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The quality of the diet from the first hours of life is decisive. Any inappropriate diet for pregnant women or infants has an irreversible impact on a child's bio-morphological and cognitive levels, leading to chronic malnutrition. This study assesses the factors that explain adherence to dietary taboos or restrictions and the factors statistically significantly related to the choice of nutritional restrictions in households housing stunted children under five years of age in southwest Benin.

*Keywords:* food taboos, livelihoods, stunting, nutrition.

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# Food Taboos, Factors of Chronic Malnutrition in Bopa, South West Benin

Guy Onambebe<sup>a</sup>, Laïfoya Moïse Lawin<sup>o</sup> & Collette Azandjeme<sup>p</sup>

## ABSTRACT

*The quality of the diet from the first hours of life is decisive. Any inappropriate diet for pregnant women or infants has an irreversible impact on a child's bio-morphological and cognitive levels, leading to chronic malnutrition. This study assesses the factors that explain adherence to dietary taboos or restrictions and the factors statistically significantly related to the choice of nutritional restrictions in households housing stunted children under five years of age in southwest Benin.*

*Data were collected in December 2020 on a sample of 558 families in 40 villages in the commune of Bopa in southwest Benin. Socioeconomic data from families, and anthropometric data from children (498) are analyzed within univariate, bivariate and binary logit regression methods.*

*Results show that 36.3% of children are stunted, and 76.2% of households with stunted children have food taboos. In addition, 69.6% of households have at least one taboo on consuming beef, goat, poultry, pork, eggs, and fish, reducing in-take of the required micronutrients child growth. The gender of the head of the household, their occupation, religion, level of education, age category, area of residence, level of education of the wife of the head of the household, and average monthly household income have statistically significant effects on adherence to food taboos and restrictions in the household diet. To effectively combat stunting, advocacy targeting religious leaders and the local elite is needed.*

**Keywords:** food taboos, livelihoods, stunting, nutrition.

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## I. INTRODUCTION

Eradicating hunger and malnutrition and ensuring access to safe, nutritious, and adequate food by 2030 is the second Sustainable Development Goal (SDG) as agreed by the international community since 2015. Seven years later, limited access to food is still driving a higher rate of malnutrition. Globally, pregnant women and children under five are most at risk of malnutrition. United Nations Children's Fund, World Health Organization, and World Bank estimated in 2015 that 23.8% of children under five (159 million) were affected by chronic malnutrition worldwide (UNICEF, WHO, World Bank, 2015; Amadou et al., 2020). But all continents are not equally affected.

Perez-Escamilla et al. (2018) and Traoré et al. (2020) works found that nearly 32% of children under five living in developing countries have one of the highest rates of stunting or chronic malnutrition. The stunting rate is 46% in South Asia, 38% in Sub-Saharan Africa, and 25% in the Middle East and North Africa (Traoré et al., 2020), 35% in West and Central Africa (Amadou et al., 2020; Pomati et al., 2020). Thus, such prevalence of malnutrition constitutes a critical limit for the expansion of developing countries, given the irreversible consequences of this pathology. Malnutrition is the cause of nearly half

(45%) of all deaths in children under five years of age (Park et al., 2012; Black et al., 2013). For WHO (2016), malnutrition is among the main causes of child mortality in Africa, and affects mainly the poorest countries.

In the literature on this subject, malnutrition is linked to children, their caregivers, and household characteristics in which they live. According to UNICEF Food for Health conceptual framework, contextual factors such as norms, food taboos, and cultural and religious beliefs are considered to be fundamental causes of malnutrition. These factors have also been discussed in the work of Martínez et al. (2013), Onyesom (2007), Zepro (2015), and Lepowsky (1985). Crépin et al. (2008), Ekwochi et al. (2016), Zepro (2015). Food taboos indeed influence the quantity, frequency, and quality of nutrients consumed by mothers and children and result in the depletion of vital nutrients. They often affect animal-based foods, which contain about 18% protein (Onyesom, 2007), thus influencing nutrient intake. They create dietary protein deficiency, often observed in pregnant and lactating women, the poor, the elderly, and children, especially in developing countries and rural areas.

Previous studies show that taboos are more respected in countries where malnutrition rates are still high. For example, the analysis by Oni et al. (2012) shows that 26% of pregnant women in Indonesia avoided fish, meat, vegetables, and chicken eggs. Similar dietary practices have been found among groups of pregnant women in India.

