

Household Nutrition and Food Security in Obukpa Rural Community of Enugu State, Nigeria

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ABSTRACT

Introduction: Food and nutrition security remains a fundamental challenge for human welfare, economic growth, and a healthy life. This study investigated household nutrition and food security in a rural community of the Nsukka Local Government Area (LGA) of Enugu State, Nigeria. **Methods:** The Obukpa rural community was randomly selected from among three rural communities in the Nsukka LGA. Convenience sampling was used to select 263 respondents. A structured validated questionnaire was used to elicit household background information. Nutrition security was determined based on anthropometric indicators. Food security was assessed using the Food Security Survey Module (FSSM). Data were analysed using SPSS version 18. **Results:** About 43.1% practised subsistence farming, 26.9% depended on borrowing food items to cope with nutritional and food security challenges. Few (6.5%) were food secure, 52.7% food insecure without hunger, 30.4% food secure with moderate hunger, and 10.4% food insecure with severe hunger. In terms of women's weight, 41.2% of them had normal weight, 39.6% were overweight and 18.5% were obese. Among the children, there was a high prevalence of wasting (52.2%) stunting (45.9%), underweight (55%) and overweight (48.3%). Nutrition and food insecurity significantly correlated with middle upper arm circumference (MUAC) (0.634, $p < 0.01$), weight for age (0.933, $p < 0.01$), height for age (0.939, $p < 0.01$), BMI for age (0.804, $p < 0.01$), weight for l/h (0.784, $p < 0.01$) for children under 5 years. **Conclusion:** In the Obukpa rural community, the level of household food insecurity was high, the majority of the children were wasted, stunted, underweight or overweight. Appropriate nutrition interventions are needed to address the high prevalence of malnutrition of mothers and children.

Key words: Community, food security, household, nutrition, rural

INTRODUCTION

The world faces a fundamental challenge to ensure that millions of households living in poverty have access to enough food to maintain a healthy life (Studdert, Frongillo & Valois, 2006). The Food and Agriculture Organisation of the United Nations (FAO) (2012) refers to food security as a household's or country's ability to provide future physical and economic access to sufficient, safe and nutritious food that fulfils the dietary needs and food preferences for living an active and healthy lifestyle. Food security is a situation that

exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (United States Department of Agriculture [USDA], 2008; FAO/International Fund for Agriculture Development [IFAD]/World Food Programme [WFP], 2015). Based on this definition, there are four food security dimensions, namely: food availability, economic and physical access to food, food utilisation, and stability over time (FAO/IFAD/WFP, 2015).

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Nutrition security is a situation that exists when secure access to an appropriately nutritious diet is coupled with a sanitary environment, adequate health services and care, in order to ensure a healthy and active life for all household members (FAO/IFAD/WFP, 2015). Nutrition security differs from food security in that it also considers aspects of adequate caring practices, health, and hygiene in addition to dietary adequacy (FAO/IFAD/WFP, 2015). Household food security is the ability of the household to secure enough food to provide for all the nutrient requirements of all members of the household (Ijarotimi & Oyeneyin, 2005). Nutrition and food insecurity have been reported to be associated with various forms of malnutrition-related issues, including problems of chronic and seasonal food shortage, lack of dietary diversity, inadequate family care and poor living conditions, and distribution problems (FAO, 2008).

The Obukpa rural community of the Nsukka Local Government Area (LGA) is not exempted from the problems of malnutrition and food insecurity which affect rural communities generally. Thus this study was undertaken to identify the level of nutrition and food security among the Obukpa rural households

METHODS

This study was carried out in the Obukpa rural community of the Nsukka LGA of Enugu state of Nigeria using a cross-sectional survey design. The estimated population of the area was 17,375 consisting of 9421 females and 7954 males (National Population Commission [NPC], 2001). The climatic conditions include high rainfall, moderate temperature, and humidity that fluctuates between the two major seasons in Nigeria. The community comprises predominantly peasant farmers, petty traders, and university staff. The main staple foods are cassava, maize, cocoyam, pigeon pea, bambara groundnut, sweet potatoes, and akidi (a type of cowpea). Fruits and vegetables are also widely grown. These food types are prepared into

several local meals in accordance with their cultural norms.

