yet in line with the needs of the people. In addition, the lack of facilities, and the lack of sufficient knowledge and capacity of human resources is not enough to develop the village. Some people still had traditional beliefs, and they did not want to participate. (In-depth, Village Health Volunteer, Nongkob, Nonghed, Xiengkhuang)

In a Phase I village in Oudomxay, the VHV reported a positive experience of getting the community involved in the SBCC and other HGNDP activities in the community:

There are usually about 40 to 50 people attending the activities. Each time, the head villager and mothers with children under two years attended the meeting. We talked to them about nutrition and asked them what they understood. Most of them said they did understand. However, some of the women who could not understand the Lao language said they did not understand it very well. (In-depth, Village Health Volunteer, Oudomxay, Khmou ethnic)

Most husbands were aware of the monthly SBCC session and SBCC activities in the Phase I villages and supported their wives' attendance.

My wife attends every meeting. I always tell my wife to go even though she has other work to do. (In-depth, Husband, Hadnang, Phongsaly, Lao Tai ethnic)

Interacting with the community is a crucial part of the VHV work within the purview of SBCC activities. However, some felt that more support from the provincial and district levels would increase engagement.

To conduct the project activities in the community better, I think the district- and provincial-level authorities should visit and guide the village activities. It is possible to have a plan to continue to implement the project's activities and find ways to help our people get out of poverty. (In-depth, Village Health Volunteer, Phongsaly, Khmou ethnic)

In addition to having provincial- and district-level staff to support activities, health volunteers suggested that SBCC and MCH materials and funding were necessary.

There is a need to increase the funding for Maternal and Child Health and Nutrition activities. It would be advisable to increase the amount of health education, and to provide tools needed for the MCH nutrition activities, such as guidebooks and posters. (In-depth, Village Health Volunteer, Phongsaly, Khmou ethnic)

Other suggestions for improvements included improving health care, hygiene, and sanitation.

I would like to suggest further improvements to the SBCC component of HGNDP, and also improvements in health care and in hygiene and sanitation behaviors. (In-depth, Village Health Volunteer, Xiengkhuang, Khmou ethnic)

Most village leaders understand their roles and responsibilities to support village members and supervise the HGNDP in their villages, explaining their roles and responsibilities as follows:

The village chief is responsible for providing advice on hygiene and sanitation, following up on villager education, taking steps to meet the objectives and goals of the project, and following up on all project activity implemented within the village. (In-depth, Village Health Volunteer, Xiengkhuang, Khmou ethnic)

DISCUSSION

Reversing inequalities is critical to the global “leave no one behind” agenda and to the achievement of the Sustainable Development Goals (SDGs). While Lao PDR has made good progress on the Millennium Development Goals (MDGs), improvements have not been evenly spread out. Some subgroups, especially those from minority populations and those living in rural and remote areas, are in danger of being left behind and experiencing greater disparities. To promote utilization of maternal health services and reduce financial barriers, the “Free Maternal Health Services Policy” was produced in 2012. It provides free maternal health services for pregnant women across the continuum of care. While the percentage of pregnant women who attend ANC sessions at least once has increased, as has the percentage of deliveries attended by health personnel and of institutional deliveries, the uptake of postnatal care remains low (Ministry of Health, Lao Statistics Bureau, and Ministry of Education and Sport 2017). Disparities in child and maternal health and nutrition in particular remain an area of concern, especially given the long-term effects that poor nutrition in the first 1,000 days of life can have across a life span (Ministry of Health, Lao Statistics Bureau, and Ministry of Education and Sport 2017). Also of concern is early pregnancy, especially for mothers who have not completed primary school and mothers who themselves are stunted (World Bank 2016).

The purpose of this report is to provide qualitative data to better understand health- and nutrition-related behaviors, attitudes, and practices in project areas and to provide evidence of village-level SBCC activities being implemented with support from HGNDP and AFN.

