

## Coping strategies for food insecurity among adolescent girls during the lean season in East Nusa Tenggara, Indonesia: a qualitative study

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### Abstract

One in eight people suffer from chronic hunger, leading to an insecure food situation. Chronic hunger mostly occurs in developing countries and includes adolescent girls. Our qualitative study, with data collected in December 2012, provided the results of an exploration of the experiences and strategies implemented by fifteen adolescent girls who tried to cope with their condition of living in food-insecure families. The age of the girls ranged from 10 to 19 years. Their coping strategies were grouped into self-initiated and parent-initiated strategies. Self-initiated coping strategies that were the girls' own initiatives included eating only rice without any vegetables or side dish, eating less-desirable food, reducing portion size, skipping meals, saving pocket money and earning money to buy food. The parent-initiated coping strategies that were initiated by the parents and followed by the girls included selling their own field produce and livestock, asking for food, borrowing food and storing maize for 6 months up to 1 year. These results show that adolescent girls living in food-insecure areas implement several coping strategies in severe conditions, which parents may not be aware of, and such conditions may compromise their growth and health. The acknowledgement of such coping strategies and the girls' food insecurity condition can lead to a useful and suitable food insecurity alleviation programme for the girls and their families.

**Key words:** Adolescent girls: Qualitative studies: Coping strategies: Food security: Indonesia

Food security has always been an important issue because everyone needs food to sustain his/her life and to have a good nutritional status<sup>(1,2)</sup>. Vulnerable people are those who are affected the most by the four issues of food security, which are considered to be the rights of individuals and households – namely, food availability, accessibility, stability and utilisation<sup>(3)</sup>. Approximately 870 million, one in eight people in the world, are defined as food-insecure people, suffering from chronic hunger<sup>(4)</sup>. Most of them live in developing countries, and half of those populations live in Asia, including Indonesia<sup>(4–6)</sup>.

The negative consequences of food insecurity affect all age groups, including adolescents<sup>(7)</sup>. Adolescence represents a period of opportunity for preparing for a healthy adulthood. However, there is limited understanding about adolescent problems, particularly about how adolescents cope with food-insecurity issues<sup>(8)</sup>. Food insecurity among adolescent girls has been found to be associated with nutrition inadequacy, and food-insecure adolescent girls tend to have poor dietary intake<sup>(9,10)</sup>. In addition, adolescent girls classified as food-insecure individuals have poor health, emotional and

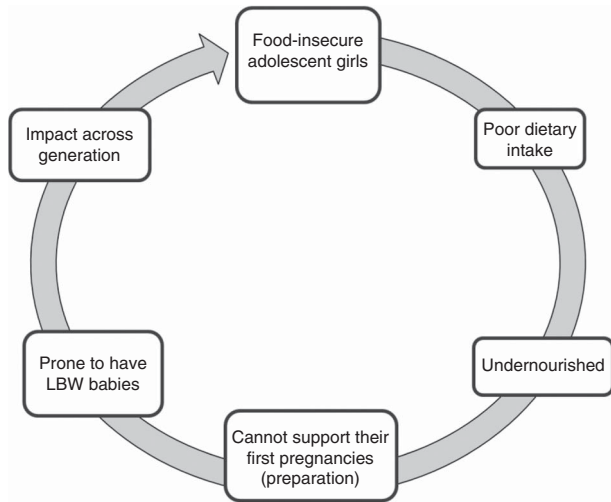
behavioural problems as well as lower academic performances compared with their food-secure peers<sup>(7)</sup>.

Adolescent girls' problems of food insecurity have had great consequences on their health statuses across generations<sup>(11)</sup>, as presented in Fig. 1. If the nutritional requirements of adolescent girls are not met, these girls are more likely to become undernourished, and because of poor dietary intake and unmet nutritional requirements during pregnancies they are prone to have low birth weight babies<sup>(11,12)</sup>. Undernourished adolescent girls who give birth to low birth weight babies can impact the next generation<sup>(11)</sup>. Low birth weight babies are more prevalent in adolescent pregnancies, with about two-fold increased risk of preterm births and low birth weight infants compared with adult women<sup>(13)</sup>. There was a higher rate of anaemia in pregnant adolescents that may have been caused by poor nutrition<sup>(14)</sup>. In addition, undernourished adolescent girls were most likely to have puberty delays and small pelvises associated with complications during the reproductive or childbearing age<sup>(10)</sup>.

