Involving Men in Infant and Young Child Feeding (IYCF) Practices and Decision Making: A Formative Community Assessment in Ainaro and Lautem Municipalities, Timor-Leste

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Abstract

Involving Men in Infant and Young Child Feeding (IYCF) Practices and Decision Making: A Formative Community Assessment in Ainaro and Lautem Municipalities, Timor-Leste

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Background: The prevalence of chronic malnutrition in Timor-Leste is very concerning: nearly 46% of children under age five are stunted. Exclusive breastfeeding and complementary feeding practices are very crucial in supporting child nutritional outcomes. During this period, male partners play important roles as decision-makers at the household level in ways that may influence nutritional outcomes.

Objectives: This study aims to explore and compare community norms and individual behavior and experiences in caring and feeding children in the first two years of life in two communities in Timor-Leste. A particular focus is the role of male partners in Infant and Young Children Feeding (IYCF) practices.

Methods: Using a qualitative approach, the study used semi-structured in-depth interviews (IDI) and Focus Groups Discussions (FGD) for data collection. There were 61 study participants in total, with 24 IDIs and five FGDs conducted in two municipalities, Ainaro and Lautem.

Results: In both communities, there was very minimal reported male involvement in caring for children, including their feeding practices. Most mothers did not express any expectations about their partners' roles in caring for and feeding their children, saying that the ideal role of a husband is to work and earn money for the family. Furthermore, male partners did not see themselves as being targeted in nutrition health promotion campaigns conducted by health workers. Dietary diversity was a major problem for families, along with lack of knowledge of the importance of diet diversity and lack of cash to purchase high quality food items such as fish, meat, and eggs. There were no major differences in male involvement in the two municipalities, although informants living in a village located in coastal area reported to eat fish more frequently.

Conclusion: To address malnutrition in small children, targeting and engaging fathers for health education is essential. More aggressive interventions to promote adequate complementary feeding practices and good nutrition is fundamental to increase the knowledge of male and female partners and to affect household level behavior change. Actively supporting and engaging female partners in economic activity is highly encouraged to support household finances that could allow more households allocation for high protein food.

Keywords: Timor-Leste, Male Involvement, Nutrition, Breastfeeding, Complementary Feeding Practices.

INTRODUCTION

Child mortality and undernutrition around the world remain a major concern. Based on the UNICEF report, between 2016 and 2030, almost 70 million children may die before reaching 5 years of age, and undernutrition is a cause of nearly half of those deaths. In 2030 alone, the final year of Sustainable Development Goals, 3.6 million may die. (1,2) Globally, child deaths do not occur in random places, instead they are highly concentrated in lower middle-income countries (LMIC). According to the 2011 World Bank Development report, compared to children living in high-income households, children living in the poorest households are twice as likely to die and be undernourished in LMIC. (3,4) Although there are many efforts supporting child nutrition globally, many lower-income countries, such as Timor-Leste, continue to face challenges in decreasing the burden of malnutrition. Most cases of undernutrition take place during the first two years of the child's life due to inadequate feeding practices and high level of infections. (5–9)

The first two years of life are a golden period of opportunity when the foundation for optimum health and nutritional outcome and development across the lifespan are started and established. In achieving an optimum nutritional outcome, the first two years of Infant and Young Child Feeding (IYCF) practices are very fundamental since this period includes exclusive breastfeeding and complementary feeding practices. Breast milk provides all essential nutrients for infants 0-6 months; therefore, no other food is needed during this period. Starting from 6 months old, the young child will be introduced to solid food. (10,11)

Since the end of Indonesian military occupation in 1999, Timor-Leste has faced daunting challenges in developing a health care system to improve maternal, newborn and child health. At the time of independence, Timor-Leste had some of the worst maternal, newborn and child health statistics in Southeast Asia. During the period of 1999-2003, the under-five mortality was 83 per 1000 live births and infant mortality was 60 per 1000 live births. (12–15) In 2016, the total child mortality and infant mortality declined to 41 deaths and 30 deaths per 1000 live births respectively. While nutrition outcomes for children have slightly improved, the most recent 2016 Demographic and Health Survey (DHS) stated that malnutrition remains unacceptably high. The prevalence of stunting (short for age) among children under five years of age is 45.6%, and the prevalence of wasting (thin for height) and underweight (thin for age) are 24% and 40% respectively. Under five children in rural areas had a greater stunting prevalence (47%) compared to urban children (41%) and child mortality is consistently greater in rural areas than in urban areas. (16)