Indeed, Zepro's (2015) study in southern India shows that 63.7% of women avoid eating certain vegetables/fruits during pregnancy and do the same for their children. Similar behaviors are observed in Africa, where 36.5% of women in one region of Nigeria avoid certain foods for their children and during pregnancy due to attachment to food taboos (Ekwochi et al., 2016).

These high levels of food restriction or taboos in countries where malnutrition is still general raise questions: What factors determine whether or not households practice food restriction? What factors

are significantly related to the choice of food taboos in families with stunted children? To answer these questions, the objective of this study is to determine the factors related to the choice of food taboos in households with stunted children in Bopa, a region in south-western Benin. Few studies have been explicitly conducted on families housing malnourished children and practicing food restrictions. Moreover, the results will contribute to a burgeoning literature on malnutrition in food-restricted households.

This paper is organized into six sections. After an introduction, the next section presents a review of the literature dealing with the topic addressed in the paper. This section follows the estimation methodology, then the sections presenting the results and discussion, and the last section summarizes the main points and policy recommendations.

## II. LITERATURE REVIEW

In recent decades, the literature has addressed the problem of chronic malnutrition because of its impact on the socio-economic development of developing countries. It is associated with the child's social environment, the sociodemographic characteristics of the child's progenitors, the family's religious beliefs, and the community's social perceptions. Works of Deutz et al. (2019), and Fleurke et al. (2020) mention determinants of malnutrition, the child's environment, the household environment, the characteristics of the head of the household, and the mother's characteristics and practices about nutrition.

Availability of health and socio-economic infrastructure, availability and diversity of food in the market, variety of livelihoods, and food consumption were listed as determinants of malnutrition by Groleau et al. (2014) and Srivastava (2014). The gender of the household head, household size, father's occupation, household income, mother's occupation, and gender of the child are explanatory factors for the presence of malnutrition in households (Akoto et al., 1988; AGVSAN 2009; Masibo et al., 2012; Wong et al., 2014; WFP 2018; Handa 2020).

Beliefs, values, and dogmas related to religious practices influence perceptions and determine, in part, the habits and behaviors of the faithful.

Indeed, this influence is due to the prohibition by religions on consuming certain foods. For example, Muslims and followers of Celestial Christianity do not eat pork; Hindus do not eat beef, which is revered, even though these foods are rich in protein and iron, which are essential for the body. For Indonesian women, for example, eating fish and other foods from a river would lead to difficulties in delivery because the fetus would be upside down in the womb, while eating chicken eggs would make them behave like chickens in childbirth and make it last longer (Oni et al., 2012). For the author, these choices are also influenced by religion in that community leaders generally impose cultural and traditional beliefs on women and children, which makes these populations vulnerable in most communities. In The Gambia, each clan called "kabilah" has certain food that its members are forbidden to eat. Partridge, vulture, guinea fowl, warthog, monitor, lizards, wolves, Gambian rats, squirrels, ducks, and monkeys were mentioned as food taboos in the study by Martínez et al. (2013).

The authors' analyses of The Gambia also indicate that pregnant women do not consume eggs, bread, bananas, catfish, or peanuts. Food taboos of the mother's clan are respected. This leads to a low protein and carbohydrate diet for both mother and baby. Termites, flying ants, crocodiles, and grasshoppers are not consumed by some households for ancestral reasons (Martínez et al., 2013). The practice is almost identical throughout African countries where malnutrition rates among pregnant women and children are still high.

In southern Nigeria, it is feared that a child who consumes meat and eggs becomes a thief as an adult (Onyesom, 2007). For these parents, children raised with meat and egg-based dietary habits will grow up to have expensive eating habits. The same author suggests that consuming cow's milk will make children behave as cows. While they will be intelligent if they consume coconut milk. And the consumption of animal

liver will cause liver abscesses. Similar analyses were conducted in southern Nigeria in 2016 with the work of Ekwochi et al. (2016). For these authors, snail and grasscutter meat are frequently avoided foods during pregnancy in southern Nigeria, while eggs are avoided in children under the age of two. According to them, snails and grasscutter meat would make the child lazy. In some cultural areas of Nigeria, pregnant women must avoid eating snails otherwise, the newborn is exposed to excessive salivation and vomiting (Oni et al., 2012). Eating yam can make the new born fat and deliver pain. In addition, pork consumption may be a favorite spot for newborn skin (Ogbeide, 1974; Oni et al., 2012).