Studies carried out thus far on how adolescent girls coped with limited food availability mainly focused on understanding

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**Fig. 1.** Negative consequences of food-insecure adolescent girls<sup>(9,10)</sup>. LBW, low birth weight.

the experience from the parents' perspective, especially from the most responsible person in managing the household food – the mother – but did not necessarily focus on the girls' perspective<sup>(15–17)</sup>. Furthermore, studies have found that adolescent girls used different food-saving strategies compared with their parents, such as eating less and eating away from home. Reliance on parental reports became a barrier to accurately measuring the adolescents' experiences on coping strategies because it happened at the individual level<sup>(16)</sup>.

Despite previous research on adolescent girls' experiences with food insecurity, very few studies have captured the coping strategies of adolescent girls in food-insecure settings<sup>(18,19)</sup>. Different types of coping strategies are used as markers to assess the severity of the conditions<sup>(12)</sup>. This study aims to assess the coping strategies of adolescent girls during the lean season in East Nusa Tenggara, Indonesia, through a qualitative approach. A previous study has stated that as the food-insecure status in a household becomes more severe, more coping strategies are adopted by its household members<sup>(20)</sup>. Identifying the coping strategies of adolescent girls during the lean season when they have limited amount of food will provide a better understanding of the severity of their condition and may assist in developing appropriate and effective programmes addressed for adolescent girls.

## Methods

### Data collection

This study was part of the Baseline Study of the Rapid Action on Nutrition and Agriculture Initiative (RANTAI) Project that assessed household food security and homestead food production in Timor Tengah Selatan District, East Nusa Tenggara Province, and was conducted in December 2012 in thirteen villages of Timor Tengah Selatan District, East Nusa Tenggara Province. The informants were adolescent girls aged between 10 and 19 years who had no difficulties in communicating and who understood *Bahasa Indonesia*, the national language. In-depth interviews were conducted at their homes or schools. The in-depth interview guidelines

**Table 1.** In-depth interview guidelines

<p>Your typical/usual eating pattern (seasonal food, seasonal period)          Kinds of food available in your home in the last 3 months          Whether happy or not with the food available at home          Kind of food that is available in the market that you really want          Run out of food before the end of the month          Did it make any difference in your life? How?          Are there any ways that you could try to help your family?          The ways that your family gets food          Who is the most responsible person for household food allocation and food management?          Does your family have difficulty in providing food?          How do you and your family manage that lack of food?          In your opinion, is your food enough for you? Why?          Have you felt a lack of food at home in the last 3 months (lean season period)?          How did you handle it?          Do you ever get food from another source that your family cannot access or the other way around?          Can you tell me about a time when you had to do something if they didn't have food?</p>
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were developed based on a pre-survey in the study area and were pre-tested twice in two villages that were not included in the study but were located in the same district and had the same characteristics as the study area. The in-depth interview guidelines were then revised based on the results of the pre-testing. All the in-depth interviews were recorded with the consent of the informants. The in-depth interview guidelines are presented in Table 1.

A total of twenty girls participated in the study, which included five girls who could not complete the interviews due to difficulties in answering the questions, a language barrier (different dialect of *Bahasa Indonesia*) or having to work in the fields. Thus, the analysis was completed including fifteen adolescent girls.

The mothers of the participants were approached to be involved in this study. Mothers of the adolescent girls were also provided with an explanation of the study purposes and were asked about their time availability for in-depth interviews. However, only five mothers were available to be interviewed during the data collection period. The time availability of the mothers was an obstacle for participation, because the interviews were conducted during the planting season. Thus, the mothers were occupied with field work, and the fields were far away from their houses ( $\pm 3\text{--}5$  km). The data collection period was in December, which is typically the rainy season. However, as it rained only once or twice during the month, the lean season in East Nusa Tenggara lasted for over 9 months that year, starting from April.

The girls and their mothers were from a homogeneous population with similar socio-economic characteristics. Adolescent girls and their mothers were interviewed separately. Interviews with the mothers were conducted after the interview with the adolescent girls. Interviews were conducted at their homes, in the field or in their front yards. The interviews were conducted by one interviewer and one translator (as the mothers could only speak the local language) and lasted for approximately 1.5 h.

### Data analysis

The recorded in-depth interviews were transcribed verbatim. Analysis of the transcripts was divided into three steps: coding

process, data display and conclusion drawing or verification. The coding was compared between interviews, and categories and themes were created based on the results of the coding process<sup>(21)</sup>. The themes were then presented as the results of the interviews.

