



Adolescent Nutrition in Timor-Leste

A Formative Research Study



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Abbreviations & acronyms

DPHO	District Public Health Officer
FGD	Focus group discussion
INS	National Institute of Health (<i>Instituto Nacional da Saúde</i>)
KII	Key informant interview
LMIC	Low and middle income countries
MoE	Ministry of Education, Youth and Sports
MoH	Ministry of Health
PCW	Participatory community workshop
PME	School Feeding Program (<i>Programa Merenda Eskolar</i>)
PSE	School Health Program (<i>Programa Saúde Eskolar</i>)
SBC	Social behaviour change
SSI	Semi-structure interview
UNDP	United Nations Development Programme
WHO	World Health Organization

Table of Contents

Executive summary	7
1. Introduction.....	13
1.1. The importance of adolescent nutrition.....	13
1.2. The link between life cycle nutrition and women and girls’ empowerment	14
1.3. Adolescent nutrition in Timor-Leste.....	14
1.4. Formative research on adolescent nutrition	15
2. Methodology	16
2.1. Aim of the study.....	16
2.2. Research design and methods.....	17
2.3. Sampling strategy.....	18
2.4. Data analysis	19
3. Research findings	20
3.1. Nutrition - knowledge, attitudes and practice of adolescents	20
3.1.1. Eating habits, meal frequency and dietary diversity	20
3.1.2. Snacks and drinks.....	23
3.2. Classifications of healthy and unhealthy foods and perceptions about nutrition ..	26
3.2.1. Risk perceptions towards nutrition-related behaviours.....	28
3.3. Health seeking - knowledge, attitudes and practice of adolescents	29
3.3.1. Classifications of illnesses and perceptions on health	29
3.1.2. Risk perceptions towards health seeking behaviours	31
3.4. Perceptions and priorities on growth and development.....	32
3.4.1. Physical, mental and emotional growth.....	32
3.4.2. Priorities and worries.....	33
3.4.3. Aspirations for the future	34
3.4.4. Income generation and group participation	36
3.5. Adolescent mothers and adolescents with a disability.....	37
3.5.1. Adolescent mothers – perceptions and practices	37
3.5.2. Adolescents with a disability – perceptions and practices	37
3.6. Social, cultural and gender norms influencing nutrition.....	38
3.6.1. Patterns of food preparation, allocation and sharing	38
3.6.2. Decision-making on food	38
3.7. Barriers and enablers to improved adolescent nutrition.....	41
3.7.1. Adolescents themselves	41

3.7.2. Key influencers of adolescents.....	42
3.7.3. Community characteristics.....	43
3.7.4. Schools and the food environment	44
3.8. Trusted channels, entry points and delivery platforms	46
3.8.1. Trusted sources of information and channels	46
3.8.2. Entry points and service delivery platforms.....	47
3.9. Primary, secondary and tertiary audience segments.....	48
3.9.1. Primary audience	48
3.9.2. Secondary audiences	48
4. Conclusions and recommendations	49
Recommendations	50
References	52
Annex 1: Words and phrases relating to health and nutrition used by adolescents	55
Annex 2: Framework of interventions and determinants of adolescent nutrition.....	57
Annex 3: Tools used	58
Annex 3a: Semi-structured interview guides.....	58
Annex 3b: Free list and pile sort guides	69
Annex 3c: Focus group discussion guide	73



Executive summary

Adolescents represent a population segment of critical importance, as numerous regions of the world (including Asia and Africa) experience youth bulges through a demographic transition (Haddad, 2018). This is the case for Timor-Leste, with one of the youngest populations in the Asia-Pacific Region (UNDP, 2018), and where adolescents constitute one in every four citizens (Census, 2015). Adolescence is a period of significant brain development (Blum et al, 2014) and fast physical growth at a pace only exceeded by the first critical 1000 days (Thurnham, 2013). Adolescence is also a time of intense learning where many behaviours are shaped, and where boys and girls aged 10 to 19 increase their agency and independence to later become adults. Recognising the speed and intensity of these changes, adolescence is increasingly being referred to as a ‘second window of opportunity’ to improve nutritional status and mitigate early undernutrition (UNICEF Office of Research-Innocenti, 2017).

Despite being a prominent population group, adolescents are neglected in nutrition data and programming in Timor-Leste. Adolescents face considerable malnutrition challenges, represent an important part of the nutrition life cycle, and have the ability to affect national nutrition outcomes as agents of change. Nutrition interventions, particularly in countries suffering from high rates of malnutrition like Timor-Leste, require a life cycle perspective to reach Sustainable Development Goal 2, Zero Hunger (Bergeron, 2017).

The purpose of this study was to inform the development of interventions, activities and materials targeted at supporting adolescents’ nutrition from a social behaviour change (SBC) perspective. Key findings and recommendations from the study are summarised in the following pages:

Eating habits - frequency & dietary diversity

Key findings

- Adolescents largely eat rice and dark green leafy vegetables for lunch and dinner.
- Most adolescents skip breakfast, sometimes because they wake up late for school.
- Adolescents prefer to eat breakfast at home so they do not have to share it with their friends at school.
- Adolescents want to eat more fish, fruits, and meat.
- Adolescents like traditional dishes like *batar da'an* and *marotok* (which often include a diverse mix of corn, beans, peanuts, ripe pumpkin and greens).
- Adolescents' favourite flavours are sweet and sour.
- Community members see barriers to adolescent dietary diversity to be the same barriers as the wider community: infrastructure (roads, water), purchasing power, and allocation of animals for cultural exchange.

Recommendations for SBC approaches

- SBC approaches should promote available and affordable animal source and plant-based protein rich foods to increase dietary diversity of adolescents at home.
- Given financial limitations, emphasise that even small quantities of protein rich foods positively contribute to improved nutritional status.
- Promote iron-rich foods to adolescents and their key influencers.
- Promote the benefits of eating breakfast using adolescents' aspirations for the future (breakfast is the most important meal of the day, increased focus in learning).
- Promote the importance of eating breakfast to adolescents, and target their influencers to prioritise consumption of breakfast.
- Promote traditional dishes that adolescents like to eat. Target mothers as food preparers, and grandmothers as promoters of local foods for 'strength' (see section 3.6)
- Consider adolescents' flavour preferences when describing and promoting foods as a way to appeal to them.

Snacks at school

Key findings

- Adolescents have full decision-making power over their snack purchases at school (unlike lunch and dinner).
- Snacks are highly prized by adolescents.
- Snacks are purchased at school to compensate for skipped breakfast.
- Adolescents make snack and drink choices based on three key drivers: price, taste, and convenience.
- Fruit is a highly desired snack by adolescents, but is highly seasonal and often difficult to access around schools.
- Favourite fruits that are most commonly eaten at school include: apples, oranges, sour mango (with salt), and guavas.

Recommendations for SBC approaches

- SBC approaches should provide examples of healthy snacks and snack combinations based on what is available around schools.
- SBC approaches should emphasise the functions of the 'three food groups' promoted by the Ministry of Health, and their importance for adolescent growth.
- Promotion of any snack options needs to consider adolescents' three choice drivers and appeal to their taste preferences.
- Capitalise on adolescents' aspirations and link better nutrition to better success in school and attainment of life goals.

Snacks at school - continued

Key findings

- Most adolescents will split their pocket money between a snack and a drink.
- Adolescent boys are embarrassed to bring food from home to eat at school, but are happy to share food from their female friends.

Drinks

Key findings

- Adolescents' favourite drinks are fruit-flavoured (and contain little or no actual juice), such as *Ale-Ale* and *Dellos* brands.
- Adolescents also enjoy drinking water and believe it is healthy and important to consume.
- Adolescent boys and girls are not embarrassed to bring drinking water from home, but prefer to purchase it from school because that is what 'their friends do'.

Recommendations for SBC approaches

- SBC approaches should make adolescents more aware of the sugar content of fruit-flavoured drinks.
- Emphasise water as the healthiest drink for adolescents. Draw on the benefits of drinking water in helping to maintain focus in class and be healthy.
- Draw on concepts of peer support in developing SBC materials to promote drinking water (e.g. friends encourage friends to choose water).
- Promote bringing water from home, so adolescents can use their pocket money to buy healthier snacks at school.

Classification of healthy and unhealthy foods

Key findings

- Adolescents tend to consider foods along a spectrum of healthy to unhealthy and are unaware of the benefits of different food groups.
- Adolescents classified 'very healthy' foods as mainly carbohydrate rich foods (e.g. rice), dark green leafy vegetables, and legumes.
- Adolescents classified 'healthy' foods as mainly animal source local protein and fruit.
- Adolescents classified 'unhealthy' foods as mainly imported canned and instant foods (e.g. frozen imported chicken, canned fish, sausages, instant noodles).
- Adolescents often described healthy and nutritious foods using the terms '*saudavel*' (healthy) and '*vitamina barak*' (lots of vitamins).

Recommendations for SBC approaches

- *See above on eating habits on promoting dietary diversity.*
- SBC approaches should emphasise the functions of the 'three food groups' promoted by the Ministry of Health and their importance for adolescent growth.

Nutrition-related illness

Key findings

- Adolescents believe it is important to drink water and get sufficient rest to be healthy.
- There are age and gender disparities in health seeking behaviours among adolescent girls. Older girls feel confident to go to a clinic alone when sick, while younger girls and adolescent boys do not. Most adolescent girls inform their mothers first when they are sick.
- Male adolescents feel it is not masculine to see a health professional when sick and believe their health issues are 'simpler than girls'.

Recommendations for SBC approaches

- Programs working in this space should draw on supportive peer practices where appropriate (e.g. encourage others, 'my friends also do this behaviour', etc.)
- SBC approaches should be tailored to gender and age groups in order to reinforce girls' health seeking behaviours and target increase boys' comfort with seeking healthcare services.

Aspirations – priorities and worries

Key findings

- Adolescents want to prioritise career before marriage and children.
- The majority of male and female adolescents want to have two children so there are sufficient financial resources to provide food and education for each child and provide them with individual attention.
- The majority of adolescents want to reside separately but close to their families.
- Parents prioritise education for their adolescents, both girls and boys.
- Adolescents' biggest worries include doing well in school and their ability (academic and financial) to attend university.

Recommendations for SBC approaches

- Capitalise on adolescents' aspirations and link better nutrition to better success in school and attainment of their plans for the future.
- Draw upon parental aspirations for their children to do well in school as a way to promote improved nutrition-related behaviours.

Culture and gender norms influencing nutrition

Key findings

- Adolescent girls want to ensure family members are happy and maintain hierarchical familial structures.
- Family meals are largely prepared by mothers.
- Fathers and male relatives receive the best cuts of meat within households.

Recommendations for SBC approaches

- Target fathers as a specific audience segment and promote concepts of fathers as providers that want their children to be healthy and do well in school.
- Promote communication and joint-decision-making amongst mothers and fathers around household nutrition.

Culture and gender norms influencing nutrition - continued

Key findings

- Most families eat at the same time and the same food.
- Mothers normally make decisions around family meals and manage the household budget, but need to consult with husbands around more expensive food purchases like animal source foods.
- Mothers can have limited agency as fathers tend to be the final decision-makers on purchasing a variety of foods.
- Grandmothers are the custodians of traditional meals and promote the consumption of local foods to their grandchildren.
- Grandmothers believe local foods provide 'strength' through to old age.
- Grandmothers tend to be suspicious of imported and packaged foods.

Recommendations for SBC approaches

- Focus on adolescent boys as an early entry point for supportive nutrition-related practices.
- Support adolescent girls to negotiate potentially negative gender roles and responsibilities from an earlier age.
- SBC approaches should draw on grandmothers as sources of knowledge and promoters of local foods for strength.

Food environment

Key findings

- The school food environment does not support adolescents to make healthy choices for snacks.
- Snack choices are mainly processed, carbohydrate-rich and high in sugar and salt.
- There are no healthy and affordable drinks available around schools other than water.

Recommendations for SBC approaches

- *See above for recommendations under 'Snacks at school'.*
- Explore opportunities to engage food vendors around healthier options that would both meet demand and maintain vendor profit margins.

Key influencers of adolescents

Key findings

- Parents are the clearly the biggest influencers on adolescent nutrition, with mothers as the organisers of family meals and fathers as the final decision-makers on food purchases and sometimes food allocation.
- Older adolescents confide in each other about intimate health issues.
- Teachers are trusted sources of information.

Recommendations for SBC approaches

- Engage male adolescents as future fathers by praising fathers around their support and involvement in spending money and allocating household resources for nutritious food for the family.
- Utilise concepts of supportive teachers when promoting healthy snack and drink choices at school.

Trusted sources of information and communication channels

Key findings

- Health providers are the most trusted source of information by adolescents for nutrition and health-related topics.
- Adolescents want to hear about nutrition and health topics from health providers in person at school.
- Lafaek magazine is a trusted source of information and adolescents like that it is a Timorese magazine.
- Adolescents do not trust social media (e.g. Facebook) for nutrition and health topics as they feel it is easy to post false information on the platform.
- Access to television and radio is variable.
- Adolescent participation in groups is generally irregular (some are active in religious and sports groups).

Recommendations for SBC approaches

- Explore opportunities to develop a special edition of Lafaek covering adolescent nutrition for use at schools and through community channels.
- Any use of social media should be strongly branded with the image of a health provider and the Ministry of Health to increase trust.



1. Introduction

1.1. The importance of adolescent nutrition

Adolescence is a critical phase of human development, as children aged 10-19 years transition from prepubescent physical attributes to more closely resembling their adult selves (Blum et al, 2014). Forty-five percent of adult bone mass and 15% of adult height is gained during adolescence, accompanied by a range of cognitive, hormonal and emotional changes. It is also a period of intense learning and brain development, with complex neuronal changes occurring as the brain matures towards a more stable adult structure (Giedd, 2015).

As a result of this, adolescents have higher nutritional needs and require more protein and energy than any other age group, averaging approximately 2,420 kcal per day (Akseer et al, 2017). Adolescents also have gender-specific nutrient needs, in particular adolescent girls as they begin menstruating and develop the capacity for future childbearing. Studies have shown the optimal diet to support adolescent girls' healthy development is more expensive than the diet required by an adult man (WFP, 2017).

Adolescence may be the final opportunity to influence adult height and mitigate stunting. Growth and development during adolescence is impacted by nutritional, environmental and hormonal factors, and can therefore be modified and enhanced (Campisi et al, 2018). Outside of the first 1,000 days of life (including gestation), this 'second window of opportunity' to improve nutritional status is critical (UNICEF Office of Research-Innocenti, 2017), especially in countries like Timor-Leste where almost half of all children under five years of age are chronically malnourished.

Adolescence is a time of both opportunity and vulnerability. Changes during adolescence involve a drive towards individuation, which can manifest in adolescents' assertion of food choices, eating habits and changes in lifestyles. The nutrition-related behaviours acquired in this time can greatly impact future life outcomes. Eating habits are not static among adolescents, they fluctuate throughout puberty in relation to physiological and cognitive development (Fanzo, 2017). This presents an opportunity to influence dietary behaviours prior to adulthood, as adolescents explore and develop their agency and

begin asserting their own choices. These choices are increasingly affected by worldwide trends of globalisation and urbanisation, which are resulting in shifts away from traditional diets towards more energy-dense eating habits and sedentary lifestyles (Tzioumis and Adair, 2014). The dual burden of malnutrition (i.e. the co-existence of under- and over-nutrition) is a growing problem in many countries including Timor-Leste, and poses a serious threat to the health of adults, children and adolescents alike.

And this drive for individuation in adolescents is not only limited to eating habits. A variety of high-risk and potentially problematic behaviours may be activated in adolescence, including substance abuse, unprotected sex, and behaviours that may result in injury or other negative outcomes (Mokdad et al, 2016). It is thus imperative to support adolescents to develop healthy behaviours that can prevent the future burden of injury, poor health and disease.

Adolescents are the human capital of the future and will become parents to the next generation of children. It is critical to ensure their healthy cognitive and physical development, and to invest in programs and initiatives that support improved adolescent health and nutrition.

1.2. The link between life cycle nutrition and women and girls' empowerment

Gender inequality can be a cause and effect of malnutrition. Not surprisingly, higher levels of gender discrimination are associated with higher levels of both acute and chronic undernutrition (UNDP, 2011). Women and girls often suffer the greatest burden of malnutrition due to their relatively lower levels of status and power compared to men and boys in many societies (Black et al, 2013).

Gender-biased cultural practices often disadvantage adolescent girls more than boys. Marriage practices can promote early and frequent pregnancies that impact poorly on maternal and child outcomes (WHO, 2014), education potential, and future life opportunities. Food taboos, preferences and consumption patterns have an impact on nutritional status and frequently have a gender dimension.

Adolescence is an ideal phase of life for reshaping gender roles and social norms and installing a sense of empowerment. Improvements in adolescent nutrition supports both adolescent girls and boys to take control over their own lives and bodies. Thus, an empowered adolescent has the capacity to consider options and information and carry through on their decisions from an earlier age.

Targeting women and girls only when they are pregnant is often too late to break the intergenerational cycle of malnutrition. In order to prevent malnutrition being passed to the next generation, adolescent girls, their families, peers and communities must be supported not only to improve adolescents' access to nutrition, but to delay marriage and pregnancy (Save the Children, 2015).

1.3. Adolescent nutrition in Timor-Leste

One quarter (25%) of Timor-Leste's population are adolescents (Census, 2015). As global recognition of the importance of adolescent health and nutrition has increased, there has been an associated shift in attention in Timor-Leste, with a range of actors currently including adolescents in their focus.

The nutritional status of adolescents in Timor-Leste is not optimal. A school-based survey conducted by the World Health Organization in 2015 with students aged 13-17 years old showed 21.8% of students were underweight – with a much higher prevalence among boys (28.0%) than girls (16.3%) (WHO-SERAO, 2017). Only 4.4% of students were classified as overweight, and just 0.8% were obese - very low rates when compared to other low and middle income countries (LMIC). A separate study found 33.4% of girls aged 15-19 years were underweight, with 21.5% suffering from anaemia (MoH, 2015).

Longitudinal research of two communities in Timor-Leste found that maternal height was the strongest independent indicator of child z-height and weight for age (Spencer et al, 2018). This means that

taller mothers have taller and heavier children, and reinforces the need to focus on the nutrition of adolescents as a specific audience, moving beyond the 1,000 days spanning pregnancy through to two years of age.

There is currently limited evidence regarding adolescent nutrition in Timor-Leste as a whole, as school-based surveys exclude out-of-school adolescents who may be more nutritionally vulnerable. Thirteen percent of boys and 12% of girls aged 10-14 years are out of school. This increases for older adolescents with 24% of boys and 25% of girls aged 15-19 years having left school (Census 2015). A significant proportion of adolescents (12% of those aged 10-14, and 19% of those aged 15-17) are not living with their biological parents, most likely because they are pursuing educational opportunities away from home (Hilber et al, 2018).