Overall, the study showed mixed results. There were some similarities in Phase I and Phase II villages regarding knowledge and practice, and also similarities in that the capacity to enact project educational messages was largely dependent on the level of livelihood assets and disposable income. Consistent with UNICEF’s Conceptual Framework of Determinants of Undernutrition, the study showed numerous factors that contribute to poor child nutrition at various levels (for example, immediate, underlying, and basic causes) (UNICEF 2015). In both Phase I and Phase II villages, there were qualitatively similar levels of knowledge related to key project messages that mirror government priorities, such as, for example, water and sanitation, uptake of ANC, institutional delivery, and optimal breastfeeding practices. Most participants received information from health care workers and village heads, as has been observed elsewhere (Chankham et al. 2017). It is also impossible to rule out contamination where the control group either actively or passively received some or all of the information intended for the treatment group (Cook and Campbell 1979). Furthermore, independent of project implementation, Phase I and Phase II villages may have differed in some important determinants of nutritional outcomes outlined in the UNICEF conceptual framework.

Another factor in establishing causal linkages is the long pathway from program inputs to the biological effects on nutritional status (Heckert 2016). For example, household food production incorporating home gardens and cooking demonstrations requires several steps before an impact on nutritional status can be expected (Webb-Girard et al. 2012; Ruel and

Alderman 2013). A meaningful effect on child anthropometry may require as long as 1,000 days of program exposure. Given that the best time to improve children's nutritional status is during the first 1,000 days (from conception to the child's second birthday), to achieve full impact, children and their mothers should be exposed to the intervention for nearly three years (in utero during pregnancy and for at least their first 24 months of life) (Ruel and Alderman 2013). Furthermore, intervention and measures of effectiveness are likely to be sensitive to seasonal variations in access to nutritional foods and health care services.

Improving access to appropriate sanitation facilities as well as improving hygiene practices can be important contributors to enhancements in nutritional status. High chronic exposure to large quantities of fecal bacteria, for example, results in anatomical changes to the structure of the small intestine, which can affect a child's ability to absorb and utilize nutrients. Estimates suggest that the probability of stunting among children between 6 to 23 months is 14 percentage points higher when the share of the population practicing open defecation in the village increases from 25 percent to 100 percent, although there does not seem to be a correlation between incidence of diarrhea and stunting (World Bank 2016). While advocating for latrines, the project does not fund the cost of building latrines or provide educational support for their maintenance. For some families, however, the cost and labor can be prohibitive.

While uptake of ANC and institutional delivery was reported to have increased in all Phase I villages, the study did not review any health facility records, and thus this finding is based on self-reporting. Some women still preferred to birth at home or had an at-home birth because of poor physical access due to the lack of all-weather roads, lack of transport (or high cost of transport), or opportunity costs. Travel can be particularly arduous for women who are pregnant, in labor, or are transporting small children (Durham et al. 2018; Ensor and Cooper 2004; Jacobs et al. 2012; Durham et al. 2016; Okwaraji, Webb, and Edmond 2015; Sychareun et al. 2012), particularly in the absence of all-weather roads. Other reasons given for not delivering their child at a health facility included going into labor quickly and lack of perceived benefits from institutional birthing. These barriers are well documented in Lao PDR as well as in other lower-middle-income countries (World Bank 2005; Durham et al. 2018; Eckermann and Deodato 2008; Ensor and Cooper 2004; Jacobs et al. 2012; Levesque, Harris, and Russell 2013; Durham et al. 2016; Sychareun et al. 2012, 2013, 2016; Okwaraji, Webb, and Edmond 2015; Lee et al. 2013) and are related to the basic causes of poor maternal and child health and undernutrition as recognized in the UNICEF Conceptual Framework of Undernutrition (UNICEF 2015).

Self-reported increases in the uptake of ANC and institutional delivery were due to various factors, including improved affordability due to free MCH services, better access to health and basic services, changing levels of education, wide dissemination of the government's preference for ANC and facility-based birthing, and changing social norms (Diamond-Smith 2017). Nonetheless, barriers to accessing these services still remain, as found in this study. Evidence from several lower-middle-income countries suggests there have been shifts toward increased ANC and facility deliveries in the last 10 years in almost all wealth groups, including an increase in rural areas, partly due to the removal of user fees (Diamond-Smith 2017). This shift, however, has not necessarily translated into improved

maternal and child health outcomes, highlighting the need for a holistic strategy as emphasized in the UNICEF Conceptual Framework of Undernutrition and a more in-depth understanding of the socioeconomic lives of the rural poor (UNICEF 2015).