It's prohibited for young girls in Lesotho to eat eggs, because eggs would increase sexual desire and cause them to seek sexual intercourse (Martínez et al., 2013).

In Vanatinai custom, before weaning age, children must avoid eating animal protein, fruits, vegetables, store-bought foods, or any other sweet and fat foods (Lepowsky, 1985).

It's suspected that Adults and children will become seriously ill if they eat fish or shellfish. Farmers in these areas should not touch fish before planting yams; otherwise, the yams will disappear. Dogs are never eaten among the Vanatinai. Eggs, fish, and bananas are considered food taboos during pregnancy in other ethnic groups in Papua New Guinea and Nigeria (Martínez et al., 2013). Rakotosamimanana (2014) and Zepro (2015) conducted similar analyses on the practice of food taboos in Malagasy culture and Ethiopia, respectively. For Zepro (2015), the most frequent taboos in Ethiopia are related to the simultaneous consumption of milk and fruits, such as mango, orange, pineapple, and nuts. In Igarra, Delta and Owan regions of Benin, coconut milk and liver are not given to children (Ogbeide, 1974). Other localities such as Urhobo and Owan, pregnant women are forbidden to eat the larger mushrooms. Ika, Ishan, Urhobo, Midwest, and Wa localities of Benin, food taboos are related to the consumption of porcupines, fresh meat, palm

nut soup, snails, sheep, pigs, dogs, snakes, beans, and vegetables.

Overall, food taboos related to religious dogma, customs, and practices practiced by households are more detrimental to children, lactating women and other household members because they reduce the consumption of foods that are very rich in protein and vitamins. These restrictions create protein and vitamin deficiencies in children and lactating women, which are necessary for the proper growth of children.

Significant links have been established between food taboos and household socio economic and cultural factors. A connection has been found between health education and food taboos (Lepowsky, 1985). Martínez et al. (2013) identified a statistically significant relationship between religion and food taboos. Benkheira (1997), and Oni et al. (2012) found an association between food taboos and age, primigravida, lack of formal education, and monthly family income.

Oni et al. (2012) found that it is also possible that adolescent mothers are more likely to be influenced by mothers-in-law, husbands, who perpetuate cultural beliefs. Based on these individual and collective factors mentioned in the literature as determinants of food taboos as a source of chronic malnutrition in children, a methodological approach adopted to carry out the same analyses in Bopa.

In the binary logistic regression, the dependent variable noted  $Y$  takes two possible modalities: 1 if the household adheres to food taboos, and 0 in the opposite case.

$P(Y = 1)$  respectively  $P(Y = 0)$  is the a priori probability that  $Y = 1$  (respectively  $Y = 0$ ). Let us posit :  $P(Y = 1) = F(X\beta)$  et  $P(Y = 0) = 1 - F(X\beta)$  where  $F$  is a distribution function  $R$  on the interval  $]0, 1[$ , increasing in its argument and  $\beta$  a vector of parameters (to be estimated) associated to the vector  $X$  and of dimension  $(L, 1)$  if the vector  $X$  is of dimension  $(1, L)$ .

The logit model is the one defined by :

$$P(Y = 1) = \frac{\exp(Xi\beta)}{1+\exp(Xi\beta)} \quad \text{and} \quad P(Y = 0) = \frac{1}{1+\exp(Xi\beta)} \quad (1)$$

The Logit model is defined by the following equation:

$$\text{tabou} = \alpha_0 + \alpha_1 * \text{sexe Chef} + \alpha_2 * \text{niveaustuc Chef} + \alpha_3 * \text{PROcm} + \alpha_4 * \text{instructionW} + \alpha_5 * \text{religion CM} + \alpha_6 * \text{milieu} + \alpha_7 * \text{Cage ChM} + \alpha_8 * \text{Revenu} + \mu_i \quad (2)$$

Where  $\alpha_0$  is the constant term,  $\alpha_i$  is the regression coefficients;  $\mu_i$  is the error term and :

### III. MATERIALS AND METHODS

This contribution is based on the database of a survey conducted by the Groupe de Recherche en Anthropologie Appliquée (GRAnAp) in December 2020 in 40 villages of the commune of Bopa in southwestern Benin. It consists of socio-economic data collected from heads of households and anthropometric data from children. The database contains 558 families of which 498 have at least one child aged 0-59 months. families were selected using a two-stage cluster random sample.