However, in contrast to other countries, in Timor-Leste there are no growth differentials found among children who are fostered in households compared with other biological children (Judge et al, 2012).

Overall, 7% of adolescent girls aged 15-19 have begun childbearing (DHS, 2016), a relatively low rate of adolescent pregnancy when compared to other LMIC. However, adolescent girls have twice the risk of dying during pregnancy and childbirth compared to adult women (MoH, 2015), and there is competition for nutrients between mother and foetus during adolescent pregnancy as the mother's body is still growing. A range of socio-economic consequences are also associated with adolescent pregnancy, particularly because pregnant girls are forced to leave school which affects their future livelihood opportunities and deepens their dependence on their husbands and families (MoH, 2015). Research has shown that early pregnancy is also correlated with poorer health outcomes for mothers and their children, with younger mothers at higher risk of experiencing violence (MoH, 2015).

The Government of Timor-Leste has a firm commitment to improving the nutritional status of its citizens, and has developed multi-sectoral nutrition policies including both nutrition-sensitive and nutrition-specific intervention goals. Multiple policies and strategies address adolescent health through the lenses of sexual and reproductive health, maternal health, child health, violence against women, and gender equality. Key policies and strategies which explicitly mention adolescent nutrition and health include the National Nutrition Strategy and the National Action Plan for Children. However, these policies do not discuss adolescents as a unique audience for behaviour change.

1.4. Formative research on adolescent nutrition

The purpose of this study is to inform the development of interventions, activities and materials which can support improved adolescent health and nutrition in Timor-Leste. Formative research is a critical element in the design and implementation of culturally appropriate, integrated interventions that have been tailored to the local context of intended beneficiaries (Bentley et al, 2011). This unique qualitative study used multiple methodologies in order to better understand adolescents' nutrition-related experiences, whilst also highlighting social and gender norms which may impact upon these.

For adolescents to enjoy health, well-being and improved nutrition, they should have the minimum capacity or agency to be able to access a nutritious diet, contribute to their health through positive behaviours, and access essential health services (WHO, 2018). This research was conducted within the broader Framework of Interventions and Determinants of Adolescent Nutrition (WHO, 2018), with a focus on adolescent capacity and agency to access a nutritious diet (see Annex 2).

The study was led by the World Food Programme (WFP) and the Australian Government's *To'os ba Moris Di'ak* Program (TOMAK), with support from the Timor-Leste Ministry of Health (MoH) and the Ministry of Education, Youth and Sports (MoE). It was carried out with approval from the *Instituto Nacional da Saúde* (INS) Ethics Committee.

25%

of Timor-Leste's
population are under
19 years old.

- *What are the most appropriate channels, entry points and service delivery platforms to reach the target audiences?*
- *What are the primary, secondary and tertiary audience segments?*
- *What are the tailored messages that will most effectively resonate with adolescents in this context?*

2.2. Research design and methods

This study drew on elements of qualitative and iterative enquiry, the socio-ecological model (McLeroy, 1988), and employed a range of creative, qualitative methods. Its design was informed by research into culturally appropriate nutrition interventions (Kodish and Gittelsohn, 2013; Bentley et al, 2014), barriers and facilitators to optimal adolescent nutrition including gender dynamics (USAID Nurture, 2017), and a multi-country study to inform adolescent programming (WFP and Anthrologica, 2018). The research design was widely consulted among stakeholders for input that refined its content, and was subsequently presented at the UN Youth Group in May 2018.

The *Instituto Nacional da Saúde* (INS) Ethics Committee granted approval for the study (Ref 457-MS-INS/DE-DP/SMD/V/2018) and specific ethical protocols and guidelines were followed when interviewing children and participants with disabilities (ACFID, 2017).

Field research was conducted in two phases between June and August 2018 (the dry season in Timor-Leste), and was followed by a series of stakeholder validation workshops conducted in municipal areas and at the national level in Dili between August and October 2018. See Table 1 for a description of research methods employed in each phase.

Table 1. Phases and methods used in the study

Phase	Period	Method	No. conducted
Phase 1	June 2018	Semi-structured interviews (SSI) with 19 adolescents and 16 pre-identified influencers. Interviews of 30-60 minutes were conducted one-on-one, generally at participants' homes or at schools (for teachers). See Annex 3a for the interview guides.	35
Phase 2	Jul-Aug 2018, informed by preliminary findings from Phase 1	Free lists and pile sorts with adolescents to identify and classify foods, illnesses and other salient topics for adolescents. These activities were conducted by younger researchers who facilitated each activity one-on-one with adolescents in a classroom. See Annex 3b for the free list and pile sort guides.	64
		Participatory community workshops (PCW) with a range of community members to assess nutritional barriers and potential strategies to overcome them.	4
		Key informant interviews (KII) with relevant community and organisational stakeholders. Interviews of approximately 40-60 minutes were conducted at the workplace of the interviewee, primarily at the local village office or health post.	11
		Focus group discussions (FGD) using creative participatory methodologies with adolescents to validate findings conducted in secondary/ vocational schools. See Annex 3c for the FGD guide.	4

2.3. Sampling strategy

Purposive sampling was undertaken in four municipalities and 16 villages (*suku*), including two urban areas (Dili and Baucau municipalities), one semi-urban area (Bobonaro) and three rural areas (Baucau, Bobonaro and Ermera). Sampling considered factors such as Eastern and Western culturally distinct regions, most populous municipalities with diverse linguistic groups, cultural lineage systems (with at least one matrilineal site in Bobonaro selected), and TOMAK and WFP programme implementation areas (see Figure 1).



Figure 1. Map of selected suku for formative research activities

All participants were selected following a criteria matrix, with key characteristics presented in Table 2. Adolescents' selection aimed at even distribution by age group (10–14 years, 15–19 years) and sex, with a higher proportion of participants from rural than urban areas to mirror actual population distribution; and accounted for varying socio-economic status proxied by school type. Influencers' selection aimed at including more mothers due to their role in food preparation, followed by equal numbers of fathers and grandmothers, and some teachers.

Table 2. Research participants matrix by type and characteristics (n=225)

Adolescents (n=96)*	Influencers (n=16)	Key informants (n=11)	Community members (n=102)
<ul style="list-style-type: none"> 52% girls; 48% boys 34% 10-14yo; 66% 15-19yo 56% rural; 44% urban 	<ul style="list-style-type: none"> 38% mothers 25% fathers 25% grandmothers 13% teachers 	<ul style="list-style-type: none"> 36% health staff 36% community leaders 28% Church representatives 	<ul style="list-style-type: none"> 49% female; 51% male 40% 17-29yo; 35% 35-49yo; 25% > 50yo 74% rural; 26% urban

*Combined from SSI and school-based activities

The selection process used for each method is described below:

Participants for **semi-structured interviews** were identified by liaising with community leaders in Odomau and Atabae (Bobonaro), Fatubessi (Ermera), Comoro and Bebonuk (Dili), and Uma Ana Ico (Baucau). For adolescents, age, sex and location were considered, as well as the type of community (patrilineal - matrilineal), in and out of school adolescents, and importantly, three adolescent mothers and two adolescents with disabilities were selected. Influencers included parents, grandmothers and teachers.

Free lists and pile sorts with adolescents were conducted in pre-secondary and secondary/vocational schools in Fatuhada and Manleuana (Dili) and Estado (Ermera). Participants were selected by the school director or head teacher.

Participatory community workshops were conducted in Letemumo (Baucau), Hataz (Bobonaro), Manleuana (Dili) and Coilate-Letelo (Ermera), generally with the District Public Health Officer's (DPHO) support. A broad representation of community members participated, including different age groups and genders. Local authorities selected participants for the workshops and also suggested participants for **key informant interviews** such as village chiefs, traditional leaders (*lia-na'in*), health staff, and Church representatives.

Focus group discussions were conducted with girls and boys aged 15-19 years, many of whom had previously participated in free list and pile sorting activities. Participants were students at secondary/vocational training schools located in Bahu (Baucau), Aidabaleten (Bobonaro), Manleuana (Dili) and Estado (Ermera). Students who were not able to participate in the FGD were replaced, with the school director or head teacher selecting a replacement.

2.4. Data analysis

Early analysis of the semi-structured interviews conducted in Phase One helped identify common themes, and informed the design of the follow-on Phase Two activities. Overall findings were disaggregated by age, area of residence, disability, and as either patrilineal or matrilineal to provide more detailed recommendations and to better guide potential messaging for adolescents. Researchers used Visual Anthropac 4.98 and Nvivo 12 Plus to analyse dietary patterns and the words adolescents' associate with a variety of foods and illnesses¹.

As students were frequently selected by the head teacher or school director, there is the potential for participant bias within the school-based methods (with students potentially being selected based on teachers' perceptions of their intelligence, health or suitability for the study). Despite providing clear age and sex criteria for student participants, teachers occasionally selected older adolescents.

Some community workshop participants struggled to maintain focus on adolescent health and nutrition specifically, with a tendency to drift into more general discussion relating to nutrition in the wider community. In some cases, participation in workshops was limited by language barriers (i.e. the preference for local languages), concurrent activities within the community, and the dominance of older, male community members.

1 Whilst this initial research report is deliberately tailored to present key research findings and recommendations, there is a potential for deeper analysis. Transcripts of free lists and pile sorts have been coded and could be disaggregated by municipality in order to tailor findings to specific locations in future.



3. Research findings

3.1. Nutrition - knowledge, attitudes and practice of adolescents

3.1.1. Eating habits, meal frequency and dietary diversity

Adolescents in Timor-Leste typically eat 3 to 4 meals per day, including snacks. Most meals are prepared at home by mothers, older sisters or adolescents themselves (older girls).

3.1.1.1 Breakfast

Respondents described several breakfast options for adolescents, including: a) fried rice (sometimes with eggs), b) boiled cassava, sweet potatoes and/or taro, c) rice porridge for children, and less commonly d) bread with coffee. Bread with coffee or milk for breakfast is more common in the capital. As a father in Dili explained, “Routine meals are rice, vegetables, and side dishes alternating between meat, fish, eggs. For breakfast, it is usually bread and milk. Fathers always have coffee. Usually children eat breakfast, lunch and dinner, but sometimes eat snacks such as biscuits or fried bread.”

Adolescents normally have breakfast at home and most stated that they prefer to eat this meal at home and use money for snacks. They also prefer to eat breakfast at home so they do not have to share with their friends. The most popular breakfast choices were bread, rice porridge, and fried sweet or savoury dough, often accompanied by a milk product or coffee. Eggs (with rice or bread) and mung beans (served as a soup or drink with sweetened condensed milk) were the only breakfast options described by participants that included protein. Milk products generally come in powdered form, are sold in sachets, and then dissolved in water. These products often contain

high levels of sugar and little milk. Some respondents reported condensed milk as a desirable yet expensive food.

The majority of adolescents said that they sometimes skip breakfast. For most, this usually happens if they wake up late and are worried about being late for school. A few respondents reported that they skip breakfast due to lack of food at home or because other family members had finished their portion. A minority of respondents said they skipped breakfast due to the household tasks they needed to complete prior school. If they skip breakfast and they have money, adolescents reported buying snacks or sweets at school. As observed by a teacher in Fatubessi, they can tell if students have had breakfast, because they look lively and are active in morning classes.

Table 3. Adolescents’ breakfast skipping patterns (n=62)

Skip breakfast	Baucau (n=16)	Bobonaro (n=18)	Ermera (n=16)	Dili (n=12)	TOTAL (n=62)*
Sometimes	75%	78%	94%	83%	82%
Never	25%	22%	6%	17%	18%

*Two missing responses

Only girls reported bringing food from home to eat at school. Boys are generally embarrassed to bring their own food and are afraid of being teased. Boys may be embarrassed to bring their own food from home, but feel comfortable to ask girls if they can share with them.

“I’m happy when we eat together.”

- Adolescent girl, 15-19y.o, Baucau.

3.1.1.2. Lunch and dinner

Food consumed during lunch and dinner is usually the same. In rural areas, respondents described meals consisting largely of rice and vegetables. In these descriptions, ‘vegetables’ usually referred to dark green leafy vegetables (e.g. kankung, cassava leaves), but could also include maize or a tuber (cassava, sweet potatoes, taro). Slightly less than half (47%) of the interview respondents reported consuming different kinds of animal source or plant-based protein foods. These included red beans, eggs, imported sausages, local or imported chicken, fish, beef, pork, tofu and tempeh. In Dili, protein consumption was more common and overall dietary diversity greater, with all interview participants reporting eating different kinds of grains and tubers, protein, vegetables and fruits on a daily basis.

When asked to recall what they had for dinner the night before the interview, 61% of adolescents in rural areas said they ate rice with vegetables. Out of the respondents that had consumed protein the previous night, the source of protein tended to vary based on location. In Dili, protein was typically consumed as either fish, imported chicken or eggs. In Atabae, fish was the main protein source; while in Fatubessi, red beans, tofu or canned tuna were the main protein sources reported.

Approximately 50% of rural households consumed eggs twice per week, with the remaining half of households not consuming eggs on a regular basis due to unavailability or insufficient income. In Dili, eggs were consumed twice per week. In a few in rural areas, the frequency of protein consumption fluctuated significantly, from between once a month to twice a week depending on availability and income.

3.1.1.3. Protein foods

During school-based pile sort activities, more detailed food consumption practices were revealed. Results show variable protein consumption with half of the respondents reporting at least three sources of plant-based protein and animal source foods being consumed weekly (yet with regional differences). These results are qualitative and do not represent prevalence from a population representative sample size, yet provide a useful insight around adolescent consumption patterns across research sites. Foods consumed reflect the food available, combined with purchasing power and personal preferences. During interviews with key informants and the participatory community workshops, it was evident that it is not common knowledge that protein foods are particularly important for growth and essential during pregnancy, early childhood, and adolescence.



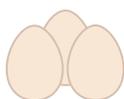
Legumes including various types of beans are consumed frequently in Ermera, approximately once a week in Dili and Baucau (both urban locations) and rarely in Bobonaro. Beans are traditionally prepared with maize and other vegetables and/or peanuts in traditional dishes such as *batar da'an* or *marotok*. These dishes are much liked by many adolescents. Some adolescents eat mung beans for breakfast in a sweet mixture with condensed milk (Ermera, Dili).



Peanuts are eaten more often in Baucau, twice a week, whereas in the other municipalities they are described as a seasonal food. Data collection took place in urban Baucau after the peanut harvest when peanuts were readily available, which could be a possible contributor to the difference in regional peanut consumption.



Tofu and tempeh are less accessible in rural areas. Some adolescents reported eating eat tofu/tempeh on a regular basis (Dili, Ermera), while others only when available for purchase (Hataz).



Eggs are eaten as part of a meal or boiled and eaten with chili as a snack. There is variation in the frequency of egg consumption across the various municipalities. In urban Baucau and rural Bobonaro most adolescents consume eggs twice a week. In rural Bobonaro, eggs are the most consumed protein food and local eggs are more frequently consumed over imported eggs. In Ermera, eggs are consumed two to three times per week. In Dili, eggs are consumed one to two times per week (largely imported eggs), although other sources of animal source foods are more frequently consumed compared to other municipalities. However, in all communities, there were some adolescents who consume eggs rarely or during parties only. Some adolescents reported that eggs from their household chickens were sold to buy basic necessities and not used for home consumption (rural Baucau, Ermera).



Fresh fish is the most consumed protein food in urban Baucau, with many adolescents eating fish two to three times per week, compared to one to two times per week in Dili. In rural areas, fish is prized and adolescents reported eating either fresh or tinned fish two to three times a month. Some respondents said they access fish from household ponds or nearby rivers (Ermera).



Meats like beef, pork and mutton are associated with seasonal ceremonies and festivities, consumed rarely, and regarded as expensive. Even in urban areas these meats are eaten mostly on Sundays or during parties. Local chicken is prized and often reserved for visitors. Frozen imported chicken is consumed by half of the respondents in Dili. However, there was great variability in imported chicken consumption, with some respondents in Dili eating it daily because it is viewed as a cheap source of meat, while others were worried about its health impacts due to perceptions that it contains chemicals.



In rural areas, the majority of respondents said **frozen chicken** is a desirable food and eaten once a week (Ermera), explaining that you purchase it when you have a salaried job or offer it when visitors come. Despite adolescents often describing imported frozen chicken as containing chemicals, many consume it as an affordable meat. Other adolescents said they do not eat frozen chicken as their families deem it unhealthy, thus demonstrating a value for local and perceived healthier foods. Some respondents also consume processed meats like sausages as they are cheaper than chicken (Dili).

Hunting for meat and fishing was reported in rural areas as a means of supplementing diets. Accidental animal deaths were also reported as a much-valued animal source addition to existing diets.

3.1.1.4. Fruits

The overwhelming majority of adolescents reported fruits being one of their favourite and most desired foods. All adolescents want to eat more fruit than they currently do. Most eat fruit two to three times per week, while others only eat fruit when they can afford it or are lucky enough to find some. Fruit consumption in Baucau was more frequent than in Bobonaro. The most popular fruits across school-based adolescents are apples, bananas, guavas, oranges, papaya, and unripe mango.

Table 4. Fruit consumption frequency in Baucau and Bobonaro (n=27)

Fruit consumption	Baucau (n=15)	Bobonaro (n=12)
4-7 times/week	40%	17%
2-3 times/week	40%	33%
Once a week or seasonally	20%	50%

When asked about foods adolescents would like to eat more often, **fish, fruits and meat** scored the highest.

3.1.2. Snacks and drinks

Snacks are highly prized by adolescents. This is their opportunity to exert their decision-making power on food consumption. Snacks are purchased in and around school, mainly during recess, and on the way to and from school. Sharing food is common and the majority of adolescents enjoy eating snacks together. Most adolescents reported preferring sweet and sour flavours. Favourite snacks that are available for sale at or near schools include: cookies of various types, sweet or savoury fried dough, bread, fried banana, and instant noodles (often eaten dry). These snacks range from \$0.10 to over \$1 in price.

Contrary to international trends, fruit-flavoured drinks are generally preferred to carbonated ones, with many adolescents mentioning a dislike for the carbonation. Some adolescents also reported that fruit-flavoured drinks contain vitamins. There are many options for fruit-flavoured drinks starting at \$0.15. *Ale-Ale* was the most popular drink amongst adolescents and also the cheapest fruit-flavoured drink available. Other popular drinks include guava and banana flavoured drinks at \$0.50.

Sugar content is high if not higher for these drinks when compared to other soft drinks and range from zero to only minimal actual juice content. Soft drinks are consumed during parties and festivities and seem to be understood as a beverage that is consumed once in a while.