Inadequate dietary intake and infections are two major causes of undernutrition. The 2016 DHS reported that 11% of children under age five in Timor-Leste had diarrhea and 2% had acute respiratory infection (ARI) symptoms in the two weeks before the survey took place. Furthermore, 19% of children age 12-23 months received no vaccinations, and only 49% of children received all basic vaccinations. (16) The survey also reported that only 50% of children under six months are exclusively breastfed and only 13% of children 6-23 months meet the minimum recommendations for meal frequency and dietary diversity (minimum acceptable diet). Knowledge and understanding of nutrition are still lacking among many parents. In particular, as reported by the 2016 DHS, there was limited understanding of the importance of exclusive breastfeeding and complementary feeding practices for infants. These findings, along with the

common practice of pre-lacteal feeding demonstrates that infant and child nutrition is a serious public health issue in Timor-Leste. (17,18)

Barriers to achieving acceptable IYCF practices exist at the household level. One of the many factors that influence household level health decision making in Timor-Leste are strong social norms that favor male decision-making and may influence women's health seeking behaviors. These decisions might also impact women's and children's health. While health care services through the public sector are free, women might not go to antenatal care if their husbands do not allow them to or if money for transportation to get to a health facility is an issue. (19–22). Therefore, intra-household bargaining power involving the roles of women to have control over household resources and to take part in decision making is crucial in supporting child nutrition and health. (23,24) However, previous studies focused on the role of grandmothers and mothers-in-law, and less was focused on fathers' influence in IYCF. Studying the role that men play in family and parenting decision-making would provide further understanding in households' choices and decisions in child feeding and nutrition practices. (25)

Efforts to change behavior and decision making at the household level to increase exclusive breastfeeding and adequate complementary feeding practices will need to engage male partner decision makers. Particularly, during the first two years of life, feeding practices are critical to assure appropriate child growth and development. (26,27) To improve nutrition and IYCF practices for young children there is an urgent need to more carefully examine parents' roles and assess how to fully engage male partners in supporting exclusive breastfeeding and complementary feeding practices. The goal of this research was to describe and explore norms and expectations for fathers' role in supporting child nutrition practices in two communities in Timor-Leste.

METHODS

Design

This study aims to explore and describe community norms around household decision-making and experiences in caring and feeding children in the first two years of their lives in two communities in Timor-Leste. The study chose two different municipalities in order to capture range of possible variation of study informants across Timor-Leste and identify commonalities. A total of 61 informants, consisting of 24 in-depth interviews (IDI) in 20 households and five focus group discussions (FGD) in four villages were conducted in the two municipalities in Timor-Leste: Ainaro and Lautem.

Setting and Sample

The unit of analysis of this study is the household. Households were identified and approached by visiting their homes and asking anyone at home to participate. Some households had just men participating, and some households had just women participating. In total 20 households were interviewed: 10 households in Ainaro and 10 households in Lautem.

The sampling strategy included three stages. First, was sampling two different municipalities. The two study locations were chosen due to their different geographical characteristics, stunting prevalence, and minimum dietary intake rate **(see Table 1).** Based on the 2016 DHS, Ainaro had the highest prevalence of

stunted under-five children (60%) while Lautem was among the lowest rate (41%) in the country. The 2013 Timor-Leste Food and Nutrition Survey reported that Ainaro was among the highest (31%), and Lautem was the lowest (6%) based on the proportion of children who had a minimum adequate diet (meal frequency and diversity). Ainaro lies in the southwest part of Timor-Leste. It has a coastal area on the south part of the municipality facing the Indian Ocean. Many villages in Ainaro are located in mountain ranges where Timor-Leste has its highest peak, Mount Ramleau. Lautem is located on the eastern end of the country, the farthest district from Timor-Leste capital, Dili. The Lautem region is surrounded by ocean, except the middle-western part. Second sampling stage was sampling the villages. The sub-settings were chosen to capture variation in different regional characteristics; rural and peri-urban, costal and highland.

