

Evaluation of the Food Security of Households Living in Tshumbe Town, DR Congo

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ABSTRACT:

A transversal study on the accessibility of households to adequate food was conducted in the second quarter of 2017 in Tshumbe town in the Democratic Republic of the Congo. A simple random sampling method permits to obtain a sample of 500 households, among which 460 matched inclusion and non-inclusion criteria. The results obtained show that only 7.5 % represents salaried employees and 24% of surveyed people have no profession. Only 11% of the households under investigation have a stock of food at home while 89 % of households didn't have reserves of food. About 67% of households of Tshumbe have only one meal per day and spend less than 1.8 USD for food daily; 72 % of households take at least one hour to access to the point of drinking water and 80 % do have difficult to access to food commodities.

Keyword: Tshumbe, D.R. Congo, households, Food security, food commodities

INTRODUCTION:

As proclaimed in Article 25 of the Universal Declaration of Human Rights; a life in dignity requires that “everyone has the right to a standard of living adequate for the health, well-being and the well-being of his family, especially for food, clothing and housing” [1].

Food security, an integral part of the security of existence, is considered a fundamental right of every human being to have access at all times to food of sufficient quantity and quality to lead an active and healthy life [1, 2].

Human health generally depends on the health of its cells. However, for a man to enjoy better health, his cells would have to function to the best of their ability. For this, they need certain nutrients necessary for their reconstruction, protection and source of energy that humans can only find in their diet [3,4].

In addition, humans do not always have the necessary food for their health because of natural disasters, wars and lack of adequate agricultural policy. This results in food shortage that can quickly lead to an increase in food prices. And the poor men will no longer have access to food, as they lack the financial means to make the purchase [3-6].

Theoretically, two types of food insecurity exist. Firstly, chronic food insecurity, which is persistent inadequate diet due to a household's inability to access the food they need, either on the market or by producing it themselves. Poverty is the main cause of chronic food insecurity. Secondly, transient food insecurity which is a temporary limitation on a household's access to the food they need either because of volatile food prices, products or incomes. In the extreme case, transient food insecurity may be the cause of starvation [3, 7-12].

In this work, we are interested by the town of Tshumbe, located in Sankuru Province, situated in the central part of the Democratic Republic of the Congo (DRC), to conduct a transversal study on food security. Indeed, Tshumbe is a landlocked town with some agro-pastoral activities and where the population does not have high income. There are some academic institutions, primary schools and the Catholic Church. Thus, it was necessary to see the food security level of the population.

STUDY AREA AND METHOD

Study area

This investigation was organized, in second quarter of the year 2017, in the town of Tshumbe located in the province of Sankuru in the center of DRC (Fig.1).

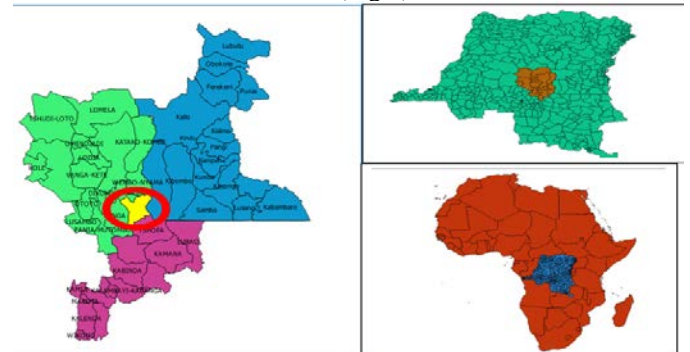


Fig. 1: Location of Tshumbe town, in the province of the Sankuru, DRC.

Tshumbe possess 37.198 of inhabitants and is totally isolated because of the lack of road and communication infrastructures. There are not any companies apart from some agro-pastoral. The population has a lot of problems for the food supply. The investigation is based on households.

Size of the sampling

The number of sample was determined by Fink Arlene Jacqueline Kosecoff formula [13,14].

$$\eta \geq \left(\frac{z}{\delta} \right)^2 \rho(1 - \rho)$$

Where

η = size of the sample.

δ = degree of absolute precision.

Z = standard score or z-score.

ρ = probability for a household to present a given property.