Students often purchase water or bring it from home to school, with some stating that water is actually their favourite drink. This presents an opportunity for promotion, as there are minimal healthy and affordable non-water alternatives in the Timorese market. Fresh juices are expensive, often contain high amounts of added sugar, and are often not accessible in rural areas. Adolescents report that doctors often recommend drinking water, with one girl in Bobonaro commenting that drinking water is important because it helps increase blood level.



Urban and older adolescents tend to spend more money on snacks and drinks at school compared to younger adolescents. Only two adolescents in Baucau and Bobonaro reported not spending any money on snacks.

Table 5. Weekly average expenditure on snacks and drinks around schools* (n=34)

	10-14 y.o	15-19 y.o	Baucau (urban)	Bobonaro (rural and semi-urban)
Weekly spend	\$ 1.30	\$ 2.70	\$2.20	\$1.80

*Reported during pile sorts

The majority of adolescents reported purchasing food and drinks at school, although not necessarily on a daily basis.

Table 6. Adolescents' daily expenditure on snacks and drinks around schools (n=16):

Municipality	Minimum	Maximum	Average
Baucau - rural	\$ 0.10	\$ 0.50	\$ 0.30
Bobonaro - rural	\$ 0.25	\$ 1.00	\$ 0.50
Dili – urban	\$ 1.00	\$ 1.50	\$ 1.25
Ermera - rural	\$ 0.10	\$ 0.75	\$ 0.40

The formative research revealed that adolescents make snack and drink choices based on three key drivers:



Figure 2. Key choices drivers for adolescents when buying snacks and drinks

This highlights how cheap foods, which tend to be processed and high in sugar, fats and salt, have an advantage over other healthier options such as fresh fruits which can be more expensive. The types of snacks and beverages that are sold in and around schools appear to be more supply-driven than demand-led, and are therefore likely to have an influence on the decisions adolescents make. It is understandable how with such small amounts of pocket money, price is the leading driver for snack and drink choices. Many adolescents also stated that they split \$0.50 between a food item and a drink, often including water.

Identifying nutritious snacks that meet adolescents’ three key choice drivers is key. A few healthier options that meet the key choice drivers were discussed during the FGDs, including: boiled eggs, mung bean and condensed milk drink (with reduced amounts of condensed milk), and fried tofu/tempeh. The choice drivers were explored further in the stakeholder validation workshops in Baucau, Bobonaro and Dili with additional discussion of healthy snack options (see 3.7 sub-section on Food Environment).

Further exploration of adolescent beverage consumption was conducted through the pile sorting activity, which also looked at adolescent alcohol consumption and smoking habits. Adolescents were asked to sort the below items into three piles based on how often were consumed: 1) often, 2) sometimes, 3) never.

Table 7. Frequency of beverage, alcohol, and cigarette consumption (n=36)

CONSUMED OFTEN	
<ul style="list-style-type: none"> • Water • Milk* • Coffee 	<p>“Water because it’s important for our health”</p> <p><i>Bee tanba importante ba ita nia saúde</i></p> <p>- Adolescent girl, 16 y.o, Baucau</p>
CONSUMED SOMETIMES	
<ul style="list-style-type: none"> • Guava juice (packaged) • Banana drink • Uncarbonated fruit-flavoured drink • Coca-cola • Fanta • Betelnut 	<p>“Dellos is my favourite, but Ale-Ale is cheaper. I drink Coca-Cola during parties, but I’m not used to the gas”</p> <p><i>Dellos ha’u nia favoritu, maibé Ale-Ale baratu liu. Coca-Cola hemu durante festa, maibé gas ladún toman</i></p> <p>- Adolescent boy, 15 y.o, Dili</p>
NEVER	
<ul style="list-style-type: none"> • Alcohol (local palm wine or beer) • Cigarettes 	<p>“Boys and girls 17-18 years old cannot consume alcohol or cigarettes yet because it’s not good for their health”</p> <p><i>Mane no feto iha ida 17-18 anos seidauk bele konsumu ida ne’e tanba la di’ak ba saúde</i></p> <p>- Adolescent girl, 17 y.o, Bobonaro</p>

*Includes condensed milk

Alcohol is associated with eating meat and often seen as a male drink from the age of 20. Adolescents reported that both alcohol and cigarettes are bad for health, although they acknowledged that some adolescents in their communities consume them. Chewing betelnut occurs ‘sometimes’ mostly by older girls, with grandmothers during ceremonies or when visitors come.

3.2. Classifications of healthy and unhealthy foods and perceptions about nutrition

Understanding local perceptions of different foods and illnesses is important to developing context specific and effective social behaviour change activities and materials. The way foods are referred to, understood, and grouped should shape message development, in order to maximise the likelihood of messages resonating with intended audiences.

To understand how adolescents view the nutritional value of various foods, students in Baucau and Bobonaro (n=36) were asked to group various foods into three piles categorised as either: 1) very healthy, 2) healthy, or 3) not healthy. A compilation of words and phrases mentioned by adolescents reflecting their perceptions on nutrition and food and health and illnesses for message development is included in Annex 1.

Table 8. Classifications of healthy and unhealthy foods by adolescents (n=36)

VERY HEALTHY	
<ul style="list-style-type: none"> • Corn • Potato • Rice • Cassava • Water spinach • Beans • Leafy greens • Bread • Water, milk, coffee 	<p>“They have lots of vitamins. [When] we eat them, it’s good for our body because it’s healthy”</p> <p><i>Sira iha vitamina barak. Ita han di’ak ba ita nia isin, tanba ne’e saudável</i></p> <p style="text-align: right;">- Adolescent boy, 14 y.o, Baucau</p> <p>“Because these foods are local or our local products”</p> <p><i>Tanba hahán sira ne’e hahán lokál ka ita nia produ tu lokál</i></p> <p style="text-align: right;">- Adolescent girl, 17 y.o, Bobonaro</p>
HEALTHY	
<ul style="list-style-type: none"> • Taro • Mung beans • Egg • Beef • Local chicken meat • Peanut • Fruit • Tofu/tempeh 	<p>“These foods help give us strength to work, study & play”</p> <p><i>Hahan sira ne’e mós ajuda fó forsa mai ita atu halo servisu, estuda no halimar</i></p> <p style="text-align: right;">- Adolescent boy, 14 y.o, Bobonaro</p> <p>“Because these are local products, we feel fresh when we eat them and they have good vitamins for our health”</p> <p><i>Tanba ida ne’e produ tu lokál, sente fresku wainhira konsumu no iha vitamina di’ak mai ita nia saúde</i></p> <p style="text-align: right;">- Adolescent girl, 17 y.o, Baucau</p>
UNHEALTHY	
<ul style="list-style-type: none"> • Frozen imported chicken • Tinned fish • Instant noodles • Sausage 	<p>“Instant noodles just make us feel full”</p> <p><i>Supermie ita han fó bosu de’it</i></p> <p style="text-align: right;">- Adolescent boy, 19 y.o, Bobonaro</p> <p>“Because they are contaminated with chemicals and refrigerated... when we eat them, we feel tired and lazy”</p> <p><i>Tanba kontamina ho material kímika no hahán ne’ebé tau iha jelera... wainhira han halo ita sente kolen no baruk</i></p> <p style="text-align: right;">- Adolescent girl, 17 y.o, Baucau</p>

Most adolescents classified starches and tubers as very healthy including corn, rice, and cassava, with beans and dark green leafy vegetables also in this category. It is interesting to note how rice and other starches are rated as ‘very healthy’, whereas the majority of protein rich foods are classified as just ‘healthy’. The exception here is beans, which over 85% classified as very healthy. It is also interesting to note that fruit was categorised as both healthy and not very healthy, even though it was often reported that doctors promote fruits to prevent malnutrition and anaemia. Consistently, processed and imported foods were classified as ‘not healthy’ due to concerns with chemicals and their expiry date.

Adolescents often distinguished between local and imported eggs, but did not attach any negative association to imported eggs. This differs from negative perceptions adolescents had around imported frozen chicken compared to local chicken. A male adolescent in Bobonaro explained that chemicals used in the production of imported eggs cannot pass through an egg shell to affect the egg.

“Imported eggs can’t have chemicals as they can’t get inside [the shell].”

- Adolescent boy, 19y.o, Bobonaro

During interviews, respondents tended to focus on whether or not the food (and mode of preparation) was clean and hygienic, rather than the nutritional value of different foods.

Words and phrases that adolescents commonly use to describe healthy and unhealthy foods and selected illnesses were collected during the research. These words and phrases are provided below because they can be used to inform and support SBC-related message development. By using terms that adolescents commonly use in message development, there is a higher chance of these messages resonating and being easily understood by the intended audience (see Annex 1 for additional words and phrases related to health seeking behaviours).

Table 9. Words and phrases used by adolescents to describe healthy and unhealthy foods

Food description	Words and phrases used by adolescents (Tetun)	Equivalent descriptions in English
Yummy foods	<i>Gostu, gostu loos, enak, puas, ne’e rame-rame</i>	Yummy, delicious, exciting
Healthy foods	<p><i>Saudável, hahán ho vitamina barak, isin fresku, saúde di’ak, nutrisaun di’ak, bele fó forsa ba ita, forsa ba ita nia isin lolon, han ho balansu, fó bokur ba ita nia isin, han di’ak, aihan ne’ebé fó benefisiu di’ak, isin bokur sa’e, ai-hán nakonu ho nutriente ka kompletu</i></p> <p><i>Produitu lokál, la iha kímia, ita-nia ai-han lokál, produitu ita nia ita kuda rasik</i></p>	<p>Healthy, food with lots of vitamins, looking and feeling fresh, good health, good nutrition, gives us strength, balanced food, fattens up our bodies (positive connotation), good food, food which has good benefits, increases body size, food which is full of nutrients, complete food</p> <p>Local products, chemical-free, our local food, products that we grew ourselves</p>

Food description	Words and phrases used by adolescents (Tetun)	Equivalent descriptions in English
Unhealthy foods	<i>Iha kímia, ne'e perigu, ladún di'ak ba saúde, baratu liu, hahán liur, ai-hán importadu, husi nasaun seluk, ai-moruk barak</i>	Has chemicals, dangerous, not good for health, very cheap, foreign food, imported food, from other countries, full of 'medicine' (chemicals)
Feeling after eating breakfast	<i>Oin fresku, kontente, halo vontade, iha forsa atu halo aktividade, bele foka, isin di'ak, bele halimar bola</i>	Fresh faced, happy, motivated, have strength to do activities, can focus, good/healthy body, can play football
Feeling after skipping breakfast	<i>Vontade la iha, la kontente, estómagu moras, kabun moras, matan dukur, susar atu aprende, matan halai ka nakukun, la iha enerjia, triste, atu aprende la loos ona</i>	No motivation, unhappy, stomach ache, sleepy, difficult to learn, dizzy or faint, no energy, sad, unable to learn well

3.2.1. Risk perceptions towards nutrition-related behaviours

As noted above, adolescents are concerned with chemicals and antibiotics (frozen chicken, instant noodles), as well as with the expiry date of imported products (tinned fish). Despite concerns by some participants around the hygienic preparation of tempeh and tofu, the vast majority classified this food as healthy. Through the pile sort activity, strong value for freshly cooked and local Timorese foods was often expressed. Half of the adolescents in Dili said their families do not eat imported chicken, while others do so daily. This suggests a transition of values from affordability to healthiness and preference for local foods.

Nonetheless, most adolescents report frozen chicken as a desired food. They also often consume instant noodles. This is because, despite negative perceptions around these products, both imported chicken and instant noodles meet the three choices drivers identified above: price, taste and convenience.

During interviews, participants across all study sites reported using local Timorese salt because it is the only type available in the market. The majority of respondents were unaware of the difference between iodised and non-iodised salt. Only one adolescent in Fatubessi indicated that in his household they use local salt available in small packets because it is iodised, but he did not specifically mention its benefits. One father from Dili indicated that that they use iodised salt in his household to enhance the nutritional value of food and because it tastes better.

3.3. Health seeking - knowledge, attitudes and practice of adolescents

3.3.1. Classifications of illnesses and perceptions on health

Adolescents were asked to classify a series of illnesses in terms of their degree of severity from severe, moderately severe, less severe (with a further option if the respondent was unfamiliar with the disease). Most severe illnesses are generally defined as those in which a person could die.

Table 10. Perceived illnesses by degree of severity (n=36)

Less severe	Moderately severe	Most severe	Unclassified
<ul style="list-style-type: none"> • Headache • Stomach ache • Stomach ache from hunger • Fever • Diarrhoea • Runny nose • Rash/skin infection • Cough • Tooth ache 	<ul style="list-style-type: none"> • Diabetes • Undernutrition • Anaemia 	<ul style="list-style-type: none"> • Difficulty breathing • Gastro - stomach problems • Tuberculosis • Cancer • HIV/AIDS • Malaria • Thrush • Epilepsy 	<ul style="list-style-type: none"> • Menstruation

*Drawn from a multi-dimensional scaling map which grouped adolescent classifications of various illnesses

Adolescents’ categorisation of breathing difficulties as severe is unsurprising given that these diseases can be lethal in a context where medication and access to health services is limited. During interviews, adolescents reported knowledge of illnesses related to the respiratory system, such as asthma and tuberculosis but their causes were not well understood. Adolescents viewed nutrition-related illnesses including undernutrition, anaemia and diabetes as moderately severe, although understanding of these illnesses varied and was particularly low for diabetes. In the free listing exercise where adolescents named types of sickness without probing, anaemia was the most named nutrition-related disease (21.4%).

In both free list activities and interviews, adolescents tended to describe illnesses in terms of their symptoms. Fever was the most common illness mentioned in free lists, followed by other symptoms such as cough, headache, and skin infections.

During the pile sorts, it was evident that girls are generally better informed on health than boys, possibly because older adolescent girls feel more comfortable accessing the formal healthcare system than adolescent boys. Around half of respondents did not know some of the diseases, particularly among the younger cohort (aged 10-14) who understood least HIV/AIDS and diabetes. Participants were asked to talk about the cause, symptoms, prevention and treatment for selected nutrition-related illnesses, with a selection of responses included in Annex 1. There was a high degree of variability among these responses showing different levels of comprehension among adolescents, with many not knowing about certain diseases.

3.3.1.1. Nutrition-related diseases

Adolescents typically associate undernutrition with not consuming enough food and lack of parental attention. A detailed description of wasting was recorded, reflected in the quote below, showcasing a sense of normality and awareness. In contrast to this, a participant in the same age group and from the same school mentioned not knowing the meaning of malnutrition.

“Many [are underweight/wasted], because parents don’t worry about their children. They don’t control what they eat well. Their heads are large, with small arms and legs, and a big belly. They lose weight, lose appetite. They have to get treatment at the hospital.”

- Adolescent boy, 15y.o, rural Ermera

Obesity was poorly understood and many participants said they had never seen obesity before. Most associated obesity with eating too much and eating fatty foods (mainly pork), and some mentioned a lack of exercise and diabetes. Interestingly, several thought of fatness as a positive trait such as chubby babies being identified as healthy.

“[Obesity is] eating between meals, continuously. Or because at the shop, families just follow what their child wants”

- Adolescent boy, 16y.o, urban Dili

During interviews, the term ‘anaemia’ appeared to be relatively unknown among both adults and adolescents, both of which are more familiar with the term ‘*ra’an menus*’ (‘less blood’). More girls had heard of anaemia compared to boys (63% girls versus 22% boys), yet they often did not know its causes or understand the illness well. Among adolescents who knew about anaemia (generally older girls), most associated it with not drinking sufficient water or resting enough.

“[When we] don’t drink enough water or rest enough. [We] feel faded, lose weight and don’t have appetite to eat. Preventing it requires resting often, eating and drinking at the right times and taking vitamins.”

- Adolescent girl, 18y.o, urban Baucau

The vast majority of respondents did not know about the function of iron in the blood nor did they understand the meaning of the words ‘iron’ (*ferru*) or ‘mineral’. However, most adolescents comprehend the function of vitamins and use the word ‘*vitamina*’ often. This suggests that selecting the term vitamin to accompany and qualify iron, i.e. ‘*vitamina ferru*’, could be a more effective communicative approach to explain the function of iron. Similarly, it is recommended to describe iron-rich foods as foods that ‘increase blood’ (*ai-han ne’ebé aumenta ra’an*), as referred to by one MoH staff member, since findings show the term ‘*ra’an menus*’ (‘less blood’) is better understood than iron or anaemia itself.

3.1.1.2. Reproductive health

Adolescents (and adults) generally refer to menstruation as an illness, and it is commonly believed that girls and women shouldn’t wash their hair or drink cold water when menstruating. Mothers are the primary source of information and enforcement of these practices, and not following their advice is thought to result in thrush and potentially even death. Adolescent girls did not report any changes to their diet or special/additional foods consumed based on their menstrual cycle.

“When menstruating, you can’t wash your hair or drink cold water. If you don’t follow this, you can get thrush, an illness that can kill you.”

- Adolescent girl, 18y.o, rural Ermera

The same term (*'ra'an mutin'*) is used for both vaginal discharge and thrush, with a great deal of confusion and concern about both for many adolescent girls. A minority of adolescent girls considered vaginal discharge normal, a message that should be further promoted.

Some older participants (aged 15-19) knew about HIV/AIDS and most classified it as a severe disease associated with sex outside marriage. They mentioned different channels where they heard about HIV/AIDS, including media, international days and trainings at the village level. Few mentioned use of condoms for prevention.

3.1.1.3. Physical activity and sports

Adolescents report active lifestyles and are involved in many household and farm related chores, particularly in rural areas where collecting water and firewood is common. In terms of sports, most adolescents report playing football and volleyball, with the latter more popular among girls. Games are often self-organised and depend on the availability of equipment. In urban areas basketball and running are also popular. To be healthy, adolescents in both age groups stressed the importance of getting enough rest and drinking water.

3.1.2. Risk perceptions towards health seeking behaviours

When adolescents are sick, they generally tell their parents, particularly their mother, and sometimes also their teacher and/or girlfriend (mainly adolescent boys). In general, adolescents do not make decisions on health issues on their own, yet some girls over 16 years feel confident going to the clinic by themselves. Through the FGDs, it was revealed that boys prefer to talk about illness with other peers, as they feel embarrassed if they get sick and there is a strong perception that male sickness is a sign of weakness. The majority of male adolescents would not go to the clinic on their own as it would be even more embarrassing than telling their parents about being sick (FGD, Bobonaro). Adolescent boys mentioned that men are stronger than women and should be able to withstand being sick where possible (FGD, Baucau). Male adolescents stated that their illnesses are 'simpler than girls' (FGD, Dili).