Table 1. Study Locations Characteristics

	Ainaro Municipality	**Lautem Municipality**	**National Timor-Leste**
Stunting Rates (2016)	60%	41%	45.6% Urban (41%) Rural (47%)
Minimum Acceptable Diets (2013)	31%	6%	18%
Suco (Villages)	**Urban:** Ainaro, Maubisse, Cassa **Rural:** Mau-Nunu, Liu Rai, Foho-Ai-Lico.	**Urban:** Illiomar I, Lospalos **Rural:** Fuat, Parlemento, Fuiloro.	
Costal	Foho-Ai-Lico	Parlemento	
Highland	Mau-Nunu, Ainaro, Maubisse, Liu Rai, Cassa	Illiomar, Fuat, Parlemento, Lospalos, Cainliu	
Total Population (2010)(28)	59,175 (5.5%)	50,787 (5.9%)	1,066,409 Urban (29.6%) Rural (70.4%)
Population Under 2 Years Old (2010)	2,045 Urban (379) Rural (1,666)	1,769 Urban (314) Rural (1,455)	31,322 Urban (8,023) Rural (23,309)

The third stage was sampling the households for interviews with parents. All household included parents who had children age 7-24 months at the time of the interview. For focus group discussions, individual parents were recruited, and this age range was part of the inclusion criteria because as parents they had recent experiences with breastfeeding and complementary feeding practices. Prior to the principal investigator arriving in the villages, using a purposive sampling method, the community health workers,

village leaders, and a non-profit organization worker were asked to recruit study participants from households who have children falling into the desired sampling criteria. Low income households were sampled through community health workers, since they knew the conditions of the community very well. From 24 interviews, 20 households participated in the study. Sixteen study participants came from 16 independent households, while 8 other participants were parent couples in four different households. There were nine interviews with fathers and 15 interviews with mothers. The number of interviews conducted in rural and urban settings was almost equal, with 11 interviews in urban areas and 13 in rural areas. Most of the interviews were conducted in highland settings (79%).

FGDs were conducted to complement the in-depth interviews. Mothers, fathers, and community health workers participated in five different focus group discussions. None of the participants in FGDs participated in in-depth interviews. They were chosen by community health workers and village leaders. Two focus groups with fathers were conducted in Liu Rai and Illiomar village and two with mothers were conducted in Liu Rai and Parlemento village. All participants in focus group discussions lived in independent households. One focus group (with mothers) was conducted in a coastal area and three were conducted in a highland area. The FGDs were conducted for men and women separately because study participants felt more comfortable discussing gender roles in gender-separate groups. In addition, one separate focus group was conducted with community health workers (CHW) who came from different villages in Lautem.

Data Collection

Focus group discussion (FGD) and in-depth interview (IDI) guides were used to collect the data. IDIs and FGDs were conducted in Tetum and Indonesian. All data collection in Ainaro was in Tetum; the principal investigator was assisted by Health Alliance International staff to interpret in real time to Indonesian during the interview. All IDIs and FGDs in Lautem were conducted in Indonesian by the researcher, a native speaker.

The data collection was conducted In July-August 2019. The research was approved by University of Washington Human Subjects Division. In addition, the National Institute of Health, the Ethical Review entity in Timor-Leste, granted permission to conduct the research project in the chosen study sites.

Data Analysis

The principal investigator transcribed the interviews and coded them using Atlast.ti 8. Verbatim transcripts and observation notes were used to better understand the context and situation. Inductive and deductive analysis was used to analyze the transcripts. The codebook was developed inductively; some new codes were added during the coding process as new substantial themes emerged. The analysis process involved describing the findings, integrating the emerging themes to the literature, and finding commonalties between the two municipalities on dietary diversity and fathers' involvement in childcare.

RESULTS

Participant Characteristics

A total of 61 informants participated in this study, ranging in age from 20 to 61 years. Informants' youngest children or grandchildren were between 0-24 months old, and most (62.5%) were 7-18 months old. Some of them had more than two children under 24 months. Most informants had at least three children (67%). All levels of education were represented among informants, from no education to participants with a college degree. Most of the informants (62.5%) had attended at least primary school, where only two of them (8.3%) had a college degree.