Sample size

The sample size was determined using the percentage of women of child bearing age of the total population of 17,357 (NPC, 2001), about 48%. The sample size was then calculated using the formula proposed by Centre for Disease Control (CDC) 2001) as shown below:

$$N = P(1 - P) \times \left(\frac{Z_{\alpha}}{d}\right)^2,$$

P = Proportion of interest

d = Distance (or tolerance level) or how close to the proportion of interest the estimate is desired to be, which is within 0.03941 for this study

Z_{α} = Probability of making an error under the one-sided comparison table.

Z_{α} = 1.28 (Constant)

N = Sample size

Total population = 17,375

Women of childbearing age = 48% of 17,375 = 8,340

$$P = \left(\frac{8340}{17375}\right) = 0,48$$

Z_{α} = 1.28

d = 0.03941

$$N = 0.48 \times (1 - 0.48) \times \left(\frac{1.28}{0.03941}\right)^2$$

$$= 0.48 \times 0.52 \times 1054.95 = 263$$

Thus, a total of 263 respondents were selected for the study.

Data collection

A preliminary visit was made to the Obukpa community to meet the village heads not only to seek their permission to use their subjects for the study but also to encourage their subjects to participate. Another visit was also made to enable the researcher to become familiar with the community and to build rapport and confidence with them. Most of the women and their children were met at a four-day

gathering of women usually known as Obukpa Women for Women International (OWWI). A considerable number of women were met at the Obukpa Health Centre which is a branch of the University Teaching Hospital, Enugu during their immunisation days and by house visitation for their informed consent and data collection. A randomisation technique (ballot) was used to select the Obukpa community among the three rural clans of the Nsukka and an accidental sampling technique was used to select each household for the study (Boxill, Chamber, & Wint, 1997). Only women of reproductive age as well as their children who were under 5 years of age were included in the sample. Questionnaires were administered to 263 households. Only 260 respondents completed the questionnaire and they collectively had 87 children under 5 years of age.

Instruments

Structured validated questionnaires were used to elicit information on personal and socio-economic data, the availability of food, feeding pattern, and other details. Food security status was determined using a module adapted from the United States Food Security Survey Module (FSSM) 2002). Nutrition security was assessed by anthropometric measurements taken using a bathroom weighing scale, baby weighing scale, length board, locally constructed metre bar (used to measure the height of the mothers and that of the children aged between 2 and 5 years old), and a non-stretchable fibre measuring tape. All measurements were taken using standard methods described by the World Health Organisation (WHO, (1995). A (Hana) bathroom scale of 120 kg capacity was used to weigh mothers/women of child-bearing age. For children under 5 years and those under 2 years of age who could stand, a baby weighing balance rated to 20 kg, was used to measure their weight. The measurements were taken to the nearest 0.1 kg. Height was measured using a locally constructed metre bar and a recumbent length board respectively. The measurements were taken to the nearest 0.1 cm. The middle upper arm circumference

(MUAC) of the children and women were measured using a shakers strip and a non-stretchable fibre tape, respectively as described by (CDC & WFP, 2005). This was done by locating the midpoint between the elbow and the shoulder when the forearm and upper are at a right angle. The measuring strip and tape were pulled just snug around the arm without compressing the tissue and the circumference was recorded to the nearest 0.1 cm.

Data analysis

The anthropometric data obtained for the children were analysed with the WHO Anthro (2005) Software. Children were classified by their weight into three categories, namely, wasting (weight-for-height), underweight (weight-for-age), stunting (height-for-age) and MUAC while that of the women were compared with standards. Body Mass Index(BMI) was compared with the report of the WHO consultation on obesity(WHO, 1998). MUAC was compared with the standards as recorded (WHO,2004). Households were classified as being food-secure and food-insecure using the FSSM(2002). All households that expressed some level of food insecurity ranging from "food insecure without hunger" to "food insecure with severe hunger" were grouped as being food insecure, and the responses were further classified as being negative or affirmative.

Statistical analysis

Data obtained were analysed using SPSS version 18.0. Descriptive Statistics (mean, frequencies and percentages) were used to analyse the socio-economic and demographic variables, as well as factors that influenced food insecurity. Pearson's moment correlation was used to compare nutrition and food security status. Significance was judged at two levels, namely, $p < 0.05$ and $p < 0.01$.