So therefore, with a level of confidence fixed to 95%, an error level of 5%, a prevalence of poverty evaluated to 60% and considering living expense of one dollar per day and per person; the minimum size of the sample was evaluated at:

$$n \geq [1.96 / 0.05]20.6(0.4) = 369$$

For suitability reason, a sample of 500 households was retained. But only 482 households matched the inclusion criteria among which 22 were eliminated according to the non-inclusion criteria (eight gave confused answers, three households were absent, five have incompletely answered the questionnaire and six were newcomers in Tshumbe). So 460 households were finally retained.

The inclusion criterion of the investigation was: the households having lived at least during three years in the Tshumbe when the non-inclusion criteria were: the absence of household, the refusal of the household chief to answer the questions, the incomplete answers to the questionnaire and the new household come to Tshumbe.

The simple random sampling method permit us to determine our sample, by the successive random drawing of four districts, five streets by district and 25 households by street. This technique allowed us to analyze the results according to different variables of the sample.

We conducted a cluster drawing technique at three degrees:

- ❖ The first degree: we drawn by lot of four districts;
- ❖ The second degree: we drawn by lot of five streets by district;
- ❖ The third degree: we chose systematically 25 households in every street

Type of survey

Table 1: Number children according to mothers' education level

Number of children	Education Level						Total	%
	Without level	Primary school	Two first years of secondary school	Secondary school	Higher Education			
2 to 4	6	19	10	9	7	51	11.1	
4 to 6	9	14	44	20	00	87	19.0	
6 to 8	34	30	56	30	00	150	32.6	
8 to 10	21	33	36	1	00	91	19.8	
10 to 12	15	37	29	00	00	81	17.5	
Total	85	133	175	60	7	460	100.0	

As it can be found in this table, the number of children in households varies between 2 to 12. The most found number of children in households is 6 to 8 (32.6 % of households) and the number of births least met in households is 2 to 4. All mothers that have higher education have 2 to 4 children, not more. Majority of mothers with secondary school level (59 on 60) have less than 8 children. Mothers that have 8 to 12 children are that have no education level, primary or only two first years of secondary school level. The calculated middle size of households' number children is seven.

The motherhood of several households is influenced by the education level of mothers, so the higher education can be considered as a limiting factors of the motherhood. In fact, mothers who have a higher education start to give birth late when they are in their thirties, so they cannot have many children. In addition, they are more aware of the effects of maternity on maternal health [15,16].

The figure 1 represents the age of the mothers between 15 and 45 years. The moms of age interval between 31 and 35 years are the most represented (32.6%) while that of the age between 15 and 20 are the least represented.

Our survey is transverse descriptive.

Parameters of survey

This survey exploited notably:

- ❖ Size of the household
- ❖ Instruction level of the household women
- ❖ Profession Type of the household chores
- ❖ Food availability in the household
- ❖ Pastoral and agricultural activities
- ❖ Knowledge of importance of food
- ❖ Number of meal per day and by family
- ❖ Stability and satisfaction of income
- ❖ Time of displacement on foot to reach a point of water
- ❖ Accessibility to the food commodities

Data analysis

The data of the investigation have been analyzed using Ear-info and their treatments presented as tables or figures with calculated values of frequency, percentage and average.

RESULTS AND DISCUSSION

The Analyze surveys are grouped into four points:

- ❖ Socio-professional characters of the households
- ❖ Food availability in the households
- ❖ Stability and satisfaction of households chiefs income
- ❖ Access to the food commodities

Socio-professional characters of the households

The table 1 gives number of children according to education level of mothers in households

Figure 1 gives the distribution of mothers of the households according to their age

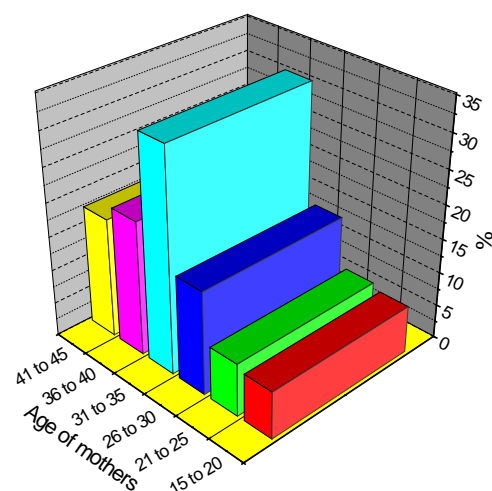


Figure 1: Distribution of mothers of the households according to their age

Figure 2 describes the distribution of household's mothers according to their education