Table 2. Study Participants Characteristic

Characteristic	Ainaro Municipality	Lautem Municipality
Households (20)	10	10
IDI Participants (N = 24)	14	10
Mothers (15)	9	6
Fathers (9)	5	4
Focus Group Discussion (N=5)	2	3
Mothers	1	1
Fathers	1	1
Community Health Workers	0	1
Urban Participants	**9** (3 fathers, 6 mothers)	**2** (1 father, 1 mother)
Rural Participants	**5** (2 fathers, 3 mothers)	**8** (3 fathers, 5 mothers)
Highland Participants	11	8
Coastal Participants	3	2
Education		
No Education	5	4
Primary School	2	3
Secondary School	6	2
College Degree	1	1
Participants' Number of Children		
1-2	7	1
3-4	4	2
5 or more	3	7
Participants' Age of Youngest Child (Months)		
0-6	5	2
7-12	4	6
13-18	3	2
19-24	2	0

Findings

The findings of this study on men's involvement in Infant and Young Child Feeding Practices can be categorized under two broad headings: (a) Fathers' Roles in Postpartum and Exclusive Breastfeeding Practices; and (b) Fathers' Roles in Complementary Feeding Practices**.** The findings also extended to comparison of the similarities and differences of those practices between the two municipalities, Ainaro and Lautem.

Fathers' Roles in Exclusive Breastfeeding Practices and the Postpartum Period

Mothers make breastfeeding decision without male involvement

In general, the data indicate that most fathers did not actively support or discourage breastfeeding practices and did not participate in making the decision whether to exclusively breastfeed their infants or not. The few fathers who understood the importance of exclusive breastfeeding received the information from their friends and communicated that information to their wives. However, in general there was very little discussion of that information. There were no major differences in male involvement in decision making about whether to exclusively breastfeed between the two municipalities.

Exclusive breastfeeding was widely understood as important by mothers in both Lautem and Ainaro, and no major differences were identified between the two sites. Most reported that they exclusively breastfed their children by not feeding them with any type of food, including water, until they reached six months of age. However, some households fed their children before they reached six months of age with formula milk, fresh tomato, or rice porridge due to lack of understanding on how long they should feed their infant with breastmilk only. As participants explained, this practice happened because: 1) mothers could not produce breastmilk; 2) mothers believed their children were hungry and were crying in need of food since breastmilk was not enough; 3) mothers wanted their children to grow faster; or 4) mothers did not fully understand the recommendation that feeding with breastmilk only should be continued for six months.

> *"After the infant was born, I fed him breastmilk only, I only did it until he reached six months of age"* (Mother in rural Lautem*)*

In most cases, mothers were the ones who decided to breastfeed their infants exclusively. This decision was highly influenced by health promotion from health workers. Using messages that children will do better at school if they were exclusively breastfed seemed very effective in motivating mothers. Most of them received the information about exclusive breastfeeding when they had their antenatal visit. During the visit, some mothers went to the facilities accompanied by their husbands. However, most of the time, their husbands stayed outside the facility waiting for their wives, hence the education provided by the health worker was not received by male partners.

> *"A midwife provided us information about exclusive breastfeeding, and [she said that] it should be until 6 months of age. Then, the one who decide whether to exclusively breastfeed the newborn baby was myself, I think my husband too. I agree with the midwife's advice"* (Mother in rural Ainaro*)*

In addition, the decision on exclusive breastfeeding and whether to continuously breastfed until the infants reached two years of age were solely made by mothers because fathers believed that mothers

know more about the children and that caring for the children is the mothers' responsibility. Therefore, male partners believed that there is no need for their involvement in this particular process. Other than health care workers, friends and neighbors also played important roles in the discussion around exclusive breastfeeding. Some parents reported that they received information about breastfeeding from the neighbors, and their daily interactions were a platform for sharing information.

Strong social norm for husbands' support after delivery

In the first three months, the exclusive breastfeeding practices were indirectly supported by a strong social norm that husbands should assist their wives after delivery. All participants both in Ainaro and Lautem reported that during the first three months of an infant's life, a male partner plays a prominent role in the household when a mother must stay at home and recover after delivery. Participants stated that male partners were involved in almost all household work, particularly if they do not have older children. Some male partners found that helping their wives in cleaning and processing the rice before they cook it is a part of supporting their wives after delivery. Their daily roles included boiling water for their wives to take a bath, washing clothes, and cooking porridge. The husbands' contributions to household activities provided time for wives to only focus on their infants, including breastfeeding. However, if the family has older children, they would be the ones who replaced the father's role in doing those household chores and assisting their mothers. In addition, mothers also did not feel urgency to expect their partners to help. This factor also motivates parents to have more children with the expectation that they would help with household work when they grow older.