“Men don't need to go [to the clinic],
they can wait until they are well”

- Adolescent boy, 17y.o, urban Dili FGD

3.4. Perceptions and priorities on growth and development

3.4.1. Physical, mental and emotional growth

During interviews, adults and adolescents across all study sites identified an age range between 15 and 20 during which girls and boys become women and men. For girls, menstruation is the biggest change, while for boys, voice change, growing a moustache and Adam's apple, and increased strength are the most visible signs of growth. Respondents in Dili also indicated that during adolescence, children get taller and fatter, although this is dependent on individual nutrition. Several respondents in Uma Ana Ico and Fatubessi did not perceive menstruation as an indicator of maturity and argued that some girls start menstruation young and cannot be considered adults. Thus, there does not seem to be a specific adulthood marker beyond the legal age, 18 years old, or getting married.

While this was not a specific focus on this formative research, menstruation did not appear to have a significant impact on school attendance. Parents, in general, do not encourage their daughters to be absent during menstruation. Girls mostly attend school while menstruating unless they feel tired or get their menstruation suddenly and need to go home before boys' notice. While most girls continue to attend school during menstruation, there were some respondents who preferred to stay at home the first two days of menstruation in fear of leaking and getting embarrassed. A teacher in Dili explained that girls normally attend school during menstruation, but do not participate in sports activities, such as playing football and basketball.

In addition to physical growth, over 50% of participant adolescents and adults commented that children grow mentally during their adolescence. They explained that they accumulate more knowledge, build new skills and generally understand more about life. Respondents went on to explain that with the acquired knowledge and mental development, adolescents are able to identify right from wrong, develop their own vision and set their life priorities. Some adolescents stated that they also have higher levels of self-confidence compared to when they were young. Another sign of mental growth during adolescence is a sense of responsibility. This often includes taking on a caregiving role with younger siblings and helping with household chores. In some cases, adolescents (usually 18-year olds) have to quit school and find jobs to provide for themselves or support their parents.

A linguistic remark on 'adolescence'

In Tetun, there is no direct translation for 'adolescent' and many terms can describe adolescence depending on both social status and attitudes. *Labarik* can include children from 3 to 19 years of age, *Foin sa'e* is a general term meaning youth, while an adolescent could be called an adult (*ema boot*) if they have finished studying, have a job, and think independently. *Klosan* are those who display physical traits indicating they could marry, often after puberty; and *kaben* those already married. The term *klosan* can also be used to simply indicate an unmarried person. Portuguese words such as *adolexente* and *joven* are also used, yet are less understood.

Adult and adolescent respondents explained that adolescence is when you develop a better understanding of how to build friendships and mingle with community members. For example, a father in Dili explained that adolescents start hanging out with school and community friends, as opposed to depending on their parents to take care of them all the time. One adolescent in Odomau noted how adolescent girls become able to openly express their feelings and share their ideas as they grow up. As teenage girls and boys begin to mature, they also become more interested in showing good behaviour among peers and community members. Teenage girls also reported paying more attention to their clothing, style, and appearance.

3.4.2. Priorities and worries

School was one of the most important aspects in the lives of adolescents across all study sites. Adults discussed how adolescents take school more seriously compared to when they were younger, striving to perform better each semester and eager to attend classes regularly (as opposed to being forced to go as children). Key informants reported how adolescents have a degree of autonomy in decisions around school attendance, as it depends on their self-responsibility even if parents encourage them to go (Ermera). One of the positive changes observed by a vocational schoolteacher in Fatubessi is the increased activity and enthusiasm of students to learn more, and to apply what they learned through small entrepreneurial activities such as making and selling cookies or fried foods. Given its high importance, education is also among adolescents' and parents' biggest worries. In rural and urban areas, students worry when they receive poor grades or cannot solve assignment or exam questions.

Most adolescents believe that discontinuing education can lead to an uncertain future with lower employment chances. As explained by a widow from Atabae, her children are worried they will not be able to continue education beyond high school because of their financial situation. She described how her eldest son (now 26) dropped out of school early and has been unable to find a job. Her younger children are also worried of having the same future. Similarly, two female adolescent respondents reported that they could not continue with tertiary studies due to lack of money, an experience echoed by community workshop participants in Bobonaro. Meanwhile in Dili, adolescents also reported their concerns about finding jobs after graduating from university.

Some students in rural areas worry about the quality of education, largely due to a general lack of teachers and facilities. This was highlighted by a father in Atabae who explained that there were only four teachers in his son's school. A teacher in Fatubessi indicated that their newly-built school lacks facilities such as water, toilets, and sporting equipment. In Dili, respondents highlighted the importance of good school facilities for better performance, with one schoolteacher indicating that students in his school are highly motivated to learn for these reasons as well as due to teachers' and parents' motivation and support.

A common worry among female and male adolescents in rural areas was making grandparents, fathers or older siblings angry by breaking rules or accidentally doing something wrong. Everyday mistakes that could cause this included playing with friends without permission, staying out until 7pm, breaking someone's belongings, burning the rice while cooking, or not doing housework. A few mentioned their fear of being beaten by parents because of not fulfilling household tasks or because they skipped school.

Adolescents in rural study sites had unique worries about family, community and intimate relationships. For example, an adolescent girl who enjoys a good relationship with her family, expressed feeling worried about losing her parents due to death or separation. Another adolescent respondent indicated that girls tend to be emotional and worry about making everyone around them comfortable. Adolescents across all locations expressed a strong dislike for when young people fight, curse, get drunk and create problems in the neighborhood.

Adolescent girls appear to have different worries than boys. A few female adolescents indicated feeling worried about changes in their body as they approach puberty. Most female adolescents said they felt worried and stressed about breaking parental rules, especially as they relate to relationships, e.g. meeting boyfriends behind parents' backs or getting pregnant as a teenager. In Dili, adolescent girls also worry about their safety in public spaces as they fear being targets of violence, a fear shared by adult men who worry about violence within their neighbourhood. Intimate relationships were a source of concern for parents and grandparents in rural areas and they reported being afraid their

children would neglect studying or get into trouble. A grandmother from Fatubessi explained how adolescents must respect and obey strict family rules that include not having relationships with members of the opposite sex to avoid possible 'mistakes'.

More than boys, girls explained that they can feel slightly jealous when they want the same material things (clothing, accessories) their friends have, but their parents or grandparents cannot afford to buy them. Parents indicated that despite adolescents being angry if they do not get what they want, their children try to be more understanding of the family situation as they grow older.

3.4.3. Aspirations for the future

In focus group discussions, adolescents were asked to draw out their dreams for the future. Participants engaged well with this method, which resulted in detailed drawings that each wanted to share and discuss with the wider group. Despite changing the question order in each FGD (drawings should include family and professional aspirations), most presented their professional aspirations first, then the home they would build and lastly, the family they would like to have. The majority of adolescent respondents were clear that they wanted their future to follow this specific order. Respondents stated they wanted to be financially secure and own their own home prior to starting a family.

In interviews, most girls said they wanted to become teachers or doctors. For boys, the majority want to become teachers and defense force/police officers. A father in Dili explained that children aspire to work for the government after university graduation, with working for NGOs or the private sector as the second-best option. It seems that many adolescents appreciate community-oriented roles that support the development of their social environment. There was little variation across urban and rural adolescents in terms of specific career aspirations.

“I want to become a doctor or an engineer, and to be married with two children so that I have enough money to support them. If I become an engineer then I can support the physical development of my country. I also want to have a home garden so I don't have to depend on imported products.”

- Adolescent boy, 15-19y.o, Baucau FGD



Adolescent participants draw their dreams for the future.

One of the most surprising findings from this study is the number of desired children, with the majority of adolescents wanting only two children. There is no noticeable difference in number of desired children between genders.

Table 11 – Desired number of children for adolescents by location

Location	Desired number of children									
	Girls - 15-19 y.o					Boys 15-19 y.o				
	0	1	2	3	4	0	1	2	3	4
Urban - Dili, Baucau	II		III		I	I	I	III		
Semi-urban - Bobonaro	II	II	I			I	II	II		
Rural - Ermera			II		II	I	I			II

**Those that did not want children either wanted to become nuns/priests or wanted to focus on supporting their parents*

The majority of adolescents said they wanted two children to be able to provide for them financially- purchase healthy food, pay for schooling and give each child individual attention and love. Being able to afford sufficient food for all children was reported often. From the adolescents’ perspective, they often repeated that many children are difficult to control and provide for, materially and in terms of attention and care. Many reflected on the challenges of taking care of many children.

“I want two children because I see people in Timor have many children and it is difficult to send them all to school. I want to become a doctor and help people.”

- Adolescent girl, 15-19y.o, Baucau FGD

Adolescents face strong cultural and societal pressures and limitations to having two children, as high value placed on large families and often a desire for at least one male descendant, as well as intergenerational cultural obligations that incentivise having many children. Several adolescent respondents said they would be firm against family pressure for many children (boys and girls) while a few respondents said they would likely give in to these pressures.



Adolescent drawings of their future dreams reveal the importance of having a career and home of one’s own, in addition to family aspirations.



Many adolescents aspire to become teachers, doctors or military personnel.

Most adolescents want to live near their family in their community of origin, but build their own house and live separately. Many adolescents also said they want to take care of their parents and make them happy. The ideal age to marry was defined to be between 23 to 25 years old. Some adolescents acknowledged that living separately from family members after marriage could lead to problems as it is customary for most married couples to live with the man's family.

Overall, adolescents recognised that their aspirations likely clash with socio-cultural expectations, showing a shift in values and also the challenges adolescent face in negotiating their wants within this space.

3.4.4. Income generation and group participation

Adolescents in rural areas are more engaged in income generating activities than their urban counterparts. Adolescents in rural areas help parents with a range of activities, including selling home-grown vegetables in the market, and making and selling fried food. Some girls, especially in Fatubessi, also engage in income generation activities of their own. For example, one girl stated that she makes fried food every day and sells it before school, in order to practice skills learned about entrepreneurship in school. An agriculture and trade vocational schoolteacher also commented that some apply what they learned in entrepreneurship classes by making and selling cookies or fried food. Other girls indicated that during coffee harvesting season they harvest and sell coffee to make some money. In Dili, only one adolescent boy worked as a cameraman in the school media group.

Around half of the adolescents interviewed were involved in community groups in rural and urban areas, but group participation was generally irregular. In Odomau and Fatubessi, adolescents are members of sports groups, such as volleyball and football, and religious groups (acolytes, choir members). A teacher in Fatubessi noted that the school has extracurricular religious and sports activities that students are eager to participate in. In most cases, adolescents choose to participate in groups with support from their parents. None of the adolescent respondents mentioned attending a youth centre.

3.5. Adolescent mothers and adolescents with a disability

3.5.1. Adolescent mothers – perceptions and practices

A small number of adolescent mothers (n=3) who were out of school were also interviewed. Whilst this small number of respondents is not sufficient to draw wider conclusions about adolescent mothers, it does provide some insight into the experiences of young mothers and potential focus areas for nutrition-related interventions which include or specifically target them.

The adolescent mothers interviewed had little knowledge of unhealthy foods or nutrition-related illnesses, but similar to other adolescents reported that local foods are generally healthy and that frozen foods and monosodium glutamate based seasoning (*Masako*) are more likely to be unhealthy. These adolescents reported enjoying vegetables (consumed with rice) and fruit, but noted that their access to meat was severely limited.

The adolescent mothers interviewed did not appear to have sufficient information about feeding their babies when they became pregnant, and expressed a desire for more education about breastfeeding, feeding and parenting. They indicated that they would like to learn more about health and nutrition directly from doctors through house or clinic visits.

The appropriate age for marriage indicated by adolescent mothers was unsurprisingly higher than the age at which they actually got married. Reflecting on her own experience, an adolescent mother said, “I got married too early. A woman must be 23 years old or more and a man 25 years old or more to get married because below these ages, we are still not proper adults and our minds are still like most young people and know nothing about building a family. Like in my experience, it was so hard to understand each other and we always felt jealous and mistrustful.”

3.5.2. Adolescents with a disability – perceptions and practices

A small number of adolescents with a disability (n=2) were also interviewed. Whilst this small number of respondents is not sufficient to draw wider conclusions, it does provide some insight into the experiences of adolescents with a disability and potential focus areas for interventions which include or specifically target them.

Healthy adolescents, from the perspective of both respondents, were those who eat clean food and bathe regularly. However, each had a different perception of what healthy food constituted. For one of them it was rice, corn and cassava, and for the other rice, meat and vegetables. However, they did not know what food was unhealthy, and had no knowledge of any nutrition-related illnesses. Both adolescents believed that the important foods for adolescent are rice, vegetables and meat.

Neither respondent had eaten any eggs in the week preceding the interview, with one of them being prohibited by his doctor from eating eggs. When asked if they could follow doctors’ advice to increase their protein intake, both said it was not easy because their families did not have sufficient income. The girl from Baucau explained, “Doctors can come and give advice on healthy foods but it is difficult to get meats as sometimes we do not have money and sometimes we have money but no meat.”

Both adolescents with disabilities regarded school as their top priority. They reported attending school and participating in household chores. The preferred channels of communication for health and nutrition information for these adolescents were house and school visits. One girl from Baucau specifically requested information on the health of people with disabilities, as well as facilities for them. She also expressed a desire that her friends with disabilities would get checked up and treated at the hospital. Neither of these adolescents were involved in any community groups despite wanting to be.

3.6. Social, cultural and gender norms influencing nutrition

3.6.1. Patterns of food preparation, allocation and sharing

Preparing meals is usually a two-step process involving food harvest or purchase, and food preparation. Different family members are responsible for each step. In rural areas, daughters are largely responsible for buying food from the market and/or preparing food. In urban areas, mothers mostly cook food, sometimes with help from daughters and relatives in the same household. Men rarely take responsibility for buying food in the market. Yet, in urban areas, it is common for adolescent boys to give their mothers a ride on a motorcycle to the market.

According to the interviews, eating order is very similar among families in matrilineal and patrilineal communities. In most families all members eat the same (or similar) food together at the same time. Gender did not appear to play a role in the order of eating, with only two out of thirty-five respondents indicating that men (fathers/grandfathers) eat first, followed by women and children. To further explore this topic, a role play activity was included during the focus group discussions where participants were asked to act out what would happen when a father brings one chicken home, a valued and scarce food, to be shared among a family of 8 to 10 members. In all FGDs grandparents were served first, then adults and lastly children. The Bobonaro FGD was an exception where the youngest child ate first and got the best part of the chicken due to the child character creating a big fuss and demanding she eat first. FGD participants later explained that this can often happen because parents have a soft spot for their youngest child. Some FGD participants said that eating order protocol was a sign of respect for men (for them to eat first) and others mentioned it is customary when visitors come to the house for the mother and daughters to eat later or separately (Bobonaro). This difference in the role-play results and answers to interview questions on food order and portion allocation may have arisen because the role-play specifically on a limited amount of meat whereas the interview questions focused on general family eating habits.

In terms of food quantity allocation, there were variations across the FGDs. Different value systems that exist as a continuum in Timor-Leste were represented, from the father and uncle eating more than the rest of family members because they needed “to eat lots after hunting” (FGD Ermera) and because men “need strength” (FGD Baucau), to prioritising meaty cuts for children because they need “to grow and eat well” (FGD Dili). During the activity reflection in Bobonaro, most girls were unhappy with the allocation of food as “men take food first and don’t leave enough for other family members” and most in the group agreed on the inequality of portion sizes. Cousins living with other relatives were consistently allocated the least desirable and meaty parts of the chicken or only the broth, despite being responsible for killing and preparing the chicken. Another consistent finding across FGDs was that while mothers were sometimes involved in food portioning, it was the fathers that made the decisions around what cuts of meat went to each family member.

Contrary to the FGDs with adolescents, interview respondents explained that portions do not vary significantly between family members as each eats until they are full in most cases, but each will eat ‘according to their body’s needs’. Because of this, it is normal for children to have smaller portions than adults, as highlighted by respondents in Atabae and Odomau, and for older adolescents to eat more than their younger siblings. As some female respondents explained, their brothers eat bigger portions, or eat more frequently, because they have bigger bodies or are always hungry.

3.6.2. Decision-making on food

In both matrilineal and patrilineal communities, mothers usually make food decisions and manage the food budget. Yet in most cases the mother’s decision is based on discussion and agreement with her husband and in consultation with their children to take their preferences into account. For some,

such discussions are only needed in the case of purchasing expensive food, such as meat, while for others, discussions take place on a daily or weekly basis. Whether or not parents buy the food their children desire seems to depend largely on the budget allocated for food. A girl from Fatubessi explained that, “In my family my mom and sister are ones that decide what to eat. My mom asks us what food we want then she will go to purchase it. My mom always discusses with my dad before she buys some foods. However, if we [the children] want to eat [certain] foods then my parents will just agree with that.”

In other families, adolescents have no say in what they eat. A grandmother in Fatubessi, for example, explained, “There is no favourite food for [adolescents]. They eat the food that is prepared. We have our own rules in this family to be obeyed. Everyone has the same food.” It was only in one family in Dili where an adolescent indicated that the father has the final decision regarding whether or not to buy certain food items.

Grandparents have an important role to play as they teach their grandchildren about the importance of eating local foods. Grandmothers tend to prioritise local chicken meat to children over themselves. Grandmothers often promote local foods they grew up with and tend to be suspicious of packaged and processed foods. It is also common for grandmothers in rural areas to prepare children’s meals and feed young children, and sometimes teach girls to cook, and they have a great deal of influence over mothers.

“My grandparents always remind us to be obedient and disciplined and teach us to eat local food such sweet potatoes and taro.”

- Adolescent boy, 11y.o, rural Bobonaro

“My grandparents always advise us to behave well. They also pay attention to our food, as we need to eat on time and eat clean foods.”

- Adolescent boy, 19y.o, Ermera

“My grandmother says I should not eat food with chemicals, [and that I] need to eat local foods.”

- Adolescent boy, 19y.o, semi-urban Bobonaro

Household decision-making was often discussed as a barrier to adolescents accessing a balanced diet during community workshops. For example, in Bobonaro, women reported being able to kill a chicken autonomously, but cannot do so with pigs, goats and cows as these are reserved for cultural ceremonies. When buying a variety of foods, particularly animal source foods, many husbands made the final decision usually based on available funds (including for small purchases like eggs). With men tending to be the final decision-makers, mothers may have limited agency to make food purchases on their own, except in cases where they are economically independent and can make their own decisions (PCW, Dili). Some men complained about eating a monotonous diet of rice and vegetables but women stated they would be happy to cook meat daily, but can’t afford it (PCW, Bobonaro). Participants discussed that decision-making and expenditure depended on each household, but on occasion could lead to domestic violence (PCW Baucau, Bobonaro).

Such variability on decision-making and agency by women, ranging from requiring husband’s permission to full economic autonomy, indicates that their husbands could benefit from different segmentation to support both enhanced nutritional food purchases and more equitable decision-making within the household.