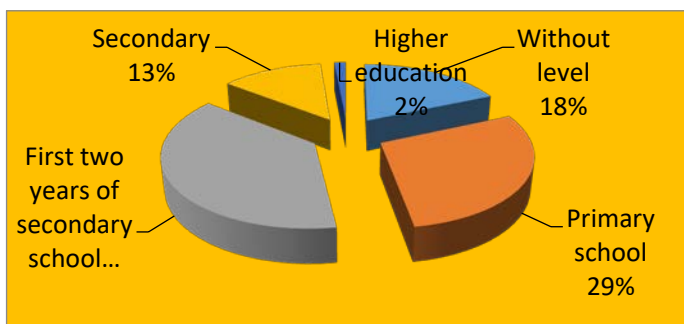


Figure 2: distribution of household's mothers according to their education

The results of the figure 2 show that the majority of mothers submitted to the investigation had the first two years of secondary school level (38.0%) and only 1.5% of mothers were of higher education level. Generally, in Africa, girls get married at a younger age which prevents them from continuing their education [16]. This situation is also reflected by these Tshumbe results.

Food availability in the households

Figure 3 gives the distribution of households according to the responsibility of food provision. The head of household is responsible for providing for the family's food.

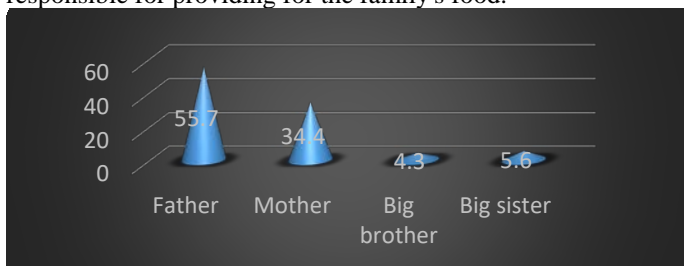


Figure 3: Distribution of the households according to the responsibility of food provision

This figure shows that in the majority of households, the father is the chief of the family and provide to family's food. But for 34.5 % of households, it is the mother that provide to the food for the family.

The most important professions practiced in Tshumbe town are presented in the table 2.

Table 2: Distribution of the households according to type of chief households' professions

Type of professions	Number	%
Without profession	110	24.0
Small traders	67	14.5
Farmers	138	30.0
Breeders	64	14.0
Salaried employees	35	7.5
Technicians	46	10.0
Total	460	100.0

This table shows that agriculture and farming occupy the majority of surveyed people (44%), but there are 24% of people that have no profession and only 7.5 represents salaried employees.

The fact that a good fraction of the population has no profession increases food insecurity in Tshumbe. These fathers of families cannot take care of their households, sometimes it is the eldest brothers and the eldest sisters who come to the rescue of the households

Figure 4 give the type of farming practiced by households

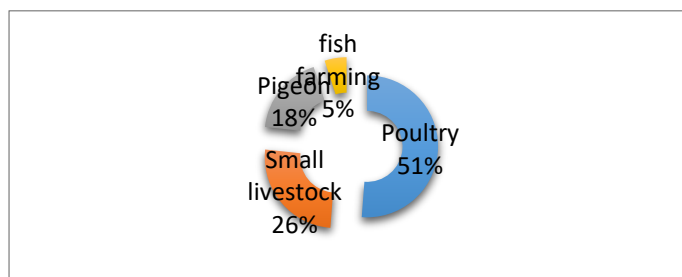


Figure 4: Households and type of farming practiced
The results in figure 4 show that 51% of households surveyed practice poultry farming and only 5% do fish farming. The figure 5 shows the types of cultures practiced in Tshumbe town