Fathers said they felt excited when their babies were born. They showed affection and tried to help their wives as much as possible, especially when it was their first child. The husbands' involvement also showed their affection to their partners as they wanted to see their wives recover quickly. To recover and gain their strength back more quickly, mothers would take warm baths. The norm in Timor-Leste is for mothers to bathe with warm water, which is believed to help with healing after losing blood during the labor process.

Furthermore, the informants also reported that the infant's delivery process usually happened at home, not at healthcare facilities. Therefore, there was no opportunity for healthcare workers to provide education both regarding mothers' recovery process and exclusive breastfeeding or early breastfeeding initiation.

> *"After my wife gives birth to our children, I was responsible for getting water for the household, washing clothes, boiling water for her to bathe. Sometimes, I cook for her, until three to four months, after that she can cook by herself and do all other chores."* (A Father in rural Ainaro)

> *"My husband cooked and got water for me to bathe, washed clothes, and boiled water. If our child had reached three months of age, he no longer did all those things because he had another big responsibility which is working on our farm. Farming needs hard work; I think it is harder farming than taking care of the children. "(*Mother in urban Illiomar**)**

Father's role is to earn income

Other than the social norm of helping mothers after giving birth, most female partners indicated they did not expect their husband to play an active role in caring for or feeding their children. All of them

expressed that the ideal role of a father is to work and earn money for the family. Therefore, female partners believed that there is no need to add more roles for their husbands. During the interview and focus groups discussions, female partners always felt shy when they have to answer questions related to their expectation on husband's involvement in meal preparation because they believe that is not the husband's role and that work should be done by a wife alone. In contrast, male partners were confident in their expectation of their wives' roles in caring for the children, saying they had to do it well to ensure their children grow.

> *"I do not have any expectation toward my husband, because he always returns home in the evening"* (A mother in rural Ainaro)

Fathers often return to their typical male roles when the infant reaches three months of age and again, they are less involved in household work. Most of the time, fathers spent their time at their farms or at a job. Some may continue to help their wife with feeding the child, but this is not common.

Fathers' Roles in Complementary Feeding Practices

Understanding the complementary feeding practices in Timor-Leste is complicated compared to exclusive breastfeeding practices. The practices involve knowledge about healthy food, purchasing power, competing priorities, food access, and dietary habits of the household and community.

Lack of knowledge about adequate complementary feeding practices

Both male and female partners reported that they lack an understanding of complementary feeding practices, especially when it comes to dietary diversity. The only consistent information that the informants reported was that health workers and community health workers told them to add vegetables to rice porridge and other meals for their under two-year-old children. Most informants believed that the current practice in feeding children with rice added with monosodium glutamate (MSG) and vegetables is adequate. If their children feel full and satisfied, there is no need to worry about having no source of protein in their diet, although they also felt that it is nice to have eggs or chicken once in a while. Although a few of them received information about the importance of eating eggs and chicken from seeing a poster at health care facilities or from health care workers, they still did not comprehend how often or frequently they have to feed their children with those types of food.

Lack of money and low diet diversity

Informants reported about their child's daily meal and household dietary diversity and sources. Almost all households in the two municipalities reported that rice porridge with MSG and salt added are the main diet of children under two and the family. For household daily meals, they always have vegetables and rice on their plate. Households purchased rice from a nearby market as their source of carbohydrate, some of them eat cassavas and vegetables such as cassava and papaya leaves from their farm or green mustard purchased from vegetable sellers who came to their village. The female partners were responsible to purchase these food items from the market. A small proportion of households have rice fields with very limited production.

Rice was an important staple food in the two municipalities. Eggs, fish, and meat were rarely part of a daily diet including for complementary feeding of under two years old children. Most participants had these sources of protein 2-3 times a month or less, due to lack of household income. Big livestock was primarily slaughtered on certain important occasions and celebrations, such as weddings, cultural events, and after funerals, and not for daily consumption. Also, when animals were sick or dying, they are sometimes slaughtered with meat sold at a low price to neighboring households. Another source of protein is eggs produced by their own chickens. However, eggs were not often harvested, with the chicks being raised to be later sold to support other priorities, such as clothes, children's education, or home repairs. The lack of protein consumption was even more marked in rural areas where kiosks did not sell eggs, hence people could not purchase them.