In the first stage, a random draw from 40 villages was conducted. In the second stage, a random draw of 17 households was conducted per village. One child under the age of 5 is randomly drawn from each sampled household. In this study, we adopt a two-stage analysis methodology. Simple binary logit model helps to identify determinant factors of a household's food taboos. Some socio-economic, cultural and anthropometric variables that may determine the practice or not of food taboos in families are selected on the basis of the literature review.

These variables are, on the one hand, gender, average monthly income, marital status, level of education, and occupation of the head of household; on the other hand, occupation, level of education of the wife of the head of household, place of residence, and religion.

$Y_i$  Cage ChM is the dependent variable (taboo); CageChM is age category of the head of the family; milieu is place of residence; instructionW is level of education of the wife of the head of the household; PROcm is the profession of the head of the household; level of education of the head of the household; Revenu is average monthly income of the family; religionCM is the religion of the head of the family. These variables are selected on the basis of the literature and the Pearson dependency test.

The second step of the analysis aims to identify factors linking food taboo choice with households where malnourished children are leaving. The Karl Pearson  $\chi^2$  test of independence is used to confirm the relation between variables. Both analysis methods generated following results.

#### IV. RESULTS

Of the 498 children aged 0-59 months, 36.3% are stunted. Of the households with stunted children, 76.2% have food taboos, the proportions of which are shown in Table 1 below.

Table 1: Summary of food taboos

Food taboos	Proportion
snails	0,5%
fish	1,0%
palm oil, oil extracted from the palm nut	1,8%
okra, crincrin, redbean, fried corn, grilled corn, papaya, cassava, yam	3,9%
duck, hawk, pigeon, guineafowl, weavingbirds	4,4%
hedgehog, vegetable, dandelion, mouse, catfish, woloug bolovi, wonto, koukou gbo, bush rats, squirrel6	6,9%
snake, python	11,6%
sheep, dogs, cats, pigs, sheep, goats	69,9%
Grand total	100,0%

Source: GRAnAp, Nut Aumed Survey, December 2020, authors

Table 1 shows that among the 389 households adhering to dietary restrictions, about 92.8% have nutritional restrictions related to meat consumption, and 70% of the food taboos are associated with the consumption of mutton, dog, cat, pork, sheep, and goat meat. More than 5.7% have taboos associated with the consumption of plant foods, and 1% associated with fish consumption. Results of the model determining the explanatory factors for adherence to food taboos are presented in Table 2 below.

The characteristics of the head of the family, sex (p-value = 0.028), profession (p-value = 0.002), religion (p-value = 0.028), age ranking (p-value = 0.034), and the average monthly income (p-value = 0.033) have significant effects on whether or not the family adheres to a food taboo. Results show that average monthly income (Odds Ratio =

2.439) and religion (Odds Ratio = 1.127) determine families' food taboos in the. In addition, the profession of the head of the household (Odds Ratio = 0.922) has the same effect.

This result shows that the average monthly income is 2.16 times more likely to influence adherence to dietary restrictions or taboos than religion requirements. On the other hand, the sex of the household head has little influence on whether or not a food taboo is practiced in the household.

*Table 2: Logit model results*

Taboo	Odds Ratio	St.Err.	t-value	p-value	Sig
Place of residence	0.845	0.218	-0.65	0.513	
Gender of head of household	0.332	0.166	-2.20	0.028	**
Level of education of the head of the household	0.843	0.127	-1.13	0.259	
Profession of the head of household	0.922	0.024	-3.13	0.002	***
Level of education of the wife of the head of the household	0.965	0.165	-0.21	0.837	
Religion of head of household	1.127	0.062	2.19	0.028	**
Age category of household head	0.757	0.099	-2.12	0.034	**
Average Monthly Household Income	2.439	1.02	2.13	0.033	**
Constant	8.328	5.423	3.26	0.001	***

Source: GRAnAp, Nut Aumed Survey, December 2020, authors

The factors determining the choice of a restriction or taboo food are presented in the table 3 below.