RESULTS

The result of the socio-economic characteristics of the households (Table 1) shows that most (85%) of the women

Table 1. Demographic and socio-economic status of the respondents

| <i>Variables</i> | <i>Frequency</i> | <i>Percentage</i> |
|-----------------------|------------------|-------------------|
| Age | | |
| 20 -40 | 221 | 85.0 |
| 41 -60 | 39 | 15.0 |
| Total | 260 | 100.0 |
| Marital status | | |
| Single | 21 | 8.1 |
| Married | 197 | 75.8 |
| Divorce d/separated | 15 | 5.8 |
| Widowed | 27 | 10.4 |
| Total | 260 | 100.0 |
| Educational level | | |
| None | 5 | 1.9 |
| Primary | 60 | 23.1 |
| Secondary | 105 | 40.4 |
| Tertiary | 90 | 34.6 |
| Total | 260 | 100.0 |
| Religion | | |
| Christianity | 259 | 99.6 |
| Islam | 1 | .4 |
| Total | 260 | 100.0 |
| Occupation | | |
| Farming | 51 | 19.6 |
| Business | 126 | 48.5 |
| Civil servant | 76 | 29.2 |
| Others | 7 | 2.7 |
| Total | 260 | 100.0 |
| Source of income | | |
| Salary | 82 | 31.5 |
| Pension | 2 | .8 |
| Trade | 165 | 63.5 |
| Others | 11 | 4.2 |
| Total | 260 | 100.0 |
| Family type | | |
| Monogamous | 214 | 83.2 |
| Polygamous | 44 | 16.9 |
| Total | 260 | 100.0 |
| Monthly income | | |
| Low | 152 | 58.5 |
| Middle | 100 | 38.5 |
| High | 8 | 3.1 |
| Total | 260 | 100.0 |
| Family size | | |
| 2 -4 | 87 | 33.5 |
| 5 -8 | 131 | 50.4 |
| Above 8 | 41 | 15.8 |
| Total | 260 | 100.0 |
| Children <5-years old | | |
| Males | 34 | 30.1 |
| Females | 53 | 60.9 |
| Total | 87 | 100.0 |

Table 2. Food security status of the respondents

| <i>Variables</i> | <i>Frequency</i> | <i>Percentage</i> |
|----------------------------------|------------------|-------------------|
| Food secure | 17 | 6.5 |
| Food insecure without hunger | 137 | 52.7 |
| Food secure with moderate hunger | 79 | 30.4 |
| Food insecure with severe hunger | 27 | 10.4 |
| Total | 260 | 100.0 |

| | |
|------------------------------------|----------------------------|
| Food security | = < 3 positive responses |
| Food security without hunger | = 3 - 4 positive responses |
| Food security with moderate hunger | = 5 - 6 positive responses |
| Food security with severe hunger | = > 7 positive responses |

were within the age range of 20 to 40 years old. The majority (75.8%) were married. More than 97% had one form of education or another. About 39.6% were traders, 29.2% were civil servants, and 19.6% were farmers. In terms of employment, 63.5% derived their income from trading, whilst 31.5% were salaried workers. Most were monogamous. The majority lived in their own residence with only 36.9% living in rented premises. Most of the respondents (58.5%) earned below ₦18,000.00 per month (low income category) while (38.5%) earned between ₦19,000.00 to ₦50,000.00 (middle)(USD 95 to USD 251). Family size was mainly from 5 to 8 persons.

The food security status (Table 2) revealed that only 17 households (6.5%) were food secure, with the rest being food insecure. Some 137 (52.7%) were food insecure without hunger. Seventy-nine (30.4%) were food insecure with moderate hunger. Twenty-seven (10.4%) were food insecure with severe hunger.

The feeding and food availability pattern of the respondents (Table 3) showed that most (55.8%) reported they have enough to eat but not always. Few (27.7%) have enough of the kind of food they want to eat while 16.5% reported that sometimes they do not have enough to eat. The majority (84.6%) cited a lack of money as the major reason for not having enough to eat. Most (50.4%) ate only once in a day. Only 26.5% reported feeding three times a day, whereas 14.6% had meals twice a day. The majority skipped at least one meal. About 60% ate vegetables only once in a

week, and 66.2% did not take fruits after meals. More than half of the respondents always considered cultural factors, while 19.6% always considered food availability, whereas 61.2% always considered cost in their choice of food. Various food crops were available (grown) in the households with cassava and its products topping the list. Some of the respondents reported having to spend between ₦3,000.00 to ₦15,000.00 a week on food. Strategies for coping with nutrition and food security included subsistence farming (46.9%) and borrowing (26.9%). The government appeared not to be assisting the people in coping with nutrition and food security challenges.