> *"If we have cash, maybe we will buy eggs, but vegetables are more affordable, we only get vegetables when we have cash. We have to accept and be grateful for what we have*." (A group of fathers in rural Lautem)

> *"We always eat rice; we have eggs only once a month. We rarely eat chicken too. Yesterday, we had rice with vegetables. A thing for sure, we always have rice on our plate*." (A father in Urban Lautem)

Some feeding-related behaviors were observed to be unique in certain villages due to its geographical location and access to specifically available foods. Families living in the coastal area, especially where male partners worked as fisherman, reported eating fish frequently compared to those who lived in highland areas. This practice of eating fish frequently was observed and reported in Parlemento, a coastal village in the northern part of Lautem, where most male partners worked as fisherman. Although both were located by the coast, this practice was not reported in Bobey, Foho-Ai-Lico, another coastal village in the southern part of Ainaro. In addition, fish was very commonly found in markets in northern Lautem. Ainaro Municipality is very close to Dili, the capital city of Timor-Leste. It had bigger markets compared to markets in Lautem. A market in Maubisse was the biggest one in Ainaro Municipality, where food and supplies from Dili were distributed and sold. From Dili, commuting time to reach Lautem was doubled compared to the commuting time to reach Ainaro.

Women manage household cash

The parents living in rural areas reported that most of their income comes from farming activities. They sell commodities such as vegetables, bananas, and cassavas from their farm on market days. Some informants who lived in urban settings reported to have wider opportunities for jobs other than farming. For example, some worked in building construction, electrical repairs, and some of them are drivers and teachers with a stable income. All informants believed that male partners are the ones responsible for working for families, while female partners should stay at home taking care of children or selling the farming harvest. Male partners felt embarrassed if they had to go to the market to sell vegetables.

> *"If our family has cash, a wife is the one who is responsible for managing the cash. Whenever my husband needs the cash, he can ask me, and then I will give him" (A mother in rural Ainaro)*

Female partners manage the household cash and are responsible for buying food for meals. The money is mostly spent on rice, oil, MSG, sugar, vegetables, and noodles. In rural areas, women may walk for hours

to reach the market, not only for groceries, but also for carrying water from the source to home. Mothers reported that there was little planning regarding decisions for what food to buy and eat. However, in families where there were older children, their requests of what food they wanted to eat were considered if their parents had available cash. All food procurement and preparation activities were done by mothers, with a very little involvement of male partner or older children.

Families purchased food once a month or once every three months, right after they finished selling their farm commodities. If they had enough cash, they would save some for their children's education, and if not, it was just enough for food items and maybe some extra vegetables. Sometimes they bought eggs or chicken, but only two times a month because these items were too expensive. They believed that the money for those expensive items would be better allocated for their children's education in the future or for buying rice again, so they have a constant supply of carbohydrate. However, most of the time, if they had extra money for food, they spent it on tasty food such as instant noodles and biscuits.

Husbands had a major influence on use of cash for non-food spending

Although female partners were the ones who managed the household cash, male partners still have a lot of say on the cash allocation. Whenever the male partners asked for money for cigarettes, the wives always provided it to them. Some amount of cash was also used by men for gambling. Wives reported that they did not like their husband engaged in these two activities. Female partners reported that having their partners quit those activities were the two expectations they had for their husband, although they were not brave enough to explicitly ask them.

> *"After helping me with cooking, I hope he does not gamble with his friends (all other participants laugh at the moment, confirming that it is also the behavior of their husband), also stops smoking cigarettes anymore.* (Mothers in rural Lautem)

> *"If we have money from my husband working or selling our harvest from the farm, some of it we save for our children's education. If we have enough cash, we buy other food items, so we sell food to buy food, it is like barter, so we do not bring cash home, we directly spend it at the market. If we have cash, as wives, we are the ones who keep it, if our husbands need anything, he can ask us. We only have money to buy food; sometimes it is not enough, the way to deal with it is instead of buying three packs of salt, we buy only one pack*." (Group of mothers in rural Ainaro)

