Women Knowledge and practices on nutrition for pregnant women in the Bipemba health zone, Democratric Republic of the Congo.

BY

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Abstract

Objective: Evaluate the women of childbearing age knowledge and practices on the diet of pregnant women in the Bipemba Health Zone, Kasaï Oriental Province, in the Democratic Republic of Congo.

Methods: Our study was a cross-sectional analytical study involving 240 women of childbearing age.

Results: Most women of childbearing age in our series (69.2%) have a primary education level. Their knowledge on the diet of pregnant women is mainly obtained at the prenatal consultation (ANC) where they would have heard about the diet of a pregnant woman (84.6%) and through the radio (15. 0%) or by another woman (14.6%).

Despite this information, the study reveals that only 9.6% have knowledge of a diversified diet during pregnancy. However, 97.1% believe and adhere to the food prohibitions which are countless in the industry.

Regarding dietary practices, no change in eating habits is made during pregnancy. However, there was a 10.8% change in dietary pattern during pregnancy for specific health problems (18.8). During pregnancy, the practices of lime consumption (63.7%) and alcohol consumption (13.7%) are noted in this environment while the minimum dietary diversity among women of childbearing age is not than 6.3%.

Conclusion: It appears necessary to promote the schooling of all children and especially young girls in this environment, to insert the nutrition module into the primary cycle curriculum and to develop actions to promote good feeding practices for children. women at the community level and health structures.

Keywords: Food, pregnant woman, knowledge, practice...

I. Introduction

The World Health Organization defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity [1]. A pregnant woman's diet should include sufficient energy, protein, vitamins, and minerals, provided by a wide variety of foods, including green and orange vegetables, meat, fish, pulses, nuts, pasteurized dairy products and fruit [2].

Globally, it is recognized that anemia affects the health and well-being of women and increases the risk of adverse maternal and neonatal outcomes. It affects half a billion women of childbearing age worldwide. In 2011, 29% (496 million) of non-pregnant women and 38% (32.4 million) of pregnant women aged between 15 and 49 were anemic [3]. The prevalence of anemia is highest in South Asia, Central Africa, and West Africa [4].

According to a UNICEF report published on 7th March 2023, the number of adolescent girls and pregnant and lactating women suffering from acute malnutrition has risen considerably since 2020 in 12 countries severely affected by the global food and nutrition crisis, from 5.5 to 6.9 million, an increase of 25% [8]. Nearly 50% of women of childbearing age are malnourished if iron deficiency (anemia) is considered [5].

Bartoli carried out several survey on all five continents and reveals that in many developed countries, 'Eating for two' is a piece of knowledge that many grandmothers still give to their pregnant granddaughters. This belief is almost universal: pregnant women should eat well, not deprive themselves, and their food cravings should be satisfied as much as possible [21].

It should be noted that the dietary practices of pregnant women contain a mosaic of dimensions which are strongly influenced by changes in the type of meals during pregnancy, the frequency of meals per day, the consumption of food in a particular way for pregnancy and the consumption of toxic substances (tobacco, alcohol). [22; 23; 24; 25; 11].

In the Democratic Republic of Congo (DRC), the maternal mortality ratio (deaths per 100,000 live births) is 547 and according to the report of the second demographic and health survey (EDS), the average body mass index (BMI) of women is estimated at 21.9. Seven out of ten women (70%) have a normal BMI, between 18.5 and 24.9. However, 14% of women have a BMI of less than 18.5, indicating a state of chronic energy deficiency: 11% are slightly underweight and 4% are moderately and severely underweight. And in the province of Kasaï Oriental, there is a 40.9% prevalence of anemia [6].

According to the National Nutrition Surveys (ENN 2023), the nutritional situation of women of childbearing age in the DRC remains a cause for concern. At national level, 18.8% of women of childbearing age (WC<230mm), 19.2% of pregnant women have a brachial circumference<230 mm and 14.1% of non-pregnant women have a BMI <18.5 and 20.2% are overweight (overweight and obese). This survey reveals a similar situation of 18.8% malnutrition among women of childbearing age (BW<230mm) in the province of Kasaï Oriental. The minimum dietary diversity among women (MDD-W) of childbearing age is 23.2% in the province of Kasaï Oriental. [18].

The survey on the food and nutritional profile of pregnant women conducted in 2016 in the town of Mbujimayi revealed prevalence rates of 36.9% for household food insecurity, 23.1% for global acute malnutrition according to brachial circumference, 33.7% for undernutrition according to calf circumference and 38.5% for anemia, obtained from all 10 health zones in the town [7].