Mothers' self-reported satisfaction with services related to ANC and delivery was high, although women who did not speak Lao found it hard to understand what they were being told, even with translation. This also highlights that the quality of care offered in facilities to women giving birth and to their newborn children must improve and be culturally responsive (Durham et al. 2018; Nesbitt et al. 1990). Furthermore, some women, especially in Hmong villages, did not always feel they were able to make decisions about seeking health care. As a qualitative study, it was not possible to quantify any changes in underweight and wasting, but in Phase I villages, many women were able to recall project messages, talk about optimal breastfeeding practices, and describe appropriate practices for the introduction of complementary feeding and the importance of diet diversity. Participant responses also indicated that there were improvements in feeding practices for infants under two years and real efforts to improve an infant's dietary intake and health status. Overall, exclusive breastfeeding for the first six months of life and appropriate introduction of solids were reported to be practiced by many mothers in Phase I villages, although those mothers with fewer assets, including labor units, found them more challenging to achieve. Experiences from other countries, for example Chankham et al. 2017, showed that use of female volunteers to educate mothers about breastfeeding during home visits led to significant increases in exclusive breastfeeding rates (of up to 30 percent compared to baseline) after six months of counseling (Qureshi et al. 2011).

In this study, difficulties in achieving exclusive breastfeeding during the first six months of life were reported and have been observed in both developed and developing countries (World Bank 2005; Kennedy et al. 2018; Qureshi et al. 2011; Imdad et al. 2011). One of the main reasons for the early cessation of exclusive breastfeeding related to mothers having to return to work and the practicalities of combining exclusive breastfeeding and work (World Bank 2005; Webb-Girard et al. 2012; Avery et al. 1998; Lawson and Tulloch 1995; Okolo, Adewunmi, and Okonji 1999; Schwartz et al. 2001; Dearden et al. 2002; Almroth et al. 2008). Some mothers reported expressing breast milk and leaving it with the infants' caregivers (usually a grandmother), but the study also found that these caregivers were also providing supplementary foods in addition to the expressed breast milk.

Study participants were able to recall messages on maternal nutrition and reported they had fewer food taboos than previously. Reported dietary restrictions were based on medical advice and included avoidance of fermented food, such as fermented pork meat with vegetable or fermented fish sauce. Most mothers drank traditional unsweetened herb tea during this period to stimulate milk production; this practice has been found elsewhere in Lao PDR (Lee et al. 2013). In the growing season, green leafy vegetables are commonly cultivated at the household level and are found within the surrounding area. The HGNDP and the SBCC helped women understand the nutritional value of these vegetables. While the value of green leafy vegetables, small fish, and meat, and the importance of dietary diversity for infants and mothers, was recognized and acceptable, especially in Phase I villages, women often found it hard to achieve optimal diversity due to lack of access to a diverse range of foods. This knowledge-practice gap, resulting from both a lack of access to nutritious food and a lack of

resources, has been reported in international literature as a key reason for the inability of people to maintain nutritious diets (World Bank 2005; Kennedy et al. 2018; Hotz et al. 2015).

In Kenya, while in a very different context, Holtz and colleagues (2015) identified multiple interrelated barriers affecting nutritional adequacy. As found in this study, few households were able to self-produce the annual household food requirements. The resultant reliance on markets, along with the high prevalence of poverty due to limited availability of cash-earning opportunities, was a primary limiting factor to purchasing food and acquiring adequately nutritious dietary diversity. For there to be an increase in access to nutritious diets in Phase I areas, there must be improved resource management to increase productivity, either for household production and consumption or for sale. There also needs to be an improvement in market linkages for those foods to improve market access, given that cost and accessibility are the main barriers for people being able to maintain a nutritional diet. These approaches could also improve opportunities for local income generation and improved livelihoods, and for better food and nutrition security, but there is likely to be a lag time before benefits are observed regarding improved weight for height and reduced stunting (Kennedy et al. 2018; Ruel and Alderman 2013; Iannotti, Muehlhoff, and McMahon 2013; Fowler and Irwin 2012; and Olney et al. 2015.).