*Table 3: Factors that explain the choice of food taboos*

Variable	Pearson's Statistic	P-Value
Gender of head of household	12.84	0.0761*
Level of education of the head of the household	42.72	0.0034**
Occupation of the head of the household	223.16	0.0000***
Marital status of head of household	54.82	0.0001***
Mother Tongue of the head of the household	51.04	0.0049***
Level of education of the wife of the head of the household	32.48	0.0523*
Place of residence	23.09	0.0016
Religion of the head of the household	72.07	0.0027***

Source: GRAnAp, Nut Aumed Survey, December 2020, authors

Male household heads are relatively more favorable to the practice of taboos related to the consumption of snakes, pythons, hedgehogs, vegetables, dandelions, mice, catfish, bush rats, squirrels, ducks, hawks, pigeons, guinea fowl, weaving birds. At the same time, women are relatively more in favor of avoiding the consumption of mutton, dog, cat, pork, sheep, goat, palm oil, and oil extracted from palm nuts.

Concerning the level of education of the head of the household, those with no education and those with primary education are relatively more favorable to the restriction of meat consumption.

Farmers, artisans, and those with no occupation are more favorable to restricting the consumption of mutton, dog, cat, pig, sheep, goat, snake, and python. Wives with no education or primary education are more likely to restrict the consumption of mutton, dog, cat, pork, sheep, goat, and snake python meat. The restrictions are much more practiced by heads of households who follow the endogenous and evangelical religion.

Conditions related to the consumption of snakes, pythons, sheep, dogs, cats, pigs, sheep, goats, ducks, sparrow hawks, pigeons, guinea fowl, and weaving birds are practiced a lot in the endogenous religion.

## V. DISCUSSIONS

In the literature, pregnant and/or lactating women avoid certain foods that are critical to their health and that of the fetus or newborn. The works of Poh et al (2005) on pregnant and lactating women and children state the same.

Indeed, the works of these authors in China state that women are not allowed to eat vegetables and fruits (water-melon, pineapple, carambola, papaya, cabbage, watercress) during pregnancy and delivery because these foods are cold.

According to these authors, seafood (squid, cockles, shrimp, and crab) and fish (tuna, sardine, and bilis) are also avoided by Chinese women during childbirth.. Several decades earlier, Colley

(1978) and Choudhry (1997) noted a restriction on the consumption of fruits and vegetables among pregnant Malay, Chinese and Indian women. The main justifications of these food taboos refer to the childbirth moment when women and newborns are extremely vulnerable. Because of this, women must have an appropriate diet in order to maintain the health of the nanny (Poh et al., 2005). Mohammed et al. (2019) also report that green chili, offal, and dark green leafy vegetables as well as other grains are often avoided by lactating women in Ethiopia. The work of Chege et al. (2015) further shows that the ban on vegetable consumption in some parts of Kenya is based on the belief that the land is only for grazing and as a result, vegetables are perceived as livestock feed. Riang'a et al. (2017) and Santos-Torres et al. (2003) also reported that pregnant and lactating women avoided meat and vegetables due to taboos in Kenya and Mexico, respectively.

In northeastern Madagascar, most taboos are associated with traditional Malagasy ecological and epidemiological knowledge (Golden et al., 2015). These authors linked food taboos to religious or cultural beliefs. According to local northeastern Madagascar belief, if one violates these taboos, automatic sanctions will occur as part of spiritual retribution (Golden et al., 2015).

This result justifies the perpetuation of taboos over time and space in Madagascar. According to Moriniaux (2008), food taboos are omnipresent in Asian religions such as Jainism and Buddhism. Indeed, the rules of Judaism require scrupulous respect for the animal, whatever it may be. Jains are not only vegetarians but also avoid eating roots because digging them up could inadvertently kill a worm or other underground animal. Similar prohibitions observed by Buddhists. The consumption of sheep is forbidden in ancient Egypt because of their familiarity and use in the agricultural economy (see sheep theology). In the farming world in ancient Egypt, sheep are called upon for field preparation: grazing, pulling for plowing, and organic fertilizer (Aufrère, 2016).

For Chakona et al. (2019), the foods which most frequently be avoided by pregnant women or young children in the Eastern Cape, South Africa are fish, potatoes, fruits, beans, eggs, and pumpkin. These foods have a high rate of proteins and carbohydrates. The reasons for avoiding these foods are rooted in cultural beliefs linking to problems that may affect the mother during childbirth, to health problems that primarily affect the child. Another interpretation is related to mis-conduct during adult age.