The exclusion of men in health promotion efforts

Male partners often did not see themselves as being targeted in nutrition health promotion campaigns conducted by health workers, particularly about complementary feeding practices. Typically, they received health information from peers, neighbors, posters at the health post when they accompanied their wife for an antenatal care visit. Some informants understood the importance of feeding their children nutritious food. However, the fact that fish, meat, or eggs are more expensive compared to vegetables was the main reason why their dietary diversity was lacking. The informants reported that one coping strategy to comply with information they received about eating higher protein foods, while lacking sufficient cash to purchase these items regularly, was to eat these foods two times a month. They believed this strategy was good enough to achieve a healthier diet. Participants did report that when they had nutritious food

such as eggs, they prioritized the youngest children to consume them because they believed they need this food the most to grow.

> *"There was a health promotion campaign that was conducted at noon; however, we did not make it since we were working at our farm at that time." (Group of fathers in rural Lautem)*

> *"I have heard health promotion from health workers, such as eating vegetables, and they told us what food to buy. However, it is very hard to follow since we do not have money. If we have cash, we maybe do that. If we do not, we cannot do anything. There was a moment when my children asked for chicken and eggs when I did not have cash, I told them to eat rice only. They agreed." (A father in Urban Ainaro)*

DISCUSSION

Overall little involvement of men in childcare and health promotion was reported in both municipalities, Ainaro and Lautem. Patriarchy and gender roles in the household contribute to this lack of involvement. (29,30) In Timor-Leste, male partners as heads of the household have roles in supporting the family financially by working or farming, most of which is done outside their homes. On the other hand, female partners barely left the house except for carrying water, buying groceries, and selling farming commodities. Hence, they spent most of their time at their house, caring for their children. Engaging men in childcare, especially the first two years of a child's life and actively supporting women in economic activities, would be a great opportunities not only to support the child's health but also to elevate the household economic development and opportunities. (31,32)

Male partners should engage in exclusive breastfeeding discussion

Rates of exclusive breastfeeding have improved over time in Timor-Leste. Although the rates remain relatively low, exclusive breastfeeding education in Timor-Leste seems to be successful in improving mothers' knowledge of the importance of breastfeeding. (33,34) Given the lack of a father's involvement in health promotion about exclusive breastfeeding, they might also be contributing to feeding the child with solid food before they reach six months of age. It is thus important to have male partners involved in the education process of how vital exclusive breastfeeding is and to encourage men to be a part of the discussions about the nutritional plans for their baby before women give birth.

Most mothers believed that they had accomplished the exclusive breastfeeding practice goals and were willing to do that for their future children. Exclusive breastfeeding is much easier for women to adhere to compared to proper complementary feeding. That difference is due to economic barriers, including household financial struggles to purchase recommended food items and limitations in access to food. It may also be due to limited health promotion messages related to complementary feeding compared to the strong exclusive breastfeeding education that has been prevalent in Timor-Leste, especially when it comes to adequate dietary diversity and the frequency of eating source of protein. The Timor-Leste Ministry of Health (MoH) should address this important gap and provide more aggressive interventions to improve child undernutrition in the country. (8,35)

The inclusion of men in health promotion efforts is crucial

Health promotion strategies targeting men are another needed intervention in Timor-Leste. This study suggests that fathers found themselves receiving the information from their friends instead of health workers, while most mothers received the information from health workers. This strategy of often only including women in health promotion regarding breastfeeding or complementary feeding is insufficient, especially in a place where male partners have vital decision-making roles in the family. (36,37) When men make rules in the household, it is rigorous, and everyone must follow them, hence having them on board in supporting exclusive breastfeeding and adequate feeding practices is very central to achieve better nutritional and health status for young Timorese children.

Neighbors and friends are also important sources of health information. (38) Informants spent a significant amount of time gathering together in the village and discussing many things, including how to care and feed their children. Unlike health promotion conducted by health workers, community discussions and daily interactions usually involve both men and women. Hence, having a couple of neighbors who understand and can explain breastfeeding and complementary feeding practices well could be a very effective way of spreading knowledge. Having a group of fathers lead a community discussion on childcare and feeding topics would be an alternative, which would need to be timed around the men's farming and work responsibilities. In early stages, the participation of community health workers would be essential to assist the groups.