The application for ethics approval for this study was submitted to the ethics committee of Faculty of Medicine Universitas, Indonesia, and was reviewed as not requiring ethical clearance from the Faculty of Medicine Universitas, Indonesia. An application for ethics approval to the ethics committee of social and behavioural studies was not submitted because of unavailability of such a committee in Indonesia. However, the findings of the study complement the insights of the RANTAI project because it uses the same study areas and target beneficiaries. The RANTAI project obtained ethics approval from the Medical Faculty, Universitas Indonesia. The informants were informed about the purpose of the study, their rights and the confidentiality of the data being collected, and informed consent was obtained before the interviews.

## Results

### *Characteristics of the adolescent girls*

In all, fifteen girls completed the interviews conducted in this study. A majority of them were currently attending schools; two girls dropped out of school and discontinued their education. Nine girls were the eldest children of their respective families and one girl was the youngest child of her family. All their fathers were farmers who owned land. More than half of the girls lived in a household with an extended family. A majority of the girls lived in houses with a soil floor ( $n$  14), and one girl lived in a house with cemented floor. Most of the girls lived in houses with tin roofs ( $n$  14), and one girl lived in a house with the roof made up of dried leaves. The majority of girls helped their mothers with chores such as dishwashing, laundry and cleaning as well as helped their families in their fields.

### *Perception of the family's food security status*

The interview captured the girls' general experience in the dry period. All the girls stated that they frequently experienced hunger, especially during the lean season. The dry season occurs mainly between October and November every year. The dry season affects their food availability because they rely on their own food, produced in their fields and in their home yards: 'Yes, I cannot eat because we do not have food at home... it frequently happens between October and November... mostly in October, we do not have enough food. Our field is dry' (13-year-old firstborn girl, with two sisters below 5 years of age).

The girls felt disappointed, sad and anxious when they did not have enough food at home: '... I felt upset knowing that we didn't have enough food to eat... I cried... because I was hungry' (10-year-old girl living in a mountainous village).

'Yes... I felt hungry. I slept in hunger. I feel so sad... because I don't have food to eat. My mother didn't know. I kept it for myself' (15-year-old girl living in a difficult-to-reach village).

One girl shared that she got anxious about becoming hungry. She also described that she felt the same way almost every day because she did not have enough food to share with other family members. She had to find food in the fields: 'I am worried that I would get hungry because we didn't have enough food to eat... However, I didn't tell anyone about how I felt...' (10-year-old girl living in a mountainous village).

'... I get a bit mad. I don't want to talk to my mother. She would be concerned why I didn't talk to her and kept silent. Sometimes I get so disappointed when my mother told me that we don't have rice and money to buy rice, so we can only eat what we have, maize it is... I cannot say anything to my mother... I am only worried if someday we don't have food at all. It is my younger siblings that I am worried about, I can stay hungry for a while, but they cannot' (17-year-old girl with two younger siblings).

Some girls stated that they had experienced a time when there was not enough food for all family members. The experiences were considered for having a limitation both in quantity and quality of foods. In terms of a limited quantity of food, they shared that when they did not have enough rice to eat, they would reduce their food portion: 'Not yet full... I was still hungry... We didn't have enough rice, we didn't have enough money... We could not afford it... so we ate less' (12-year-old girl living in a mountainous village). With regard to food quality, the girls said that they also did not have enough variety of food. They ate the same foods almost every day. Their dietary diversity was limited: 'I felt so sad... I ate the same food everyday... I didn't like the food... Only rice or maize with Chinese cabbage. I preferred fish, but my mother rarely cooked it' (13-year-old firstborn girl, with two sisters below 5 years of age).

Their difficulties related to not having enough food during the dry season led them to develop coping strategies. The girls tried to find ways to obtain food either from the fields or from their home yards if they had limited amounts of food. A field was defined as a farming land far away from home. Mainly, they planted crops of maize, cassava, papaya, banana, vegetables and others crops for their own use. Meanwhile, the home yard was defined as farming land located in the vicinity of their home, mainly with crops of maize, cassava and papaya.

### *Emerging themes*

There were two themes that emerged from the experiences of these adolescent girls with their coping strategies – namely, self-initiated coping strategies and parent-initiated coping strategies – as presented in Table 2.