3.6.3. Livelihood expectations, household routines and community responsibilities

Boys and girls have different, yet sometimes overlapping, roles in the household. Typical tasks for boys include collecting firewood and water, doing farm work (such as watering and growing vegetables, and harvesting coffee), building fences, and helping to repair the house. Adolescent boys also feed animals and sometimes help their family to sell products or vegetables on the market. Although commonly perceived as a female duty, several respondents across different rural areas and in Dili indicated that boys help clean the house. For girls, the main household tasks include: cooking, cleaning the house, and washing clothes and dishes. In Atabae, and less commonly in Fatubessi and Uma Ana Ico, some girls also collect firewood and drinking water, water gardens, harvest vegetables and coffee, and help families sell vegetables at the market. Adolescents in Dili have less household chores compared to adolescents in rural areas. As explained by a father and a teacher, adolescents help when they want and do not do heavy work around the household.

In rural areas, it is common for adolescent boys and girls alike to help take care of their younger siblings or nieces and nephews. They are generally tasked with bathing, feeding, dressing and playing with small children, and sometimes helping them with studying or teaching them the alphabet. A teacher indicated that adolescents sometimes go to school late and tired because of responsibilities at home. By contrast, parents in Dili depend less on adolescents for raising younger siblings. As a result, a teacher in Dili explained that students in Dili are typically active and get to school on time.

Reflecting on the role play activity, adolescents reported that mothers sometimes forbid boys from entering the kitchen to help as this is considered girls' work, despite the father having asked the boys to help with dishwashing during the performance. FGD participants in Bobonaro, Dili, and Ermera acted out a reflection of their reality, but participants in Baucau demonstrated what they would like to see happen within their families in the future– (FGD, Baucau).

In Hataz, PCW participants explained that having many children is a worry, as income levels do not allow for parents to provide a balanced and nutritious diet for their children on a regular basis. Yet, new couples face strong social pressure to have many children.

Large families are valued because after paying a bride price (in the form of buffalos, pigs, jewellery, traditional woven cloth and money) men's families expect women to have a large number of children to balance out their investment and continue their family line. Also, it is socially desirable to have large families which is seen to contribute to the nation's development (and repopulation after conflict). One participant said that two children is viewed as insufficient and can lead to a man abandoning his wife. One male PCW participant who organises Mother Support Group meetings in his village encouraged child spacing. Older women also supported spacing yet felt this was challenging given cultural expectations (PCW, Bobonaro). A 17 year-old boy explained that despite wanting two children, if both were female, then he would feel compelled to keep trying until he had a male child to ensure the continuation of his family line.

“Because [the male child] has to carry our history, he is the generation that will continue our father’s [line].”

- Adolescent boy, 17y.o, from Lautem, Baucau FGD

These social expectations put women (and young couples) under considerable pressure and do not necessarily align with adolescents' own personal aspirations of a smaller family.

3.7. Barriers and enablers to improved adolescent nutrition

Nutrition-related behaviours are embedded in longstanding family traditions, societal expectations, and ingrained in deep-rooted socio-cultural norms that are difficult to address and change. Understanding the barriers and enablers of improved adolescent nutrition is vital for creating targeted social behaviour change activities for adolescents in Timor-Leste.

3.7.1. Adolescents themselves

Behaviour is influenced by a person's gender, ethnicity, income level, level of education, physiological status, knowledge, attitudes, risk perception, and self-efficacy (WFP, 2017a).

This research found that adolescents have limited agency on food and display limited ability to decide what foods are consumed in the household. Adolescents tend to eat whatever is served at home, despite some saying that their preferences are taken into account. It is the mother who generally decides what gets eaten – within her own set of decision-making limitations.

When adolescents have access to pocket money, they are the sole decision-makers of how to use it to purchase snacks and drinks. Snacks and drinks present an opportunity to target campaigns to adolescents in order to select healthier choices. There seems to be more autonomy amongst adolescents aged 15-19 years compared to younger adolescents aged 10-14 years. Older adolescents have access to more money to spend on food and drinks (\$2.70 per week) compared to younger adolescents (\$1.30 per week). Older adolescents also have much greater access to mobile technology, with 77% having access to a mobile phone and 73% able to use the internet, compared with 30% and 24% respectively for the younger cohort.

Adolescent knowledge around nutrition and health is basic and often misinformed. Interestingly, this study found no mention of status foods, foods perceived to be a sign of wealth, or explicit assertions on aspirations to consume certain foods, in contrast to other studies (WFP and Anthropologica, 2018). However, adolescents identified fruits, meat and fish as desired foods they would like to eat more. In terms of food related attitudes, some boys feel embarrassed to bring home-made food to school yet are happy to eat it from their female friends (FGD, Baucau). Surprisingly, no links between foods consumed and body image were captured indicating this is not a preoccupation among adolescents.

Barriers to adolescent health seeking behaviours include infrastructure (large distances to travel to/from rural areas), lack of gender-sensitive service provision (girls not going to the clinic for sensitive health issues if the doctor is male), gender stereotypes and sexist attitudes (whereby boys feel it is not masculine or a sign of fragility to be sick and/or go to the clinic). Yet, expressions of confidence from girls 16 years and over were often reported by interviewed health staff, including going to the clinic on their own.

In terms of values, adolescents often think about their families and communities, illustrating how important social connections are to them. During role plays they performed clear family hierarchies that they understand deeply and follow. Girls often explained how important it is to them to make their family members feel comfortable. Urban adolescents seemed more focused on being trendy than rural adolescents.

Across all sites there is a clear aspiration for financial stability and a smaller number of children. Despite adolescents' aspiration to marry at 23-25, early pregnancies are known to occur and parents reported that this is due to 'modernisation' and changes in the respect given to old values and norms.

Adolescents' participation in groups is generally irregular, with some adolescents active in sports groups such as volleyball and football, and religious groups. These groups could provide entry points for information dissemination for young people, however given the uneven participation rate across different areas, it does not appear to be a consistent opportunity.



3.7.2. Key influencers of adolescents

Social influences, from friends, family, grandparents, village leaders, religious leaders, and teachers shape individual behaviours' personal decision-making (WFP, 2017a).

Findings clearly indicate that parents are the key influencers on adolescents' nutrition and health. Food is mostly cooked or organised by mothers, sometimes with the assistance of daughters and other female relatives. However, fathers and older male relatives generally hold the main decision-making power at home, and often make final decisions on food purchases, and sometimes, food allocation. In terms of decision-making on health, adolescents usually inform their mothers or grandmothers when they feel sick in order to seek healthcare. Mothers and grandmothers then accompany children to the clinic or buy medication after discussions with fathers, who are generally less involved. Adolescents explained that their parents were generally most influenced by village chiefs, teachers and health providers. Relatives, priests and national leaders also have an influence on some parents, although on a smaller scale.

Grandparents have a strong role similar to a parental role in the lives of their grandchildren. This applies whether or not they live together, and the relationship is generally described as loving and caring by adolescents and adults in urban and rural areas. Grandparents provide support and advice to grandchildren to help them become well-behaved community members and healthy individuals. Grandmothers often introduce their grandchildren to traditional food and stress the importance of eating local produce and dishes. Grandparent responsibility is often described from childhood to adulthood, however grandfathers are not involved in any sort of childcare for their grandchildren (PCW, Bobonaro).

For sensitive health-related and intimate topics, and particularly for older adolescents, peers are an important source of information and confidants. Adolescent peer support cannot be underestimated both in terms of correct information and potential misinformation that is shared amongst friends. Adolescents often rely on friends of the same age or older to share health worries deemed

embarrassing, especially for male adolescents.

Health providers are the most respected and trusted sources for health topics. Teachers also play a part in raising students' awareness about health and nutrition, yet are often not well trained on health topics and may provide advice that is not adequate. Nonetheless, teachers are still trusted sources of information among adolescents.

3.7.3. Community characteristics

Community characteristics address the underlying social norms, traditions, and cultures that guide nutritional behaviours of adolescents, including kinship structure, dietary practices/myths and religious affiliation (WFP, 2017a).

Rural communities often have strong bonds and consider each other as family, regardless of whether or not they have close familial links. Communities share food, tell stories and support one other during good and bad times. As one mother in Atabae reflected, when a family member passes away, neighbours support that family and send them food staples, such as rice and sugar. Another father in Fatubessi explained that in their hamlet, it is important for community members to come together during funerals, marriages, and other cultural ceremonies. The Catholic faith is also important among community members, with adolescents often using religious language in common parlance and some wanting to devote their lives to the Church by becoming nuns and priests (Bobonaro, Baucau).

Participatory community workshops were carried out in four sites to brainstorm barriers and solutions to adolescents consuming a balanced diet. It was difficult for PCW participants to separate challenges and opportunities that are specific to adolescents to those that apply for all community members. As such, a wide range of factors affecting nutrition were raised in the PCWs, with the top barriers being infrastructure (water, roads, market), lack of money, cultural commitments and poor agricultural production.



Participants struggled to separate challenges that are unique to adolescents during participatory community workshops.

Families dedicate a large proportion of available resources to cultural obligations, including both money and animals. The ongoing need for animal contributions means the majority of participants do not kill animals for family consumption, and therefore need to purchase animal source foods. Availability of these foods is limited by seasonal access to market due to bad roads. During the

dry season, families often purchase livestock to contribute to funerals and weddings. Participants explained how amounts allocated for cultural commitments are much higher than what is allocated for family food needs (PCW Ermera). Chickens were also sold to cover school related expenses (PCW, Baucau and Dili). In Manleuana, Dili, access to cheaper animal source protein is available, through processed meats like sausages and chicken sticks (sate).

From the PCWs, it is clear that communities face challenges in the affordability and accessibility of nutritious foods, particular in rural areas. A balanced diet is expensive especially if it includes animal products, and plant-based protein foods are not always accessible due to water constraints and soil fertility issues. Despite observing many animals roaming around in communities, these seem to be tagged with a ceremonial label that renders them unusable to meet daily food requirements. Aside from larger livestock, food prohibitions were seldom reported by and do not seem to impact on adolescents' nutrition. When reported, they were associated with a specific food of clan significance and able to be easily substituted for a nutritionally equivalent item.

Table 12. Highest ranked barriers for adolescents to access a balanced diet

Suku, Municipality	1 st most voted	2 nd most voted	3 rd most voted
Letemumo, Baucau	Access to market far due to bad road	Purchasing power	Agricultural production
Hataz, Bobonaro	Access to water	Purchasing power	Cultural requirements
Manleuana, Dili	Purchasing power	Access to water	Cultural requirements
Coilate-Letelo, Ermera	Road access during rainy season	Cultural requirements	Purchasing power

*As ranked in participatory community workshops

3.7.4. Schools and the food environment

Nutrition behaviours take place within a larger system that includes hospitals, health clinics, non-government organisations, feeding centres, schools, and civil society organisations (WFP, 2017a).

School is a top priority for adolescents. It is a place where children learn, develop and acquire new skills as they prepare for their future, and should also be considered an important focal point to improving adolescents' nutrition and health behaviours. Meals provided through the school feeding program (Programa Merenda Eskolar or PME) have a direct impact on students' food and nutrition intake. However, the PME is not always active, it is only targeted at grades one through six, often with payment delays that impact service delivery.

Students value and trust health promotion at school (Programa Saúde Eskolar or PSE). And while activities are neither consistent nor scaled up across the country, these health and nutrition education sessions delivered by health providers are highly valued by adolescents.

School also provides an important opportunity for students to learn and practice other health behaviours, such as handwashing. However, many schools currently have no handwashing facilities, soap or toilets, or they are in disrepair. For example, students in Odomau reported that they do not have toilets at school. To use the toilet, students have to go to neighbours' or use the teachers' toilets if available.

3.7.4.1. Food environment

The school food environment presents opportunities and barriers to healthier eating. Yet the food environment observed around schools is not supportive of healthy choices. Foods available tend to be processed, carbohydrate-based and high in sugar, fats and salt. What is accessible to adolescents to purchase with their small amount of pocket money frames their choices. This is particularly important since most report sometimes skipping breakfast, and then buying food at school to compensate, which is where most of the snack purchases also occur. Ensuring the availability of nutritious options in schools and their surroundings has great potential to support healthier practices.



It is important to reiterate that adolescents’ choice drivers for snacks and drinks are price, taste and convenience. To support healthier choices, equipping them with the right information is not enough, as without healthier options available, behaviours will not change. There is a clear opportunity to work with food vendors around sale of more balanced and nutritious options and how that would affect vendor profit margins.



Nutritious snack options for adolescents in and around school are currently limited.

Preliminary findings of this research were presented back to key stakeholders and community members (adolescents, parents, teachers, local leaders) that participated in the study. Following the presentation, participants divided into groups and brainstormed healthier snack options that would meet adolescents three expressed criteria for snack selection (price, taste, and convenience). Below are the potential snack options from stakeholders and research participants in Baucau and Bobonaro:

Table 13. Healthier snack options suggested by research participants and stakeholders

Suggested healthier snack options		
<p>Fresh fruit Apples, oranges, guavas</p>	<p>Eggs Boiled and/or fried</p>	<p>Fried snacks Fried banana, tempeh, bread filled with mung bean, peanuts fried with egg and flour</p>
<p>Vegetable Boiled orange flesh sweet potatoes, grilled corn</p>	<p>Snack combinations E.g. peanuts and bread</p>	<p>Packets/small meals Coconut rice with green beans, rice packet with egg and green vegetable</p>

3.8. Trusted channels, entry points and delivery platforms

3.8.1. Trusted sources of information and channels

Respondents unanimously agreed that doctors and healthcare professionals are the most trusted sources of information related to health and nutrition because they have the best medical knowledge. This was consistently found in interviews, pile sorts and FGDs, and by sex, location and age. Receiving information at the clinic or at school from health staff is the most trusted and preferred channel as it involves an interpersonal or face-to-face approach delivered by the experts.

“The doctors never come to school to share information about nutrition or healthy foods. If they planned to come to our school, it would be great. Students could hear directly from them. I think adolescents’ most trusted sources are doctors, teachers, and parents. However, to talk about health and nutrition, it would be great if doctors came to school to talk about it directly to the students.”

- Adolescent boy, Dili

Following health providers, TV is the most trusted source of health information, and to a lesser extent radio. TV is less accessible in rural areas and there is a general preference for Indonesian channels, thus reducing the potential impact of TV campaigns. Despite variable scoring for Lafaek magazine, in focus group discussions older adolescents reported strong brand recognition and listed Lafaek as a trusted source of information. Several adolescents reported that they like Lafaek magazine because it is Timorese. Girls would like to learn more about health topics from their family, particularly mothers. Boys mostly trust health professionals and TV. Church and traditional healers were not consistently listed as a trusted source of information on health and nutrition topics for adolescents.

Table 14. Trusted sources for health information by adolescents’ sex, location and age (n=36)

Trusted channels	Girls (n=19)	Boys (n=17)	Urban Baucau (n=16)	Rural & semi-urban Bob. (n=20)	Age 10-14 (n=18)	Age 15-19 (n=18)
Health professional	100%	88%	94%	100%	100%	94%
TV	79%	76%	75%	70%	72%	72%
School	79%	41%	44%	65%	61%	50%
Mother, Grandmother	79%	12%	63%	35%	39%	56%
Lafaek magazine	63%	18%	56%	20%	28%	44%
Radio	47%	29%	25%	50%	33%	44%
Peers	53%	24%	38%	40%	33%	44%
SMS	37%	12%	6%	40%	11%	39%
Facebook	53%	18%	38%	25%	22%	39%
Internet	42%	6%	19%	30%	11%	39%
Church	11%	0%	6%	0%	0%	6%
Traditional healer	5%	0%	6%	0%	6%	0%

Mobile phone penetration was much greater among boys (70% boys vs 43% girls) and older adolescents (77% 15-19 years vs 30% 10-14 years), with higher ownership of smart phones among boys, 38%, than girls, 2%. Around half of boys and girls access the internet. Facebook has very high penetration among older adolescents (98% 15-19 years vs 3% 10-14 years) but it is not a trusted source for health or nutrition information, with adolescents reporting that content on Facebook can easily be edited or false.

“In Facebook sometimes people lie.”

- Adolescent boy, 17y.o, Baucau FGD

Table 15. Mobile phone, internet use and Facebook penetration by adolescents sex and age (n=81)

Connectivity	Girls (n=44)	Boys (n=37)	Age 10-14 (n=33)	Age 15-19 (n=48)
Access to phone*	43%	70%	30%	77%
Has smart phone	2%	38%	0%	31%
Uses internet	48%	49%	24%	73%
% with Facebook	43%	70%	3%	98%

*Has own phone or can access from family member

Access to a phone and internet use was much more frequent among adolescents (92%) in Dili compared to other locations (48-55%). More adolescents report using Facebook than surfing the internet. Facebook accounts are evenly distributed among different municipalities.

Table 16. Mobile phone, internet use and Facebook penetration by municipality (n=81)

Connectivity	Baucau -urban (n=22)	Bobonaro - rural & semi-urban (n=25)	Dili - urban (n=12)	Ermera - rural (n=22)
Access to phone*	55%	48%	92%	55%
Has smart phone	14%	16%	25%	23%
Uses internet	45%	40%	83%	50%
% with Facebook	64%	44%	67%	64%

*Has own phone or can access from family member

3.8.2. Entry points and service delivery platforms

There is an evident interest in information related to health and nutrition among adolescents. They want to understand more about healthy food choices, healthy lifestyles, and diseases. Health and nutrition are already part of the primary school curriculum (grade 1 to 6) but given the strong preference among adolescents to learn about nutrition and health from health professionals, schools are an obvious entry point for SBC nutrition interventions. This also aids health outreach to boys who are unwilling to attend clinics, even when sick.

School-based outreach from health professionals should be participatory and engaging, drawing from interactive methodologies and avoid one-way information sessions. Using visual aids, games and songs as well as activities that involve participants are recommended. Offering practical and

applicable nutrition information based on dietary practices and healthy food choices would be more effective with both younger and older adolescent groups.

For out-of-school adolescents, community events and activities are a potential avenue to share health and nutrition information. Existing community groups could be utilised as an avenue to engaging key adolescent influencers (parents) around nutrition-related behaviours. Adolescents themselves could be targeted through ‘bring your adolescent’ themed sessions with relevant groups of adults such as parent nutrition groups, savings groups, and farmer groups. Attending Sunday mass is a popular community activity, and in many instances probably the only opportunity to reach out-of-school adolescent girls. Church groups and mass days could be used as an entry point, to reach adolescent out-of-school adolescents.

3.9. Primary, secondary and tertiary audience segments

In terms of SBC approaches, audiences are segmented when they have different communication needs and motivations. Based on the formative research findings, the following audience segments have emerged.

3.9.1. Primary audience

The primary audience includes those who are most affected by a ‘problem’ and whose behaviours are the priority to change. The primary audience from this research is clearly adolescents. Research findings indicate differences amongst adolescents across age group, sex and location. Depending on the behaviour that will be promoted, these differences within the primary audience will have to be taken into consideration.