There is a lack of information about women's nutritional knowledge and practices to ensure good nutrition for pregnant women in the Bipemba health zone. No specific evidence of women's knowledge and practices regarding nutrition for pregnant women in the Bipemba health zone. This raises the question of whether women of childbearing age in this area are aware of the appropriate information on nutrition for pregnant women.

The above different rates are alarming and suggest that efforts are being made to improve women's knowledge and practices regarding nutrition during pregnancy. This is what preoccupied us in our research on the Bipemba health zone, where it was assumed that women's knowledge and practices regarding nutrition during pregnancy were inaccurate.

II. Materials and methods

The study was conducted for 5 months, from July to December 2023, in the urban health zone of Bipemba, one of ten health zones in the town of Mbujimayi town, in Kasai Oriental province, in the Democratic Republic of Congo. This health zone is bordered to the north by the Mukumbi health zone in the administrative territory of Tshishimbi, to the south by the Nzaba health zone, to the east by the Bonzola and Diulu health zones and to the west by the Mpokolo health zone. This health zone is home to 449,891 people.

This study was a cross-sectional analysis with a study population consisting of women of childbearing age, aged 15-49 years. The sample was constituted according to the following criteria: All women of childbearing age (15 to 49 years) living in the Bipemba Health Zone who were eligible, available, and willing to participate freely in the survey. The sample size was calculated using ENA software. With an estimated p prevalence of 16.6%, a degree of precision of 5% (0.05) and a correction factor of 1, this gave a sample of 240 individuals. In each cluster, individuals in 8 households were surveyed in the second stage. We selected the cluster in the first stage and, with a pencil falling out, the first household was selected in the second stage. A sampling step of 10 was used to arrive at the next household. In the third stage, we selected the individual who is the woman of childbearing age living in this household.

The Minimum Dietary Diversity for Women (MDD-W) a dichotomous indicator of whether women 15–49 years of age have consumed at least five out of ten defined food groups the previous day or night: Grains, white roots and tubers, and plantains, Pulses (beans, peas and lentils), Nuts and seeds, airy, Eggs, Dark green leafy vegetables, Other vitamin A-rich fruits and vegetables, Meat, poultry and fish Other vegetables and Other fruits.

The proportion of women 15–49 years of age who reach this minimum in a population can be used as a proxy indicator for higher micronutrient adequacy, one important dimension of diet quality.[19]

Data were collected using a three-stage survey in 30 clusters, in compliance with ethical principles (confidentiality and anonymity) with the informed consent of the participants. Using a questionnaire programmed on a Smartphone, the data transferred to the server was collected, cleaned in Microsoft Excel, and processed using the SPSS Software 29.

III. Results

a) Socio-demographic characteristics of study participants

Fig 1: Socio-demographic characteristics of women of childbearing age in % (N=240)
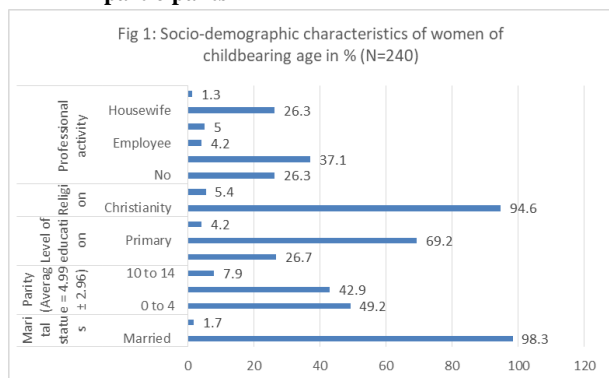
The results in Figure 1 show that the women surveyed were married (98.3%), with an average parity of 4.99 ± 2.96 births, had a primary education (69.2%) and were traders (37.1%).

a) Women's knowledge of nutrition during pregnancy

The results in table 1 below relate to women's knowledge of the diet of pregnant women. They show that 84.6% of women had already heard about the diet of a pregnant woman, mainly during antenatal care (60%). Most women (87.9%) attended antenatal clinics, with an average of 4.05 ± 1.38 visits. Many respondents (97.1%) said that pregnant women were subject to dietary restrictions.

Table 1. Women's knowledge of nutrition for pregnant women and information channels (N = 240)

Variable	Modalities	Fréquence	%
Having heard about nutrition for pregnant women	Yes	203	84,6
Woman's information channel (n= 229)	Radio	37	15,0
	By another woman	36	14,6
	At the antenatal clinic	156	60,0
	Yes	211	87,9
Number of visit to antenatal clinic		Moyenne = 4,05 ± 1,38	
Attendance to the antenatal clinic	Yes	233	97,1

The results in table 2 show that 9.6% of women of childbearing age thought they needed a diversified diet during pregnancy, and that they took in an average of 1663 ± 462 ml of water per day.