#### *Self-initiated coping strategies implemented at the individual level*

Self-initiated coping strategies were defined as the girls' own initiatives to cope during their difficulties. These strategies ranged from less severe – when maize was still available but rice was not available – to severe – when there was no food available at their houses. The girls coped by (1) eating





**Table 2.** Coping strategies implemented during the lean season

Themes	Coping strategies	Condition
Self-initiated coping strategies (individual level)	Eating less-desirable food Saving pocket money Reducing portion size Eating rice only without vegetables or side dish Earning money to buy food Skipping one or two meal Storing maize for 6 months up to 1 year Selling their own field produce and livestock Asking for food Borrowing food	Maize was available and rice was not available Maize was available and rice was not available Food was limited but still available Rice was available and vegetables/side dishes were not available Food was limited and the girls worried if they could not afford to buy food Food was over Staple food (maize) was still available Food was limited Food was not available Food was not available
Parent-initiated coping strategies (household level)		

less-desirable food, (2) saving pocket money, (3) reducing their portion sizes, (4) eating rice only, without any vegetables or side dish, (5) earning money to buy food and (6) skipping meals. These coping mechanisms were not acknowledged by their parents as mothers did not seem to be aware of their daughters' efforts to cope with the situation and thought what the girls did was something usual. However, they were aware that their daughters did not have enough food. One of the mothers said 'It is not enough for us... We don't have anything. I knew that she was hungry... But we don't have anything to eat' (mother aged 42 years with three children).

*Eating less-desirable food.* While maize was still available at their homes, the girls would consume maize as their staple food. The girls explained that they would eat the food available at home even though it was not the food that they desired: 'I didn't want to eat maize, I want rice... I got a stomach-ache after eating maize. But when my mom could only afford to cook maize at home... I just forced myself to eat it. I ate whatever food was available at home' (14-year-old school girl who lived in a mountainous village and frequently ate at her relative's house).

A girl tried to ask her mother about the kind of food that they usually eat, but the mother could not provide any other food: 'Sometimes I asked my mother why we only eat this kind of food. She said that she could not do anything... We only could find and eat cassava in our field' (17-year-old girl with two younger siblings).

One girl shared that she would like to replace the available food with another food item but she could not: 'I felt so sad... I would like to replace that Chinese cabbage with noodles but my mother said that she didn't have money, we could not buy it, I cried...' (13-year-old firstborn girl, with two sisters below 5 years of age).

*Saving pocket money.* It was very rare among the girls to have pocket money. There was only one girl who mentioned that she had one, and she shared her experience on saving the pocket money. She saved her pocket money (IDR 1000–2000/d) to buy some food for her family: 'I took my money from my deposit to buy maize. I did it by myself purposefully. I felt so happy because all the family members could eat' (12-year-old firstborn girl with two siblings).

*Reducing portion size.* When the availability of food was limited, the girls reduced their daily meal portions '... from two plates (of rice) become one plate. Well, I am not yet full of course but we don't have enough food' (12-year-old girl living in a mountainous village).

*Eating rice only, without vegetables or side dish.* The girls said that having rice only (without vegetables or a side dish) at home was enough for them and they frequently ate that way. They usually used salt and warm water to increase the flavour; the warm water was used as soup: 'We only eat rice as usual. We don't have enough vegetables. Only eat rice with salt. We mixed the salt with water. We didn't have any food. All crops got dried' (17-year-old girl with two younger siblings).



When they had rice only, the girls felt uncomfortable because they did not like the taste: 'I only ate rice with raw chili. I really don't like the taste because only rice as it is tasteless. I only ate rice without anything. I felt so hungry, that's why I ate it. My Mom said that we didn't have vegetables anymore' (13-year-old firstborn girl, with two sisters below 5 years of age).

Sometimes they only had rice porridge without any dishes for breakfast: '... only porridge without anything for breakfast as usual' (16-year-old girl, who was the eighth child in the family).

**Earning money to buy food.** This strategy was developed because food was limited and the girls got worried when their families could not afford food. A girl reported that she tried to help her parents by working to earn money to buy food: 'I worked for the midwife. I collected water from the well for her to wash clothes and take a bath. Sometimes I got IDR 12,000. I gave it all to my mom' (13-year-old firstborn girl, with two sisters below 5 years of age).

**Skipping one or two meals at times.** The most severe situation that was faced by the girls was when the food was out. They had to skip meals. They did not have any food anymore: 'I could not eat any kind of food. I could not eat because... because the food was finished' (11-year-old girl living in a mountainous village and working in the paddy field to help her parents).