For example, while the nutrition of adolescent girls is vital given the impact of their health on the health of their future children, it is important to also focus on adolescent boys. They are future husbands and fathers of children and will play a key role in household decision-making. Provo et al (2017:54) describe that “[young] men accept principles of gender equity but have been slow to embody these principles and change behaviours at the household level. This is perhaps unsurprising as men are not commonly engaged in nutrition, reproductive health, and gender empowerment efforts (despite their role as gatekeepers for household resource allocation and health service consumption, and reproductive health decision-making)”.

3.9.2. Secondary audiences

Secondary audiences include those who directly influence the primary audience segment. Parents, grandmothers, teachers, and health providers emerged as influencers on adolescents. Of these influencers, parents (both mothers and fathers) are the biggest influencers on adolescents. Health providers are also a key secondary audience as they were the most trusted source of health information by adolescents.

Fathers and mothers will likely have to be further segmented into separate audiences given their varying roles in household food consumption and household decision-making. Grandmothers have similar roles to mothers in terms of family care but with specific characteristics including being the custodians of local foods. Teachers and health providers are both respected and influence adolescents within schools and at health facilities.



4. Conclusions and recommendations

Timor-Leste is in a unique position to tackle widespread malnutrition as the double burden of over- and undernutrition is currently still low. In neighbouring Indonesia, over- and undernutrition coexists in 20% of households (Vaezghasemi, 2017), which complicates the challenge of designing and implementing appropriate interventions.

However, food systems are not static and are rapidly transforming worldwide as they are in Timor-Leste. The availability of unhealthy, highly processed foods is increasing in Timor-Leste and the time to act is now in order to prevent a surge of diet-related diseases that are costly to treat.

Early prevention of unhealthy dietary habits among adolescents is crucial. As the population urbanises and incomes grow, young Timorese have access to new food environments that expand their food choices and diversify their dietary patterns in both positive and negative directions. Adolescents not only constitute 1 in 4 people in Timor-Leste but are also future parents to the next generation. Shaping positive nutrition behaviours from an early age can have a significant impact on the adult health of today's adolescents, as well as on the health of their children.

This study has resulted in some clear findings related to adolescents' nutrition related behaviours. Stakeholder validation workshops were subsequently conducted at the municipal level in all four municipalities, where stakeholders and community members who participated in the research attended a presentation of preliminary findings. They also engaged in group work around key topics including health snack options for adolescents (based on their three choice drivers), how to promote

water as the healthiest drink option, and engaging key influencers around adolescent nutrition. Feedback from these stakeholder validation workshops are integrated into the recommendations below.

Recommendations

To promote healthy behaviours among adolescents, the following is recommended.

Individual level factors

1. Develop social behaviour change activities and materials targeted at adolescents and their influencers.
 - a) These activities and materials should promote specific practices such as eating breakfast at home before school and be designed to resonate with adolescents as a unique audience.
 - b) Utilise words, terms and slang that adolescents use to describe healthy foods and their aspirations for the future.
2. Based on the formative research findings, there are several behaviours that could be promoted that would have positive impact on adolescent nutrition.
 - a) Eat breakfast at home. The promotion of this behaviour should target both mothers and adolescents. Capitalise on adolescents' preference to eat breakfast at home to avoid sharing at school. Promote eggs for breakfast as they are quick to prepare and well liked. Link eating breakfast with success in school.
 - b) Eat balanced traditional meals. Take advantage of adolescents' preference for nutritious traditional dishes like *marotok* and *batar da'an*, which include a combination of corn, beans, peanuts, pumpkin, beans, and leafy greens. The promotion of this behaviour should be aimed at grandmothers as local food protectors and promoters.
 - c) Consume protein and iron-rich foods. Target adolescents and their families. Promote these foods as important for growth of bodies and brains. Make strong linkages between consuming nutritious foods and success in school and life. Capitalise on adolescents' professional aspirations.
 - d) Choose balanced and healthy snacks at school. Target adolescents and work with MoE/MoH and food vendors near schools. Promote splitting pocket money for balanced snacks (e.g. peanuts and bread). Carefully consider adolescent key choice drivers for snacks when designing activities and SBC materials around healthy snack promotion.



- e) Drink water. Promote water as the healthiest and most refreshing drink. Test how bringing water from home allows for more money to be spent on snacks.

Organisational level factors

3. Focus on nutrition-related activities in schools and communities.
 - a) Utilise existing community groups (farmer groups, mother support groups, parent's clubs, savings groups) to engage with key adolescent influencers (mothers, fathers, grandmothers).

- Develop a simple and interactive session guide (maximum two hours) that promotes key adolescent nutrition practices for use within existing community groups
 - Explore opportunities to ‘invite your adolescent’ to an existing community group meeting that focuses specifically on improved adolescent nutrition and what parents can do to support this.
- b) Given health provider time limitations to reach all schools, engage with MoH and MoE to explore opportunities to engage teachers to deliver these sessions. Consider the expansion of the school garden model which is currently part of MoE policy but lacks funding and implementation support.
 - c) Explore opportunities with MoH to enhance the much-valued Programa Saúde Eskolar (school feeding program) to increase the coverage and frequency of nutrition discussions and interactive sessions delivered by health professionals in schools. Advocate for the integration of health provider-led sessions into their broader MoH targets for community outreach.
 - d) Strengthen the nutrition sensitivity in the school feeding program and advocate for enhanced WASH facilities in schools.
 - e) Train teachers and PME staff on nutrition.
 - f) To reach out-of-school adolescents, explore opportunities to coordinate with Churches at sub-district level to integrate the promotion of key nutrition practices for adolescents and their influencers.

Physical environment level factors

4. Promote a food environment that supports healthy choices, starting around schools.
 - a) Engage with MoE and MoH to develop healthy snacks guidelines for stalls in and around schools, including estimated profit margins.
 - b) Explore opportunities to test this approach with vendors to modify their products to include healthier options.

Socio-cultural level factors

5. Integrate gender equality considerations into the design of activities and materials.
 - a) Reinforce positive gender behaviours including equitable household decision-making among young adolescents during this crucial period of values shaping.
 - b) Work with influencers to encourage health seeking behaviour among adolescent boys.

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Annex 1: Words and phrases relating to health and nutrition used by adolescents

Words and phrases that adolescents commonly use to describe healthy and unhealthy foods and select illnesses were collected during the research. These words and phrases are provided below because they can be used to inform and support message development. By using terms that adolescents commonly use in message development, there is a higher chance these messages resonating and being easily understood by the intended audience.

The below terms and sentences have been compiled through Nvivo analysis by coding thematically the free lists and pile sorts data (n=64), through field notes during these activities, and to a minor degree through the interview transcripts with adolescents (n=19). They do not represent prevalence but difference of terms and concepts described, applying a purposive emphasis on particularly relevant ones given the nature of this study and future potential programmatic areas.

Words and phrases reflecting perceptions on nutrition and foods for consideration in message development

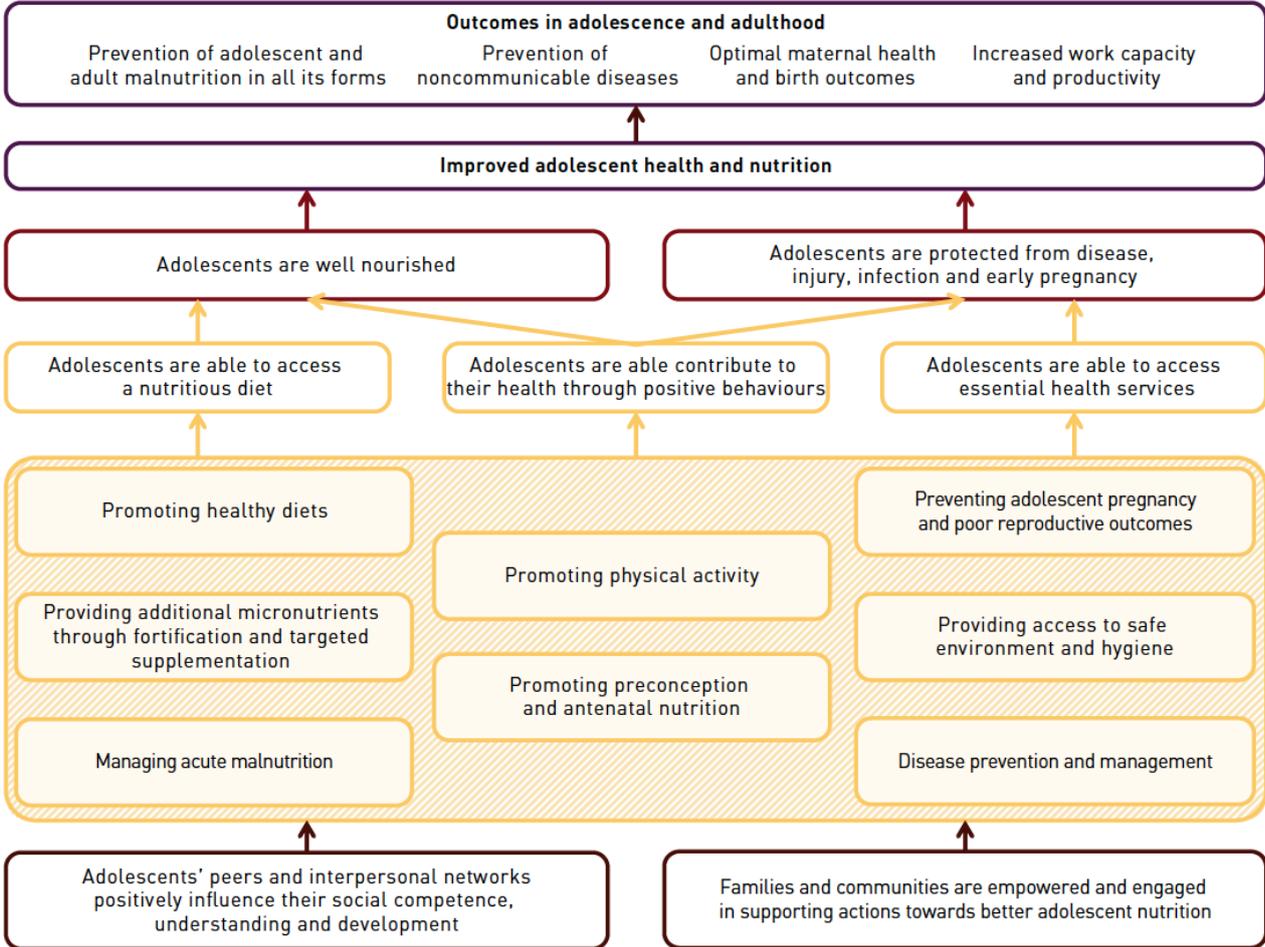
Food description	Words and phrases used by adolescents (Tetun)	Equivalent descriptions in English
Yummy foods	<i>Gostu, gostu loos, enak, puas, ne'e rame-rame</i>	Yummy, delicious, exciting
Healthy foods	<i>Saudável, hahán ho vitamina barak, isin fresku, saúde di'ak, nutrisaun di'ak, bele fó forsa ba ita, forsa ba ita nia isin lolon, han ho balansu, fó bokur ba ita nia isin, han di'ak, aihan ne'ebé fó benefisiu di'ak, isin bokur sa'e, ai-hán nakonu ho nutriente ka kompletu</i> <i>Produitu lokál, la iha kímia, ita-nia ai-han lokál, produitu ita nia ita kuda rasik</i>	Healthy, food with lots of vitamins, looking and feeling fresh, good health, good nutrition, gives us strength, balanced food, fattens up our bodies (positive connotation), good food, food which has good benefits, increases body size, food which is full of nutrients, complete food Local products, chemical-free, our local food, products that we grew ourselves
Unhealthy foods	<i>Iha kímia, ne'e perigu, ladún di'ak ba saúde, baratu liu, hahán liur, ai-hán importadu, husi nasaun seluk, ai-moruk barak</i>	Has chemicals, dangerous, not good for health, very cheap, foreign food, imported food, from other countries, full of 'medicine' (chemicals)
Feeling after eating breakfast	<i>Oin fresku, kontente, halo vontade, iha forsa atu halo atividade, bele foka, isin di'ak, bele halimar bola</i>	Fresh faced, happy, motivated, have strength to do activities, can focus, good/healthy body, can play football
Feeling after skipping breakfast	<i>Vontade la iha, la kontente, estómagu moras, kabun moras, matan dukur, susar atu aprende, matan halai ka nakukun, la iha enerjia, triste, atu aprendre la loos ona</i>	No motivation, unhappy, stomach ache, sleepy, difficult to learn, dizzy or faint, no energy, sad, unable to learn well

Words and phrases reflecting perceptions on health and diet-related illnesses for consideration in message development

Diet related illness	Words and phrases used by adolescents (Tetun)	Equivalent descriptions in English
Anaemia	<i>Ra'an menus, anemia</i>	'Less blood', anaemia
Symptoms and causes	<ul style="list-style-type: none"> • <i>La hemu bee barak no ladún deskansa.</i> • <i>Sente kamutis, isin tún no vontade laiha atu han.</i> • <i>Sente fraku, oin halai no dezmaia hela de'it</i> • <i>Sente baruk, isin tun no isin la saudavel.</i> • <i>Tanba la han aifuan sira no forsa la iha</i> • <i>La'o iha dalan sempre monu, oin halai, haree rai nakukun</i> • <i>La toba, oin kamutis, ibun kulit maran</i> 	<ul style="list-style-type: none"> • Not drinking enough water and not resting enough • Feeling exhausted, losing weight, losing appetite • Feeling weak and faint • Feeling tired and lazy, losing weight and body is not healthy • Not eating enough fruit and no strength • Falling over in the street, faintness, dizziness • Not sleeping, weariness, dry lips
Causes, prevention and treatment	<ul style="list-style-type: none"> • <i>Tenke deskansa barak, han no hemu, tuir oras no hemu mos vitamina</i> • <i>Presiza toba sedu, hemu bee barak</i> • <i>Labele hadeer barak</i> • <i>Hahan modo tahan bayam</i> • <i>Presiza han: iha vitamina, ai-dila</i> • <i>Hemu be'e barak no deskansa barak</i> • <i>Tanba la han ai-fuan barak, modo tahan no la hemu bee barak</i> • <i>Nunka han ai-fuan sira</i> • <i>La han hahan ne'ebé ho vitamina di'ak</i> 	<ul style="list-style-type: none"> • Need plenty of rest, to eat and drink at set times, and take vitamins • Need to go to bed early and drink lots of water • Avoid sleep deprivation • Need to eat bayam (green leafy vegetables) • Need to eat vitamins, papaya • Drink lots of water and take rest • Caused by not eating enough fruit and leafy vegetables, and not drinking enough water • Caused by never eating fruit • Caused by not eating food with vitamins
Diabetes	<i>Ra'an midar</i>	'Sweet blood'
Causes, prevention	<ul style="list-style-type: none"> • <i>Tanba ita han midar barak liu</i> • <i>Han midar barak liu. Atu prevene han modo, midar siin</i> 	<ul style="list-style-type: none"> • Caused by eating too much sweet food
Treatment	<ul style="list-style-type: none"> • <i>Kura ho tratamentu doutor</i> 	<ul style="list-style-type: none"> • Cured with treatment from a doctor

Annex 2: Framework of interventions and determinants of adolescent nutrition

Fig. 1. Framework of interventions and determinants of adolescent nutrition



Source: World Health Organization (2018). *Guideline: implementing effective actions for improving adolescent nutrition.*

Annex 3: Tools used

Annex 3a: Semi-structured interview guides

(i) Guide for adolescents

Introduction

Thank you for giving us your time to speak with us today. The information we learn here will help us find ways to improve adolescents' nutrition in Timor-Leste. Adolescents are boys and girls between 10 to 19 years of age.

1- INTERVIEW CODE: (WFP to write)		2- FACILITATOR:	
3- DATE:		4- MUNICIPALITY:	
5- VILLAGE:	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	6- TYPE OF PARTICIPANT:	<input type="checkbox"/> Adolescent boy <input type="checkbox"/> Adolescent girl
7- AGE:		8- CULTURE	<input type="checkbox"/> Patrilineal <input type="checkbox"/> Matrilineal
9- HEAD OF HOUSEHOLD OCCUPATION		10- GOES TO SCHOOL/ VOCATIONAL INSTITUTE	<input type="checkbox"/> Yes <input type="checkbox"/> No
11- MOTHER AGE		12 - MOTHER COMPLETED SCHOOLING:	<input type="checkbox"/> No school <input type="checkbox"/> Primary <input type="checkbox"/> Pre-secondary <input type="checkbox"/> Secondary/vocational <input type="checkbox"/> University
13- ADOLESCENT (oldest) HAS MOBILE:	<input type="checkbox"/> Yes, own mobile phone <input type="checkbox"/> Yes, own smartphone <input type="checkbox"/> Yes, family member <input type="checkbox"/> No	14 - USES INTERNET	<input type="checkbox"/> Yes <input type="checkbox"/> No
15 - SOCIAL MEDIA account/s	<input type="checkbox"/> Facebook <input type="checkbox"/> Instagram <input type="checkbox"/> Other <input type="checkbox"/> Don't know	16 - MARRIED	<input type="checkbox"/> Yes <input type="checkbox"/> No
17 - HAS CHILDREN	<input type="checkbox"/> Yes <input type="checkbox"/> No	18- HAS DISABILITY:	<input type="checkbox"/> Yes <input type="checkbox"/> No
		19- DISABILITY TYPE:	

1. To begin with, can you please tell me a little about your family?
 - Probe on who lives in the household (e.g. sleep under the same roof)
 - Probe on number of brothers and sisters and their ages and gender
2. Next, I'd like to ask you to describe your community:
 - Probe on the things you like of your community
 - Probe on the things you don't like about your community experiences

Adolescent life

Let's now talk about your life.

3. Can you tell me about what are important moments in the life of boys and girls of your age, or between 10 to 19 years of age?
 - Probe on changes in physical and mental growth
 - Probe on schooling and the aspired education achievement
 - Probe on what sort of work they might engage in
 - Probe on what do he/she likes to do in their free time
4. When do you think a boy becomes a man, and a girl becomes a woman?
 - Probe on legal and traditional adulthood age

- Probe on menstruation
 - Probe on marriage, and adequate age for marriage and having children for each
5. People of your age are sometimes worried about different things. What do you worry about?
- Probe on physical appearance
 - Probe on education and obtaining employment
 - Probe on friends and intimate relationships

Health

Let's now talk about health and illnesses in your family.