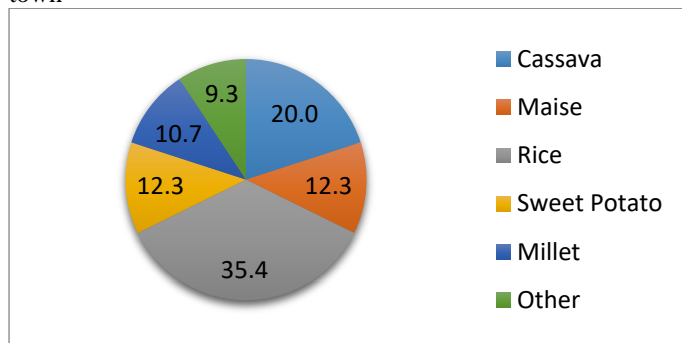


Figure 5: Distribution of the households according to types of cultures practiced in Tshumbe

Figure 5 shows that rice is the most cultivated crop (35.4%) in Tshumbe followed by Cassava (20.0%) and maize (12.3 %). Indeed, rice is the staple food in the center of the DRC of which Tshumbe. The crops or livestock that is made is primarily for sustenance. This does not add income to the household by the marketing of field or livestock products.

The table 3 gives distribution of households according to the knowledge on the importance of food in the health of members of the household

Table 4: Distribution of the households according to the knowledge of the importance of the food

Answers	Number	%
Yes	396	86.0
No	64	14.0
Total	460	100.0

This table indicates that 14% of the households of the investigation don't know the importance of food in household member's health.

In figure 6 is indicated the percentage of surveyed households that have a stock of food at home.

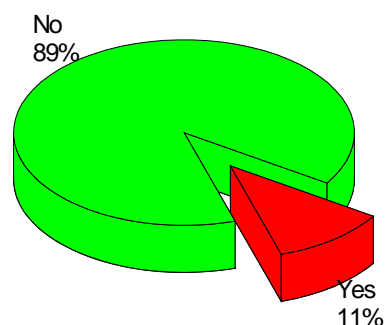


Figure 6: Distribution of the households according to the food stock availability

As it can be seen in figure 6, only 11% of the households under investigation have a stock of food at home while 89 % of households didn't have reserves of food. When a population does not have a food stock, they are exposed to food insecurity; they cannot survive in case of a crisis or a natural disaster. The figure 7 shows the number meals per day for households of Tshumbe.

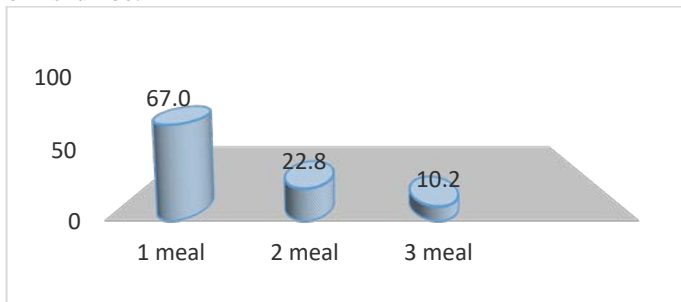


Figure 7: Distribution of the households according to number of meal shared per day

The results of the figure 7 show that 67.0 % of households of Tshumbe have only one meal per day and only 10.2 % of surveyed households have meals times per day.

With a single meal a day, the Tshumbe population cannot cover their food needs for good growth and good health. This can lead to poor nutrition and make the population vulnerable to disease [2-4].

Table 5 gives the daily expenditure for food by households

Table 5: Households daily expenditures for food

Cost per day (Congolese francs Fc)	Number	%
1 500 to 2 500	308	67.0
3 000 to 4 000	104	22.6
11 500 to 12 500	48	10.4
Total	460	100.0

1400Fc = 1USD

The results of table 5 indicate that 67% of households of Tshumbe spend less than 2500 Fc (1.8 USD) for food daily and only 10% spend more than 11500Fc (8.2 USD) on food per day. So the average expenditure per day is 3383 Fc (2.5 USD). This indicates that the majority of Tshumbe's population remains close to the poverty line. Indeed, according to the IMF report 2015 [18], 82% of the Congolese population lives below the poverty line.