Oni et al. (2012), Zepro (2015), and Vasilevski et al. (2016) also found that factors such as age, education level, and socioeconomic status influence women's awareness of the importance of a balanced diet and healthy eating during pregnancy. Oni et al. (2012) and Getnet et al. (2018) showed that the likelihood of adhering to food taboos is higher among women from low-income families earning less than US\$54.2 per month and found a significant effect of age category on adherence to food taboos. For them, adolescent girls adhere more easily to food taboos.

They also find that the low literacy level would substantially increase the tendency of sticking to food taboos compared to educated people. Codjoe et al. (2016) find a statistically significant association between age, religion, occupation, and level of education attained by the head of the household and the choice of foods consumed by the family.. As for Harris-Fry et al. (2017), they found an association between occupation and adherence to food taboos.

In sum, this study corroborates findings from previous work on both the types and determinants of compliance with these food taboos. These results are enriching a social doctrine based upon an econometric approach to identify the determining factors of food taboos.

## VI. CONCLUSION

Over the past two decades, Benin's demographic health surveys have revealed a chronic malnutrition rate in the Mono department that is consistently above the national average. This study analyzes factors that explain respect to

dietary taboos or food restrictions. In addition, it explores factors that are statistically significantly related to the choice of dietary restriction in households housing children under five years of age affected by chronic malnutrition in southwest Benin. The data set is fed by socio-economic data collected from heads of households and anthropometric data on 498 children. Univariate and bivariate descriptive analysis and the binary logit model are the methods used. The findings show that 36.3% of children aged 0-59 months are stunted, 78.1% of households adhere to food taboos, and 76.2% of households with stunted children adhere to food taboos. The results of the binary logit model show that adherence to food taboos is statistically significantly dependent on the gender of the head of household, their occupation, religion, level of education, age category, and average monthly household income.

Similarly, the choice of a given food taboo by the household depends on the gender of the head of the household, their level of education, profession, marital status, mother tongue, religion, the level of education of their wife, and the area of residence.. The fight against stunting calls for a multisectoral approach that places religious leaders and the local elite at the center of the strategy.

#### *Conflict of Interest Statement*

The authors state that there is no conflict of interest.

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## APPENDIX

*Table 4:* Results of chronic malnutrition

	Presence of chronic malnutrition	Absence of chronic malnutrition	Total
No food taboos	43	66	109
sheep, dogs, cats, pigs, sheep, goats	90	182	272
palm oil, oil extracted from palm nuts	3	4	7
fish	1	3	4
snake, python	21	24	45
snails	2	0	2
hedgehog, vegetable, dandelion, mouse, catfish, woloug bolovi, wonto, koukou gbo, bush rats, squirrel	14	13	27
okra, crincrin, redbean, fried corn, grilled corn, papaya, cassava, yam	4	11	15
duck, hawk, pigeon, guineafowl, weavingbirds	3	14	17
total	181	317	498
Pearson Chi2 = 13.61 Prob = 0.0925			

*Source: GRAnAp, Nut Aumed Survey, December 2020, authors*

*Table 5:* Relationship between food taboos and place of residence

Taboos	Rural	Urban	Total
sheep, dogs, cats, pigs, sheep, goats	73	17	90
palm oil, oil extracted from palm nuts	1	2	3
fish	0	1	1
snake, python	18	3	21
snails	2	0	2
hedgehog, vegetable, dandelion, mouse, catfish, woloug bolovi, wonto, koukou gbo, bush rats, squirrel	9	5	14
okra, crincrin, redbean, fried corn, grilled corn, papaya, cassava, yam	0	4	4
duck, hawk, pigeon, guineafowl, weavingbirds	2	1	3
Total	105	33	138
Pearson Chi2 = 23.09 Prob = 0.0016			

*Source: GRAnAp, Nut Aumed Survey, December 2020, authors*

*Table 6:* Relationship between food taboos and gender of the head of household

Taboos	Female	Male	Total
sheep, dogs, cats, pigs, sheep, goats	25	65	90
palm oil, oil extracted from palm nuts	2	1	3
fish	0	1	1
snake, python	3	18	21
snails	0	2	2
hedgehog, vegetable, dandelion, mouse, catfish, woloug bolovi, wonto, koukou gbo, bush rats, squirrel	0	14	14
okra, crincrin, redbean, fried corn, grilled corn, papaya, cassava, yam	0	4	4
duck, hawk, pigeon, guineafowl, weavingbirds	0	3	3
Total	30	108	138
Pearson Chi2 = 12.84 Prob = 0.0761			