The nutrition security profile of children under 5 years of age and their mothers according to anthropometric indicators is shown in Table 4. The results revealed that more than half the children were wasted according to their weight-for-height/length. In terms of height-for-age 45.9% of the children were stunted. The weight-for-age also revealed that 61% of the children were underweight. In terms of MUAC, only about 12.6% were not malnourished, while the majority were moderately to severely malnourished,

In contrast, the majority of the mothers were overweight (39.6%) and obese (18.5%) respectively.

The relationship between food security and nutrition security status of the respondents is shown in Table 5. There were significant relationships between MUAC and weight for age ($r=0.933$,

Table 3. Feeding patterns and food availability of the respondents

| <i>Variables</i> | <i>Frequency</i> | <i>Percentage</i> | | |
|--|------------------|-------------------|------------|-----------|
| In the last three months | | | | |
| We have enough of and the kind of food we want to eat | 72 | 27.7 | | |
| We have enough to eat but not always | 145 | 55.8 | | |
| Sometimes we do not have enough to eat | 41 | 16.5 | | |
| Skipping of meals | | | | |
| Yes | 174 | 66.9 | | |
| No | 86 | 33.1 | | |
| Reasons for not having enough to eat | | | | |
| Not enough money for purchasing food | 220 | 84.6 | | |
| Too hard to get to the store | 25 | 9.6 | | |
| On diet | 6 | 2.3 | | |
| No available store | 7 | 2.7 | | |
| Not able to cook/eat due to health problems | 2 | .8 | | |
| Number of times food is eaten in a day | | | | |
| Once | 131 | 50.4 | | |
| Twice | 38 | 14.6 | | |
| Thrice | 69 | 26.5 | | |
| More than three times | 22 | 8.5 | | |
| Major food crops produced/consumed by the households | | | | |
| Yam | 47 | 18.1 | | |
| Cassava/garri | 151 | 50.1 | | |
| Maize | 30 | 11.5 | | |
| Fruits and vegetables | 16 | 6.2 | | |
| Others | 2 | .8 | | |
| Amount spent on food per week | | | | |
| Less than ₦ 2,000.00 | 48 | 18.5 | | |
| ₦ 3,000.00 – ₦ 15,000.00 | 119 | 45.8 | | |
| Above ₦ 15,000.00 | 93 | 35.8 | | |
| Coping strategies adopted for improving household food security | | | | |
| Subsistence farming | 122 | 46.9 | | |
| Borrowing | 70 | 26.9 | | |
| Loan | 48 | 18.5 | | |
| Government assistance | 8 | 3.1 | | |
| Others | 12 | 4.6 | | |
| Number of times vegetables are consumed weekly | | | | |
| Once | 156 | 60.0 | | |
| Twice | 63 | 24.2 | | |
| Thrice | 22 | 8.5 | | |
| Rarely | 19 | 7.3 | | |
| Intake of fruits after meals | | | | |
| Sometimes | 50 | 19.2 | | |
| Always | 12 | 4.6 | | |
| Rarely | 26 | 10.0 | | |
| Never | 172 | 66.2 | | |
| Reasons for choice of food | | | | |
| | Always | Sometimes | Rarely | Total |
| Cultural factors | 140 (53.8) | 91 (35.0) | 29 (11.2) | 260 (100) |
| Food availability | 51 (19.6) | 97 (37.3) | 112 (43.1) | 260 (100) |
| Cost of food | 159 (61.2) | 93 (35.8) | 8 (3.1) | 260 (100) |

Figures in parenthesis are percentages

Table 4. Nutrition security profile of children the under 5 years of age and their mothers