Figure 8 shows the distribution of the households according to received food help

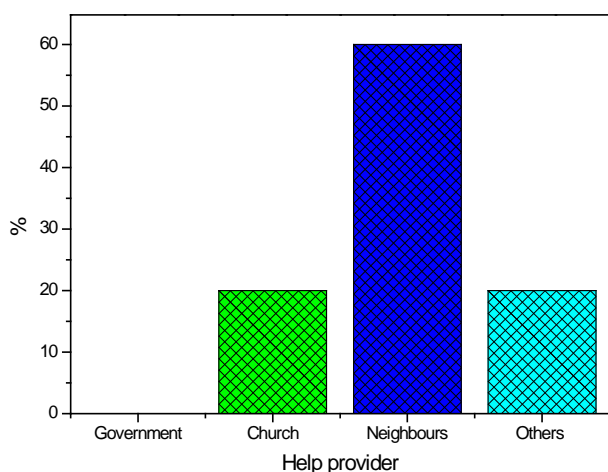


Figure 8: Distribution of the households according to received food help

It can be found from this figure that 60% of households receive food help from their neighbours or from the church but nothing from the government organizations.

Stability and satisfaction of income of the chiefs of households

Figure 9 gives the percentage of households' chiefs that are satisfied of their income and that are not satisfied.

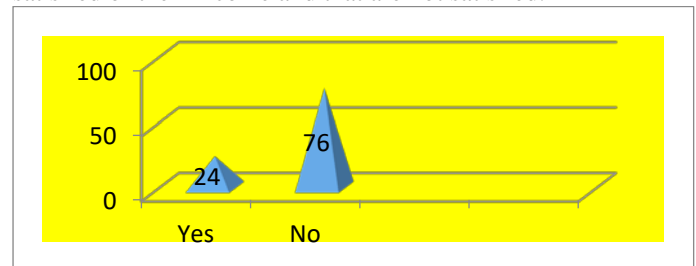


Figure 9: Distribution of the households according to the satisfaction of the income of household chief

The results in Figure 9 show that household main income is satisfactory for 24% of households, while 76% of households were unsatisfied with the income of their head of household. It can be also noticed only 44% of households recognized to possess a stable and regular income while 56 % others said that their income is instable, irregular or seasonal.

Accessibility to the food commodities

The figure 9 shows the distribution of households according to the time they take to get to the point of drinking water.

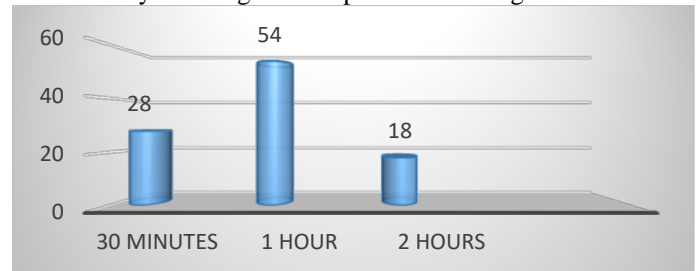


Figure 9: Distribution of households according to time of access to the point of drinking water

The figure 9 shows that 72 % of households under survey take at least one hour to access to the point of drinking water, only 28 % can access to drinking water point within 30 minutes.

In addition, only 20% of households affirmed to have easy access to food stock when 80 % do have difficult to access to food commodities.

In fact, it is known that women are more commonly expected to go to get water for their households than men in Africa. Indeed, women and girls are responsible for water collection in seven out of ten households in 45 developing countries. The average container for water collection in Africa, the jerry can, weighs over 18 kg when full. If these women want their families to have access to any water at all, they must make this trip at least once a day, and sometimes more often than that. Unfortunately, even after all this effort, the water is usually very unclean and unsafe to drink, but families are forced to rely on it anyway [19,20]. This is also the case for Tshumbe.

CONCLUSION

The problem of household food security in the Tshumbe town is acute. The difficulties associated with agro - pastoral production and the transport of people and goods contribute significantly to the scarcity of foodstuffs in the markets. This increases the prices of these commodities conducting people with low income to feed on unsuitable foods.

The results obtained in this study show that the majority of Tshumbe residents have no easy access to food and drinking water. The activities they undertake do not allow them to feed themselves properly or to have a stock of food. It is advisable that the competent authorities can arrange roads and communication ways to open up Tshumbe and stimulate economic activity.

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