The study did not assess food intake, but many participants stated that maternal dietary intake was poor due to food insecurity and a lack of income to purchase foods. Agriculture systems play a crucial role in the provision of food and livelihoods. For example, at different times of the year, diets are typically highly monotonous, consisting mostly of rice and vegetables that are found within the area. A study by the World Bank found that in Lao PDR, the low quality and low diversity of the diet are the main cause of inadequate nutrient intake in children, rather than calorific diet, especially among rural households (World Bank 2016). Based on an analysis of the Lao Expenditure and Consumption Survey V (LECS 5), the World Bank estimated children 6 to 23 months are not fed vegetables rich in vitamin A, even when their mothers consume them. However, no intrahousehold gaps were observed for children 24 to 59 months, suggesting that suboptimal infant and young child feeding practices among children 6 to 23 months was potentially due to lack of knowledge rather than lack of access to nutrient-rich foods. This made learning about the importance and nutritional value of food products found locally especially valuable for children 6 to 23 months, and an important element of the program, particularly when access to the market is limited. Nevertheless, some women reported not always being able to adopt recommended infant feeding practices. Given that household food insecurity is associated with dietary diversity (Direessie et al. 2013), it is difficult to discern if this was due to limited access or to continuing misunderstanding about the need for a diverse, nutrient-rich diet for children 6 to 23 months (World Bank 2016).

The community conversations were particularly valuable, and the cooking demonstrations and classes provided women with a practical and visual way of learning. In Phase I villages, many women noted that their knowledge of infant feeding had improved. In a review of the literature, Kennedy and colleagues found that participant engagement was a contributing factor for achieving SBCC effectiveness, particularly with programs that afforded opportunities for interaction for mothers and caregivers for problem-solving, small group discussion, and hands-on experience (Kennedy et al. 2018). Active involvement, as seen in

this project, can also increase local ownership of infant feeding practices (World Bank 2016, Horii 2016). Available studies also generally suggest the need for culturally appropriate SBCC communications that are sensitive to local norms to mitigate tension between locally held beliefs and scientific knowledge derived mainly from the global North (Kennedy et al. 2018). Drawing on local knowledge can strengthen interventions by acknowledging existing perceptions and utilizing familiar approaches (Webb-Girard 2012). It is important to note in this study that while SBCC activities seemed to be effective, the women participating in them self-selected; thus, there may be some selection bias (Hotz et al. 2015).

A World Bank report on nutrition in Lao PDR highlighted significant gaps within the health service delivery system in providing nutrition-related information to women and their families, as well as limited capacity for measuring weight and height in children (World Bank 2016). In this study, the community-based growth monitoring in Phase I villages was valued by the mothers and minimized challenges women face in accessing health care centers. This intervention also potentially helped build the capacity of health systems within project sites (including village health volunteers/workers) and stressed the importance of these health systems in providing nutrition-related information to women and their families and in measuring weight and height in children. Some women, however, found it challenging to understand exactly what the different colors on the growth chart meant. It was not clear from this study if this was due to lack of clarity in explanations provided by the health staff, or if the information was too complex for some women to understand, especially those with low levels of education. Furthermore, while women were largely able to explain the process they used in the village to monitor weight and height, they did not distinguish between stunting (which is due to chronic malnutrition and a relatively common issue in many rural populations in Lao PDR), or wasting (which is due to acute shortages and rapid weight loss or failure to gain weight normally), or protein or micronutrient deficiencies.

In a qualitative study such as this, it is not possible to determine if growth monitoring had a positive effect on infant feeding, and it was not clear if monitoring incentivized mothers to implement good practices. Mothers mostly seemed to have the autonomy to make decisions about infant nutrition, but as discussed above, were constrained by issues of availability and affordability. While knowledge and autonomy are important determinants of practices used, this study suggests a gap between knowledge and practice, often due to limited access; and in the case of exclusive breastfeeding, work demands. Given that many fathers and grandmothers interviewed wanted their children/grandchildren to be successful in later life, this may be a motivating message. It may also be that the project increased parents' aspirations for their children and their willingness to spend additional resources, including time, on infant nutrition (Fink et al. 2017).