#### *Parent-initiated coping strategies implemented at the household level*

Parent-initiated coping strategies were strategies initiated by the parents that were followed by the girls to cope with their difficulties. Parent-initiated coping strategies included the following: (1) storing maize for up to a year, (2) selling their own field produce, (3) asking for food and (4) borrowing food.

**Storing maize for 6 months up to 1 year.** While maize as their main staple food was still available, they tried to store it. Maize was stored in their *rumah bulat* (a separate house i.e. used as their kitchen and storage room). The *rumah bulat* is built near their house, either in the back yard or beside the house. They stored maize usually for 6 months up to 1 year. They cooked in the *rumah bulat*, and maize was stored on the ceiling of the house: 'Oh, we have maize that is stored in *rumah bulat*. Here... beside this house. There is so much maize in the ceiling. We store it. That maize already there since the last year's harvest' (14-year-old girl living in a mountainous village).

A mother mentioned that because they store maize in the *rumah bulat* they never run out of maize 'We stored maize in the *rumah bulat*... We still had maize from the last harvest last year. We never ran out of maize' (53-year-old mother with five children).

**Selling their own field produce and livestock.** The availability of food at their houses was limited. Thus, the girls frequently helped their parents to sell their own field products to obtain other food items: 'When it was already ripe, we harvest it. Then,

I sold those rose/water apples at my school. I sold it in a plastic, ten or eight rose apples per plastic for IDR 1000. The money I got, I gave it to my mom for buying some rice' (13-year-old firstborn girl, with two sisters below 5 years of age).

Some adolescent girls also reported that they helped their parents by selling their livestock such as chickens. They sold the chickens in the traditional market. The money they got was given to their mother to buy food: 'I earned money in the (traditional) market... I brought the chicken and sold it there. Then, I could buy some food' (13-year-old girl).

**Asking for food.** When the availability of food was limited, the families tried to ask other relatives who had enough food to eat: 'We don't have enough food. My mother and father tried to ask our relatives who have cassava in their field' (15-year-old girl, youngest daughter).

They frequently tried to ask for food that was not available in their homes. They asked their closest relatives such as grandmothers, aunts and others: 'There was no other food in my home. I went to my grandmother's house to ask for rice... I frequently eat there because my grandmother always cooks rice' (15-year-old girl living in a difficult-to-reach village).

**Borrowing food.** This strategy was implemented at the household level when food availability was low. They also frequently borrowed rice from their neighbours. They did it because they did not have enough food: 'We don't have either rice or maize... Then... We don't have any food... my mom borrowed rice from our neighbour five times a week. Five times because there is no food at all that we can eat. It frequently happens during the lean and dry season in October' (13-year-old firstborn girl, with two sisters below 5 years of age).

In addition to borrowing rice from neighbours, some girls shared that their mothers sometimes borrowed oil, salt and other condiments from their close neighbours. It happened because they did not have any more supplies: 'My mom borrowed oil, salt and onions from the neighbour because we don't have supplies anymore' (18-year-old girl, youngest daughter among eight siblings).

## Discussion

Coping strategies that were implemented by the girls in this study were divided into two natural action themes – namely, self-initiated and parent-initiated. Self-initiative meant that the girls had to act or implement a strategy to solve the problem or difficulties to improve their situation. The initiative was a purposeful action. Thus, the girls consciously used these strategies to cope with their food insecurity condition. Self-initiation indicated that the coping strategies originally came from the girls' side. In fact, none of their experiences with the coping strategies were acknowledged by their parents, as the interviewed mothers stated that their daughters were fine. These findings are consistent with previous studies, which have shown that mothers would not easily reveal the truth about their girls' experiences with how they struggled during their difficult times<sup>(16)</sup>. It became an obstacle to assess how much they coped



and what strategies should be implemented, because the mothers' perspectives differed from those of the girls. Generally, the girls themselves were in the best position to accurately report their own experiences with coping strategies<sup>(16,22)</sup>. If the girls consciously and purposefully coped by themselves, it means that they understood their difficult situation. However, in some studies, the adolescents' experiences with limited amounts of food was primarily drawn from mothers' reports to understand the experiences from the household level<sup>(16,22)</sup>. Meanwhile, parents' coping strategies meant that the initiative came from the parents who should provide food for their families. These coping strategies were mostly household-based coping strategies that applied for other family members too, not only the girls.