| Variables | Males (n = 34) | | Females (n = 53) | | Total (n = 87) | |
|---|-------------------|------|---------------------|------|-------------------|------|
| | Freq | % | Freq | % | Freq | % |
| Children(WHO, 2006) | | | | | | |
| Weight for ht/length | | | | | | |
| <-3SD = severely wasted | 6 | 17.6 | 22 | 41.5 | 28 | 32.2 |
| <-3SD & <-2SD = wasted | 8 | 23.5 | 12 | 22.6 | 20 | 23.0 |
| >-2SD = normal | 20 | 58.8 | 19 | 35.8 | 39 | 44.8 |
| Height for age | | | | | | |
| <-3SD = severely stunted | 8 | 23.5 | 9 | 16.9 | 17 | 19.5 |
| <-3SD & <-2SD= stunted | 2 | 8.8 | 21 | 39.6 | 23 | 26.4 |
| >-2SD = normal | 24 | 70.7 | 23 | 43.4 | 47 | 54.0 |
| Weight for age | | | | | | |
| <-3SD = severely underweight | 6 | 17.6 | 7 | 13.2 | 13 | 15.0 |
| <-3SD & <-2SD = underweight | 20 | 58.8 | 20 | 37.7 | 40 | 46.0 |
| >-2SD & <2SD= normal | 8 | 23.5 | 26 | 49.1 | 34 | 39.0 |
| MUAC for age | | | | | | |
| <110mm = severe malnutrition | 4 | 11.8 | 8 | 15.1 | 12 | 13.8 |
| >110 -120mm = moderate malnutrition | 12 | 35.3 | 17 | 32.1 | 29 | 33.4 |
| >120-125mm = serious risk of malnutrition | 9 | 26.5 | 15 | 28.3 | 24 | 27.6 |
| >125-135mm = moderate risk of malnutrition | 4 | 11.8 | 7 | 13.2 | 11 | 12.6 |
| >135mm = satisfactory nutrition | 5 | 14.7 | 6 | 11.3 | 11 | 12.6 |
| BMI for age | | | | | | |
| >3SD = obese | 5 | 14.7 | 11 | 20.8 | 16 | 18.4 |
| >2SD & <3SD= overweight | 10 | 29.4 | 16 | 30.2 | 26 | 29.9 |
| >1SD & <2SD= possible risk of overweight | 10 | 29.4 | 13 | 24.5 | 23 | 26.4 |
| <1SD = not at risk of overweight | 9 | 26.5 | 13 | 24.5 | 22 | 25.3 |
| BMI (kg/m²) for mothers(WHO,1998) | | | | | | |
| | Frequency | | Percentage | | | |
| <18.4 = underweight | 2 | | .8 | | | |
| 18.5 - 24.9 = normal | 107 | | 41.2 | | | |
| 25 29.9 = overweight | 103 | | 39.6 | | | |
| >30 = obese | 48 | | 18.5 | | | |
| Total | 260 | | 100 | | | |

$p < 0.01$), height for age ($r = 0.939$, $p < 0.01$), BMI for age ($r = 0.804$, $p < 0.01$), weight for length/height ($r = 0.784$, $p < 0.01$). There was also a significant correlation between food security and BMI of the women in the households ($r = 0.186$, $p < 0.01$). There was significant ($p < 0.01$) availability of food in the community.

DISCUSSION

Almost 100% of the respondents had some form of education that may have

contributed to their level of awareness of nutrition and food security. The location of University of Nigeria, Nsukka may have also influenced the educational attainment of the respondents and this was invariably expected to influence their level of nutrition and food security. This agrees with earlier reports that a person's educational level directly affects their economic capacity and sustenance for accessing food (Lee & Frongillo, 2001).

Table 5. Pearson moment correlation of relationship between food security status and anthropometric indicators of children under 5 years of age in the households

| | MUAC for age | Weight for age | Height for age | BMI for age | Weight for ht/ length | FSS |
|---|-----------------|-------------------|-------------------|----------------|-----------------------------|-----|
| MUAC for age | 1 | | | | | |
| Weight for age | .933** | 1 | | | | |
| Height for age | .939** | .888** | 1 | | | |
| BMI for age | .804** | .720** | .838** | 1 | | |
| Weight for ht/length | .785** | .745** | .688** | .634** | 1 | |
| FSS | .070 | .019 | .080 | .116 | .086 | 1 |
| FSS and anthropometrics of mothers | | | | | | |
| Variables | BMI | | MUAC | | | |
| BMI | 1 | | | | | |
| MUAC | .186** | | 1 | | | |
| FSS | .056 | | .070 | | | |
| Food availability and BMI of mothers | | | | | | |
| Variables | BMI | | Food availability | | | |
| BMI | 1 | | .171**(.006) | | | |
| Food availability | .171**(.006) | | 1 | | | |

** Correlation is significant at 0.01 level (2- tailed). Values in parenthesis are *p* values.

FSS = Food security status, BMI = Body mass index, MUAC = Middle upper arm circumference

The fact that few respondents were farmers with the majority being traders or civil servants might have affected food production. The WHO (2006) noted that a society that has less supply of agricultural produce could experience nutrition and food insecurity). The percentage that earned ≤N18,000.00 per month may have food and nutrition security affected. Income has been noted as one of the factors that affects household food security (WHO, 2006). More than 85% of the Nigerian population dwell in rural communities that are the hardest hit by problems of low per capita income and cultural factors which limit the quality of food they consume (Adekoye, 2009). The large family sizes reported may also create problems for adequate feeding and dietary intake. The larger the family size, the more the income needed to sustain nutrition and food needs of the family. Thus, family size directly affects economic capacity and sustainability of access to food (Oh & Hong, 2003).