In general, the study found health beliefs that can be harmful, such as eating less during pregnancy, were on the decline. But almost all mothers in the study said their physical workloads were high during pregnancy and included farm work and household activities. Especially for households with few labor units and few assets, there were few alternatives. While many women took breaks, labor-intensive work continued until the later stages of their pregnancy, although husbands also took on more of the load as well as more of the household chores. Women's workloads were also determined by the seasons and when agricultural work

placed larger burden on the household. Trade-offs also needed to be made, with pregnant women, for example, spending less time carrying water, but the trade-off could be a young girl or boy doing such tasks instead.

CONCLUSIONS

This qualitative study has produced findings that are important for a better understanding of knowledge, attitudes, and practices of pregnant and lactating women, mothers/caregivers of children 0 to 59 months, as well as those of the broader community in four provinces in northern Lao PDR. The findings are also consistent with World Bank, government of Lao PDR, and other development partner studies, which have also concluded that values and social norms related to MCH and nutrition need special attention if the country is to accelerate the desired changes in nutrition and health-related behaviors and practices. The following summarizes some of the key findings generated from this survey.

In all villages, women were aware of ANC services, with most knowing that they should have at least four ANC visits during their pregnancy. Those women who used ANC were generally satisfied with the services provided, understood the reasons for going to ANC were to promote their and their baby's health and safety, and could explain the specific services they had received. However, women from ethnic minority communities reported certain barriers to accessing ANC services, including poor road conditions and transportation; language difficulties; a perception that they would not receive benefits; opportunity costs (that is, the cost of two people not working); and men's negative attitudes toward use of ANC.

As in the case with ANC, the majority of FGD participants were aware of the benefits of facility-based birthing and reported an increase in deliveries within health facilities. Participants were typically encouraged by health staff, village health volunteers, and village heads to give birth in a health facility. Both Phase I and Phase II villages, however, reported the same challenges to accessing facility-based birthing as to accessing ANC services.

While women and their families were aware of the recommendations for PNC, a number of supply-and-demand barriers constrained access. Where the mother and baby seemed healthy, women felt PNC was not necessary. Community outreach therefore was an important way of accessing women, providing postpartum care, and vaccinating infants. Most Khmou and Hmong ethnic women were not aware of postpartum care and did not see the importance of PNC, although most knew about vaccination. Translating knowledge into action was constrained by the barriers already mentioned, including language, road conditions, distance to the health center, lack of transportation, and indirect costs (for example, time spent not working). For women who delivered at home, health staff follow-up was limited, especially in remote and hard-to-reach villages.

With regard to infant and young child feeding, many mothers were aware of the benefits of colostrum and exclusive breastfeeding for the first six months of life and tried to put this into practice. However, some Khmou, Hmong, and Tai Deng ethnic women stated that at times it was hard to prevent grandmothers from giving the infant water or a little chewed rice. Most mothers also had adequate knowledge and understanding of the best timing to introduce solid foods to infants. Many were able to explain how they started introducing solids—by making a rice porridge, adding other ingredients, and mashing the mixture until it was soft. However, many participants, especially from Hmong, Khmou, Tai Deng, and Pounoy ethnic groups, introduced solid foods and formula when babies cried and/or when the mother's breast milk was not enough. Furthermore, women often had to leave their babies with their mothers

or mothers-in-law when they returned to work, and sometimes, especially if the baby cried, the mother or mother-in-law may have introduced solids too early.

There were mixed results for growth monitoring of children. Even though women in the FGDs with children under two years of age participated in growth chart monitoring and follow-up, and undertook weight and height measurements, most did not fully understand the reason behind the growth chart monitoring and measurements. Others were not sure if they should do the weight and height monitoring or if that was the responsibility of the health center. In some villages where women had previously been taught about weight and height monitoring, this practice was not sustained.