6. Can you tell me about some of the illnesses that you have suffered from?
- Probe on how these illnesses are caused
 - Probe on the seriousness of each illness
 - Probe on ways to prevent each illness
7. When you had _____, can you remember how you got better? Who did you told first about feeling sick?
- Probe on how decisions to seek healthcare are made
 - Probe on who she/he/parents first went to for healthcare
 - Probe on use of traditional healers and traditional medicine
8. This information is very good, thank you. Are you aware of illnesses related to nutrition or food and how food affects health?
- Probe on how the foods you eat affect health
 - Probe on the types of foods that make your body unhealthy and reasons why
 - Probe on if he/she has had any illness related to nutrition or food
9. Have you heard of about the illness anaemia? Do you know what causes it and how to prevent it?
- Probe on its impact and who in his/her community might suffer from anaemia
 - Probe on its causes and how to prevent it
10. We talked a lot about being unhealthy. Can you now describe what it means to be healthy?
- Probe on the types of foods that make your body healthy and reasons why
 - Probe on the appearance/signs of a healthy adolescent: eg. active, strong
 - Probe on the appearance/signs of an unhealthy adolescent: eg. pale, tired
 - Probe on what activities someone needs to do or not do to be healthy
11. Let's now discuss hand washing. Where do you wash your hands at home?
- Probe on what times during the day she/he washes her hands (eg before or after doing what activities)
 - Probe on times during the day when soap is used to wash hands
 - Probe on what she/he thinks is the difference between using just water or water and soap to wash hands
 - Probe on the main why people should wash their hands.

Family and adolescent nutrition

12. Can you talk about what is the typical food consumed in your household?
- Probe on what the family ate last night
 - Probe on the process of how the meal is made (who decided what to eat, who went to get it, who did the cooking)
 - Probe on how many times a day meals (and snacks) are eaten by he/she and adults
 - Probe on if some family members receive more food than others
 - Probe on who he/she eats with, where and what order
13. We have heard from some families that eat local foods whereas others eat processed foods (food from kiosk, canned food). Could you explain what is typical for your family?
- Probe on anything that makes it difficult or easy to cook local foods
 - Probe on any benefits to eating local foods
 - Probe on any benefits to eating imported foods
 - Probe on use of iodized salt and what's the difference with common salt

14. Could you now describe how you eat in more detail?
 - Probe on the his/her favourite foods
 - Probe on whether he/she can choose what to eat, if no who decides. What factors influence the decision?
 - Probe on when the he/she believes has eaten enough
 - Probe on whether and what foods the he/she buys on the way to school
 - Probe on whether she/siblings eat differently during menstruation (girls only)
 - Probe on whether she/siblings eat differently during pregnancy (girls only)
15. Could you now tell us what you think are important foods for boys and girls around your age or 10 to 19 years old to grow well/be healthy?
 - Probe on the foods that should not be given to boys and girls this age and why
16. Can you explain to me how girl of around your age should eat?
 - Probe on what girls like to eat and how much
 - Probe on food taboos for girls 10-19, who decides what is taboo, what would happen if you ate a taboo food
 - Probe on adequate and inadequate foods during menstruation
 - Probe on adequate and inadequate foods during pregnancy
17. Can you explain to me how boys of around your age should eat?
 - Probe on what boys like to eat and much
 - Probe on food taboos for boys 10-19
18. Now let's talk about eggs. In the last month, how many times did you eat eggs?
 - Probe on last week if he/she can't remember
 - Probe on how often does he/she think it's healthy to eat food with protein like eggs
19. If a doctor advised someone your age to eat more protein and iron-rich foods such as eggs, beans or meat, do you think that would be possible?
 - Probe on if anything makes it difficult to eat more protein and iron-rich foods
 - If economic barriers are mentioned, probe on who in the family makes the decisions on food purchases

Food and health environments at school

20. Could you now describe what foods you eat at school, either that you bring or buy there?
 - Probe on what foods/snack/drinks are available to purchase around the school
 - Probe on the students most popular choices
 - Probe on how many times a day snacks are eaten by adolescents at school
 - Probe on how much a typical student spends in foods/drinks/snack at school
 - Probe on whether he/she and his/her classmates eat breakfast prior school, if so, what or if they buy breakfast to eat before school starts
21. Let's now discuss school facilities. Does your school have hand washing facilities? And could you describe when students wash their hands?
 - Probe on what times during the day students wash their hands
 - Probe on what she/he thinks is the difference between using just water or water and soap to wash hands
 - Probe on whether soap and water is available regularly at the school
22. Does your school have toilets?
 - Probe on differences between female and male students
 - Probe on adequacy of facilities for menstruating girls (girls only) eg. place to throw trash away, water, a door that locks.
23. Female students might start menstruating from age 11 onwards. Could you explain how this affects their school attendance and performance? (girls only)
 - Probe on school absenteeism during menstruation
 - Probe on different behaviours undertaken by menstruating students
 - Probe on whether families encourage or detract girls to attend school

Gender and family roles

We are also interested in the roles and responsibilities different family members play in raising children and within their family.

24. Could you talk about the role of grandparents have in your life?
 - Probe on the ways that grandparents give advice on how to behave, what to eat
 - Probe on whether these responsibilities changed since he/she grew older
 - Probe on what makes good grandparents (grandfather/grandmother)
25. Now, could you talk about how your family decides what to eat and buy food?
 - Probe on who decides meals: mother, father, grandmother, aunties
 - Probe on the factors influencing the decision (eg. money, time, ...)
 - Probe on how he/she thinks it is the best way to decide on foods to be bought. Eg. If his/her mother wants to buy eggs for each family member, does she need permission?
 - Probe on if he/she things this is fair
26. Who do you think makes the final decision on buying food?
 - Probe on who normally makes the final decision.
 - Probe on what happens if your parents have different opinions when they are making a decision together
 - Is there a difference between decision making and asking for permission?
 - Probe on what would happen if your mother wants to spend money on eggs for the family (eg. \$2) to eat for dinner and your father does not agree
27. Could you talk about the role and tasks boys and girls around your age have in helping their families?
 - Probe on what tasks boys are expected to help with
 - Probe on what tasks girls are expected to help with
28. Who do you think are the important people in your community that your parents listen to?
 - Probe on community and traditional leaders
 - Probe on doctors and teachers
 - Probe on people in television and politicians

Communication channels

You are doing a great job. We are almost finished. Now for the last section, we would like to learn about ways we can develop health programs in your community..

29. Many people talk about how diseases happen, or what is good to eat. Who would you trust about information on these topics (nutrition and health)?
 - Probe on the person's most trusted sources of information and reasons why
 - Probe on doctors and teachers, parents, grandmother, siblings, other friends
 - Probe on the types of media that the person uses and trusts the most to communicate
 - Probe on Lafaek magazine, television, radio, mobile phone, internet,
 - Probe on where messages should be delivered (health centres, school, at home, etc)
30. When you think about your own behaviours, could you think of who influenced them, for example the foods you eat or in relation to washing your hands?
 - Probe on any advice or information related to healthy eating where/who it came from
 - Probe on any desired information he/she wishes he/she had but doesn't have available
31. Do you participate in any groups or activities beyond school? Who decided that you participate in these groups/activities?
 - Probe on religious gatherings, and frequency
 - Probe on youth groups and sports based activities, and frequency
 - Probe on traditional ceremonies and rituals, and frequency
 - Probe on which one do you like best and why

(For adolescent mothers only)

32. Where or from who did you learn what to feed to your baby after the exclusive breastfeeding period?

- Probe on the person's most trusted sources of information and reasons why
 - Probe on doctors, parents, grandmother, siblings, other friends

33. Do you feel have enough information on what to feed your baby and how to care of him/her?

- Probe on the degree of self-confidence in knowing how to feed an under 2 year old
- Probe on the type of advice she thinks would be useful for other young mothers
- Probe on if she took Iron Folic Acid tablets during pregnancy

(For adolescent with a disability only)

34. What kind of activities would you like to participate in? And what type of information would be most useful to you?

- Probe on activities and advice would be useful for other young people with a disability

ALL

Is there anything else about the topics we talked about today that we missed or that you would like to tell us about?

That was great, we are done now. Thank you once again for your generous time and for sharing your thoughts with us. We greatly appreciate your help and we hope this research will help us improve the health of mothers and children in your community.

(ii) Guide for household influencers

Introduction

Thank you for giving us your time to speak with us today. The information we learn here will help us find ways to improve adolescents' nutrition and health in Timor-Leste. Adolescents are boys and girls between 10 to 19 years of age.

1- INTERVIEW CODE: (WFP to write)		2- FACILITATOR:	
3- DATE:		4- MUNICIPALITY:	
5- VILLAGE:	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	6- TYPE OF PARTICIPANT:	<input type="checkbox"/> Mother <input type="checkbox"/> Father <input type="checkbox"/> Grandmother
7- AGE:		8- HEAD OF HH OCCUPATION:	
9- CULTURE	<input type="checkbox"/> Patrilineal <input type="checkbox"/> Matrilineal	11- COMPLETED SCHOOLING:	<input type="checkbox"/> No school <input type="checkbox"/> Primary <input type="checkbox"/> Pre-secondary <input type="checkbox"/> Secondary/vocational <input type="checkbox"/> University
9- GENDER OF (oldest) ADOLESCENT IN HH:		10- AGE OF (oldest) ADOLESCENT IN HH:	
11- ADOLESCENT (oldest) GOES TO SCHOOL/ INSTITUTE:	<input type="checkbox"/> Yes <input type="checkbox"/> No	12- ADOLESCENT (oldest) HAS MOBILE:	<input type="checkbox"/> Yes, own mobile phone <input type="checkbox"/> Yes, own smartphone <input type="checkbox"/> Yes, family member <input type="checkbox"/> No
13- ADOLESCENT (oldest) USES INTERNET:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	14- ADOLESCENT (oldest) SOCIAL MEDIA account/s	<input type="checkbox"/> Facebook <input type="checkbox"/> Instagram <input type="checkbox"/> Other <input type="checkbox"/> Don't know
15- ADOLESCENT (oldest) MARRIED:	<input type="checkbox"/> Yes <input type="checkbox"/> No	16- ADOLESCENT (oldest) IS PARENT:	<input type="checkbox"/> Yes <input type="checkbox"/> No
17- ADOLESCENT HAS DISABILITY:	<input type="checkbox"/> Yes <input type="checkbox"/> No	18- DISABILITY TYPE:	

1. To begin with, can you please tell me a little about your family/household?
 - Probe on who lives in the household (e.g. sleep under the same roof)
2. Next, I'd like to ask you to describe your community:
 - Probe on the strengths or positive things of your community?
 - Probe on the challenges or difficulties your community experiences?

Adolescent life

Let's now talk about the adolescents (aged 10-19) in your family and their life.

3. Can you tell me about what are important moments in the life of male and female adolescents?
 - Probe on changes in physical and mental growth
 - Probe on schooling and the aspired education achievement
 - Probe on what sort of work they might engage in
 - Probe on what they like to do in their free time. Different depending on age?
4. When do you think a boy becomes a man, and a girl becomes a woman?
 - Probe on legal and traditional adulthood age
 - Probe on menstruation
 - Probe on marriage, and adequate age for marriage and having children for each
 - Probe on when/how adolescents change of status in the community
5. Can you tell me what you think are the challenges and worries of adolescents?
 - Probe on physical appearance
 - Probe on education and obtaining employment
 - Probe on friends and intimate relationships

Health

Let's now talk about health and illnesses in your family.

6. Can you tell me about some of the illnesses that your adolescent son/daughter has/ve suffered from?
 - Probe on how these illnesses are caused
 - Probe on the seriousness of each illness
 - Probe on ways to prevent each illness
7. Can you describe how you seek healthcare when your adolescent son/daughter is ill?
 - Probe on who they told first about feeling sick: Mother, older sibling, grandmother?
 - Probe on how decisions to seek healthcare are made
 - Probe on who she/he first goes to for healthcare
 - Probe on use of traditional healers and traditional medicine
8. This information is very good, thank you. Are you aware of illnesses related to nutrition or food and how food affects health?
 - Probe on how the foods you eat affect health
 - Probe on the types of foods that make your body unhealthy and reasons why
 - Probe on if the adolescent son/daughter has any illness related to nutrition or food
9. Have you heard of about the illness anaemia? Do you know what causes it and how to prevent it?
 - Probe on its impact and who in his/her community might suffer from anemia
 - Probe on its causes and how to prevent it
10. We talked a lot about being unhealthy. Can you now describe what it means to be healthy?
 - Probe on the types of foods that make your body healthy and reasons why
 - Probe on the appearance/signs of a healthy adolescent: ex. Active, strong
 - Probe on the appearance/signs of an unhealthy adolescent: eg. pale, tired
 - Probe on what activities someone needs to do or not do to be healthy
11. Let's now discuss hand washing. Could you describe where members of your household often wash their hands?

- Probe on what times during the day she/he washes her/his hands (eg before or after doing what activities)
- Probe on what she/he thinks is the difference between using just water or water and soap to wash hands
- Probe on the main why people should wash their hands

Family and adolescent nutrition

12. We are trying to understand eating practices in this community. Can you talk about what a typical dinner consists of in your household?
 - Probe on what the family ate last night
 - Probe on the process of how the meal is made (who decided what to eat, who went to get it, who did the cooking)
 - Probe on how many times a day meals (and snacks) are eaten by he/she and adults
 - Probe on if some family members receive more food than others
 - Probe on who he/she eats with, where and what order
13. We have heard from some families that eat local foods whereas others eat processed foods (food from kiosk, canned food). Could you explain what is typical for your family?
 - Probe on anything that makes it difficult or easy to cook local foods
 - Probe on any benefits to eating local foods
 - Probe on any benefits to eating imported foods
 - Probe on use of iodized salt or other fortified foods (eg. oil with extra vitamins and minerals)
14. Could you now describe how your oldest adolescent son/daughter eats in more detail?
 - Probe on the son/daughter favorite foods
 - Probe on if these are the same foods the rest of the family eats
 - Probe on whether the adolescents can choose what to eat, if no who decides
 - Probe on the biggest influence on meals consumed by adolescents in the household, eg. Family members decide what foods, money available, time, etc
 - Probe on when the caregiver believes the adolescent eats enough
 - Probe on whether and what foods the son/daughter buys on the way to school
15. Could you now tell us what you think are important foods for boys and girls 10 to 19 years old to grow well/ be healthy?
 - Probe on the foods that should not be given to boys and girls this age and why
16. Can you explain to me how adolescent girls eat?
 - Probe on what girls like to eat and how much
 - Probe on food taboos for girls 10-19, who decides what is taboo, what would happen if you ate a taboo food
 - Probe on adequate and inadequate foods during menstruation (hahan toó ka lae durante fase fulan)
 - Probe on adequate and inadequate foods during pregnancy
17. Can you explain to me how adolescent boys eat?
 - Probe on what boys like to eat and much
 - Probe on food taboos for boys 10-19
18. Now let's talk about eggs. In the last month, how many times did you eat eggs?
 - Probe on last week if he/she can't remember
 - Probe on how often does he/she think it's healthy to eat food with protein like eggs
19. If a doctor advised you to give more protein and iron-rich foods to your adolescent son/daughter such as eggs, beans or meat, would that be possible?
 - Probe on if anything makes it difficult to eat more protein and iron-rich foods

Gender and family roles

We are also interested in the roles and responsibilities different family members play in raising children and within their family.

20. Could you talk about the role of grandparents have in the life of adolescents in this community?
 - Probe on the ways that grandparents give advice on how to behave, what to eat

- Probe on whether these responsibilities changed since the child grew older
 - Probe on what makes good grandparents (grandfather/grandmother)
21. Now, could you talk about the role that adolescent boys and girls have in raising children in this community?
- Probe on the ways that older siblings and adolescents help raise young children
22. Could you talk about the role and tasks adolescent boys and girls have in helping their families in this community?
- Probe on what tasks boys are expected to help with
 - Probe on what tasks girls are expected to help with
23. Now, could you talk about how your family decides what eat and buy food?
- Probe on who decides meals: mother, father, grandmother, aunties
 - Probe on the factors influencing the decision (eg. money, time, ...)
 - Probe on how he/she thinks it is the best way to decide on foods to be bought. Ex. If the mother wants to buy eggs for each family member, does she need permission?
 - Probe on if he/she thinks this is fair
24. Who do you think makes the final decision on buying food?
- Probe on who normally makes the final decision.
 - Probe on what happens if your parents have different opinions when they are making a decision together
25. Is there a difference between decision making and asking for permission?
- Probe on what would happen if your mother wants to spend money on eggs for the family (eg. \$2) to eat for dinner and your father does not agree
26. How does the community, its leaders, and other members (neighbours) affect how you raise adolescents?

Delivery platforms and communication channels

You are doing a great job. We are almost finished. Now for the last section, we would like to learn about ways we can develop health programs in your community.

27. Could you explain where you usually get trusted information about nutrition and health?
- Probe on the person's most trusted sources of information and reasons why
 - Probe on the types of media that the person uses and trusts the most to communicate
 - Probe on where messages should be delivered (health centres, school, at home, etc)
28. When you think about your own parenting behaviours, could you describe what influenced them, for example the foods you feed your children or in relation to hand washing practices?
- Probe on any advice or information related to parenting and where/who it came from
 - Probe on any desired information the parent wishes she/he had but doesn't have available
29. Does your adolescent son/daughter participate in any groups or activities beyond school? Who decided that your son/daughter participates in these groups/activities?
- Probe on religious gatherings, and frequency
 - Probe on youth groups and sports based activities, and frequency
 - Probe on traditional ceremonies and rituals, and frequency
 - Probe on which one does she/he like best and why

Is there anything else about the topics we talked about today that we missed or that you would like to tell us about?

That was great, we are done now. Thank you once again for your generous time and for sharing your thoughts with us. We greatly appreciate your help and we hope this research will help us improve the health of adolescent girls and boys in your community.

(iii) Guide for school influencers

Introduction

Thank you for giving us your time to speak with us today. The information we learn here will help us find ways to improve adolescents' nutrition and health in Timor-Leste. Adolescents are boys and girls between 10 to 19 years of age.

1- INTERVIEW CODE: (WFP to write)		2- FACILITATORS:	
3- DATE:		4- MUNICIPALITY:	
5- VILLAGE:	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	6- TYPE OF PARTICIPANT	<input type="checkbox"/> Teacher <input type="checkbox"/> Teacher (religious)
7- AGE:		8- AGE OF STUDENTS:	

1. To begin with, can you please tell me a little about your school?
 - Probe on how many students and what ages he/she teaches
 - Probe on the type of school and students that attend
 - Probe on a typical day for a 12 y.o. student and a 17 y.o. student (lecture hours, etc)
2. Next, I'd like to ask you to describe the community the school is in:
 - Probe on the strengths or positive things of your community?
 - Probe on the challenges or difficulties your community experiences?

Adolescent life

Let's now talk about the adolescents (aged 10-19) in your school and their life.