*Source: GRAnAp, Nut Aumed Survey, December 2020, authors*

**Table 7:** Relationship between food taboos and education level Head of household

Taboos	No level	Primary	Secondary	Superior	Total
sheep, dogs, cats, pigs, sheep, goats	57	16	17	0	90
palm oil, oil extracted from palm nuts	2	0	1	0	3
fish	0	0	1	0	1
snake, python	10	6	4	1	21
snails	0	2	0	0	2
hedgehog, vegetable, dandelion, mouse, catfish, wolougbolovi, wonto, koukou gbo, bush rats, squirrel	5	4	5	0	14
okra, crincrin, redbean, fried corn, grilled corn, papaya, cassava, yam	0	2	1	1	4
duck, hawk, pigeon, guinea fowl, weavingbirds	1	0	2	0	3
Total	75	30	31	2	138
Pearson Chi2 = 42.72 Prob = 0.0034					

Source: GRAnAp, Nut Aumed Survey, December 2020, authors

**Table 8:** Relationship between food taboos and occupation of the head of household

Taboos	Farmer	Reseller /Dealer	Artisan	Driver	Teacher	Nurse Caregiver	Other	No	Total
sheep, dogs, cats, pigs, sheep, goats	45	5	28	2	2	0	3	5	90
palm oil, oil extracted from palm nuts	0	2	0	0	0	0	1	0	3
fish	0	0	0	0	0	1	0	0	1
snake, python	12	0	4	1	0	0	4	0	21
snails	0	0	1	0	0	0	1	0	2
hedgehog, vegetable, dandelion, mouse, catfish, wolougbolovi, wonto, koukou gbo, bush rats, squirrel	7	0	1	2	0	0	4	0	14
okra, crincrin, redbean, fried corn, grilled corn, papaya, cassava, yam	0	0	2	1	0	0	0	1	4
duck, hawk, pigeon, guinea fowl, weavingbirds	1	0	0	1	1	0	0	0	3
Total	65	7	36	7	3	1	13	6	138
Pearson Chi2 = 223.16 Prob = 0.0000									

Source: GRAnAp, Nut Aumed Survey, December 2020, authors

**Table 9:** Relationship between food taboos and marital status of the head of household

Taboos	Married monogamous	Married polygamist	Common-law, Single	Divorced/separated, Widowed	Total
sheep, dogs, cats, pigs, sheep, goats	63	26	1	0	90
palm oil, oil extracted from palm nuts	2	0	0	1	3
fish	1	0	0	0	1
snake, python	13	8	0	0	21
snails	1	1	0	0	2
hedgehog, vegetable, dandelion, mouse, catfish, woloug bolovi, wonto, koukou gbo, bush rats, squirrel	9	4	1	0	14
okra, crinrin, redbean, fried corn, grilled corn, papaya, cassava, yam	4	0	0	0	4
duck, hawk, pigeon, guineafowl, weavingbirds	1	2	0	0	3
Total	94	41	2	1	138
Pearson Chi2 = 54.82 Prob = 0.0001					

Source: GRAnAp, Nut Aumed Survey, December 2020, authors

**Table 10:** Relationship between food taboos and the level of education of the head of household's wife

Taboos	No level	Primary	Secondary	Superior	Total
sheep, dogs, cats, pigs, sheep, goats	25	45	14	6	90
palm oil, oil extracted from palm nuts	2	0	0	1	3
fish	0	1	0	0	1
snake, python	3	12	4	2	21
snails	0	2	0	0	2
hedgehog, vegetable, dandelion, mouse, catfish, woloug bolovi, wonto, koukou gbo, bush rats, squirrel	0	8	3	3	14
okra, crinrin, redbean, fried corn, grilled corn, papaya, cassava, yam	0	0	3	1	4
duck, hawk, pigeon, guineafowl, weavingbirds	0	3	0	0	3
Total	30	71	24	13	138
Pearson Chi2 = 32.48 Prob = 0.0523					

Source: GRAnAp, Nut Aumed Survey, December 2020, authors