The girls' coping strategies, which were not fully acknowledged by their parents, showed that the girls' food insecurity condition may be regarded as a usual situation and this may have an adverse impact on their growth and development. The present study suggests that the coping strategies initiated by the girls involved eating less-desired foods, such as staple foods without any side dish, reducing portions and skipping meals, which showed the inadequate quality and quantity of foods consumed. In addition, the girls seemed to have lack of knowledge on the importance of dietary diversity on their health, as none of the girls mentioned about the need to have a variety of food in their diet. However, dietary diversity is required for adolescent girls' growth and development<sup>(11)</sup>, and adolescent girls who have a poor-quality diet tend to have poor health as well poor academic performances<sup>(7)</sup>.

Previous research has shown that a poor-quality diet is associated with food-insecure households<sup>(23–25)</sup>, and lack of food diversity was related to food insecurity and coping strategies. Coping strategies were implemented to minimise the impact of food insecurity<sup>(24)</sup>. Coping strategies are an indicator of food security and they differed from one person to another<sup>(24)</sup>. A study on managing household coping strategies revealed that consuming the limited variety of food available at home could indicate the severity of the coping strategies. The present study requested the mothers to rate the coping strategies that were implemented and related them to food insecurity<sup>(18)</sup>. In the present study, the girls were not asked to mention the severity of the coping strategies, yet they were requested to report the reason behind those coping strategies, and the severity of food insecurity was deduced from the type of coping strategies they implemented. The reasons for the prevalence of food insecurity and the coping strategies that the girls implemented in the study area were long drought and limited water sources for the household crops. This situation was similar to a case in Mozambique and Bangladesh<sup>(26,27)</sup>, where food insecurity among poor farming households was associated with food consumption and availability during the drought season as they depended on rainfall for irrigation of their fields. The severity of food insecurity prevalent in the study area is shown in the present study, for which several girls tried to reduce their food portion when food was limited so that the food was enough for all the family members. Other girls skipped their meals because there was no available food in their homes, which showed a more severe food insecurity

condition. Reducing portion size was related to quite severe coping strategies<sup>(18,24)</sup>. Nevertheless, skipping meals the entire day led to the girls experiencing hunger as a result of very severe coping strategies<sup>(18)</sup>.

The girls shared that they could not do anything to avoid hunger, not because they were lazy and helpless, but because there were no resources in their environment that could provide them with food. Their parents also tried to find food for them, which is consistent with the findings from other studies that showed that parents would not let their children become hungry<sup>(16,22)</sup>. To maintain their food stability, a majority of the households had food storage systems where they stored food from their own harvests. Maize was the food they stored the most. They hung the maize kernels from the ceiling of the *rumab bulat* to dry and preserve them. They usually used the maize for the next year after harvest. This was one of the coping strategies to cope with food shortage during the lean season<sup>(27)</sup>. However, this strategy did not seem to be adequate as the girls and other family members need to consume other type of foods beside staple foods to maintain a good nutritional status.

In conclusion, the girls who have difficulties consuming an adequate amount of food had to implement some coping strategies. Their coping strategies were not acknowledged by their parents, and these situations warrant attention as the parents thought that their girls were fine when, in fact, they were not. These coping strategies might negatively contribute to their growth and health, as the girls who had a limited and non-varied daily diet may become undernourished, and due to incomplete growth of their bodies and inadequate nutrition before their first pregnancies, these girls may give birth to malnourished and low birth weight babies. The mothers, the family members and the communities should understand the girls' condition. Understanding this situation may be useful for planning better targeted food insecurity alleviation programmes, especially involving vulnerable groups such as adolescent girls, to reduce the number of food-insecure adolescent girls as well as food-insecure households and to create a healthier future generation. Knowledge on how to cope with 'proper' strategies, such as cultivating or planting activities and working with the community to build a pond to store water for their fields during the lean season, would affect their future condition and be of value to them. Accurately identifying and assessing the experience of food security in adolescent girls was essential for the development and implementation of effective programmes to solve problems related to food insecurity, poor dietary intake and low nutritional status as a step towards preparing for a healthy adulthood and childbearing age period<sup>(11,28,29)</sup>.

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D. F., A. R. and J. F. contributed to developing the proposal, methods and in-depth interview guidelines. D. F. conducted the in-depth interviews and carried out data analysis, supervised by A. R. and J. F. All the authors were involved in interpretation of the results and contributed to revising the final version of the manuscript.

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