3. Can you tell me about what are important moments in the life of male and female adolescents?
 - Probe on changes in physical and mental growth
 - Probe on schooling and the aspired education achievement
 - Probe on what sort of work they might engage in
 - Probe on what they like to do in their free time. Different depending on age?
4. When do you think a boy becomes a man, and a girl becomes a woman?
 - Probe on legal and traditional adulthood age
 - Probe on menstruation
 - Probe on marriage, and adequate age for marriage and having children for each
 - Probe on when/how adolescents change of status in the community
5. Can you tell me what you think are the challenges and worries of adolescents?
 - Probe on physical appearance
 - Probe on education and obtaining employment
 - Probe on friends and intimate relationships

Health

Let's now talk about health and illnesses in you observe among your adolescent students.

6. Can you tell me about some of the illnesses that your adolescent students suffer from
 - Probe on different boys' and girls' illnesses
 - Probe on the seriousness of each illness
 - Probe on ways to prevent each illness in the school
7. Can you describe how your adolescent students seek healthcare when they are ill?
 - Probe on who they tell first about feeling sick: teacher, mother, older sibling, grandmother?
 - Probe on how decisions to seek healthcare are made by families and students
 - Probe on who she/he advises first to go to for healthcare
 - Probe on use of traditional healers and traditional medicine among students
8. That is exactly the level of detail that I am looking for in your answers – thank you. Now could you talk in

detail about nutrition- or food-related illnesses affecting your adolescent students?

- Probe on how the foods they eat affect health
 - Probe on the types of foods that make their body unhealthy and reasons why
9. Have you heard of about the illness anaemia? Do you know what causes it and how to prevent it?
- Probe on its impact and who in his/her community might suffer from anemia
 - Probe on its causes and how to prevent it
10. We talked a lot about being unhealthy. Can you now describe what it means to be healthy?
- Probe on the types of foods that make your body healthy and reasons why
 - Probe on the appearance/signs of a healthy adolescent: eg. active, strong
 - Probe on the appearance/signs of an unhealthy adolescent: eg. pale, tired
 - Probe on what activities someone needs to do or not do to be healthy

Adolescent nutrition in schools

11. Talking about the foods adolescents eat during school time, can you describe what local foods and processed foods (food from kiosk, canned food) are consumed and available?
- Probe on if there is a school meal program. If so, what was served yesterday? How does the school decide what food to serve? Has it changed over the past few years?
 - Probe on what foods/snack/drinks are available to purchase around the school
 - Probe on what foods students bring from home, or if they eat at home
 - Probe on any consumed and available local foods
 - Probe on any consumed and available imported foods
12. Could you now describe what a typical adolescent student eats while at school in more detail?
- Probe on the students most popular choices
 - Probe on how many times a day snacks are eaten by adolescents at school
 - Probe on how much a typical student spends in foods/drinks/snack at school
 - Probe on whether the teacher believes adolescent students eat enough
 - Probe on what proportion of students the teacher believes eat breakfast prior school, and if students buy breakfast to eat before school starts
13. Could you now tell us what you think are important foods for boys and girls 10 to 19 years old to grow well/ be healthy?
- Probe on the foods that should not be given to boys and girls this age and why
 - Probe on the biggest influence on meals consumed by adolescents in the household, ex. Family members decide what foods, money available, time, etc
14. Can you explain to me how adolescent girls eat during school times?
- Probe on what girls like to eat and how much
 - Probe on food taboos for girls 10-19, who decides what is taboo, what would happen if they ate a taboo food
 - Probe on adequate and inadequate foods during menstruation
15. Can you explain to me how adolescent boys eat during school times?
- Probe on what boys like to eat and much
 - Probe on food taboos for boys 10-19
16. If the Government advised the school to facilitate access to more protein and iron-rich foods to adolescent students such as eggs, beans or meat, would that be possible?
- Probe on if anything makes it difficult to facilitate access to protein and iron-rich foods
 - Probe on if boiled eggs are available for purchase close to the school or if students bring

School health environment

17. Let's now discuss school facilities. Does your school have hand washing facilities? And could you describe when students wash their hands?
- Probe on what times during the day students wash their hands (eg before or after doing what activities)
 - Probe on what she/he thinks is the difference between using just water or water and soap to wash hands

- Probe on whether soap and water are available regularly at the school
18. Does your school have toilets? And could you describe how students use them?
- Probe on differences between female and male students
 - Probe on adequacy of facilities for menstruating girls, ex. place to throw trash away, water, a door that locks
19. Female students might start menstruating from age 11 onwards. Could you explain how this affects their school attendance and performance?
- Probe on school absenteeism during menstruation
 - Probe on different behaviors undertaken by menstruating students
 - Probe on whether families encourage or detract girls to attend school

Gender and family roles

We are also interested in the roles and responsibilities different family members play in raising children.

20. Could you talk about the role of grandparents have in the life of adolescents in this community?
- Probe on the ways that grandparents give advice on how to behave, what to eat
 - Probe on whether these responsibilities changed since the child grew older
 - Probe on what makes good grandparents (grandfather/grandmother)
21. Now, could you talk about the role that adolescent boys and girls have in raising children in this community?
- Probe on the ways that older siblings and adolescents help raise young children
 - Probe on whether child caring responsibilities affect girls school attendance
22. Could you talk about the role and tasks adolescent boys and girls have in helping their families in this community?
- Probe on what tasks boys are expected to help with
 - Probe on what tasks girls are expected to help with
 - Probe on whether these tasks and responsibilities affect adolescents' school attendance
23. How does the community, its leaders, and other members (neighbours) affect how adolescents are raised?

Delivery platforms and communication channels

You are doing a great job. We are almost finished. Now for the last section, we would like to learn about ways we can develop health programs in your community.

24. Could you explain where you think adolescents usually get trusted information about nutrition and health?
- Probe on the adolescents most trusted sources of information and reasons why
 - Probe on differences between students 10-14 years old and 15-19 years old
 - Probe on the types of media adolescents use and trust the most to communicate
 - Probe on where messages should be delivered (health centers, school, at home, etc)
25. Thinking about students as future parents, could you describe who you think will influence their parenting behaviours, for example the foods fed to children or in relation to hand washing practices? Probe on the ways that older siblings and adolescents help raise young children
- Probe on advice or information related to parenting and where/who it will come from
 - Probe on desired information she/he thinks is most important to give to future parents but is not available
26. Do your adolescent students participate in any groups or activities beyond school? Who decides that adolescents participate in these groups/activities?
- Probe on religious gatherings, and frequency
 - Probe on youth groups and sports based activities, and frequency
 - Probe on traditional ceremonies and rituals, and frequency
 - Probe on which one do they like best and why

Is there anything else about the topics we talked about today that we missed or that you would like to tell us about?

That was great, we are done now. Thank you once again for your generous time and for sharing your thoughts with us. We greatly appreciate your help and we hope this research will help us improve the health of adolescent girls and boys in your community.

Annex 3b: Free list and pile sort guides

(i) Free lists of foods and illnesses

1- INTERVIEW CODE: (WFP to write)		2- FACILITATOR:	
3- DATE:		4- MUNICIPALITY:	
5- VILLAGE:	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	6- TYPE OF PARTICIPANT	<input type="checkbox"/> Adolescent boy <input type="checkbox"/> Adolescent girl
7- AGE:		8- GOES TO SCHOOL/ VOCATIONAL INSTITUTE:	<input type="checkbox"/> Yes <input type="checkbox"/> No
9- FATHER OCCUPATION:		10- MOTHER AGE:	
11- MOTHER COMPLETED SCHOOLING:	<input type="checkbox"/> No school <input type="checkbox"/> Primary <input type="checkbox"/> Pre-secondary <input type="checkbox"/> Secondary/ vocational <input type="checkbox"/> University	12- HAS MOBILE:	<input type="checkbox"/> Yes, own mobile phone <input type="checkbox"/> Yes, own smartphone <input type="checkbox"/> Yes, family member <input type="checkbox"/> No
13- USES INTERNET:	<input type="checkbox"/> Yes <input type="checkbox"/> No	14-SOCIAL MEDIA account/s	<input type="checkbox"/> Facebook <input type="checkbox"/> Instagram <input type="checkbox"/> Other <input type="checkbox"/> Don't know

Introduction

Now I would like to do a short exercise that will help us to understand the foods eaten by adolescents 10 to 19 years of age in this community as well as the illnesses that affect adolescents.

No.	List all of the different FOODS that people around your age consume in this community.	Comments
1		
2		
3		
4		
5		
20	Provide space for up to 20 responses	

No.	List for me the ILLNESSES that adolescents typically suffer from in this community.	Comments
1		
2		
3		
4		
5		
20	Provide space for up to 20 responses	

(ii) Pile sorts of illnesses and foods

1- INTERVIEW CODE: (WFP to write)		2- FACILITATOR:	
3- DATE:		4- MUNICIPALITY:	
5- VILLAGE:	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	6- TYPE OF PARTICIPANT	<input type="checkbox"/> Adolescent boy <input type="checkbox"/> Adolescent girl
7- AGE:		8- GOES TO SCHOOL/ VOCATIONAL INSTITUTE:	<input type="checkbox"/> Yes <input type="checkbox"/> No
9- FATHER OCCUPATION:		10- MOTHER AGE:	
11- MOTHER COMPLETED SCHOOLING:	<input type="checkbox"/> No school <input type="checkbox"/> Primary <input type="checkbox"/> Pre-secondary <input type="checkbox"/> Secondary/ vocational <input type="checkbox"/> University	12- HAS MOBILE:	<input type="checkbox"/> Yes, own mobile phone <input type="checkbox"/> Yes, own smartphone <input type="checkbox"/> Yes, family member <input type="checkbox"/> No
13- USES INTERNET:	<input type="checkbox"/> Yes <input type="checkbox"/> No	14- SOCIAL MEDIA account/s	<input type="checkbox"/> Facebook <input type="checkbox"/> Instagram <input type="checkbox"/> Other <input type="checkbox"/> Don't know

Introduction

Now I would like your help with an exercise that will help us to understand more about the foods eaten by adolescents (10 to 19 years old) in this community as well as common illnesses among adolescents here.

Question 1: Adolescents' illness

To help me understand more about illnesses suffered by adolescents this community, I'd like to ask you to tell me which illnesses go with each other. I've made some cards with names of illnesses that are commonly experienced by adolescents here. Here they are. Please sort these illnesses into piles, in whatever way you think is best, in as many piles as you wish to see. There is no right or wrong way.

(Rule: respondents may not put all illnesses into one pile or separate them into each into its own pile.)

Pile	Cards (one per square)	Explanation
1		
2		
3		
8	Providing space for up to 8 piles should be sufficient	

Potential follow-up questions

- Tell me about pile X, Y, Z, etc. and how these cards are similar.
- I notice that these cards are in different piles. What makes these piles different?
- If you could name each of these piles, how would you do so?

Question 2: Perceived severity of illnesses

Now I want you to re-sort these cards. To help me understand more about illness in this community, I'd like to ask you to put these illnesses into 3 piles based on how severe they are: 1) most severe, 2) moderately severe, 3) less severe. There is no right or wrong way; it is just your opinion.

Pile	Cards (one per square)					Explanation
1						
2						
3						

Question 3: Foods for adolescents

To help me understand more about food in this community, I'd like to ask you to tell me which foods go with each other. I've made a list of some foods that are commonly eaten here among boys and girls 10 to 19 years old. Here they are. Please sort these foods into piles, in whatever way you think is best, in as many piles as you wish. There is no right or wrong way to do this.

(Rule: respondents may not put all illnesses into one pile or separate them into each into its own pile.)

Pile	Cards (one per square)					Explanation
1						
2						
3						
9	Providing space for up to 9 piles should be sufficient					

Potential follow-up questions

- Tell me about pile X, Y, Z, etc. and how these cards are similar.
- I notice that these cards are in different piles. What makes the piles different?
- If you could name each of these piles, how would you do so?

Question 4: Perceived healthiness of foods

Now I want you to re-sort these cards. To help me understand more about foods in this community, I'd like to ask you to put these foods into 3 piles based on how healthy they are: 1) most healthy, 2) moderately healthy, 3) less healthy. There is no right or wrong way; it is just your opinion.

Pile	Cards (one per square)					Explanation
1						
2						
3						

Potential follow-up questions

- Why did you separate the cards this way?
- What do you think makes a food healthy or unhealthy?

Question 5: Frequency of foods

Now I want you to re-sort these cards. To help me understand more about how often foods are eaten by adolescents in this community, I'd like to ask you to put these foods into 3 piles based on how often they are eaten: 1) eat them regularly, 2) eat them occasionally, 3) rarely or never eat them. There is no right or wrong way; it is just your opinion.

Pile	Cards (one per square)					Explanation
1						
2						
3						

Potential follow-up questions

- Why did you separate the cards this way?
- Are there any foods that you would like to eat more often? Which ones?

Question 6: Adequacy of foods

Now I want you to re-sort these cards. To help me understand more about which foods and drinks are acceptable/adequate for adolescents in this community, I'd like to ask you to put these foods and drinks into 2 piles based on if people your age: 1) can eat/drink, or 2) not supposed to eat/drink. There is no right or wrong way; it is just your opinion.

Pile	Cards (one per square)					Explanation
1						
2						

Potential follow-up questions

- Why did you separate the cards this way?
- Who say you can't eat/drink these?
- Are there any foods/drinks that you are not supposed to eat/drink yet you would like to do so? Which ones?

Annex 3c: Focus group discussion guide

Introduction

Thank you for giving us your time to speak with us today. The information we learn here will help us find ways to improve adolescents' nutrition and health in Timor-Leste. Adolescents are boys and girls between 10 to 19 years of age.

1- INTERVIEW CODE: (WFP to write)		2- FACILITATORS:	
3- DATE:		4- MUNICIPALITY:	
5- VILLAGE:	<input type="checkbox"/> Urban <input type="checkbox"/> Rural	6- SCHOOL NAME:	
7- NUMBER OF STUDENTS:		8- STUDENTS' AGE RANGE:	

Food

Let's now talk about what we have learnt from adolescents (aged 10-19) food preferences.

1. To begin with, can you each please tell me what was the favorite food you ate yesterday [ice-breaker].
2. Next, I'd like to ask you about FRUITS, as we have learnt that adolescents really like them. Tell us what type of fruits you ate last week, then discuss why do you think eating fruit is good.
 - Probe on seasonality: what types are available at different times of the year
 - Probe on benefits: body appearance and skin glow/health
 - Probe on where fruits are sourced from, where they eat fruits (at home or school, as a snack or part of a meal) and barriers to consume these daily
3. Can you tell us about BREAKFAST, as we have learnt that sometimes students skip eating it as they wake up late to school. Discuss how do you feel at school if you don't eat it, and what solutions can be found to make sure students eat breakfast every day.
 - Probe on consequences of skipping breakfast: difficult to focus in school, feeling tired
 - Probe on other reasons to skip breakfast (more variety of foods to buy at school, don't have to share with family members)
 - Probe on what can be done to make sure students eat breakfast before class
4. Now, let's talk about SNACKS (food that is not breakfast, lunch or dinner), we have learnt that fried foods, biscuits and fruits are preferred. Are these your favourite too?
 - Probe on if the following local snacks are available and liked:
 - Boiled banana with chili, coconuts, boiled eggs, mung beans with milk, sliced fruits (papaya, oranges, mango), fried tempeh or tofu
 - Probe on why they like these snacks: because of flavour, convenience (easy to carry), price
 - Probe on what can be done to promote more fruit consumption as a healthy snack
5. Finally, let's talk about DRINKS, as we have learnt that fruit juices (Ale-Ale, Dellos, guava juice) are adolescents' favourite.
 - Probe on less sugary alternatives (natural fruit juice and its availability), cut up fruits
 - Probe on price difference with carbonated soft drinks – is price the reason for choice?

Physical activity (5 min)

Let's now talk about physical activity and sports among adolescent students.

6. We have learnt that many adolescents like playing football and volleyball. How often do you play SPORTS?
 - Probe on where and how games happen: at school, outside, self-organised, with a coach
 - Probe on boys' and girls' participation, and differences between age groups
 - Probe on what can be done to encourage playing these games more often

Aspirations for the future – drawing exercise (30 min)

Give a piece of paper to each and crayons to share.

7. Now we want you to think about the future and imagine what would you like to be doing when you are an adult, what type of work, where would you live, what type of family you'd like. Please draw what do you see!

- Probe on drawing them in their future job/daily activity
- Probe on drawing their future family and house environment
- Ask them to explain the final drawing to the group

Role play – gender roles related to protein consumption (30 min)

8. Let’s now play out the following situation. Your father comes back home with one wild chicken that he has bought/hunted, in your home there are 8-10 people. Now act what will happen
- Characters: grandfather, grandmother, father, mother, older sister, older brother, (and maybe) younger sister, uncle, younger brother, auntie
 - Probe on who plucks the chickens, who cooks and with what other foods, who eats what and in what order, who eats what parts, who washes the dishes

Scenarios (25 min)

We will discuss now different situations/scenarios and you can all discuss what would you do. There is no right or wrong answer!

9. Imagine that you start feeling tired all the time, your face is pale and have no energy. Then suddenly on your way to school you faint. You tell your friend and she tells you to drink water. The following week, you faint again. What would you do? Discuss as a group
- Probe on how worried would them be on having these symptoms
 - Probe on who would they tell, or if they would not tell anyone (boys)
 - Probe on whether they would go to the clinic/traditional healer, if so accompanied by who
 - Who makes the decision to go to a health expert (clinic or traditional healer)
10. Now, imagine that you are eating dried noodles on the way back from school and that your grandmother sees you. What would she say? Discuss as a group
- Probe on if she would discourage eating noodles and why
 - What types of food she would favor you eating and why?
 - Would she say something different if you were close to a bunch of ripe bananas?
 - Probe on what type of advice your grandmother gives you regarding good and bad foods to eat
11. Then, imagine that there is a program that wants to share information to young people of your age about how to keep a healthy body, how to grow strong and smart. Where and how would you like to listen to this information? Discuss as a group
- Probe on platforms: school health promotion, at the doctor (but this means only accessing when sick!), Facebook, youth center, Lafaek, TV, radio...
 - Probe on what type of materials: magazine, radio PSA, poster, booklet, SMS, TV add,
 - Probe on other ideas to get information on health topics

School food environment (15 min)

We are almost finished. Now for the last section, we would like to learn about the food available for purchase close to your school.

12. Now let’s walk together to the nearest food outlet/s and you can explain us what foods you like, how often and when do you eat them...
- If closed, they can explain only
 - Take photo of food range in each outlet and any relevant publicity/add close to school

Food outlet type: _____ Distance from school: _____

Food item	Price	How often	Time of the day

** Allow plenty of rows to write food information and the possibility to visit more than one food outlet if time permits*



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TOMAK
To'os ba Moris Di'ak