Very few respondents were food secure, and more than 90% were food insecure (without hunger, with moderate hunger, and with severe hunger). Obayelu (2010) also found similar high levels of food insecurity. Respondents resorted to subsistence farming and borrowing as their major strategies to cope with food security problems. The skipping of meals reported in this study could be an explanation as to why some of the respondents were food insecure without being hungry. It had been reported that food insecure households managed to get enough to eat but may have meals of reduced quantity, variety or desirability (United States Agency for International Development [USAID], 2007).

It is noted that food availability in the households exist alongside food and nutrition insecurity as more than half of the respondents reported having enough to eat although not always. Food availability is necessary but not sufficient

in itself for food security (FAO, 2003). Foods consumed are mostly starchy and do not meet dietary requirements essential for healthy living (USDA, 2008). It is opined that different dimensions of food security require different approaches to successfully improve food security. For instance, making more carbohydrates available is unlikely to further improve overall food security, Measures should focus on the ability of poor people to access adequate diets, and on overall living conditions to prevent negative outcomes such as underweight, wasting, and stunting in children (FAO/IFAD/WFP, 2015).

The nutrition security profile of the children revealed there is wasting, stunting, underweight and different levels of malnutrition which could be due to the level of food insecurity in the study. Sebanjo *et al.* (2011) reported a similar finding. Badham & Sweet (2010) reported that high levels of stunting are associated with poor socio-economic conditions, and an increased risk of frequent, and early exposure to adverse conditions such as illness, infections, or inappropriate feeding practices. However, a household may be food secure but some household members especially children may still suffer from malnutrition due to poor intra-house food distribution (Cook & Frank, 2008). Malnutrition in children aged 5 years and younger affects their intellectual development leading to poor cognitive, social, and psychological development (United Nations High Commission for Refugees [UNHCR] & WFP, 2011). Food insecurity, and subsequently nutrition insecurity for young children is a serious issue because it is adversely associated not only with their current health and well-being, but also with their future health

Only a very small percentage of the women were underweight, with the rest being overweight, obese, or normal (based on BMI). It has been noted that food insecurity has an unexpected and paradoxical association with overweight status among women with a higher prevalence of overweight among the food insecure group (Townsend, Pearson

& Murphy, 2013). The prevalence of overweight among food insecure women may be related to involuntary and temporary food restrictions, since a period of abundant food supply may be followed by a week of scarcity when food selection is limited. When food supplies are restored, the food insecure families may over-eat highly palatable rich foods (Townsend *et al.*, 2013). Thus the cycle of over-eating following short periods of involuntary food restriction could be a pattern that results in gradual weight gain over time.

The lack of a significant relationship observed between all the anthropometric parameters of the children and household food security status could be because some of the respondents were food insecure without hunger. It could also be as noted by Azewedo, Inchauste & Sanfelice (2013) that spending by women typically involves more household investments in food and nutrition, health, sanitation, and education when contrasted with the case when resources are controlled by men). In this study, most respondents had low income. Furthermore, it is opined that for the problem of food and nutrition security to be resolved, certain fundamental strategies which create conditions that improve living standards and alleviate poverty in families must be put in place, such as improving social life (Kunapali, 2009).

CONCLUSION

Despite the significant availability of food in the study population, judging from the crops produced in households, and the report that they had enough to eat (though not always), there was still a high level of malnutrition and food insecurity. More than half of the respondents reported being food insecure, and only very few claimed to be food secure. The level of stunting, wasting, and underweight was found to be high in children while few women were found to be underweight. Thus there existed the double burden of malnutrition, i.e., under and over-nutrition in the same household even with a record of food availability.

The practice of subsistence farming should be greatly encouraged as this could help reduce the extent to which borrowing is used as a coping strategy. More women should participate in the labour force to combat the effects of economic barrier to food and nutrition security. Nutrition education centres should be possibly merged with health care centres so that proper information on dietary diversification and intra-household food distribution can be communicated more effectively.

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Conflict of Interest

This manuscript is an original work and has not been submitted for publication elsewhere. The authors have seen and approved the form and content of the submitted article. No funding was received for this study. The authors had no conflict of interest when drawing their conclusions.

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