Lack of cash prevents households from achieving minimum dietary diversity

In the best-case scenario, where parents understand minimum complementary feeding and understand that nutritious food is essential for children's health and development, other barriers still exist. One of these is a lack of purchasing power due to insufficient household income. Understanding intrahousehold resource allocation is essential to support children's nutritional status, strengthen women's position, and promote the fathers' commitment to use of household funds for better nutrition. (39–41) Many studies suggest that if women managed the household income, they would allocate it for better household food and children's health, and the respondents in this study reported that women did indeed manage the household income. However, the decision to allocate more money for nutritious food needs to be supported by having an adequate income. Inadequate income makes it hard for low-income families to prioritized nutritious foods over other needs that are equally pressing, such as saving money for their child's education. Hence, it is not surprising when mothers spend money on inexpensive household foods to make their food taste delicious, such as sugar, salt, cooking oil, and MSG. In many cases, it is not merely a lack of education or knowledge that caused poor minimum dietary diversity but a lack of cash.

In order to accept a lack of dietary diversity, most Timorese households are normalizing their current diet, which consists of rice porridge and vegetables, for all the family including children under age two. These habits make them less likely to question the importance of dietary diversity given their household dietary habits are normalized for them and likely for most of their other family members and neighbors. Consequently, even if they have money, they may not be inclined to buy more expensive protein sources because they feel satisfied with their current choices and dietary habits. With extra funds, some choose the option of buying tasty and more caloric food such as instant noodles. (42,43)

Leveraging female partners' bargaining power

Saving money is particularly crucial during the dry season because families' dietary intake relies on subsistence farming, and there are often times before the harvest they are unable to produce food for the household. (44–46) Some male partners in Timor-Leste were said to spend part of their income on cigarettes and gambling, reducing the options for family savings. (47). Ideally, female partners could get involved in either discussing these expenses with their husbands or even rejecting requests for money. However, it is widely known that domestic violence occurs frequently in Timor-Leste when wives go against their male partners' wills. (48,49) Involving men in discussions of household dietary diversity and cash allocation for food could address that problem, but men are largely left out of health promotion efforts. Bringing men into the conversation and educating them about the need to spend more household money for better dietary diversity could help. Using messages that healthier diets help children develop better and do better in school would be powerful motivators for fathers.

Involving women in supporting household finances

One of many reasons why lack of income will be quite hard to solve is the existence of a strong narrative that male partners are the ones responsible for supporting the household financially, especially in rural areas as in Lautem and Ainaro. Male partners are only intensely involved with household duties during the first three months of their newborns' lives, otherwise spending most of their time at work or on the farm. Thus, there is less opportunity for mothers to get involved in farming. Other studies suggests that men should take more roles in taking care of children, which might provide opportunities for women to get involved in supporting the household financially. (50–52) With adequate support, women can get more involved in farming production and raise chickens, creating more opportunities for the household to earn more income that could allow more cash for high protein food.

Recommendations

While our sample was small, our data suggest four recommendations for potential future directions for both research and program development: first, our data indicate a need to promote adequate complementary feeding knowledge to both male and female partners. This recommendation includes engaging men in health and nutrition education and raising men's awareness about gender equity in the household, such as becoming more involved in childcare. Second, programs to actively promote and support women's involvement in economic activities and discussion about intra-household income allocation could explore and assess opportunities to increase household income and improve diet quality. Third, the government could assess and consider transportation from rural areas to the market where households can sell their commodities and that might allow them to expand farming if that chose. Fourth, further quantitative research should be conducted to compare differences in nutritional outcome between children living in households where male partners are actively involved and informed about childcare and optimal feeding practices with households where male partners are less involved in those areas.

CONCLUSION

In Ainaro and Lautem Municipalities, the lack of male involvement in childcare and feeding practices reflected strong gender roles that fathers were responsible for supporting the household financially, while female partners' main role is to take care of the children and the household. The lack of knowledge about the importance of minimum diet diversity of both male and female partners and low household income were the major factors leading to low dietary diversity in both municipalities. Although, most informants reported that women managed household cash, they had low bargaining power in intrahousehold income

allocation. Furthermore, the exclusion of male partners in health promotion efforts makes it harder to educate men about complementary feeding practices and to get them involved in childcare. Therefore, more inclusive and aggressive interventions to promote adequate complementary feeding practices for all caregivers are vital to increase the knowledge of male and female partners and to engage men in the decision-making process.

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