Generally, women said they ate the same foods postpartum although with some restrictions. While they were lactating, they said, nutritious foods to eat were banana flower, chicken soup, or pork with fish sauce. Banana flowers were thought to be particularly useful for breast milk production. Pumpkin and ginger were also attributed to helping in breast milk production, while alcohol, pickled fruits, pickled vegetables, coffee, and Pepsi were generally avoided. Women knew that while lactating, they should eat four or five meals a day from the six nutrition groups. In the Phase II village of Korlu, as in other villages, participants also noted that while they were aware of what they should eat while lactating, in reality it was often not possible because they had to return to work soon after delivery. In situations where many mothers had to work in fields far away from their homes, they could not take enough recommended food items.

Food taboos were prevalent in these communities. Most women still hold traditional beliefs and avoid certain kinds of foods for three to six months after giving birth. Among foods that are avoided in this period are wildlife meat, buffalo, beef, pickled food, and strong smelling foods such as fermented fish. In addition, during and after giving birth, products involving tobacco and alcohol and sugary foods are avoided because women believe these products will make their babies ill, lead to a painful delivery, or make them and their babies sick.

Women's workload during pregnancy does require special attention in health, nutrition, and livelihoods programs. The workload in all villages is divided by gender, with women undertaking both reproductive and productive work and men undertaking productive work. A factor in women's workload was the number of labor units within a family or household. For those with primary school-age children or younger, often the parents were the sole labor units and shared the agricultural workload with little, if any, difference in Phase I or Phase II villages or by level of education. The imperative to provide food for the family meant most women worked as normal until they were eight months pregnant. Postpartum, women rested or only performed light work for the first month, supported by their husbands, before gradually returning to farm work.

Access to clean water and appropriate sanitation facilities depended on location, but few families had access to safe water. While messages regarding handwashing and desisting from open defecation were well known in most villages, lack of disposable income and lack of support for providing safe and sustainable sanitation systems diminished the ability of many families to practice safe hygienic practices. Although many families had consistent access to soap for handwashing, many Hmong and Khmou participants stated it was difficult to have

access to soap all the time while they stayed in their rice fields in remote mountainous areas for a month before returning to their village.

Participation in HGNDP and/or AFN project activities at community level was generally positive, more so where women saw tangible benefits from these. Most husbands who were interviewed were also supportive of their wives' participation in regular meetings and project activities. However, village health workers and village heads also acknowledged that the low level of education and poor literacy among many women made it hard for them to understand some concepts related to maternal and child health and nutrition (which also may not translate well). This problem was reported as making the educational sessions time-consuming and inconvenient for women.

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Despite the Lao People's Democratic Republic (Lao PDR)'s significant economic growth over the last decade, poor nutritional outcomes remain a concern. Rates of malnutrition are particularly high in remote, rural, and upland areas. Redressing these high rates of malnutrition is critical in reversing inequalities in mortality and ill-health throughout people's lives. This report presents the results of a qualitative study to investigate the knowledge, attitudes, and practices related to maternal and child health and nutrition in local communities in four provinces of Lao PDR with high levels of childhood undernutrition. While study participants were aware of the importance and benefits of antenatal care, facility-based birthing, and postnatal care, they also reported significant barriers to accessing these services. These barriers included poor road conditions and lack of transportation, long distances to health facilities, language difficulties, and lack of spousal support. With regard to infant and young child feeding, many mothers were aware of the benefits of colostrum for the first 24 hours and exclusive breastfeeding for the first six months of life and tried to put this into practice. However, some ethnic minority women stated that at times it was hard to prevent grandmothers from giving the infant water or a little chewed rice. There were mixed results when it came to growth monitoring of children. Even though mothers did participate in growth monitoring and promotion activities, most did not fully understand the reasons behind those activities. Access to clean water and appropriate sanitation facilities depended on location, but few families had access to safe water. While messages regarding handwashing and desisting from open defecation were well known in most villages, poverty and lack of support for providing safe and sustainable sanitation systems diminished the ability of many families to practice safe hygienic practices.

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