Table 2. Women's knowledge of nutrition during pregnancy (N=240)

a) Women's eating habits during pregnancy.

The results show that 10.8% of women felt that they changed their diet during pregnancy because of the conditions brought on by pregnancy, 11.7% ate 3 or more times a day and 63.7% consumed limestone (kaolin). Only 42.1% of women were physically active during pregnancy, apart from walking, and the average additional weight during pregnancy was 7.07 ± 3.44 kg.

Table 3. Eating habits during pregnancy (N = 240)

Variables	Modalities	Frequency	%
Change in eating habits during pregnancy	Yes	26	10,8
Factor underlying change in eating habits during pregnancy (n=26)	Disgust	18	7,5
	Lack of appetite	4	1,7
	To feed the child	4	1,7
Number of meals per day Averge : 1,63±0,703	1	127	52,9
	2	85	35,4
	3 ou plus	28	11,7
Consumption of alcohol, coffee and tobacco during pregnancy	Yes	33	13,7
Consumption of limestone (kaolin) during pregnancy	Yes	153	63,7
Special diet during pregnancy	No	240	100,0
Women with dietary restrictions	Practising forbidden diets	233	97,1
Physical activity other than walking during pregnancy	Yes	101	42,1
Additional weight during pregnancy		Average = 7,07 ± 3,44	

a) Women of childbearing age feeding quality

Figure 2: Minimum dietary diversity for women (MDD-W) in % (N = 240)
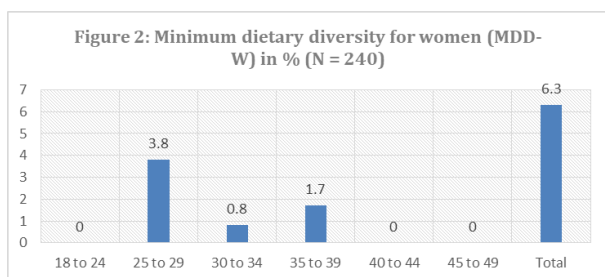
The results of Fig. 2 show that only 6.3% of the women had eaten a nutritious diet on the previous day, i.e. with a minimum acceptable dietary diversity, with a preponderance of 3.8% in the 25-29 age group. This minimum acceptable dietary diversity was nil in women aged 40 to 49.

Fig 3: Food consumption by food group (%)
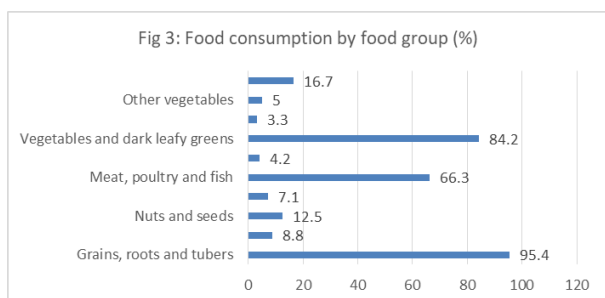
The results in figure 3 show that the food groups consumed most on the day before the survey were grains, roots, and tubers (95.4%), vegetables and dark leafy greens, and meat, poultry, and fish (84.2% and 66.3% respectively). The least consumed foods were dairy products, fruit and vegetables rich in vitamin A, pulses and nuts and grains.

a) Potential risk factors influencing Minimum dietary diversity for women.

Knowledge about food and the number of meals ($p<0.05$) are potential factors influencing Minimum dietary diversity for women.

Table 4. Potential risk factors influencing Minimum dietary diversity for women (N = 240)

Factor	Chi-square	P-value	Significance (p-value)
Age in completed years	0,936	0,333	-
Marital status	0,271	0,603	-
Parity	8,779	0,003	**
Level of education	0,696	0,404	
Hearing about the diet of pregnant women during a health education session	8,459	0,004	**
Type of diet for pregnant women	2,004	0,157	-

Number of meals	12,464	0,000	***

iv. Discussion

The individuals in our series, who had mainly primary education, had an average age of 32.2±7.69 years, with a preponderance in the 25 to 29 age group and a parity ranging from 0 to 4 of 49.2%.

Our results differ from those of Tokouzan, found in Benin, in which the predominant age group was that of young women (88.5% aged 15 to 34) and a parity ranging from 0 to 4 of 97.9% [8].

Furthermore, the rate of women with an average level of primary education of 69.2% found in this study remains lower than the 85.2% found in 2012 for women by Koné CT in the cercle of Nioro du Sahel [12].

Beliefs show that 37.1% of pregnant women must eat a very abundant diet. A large majority (84.6%) had heard of a pregnant woman's diet, of which only 60% had heard about it during an antenatal consultation (ANC). Antenatal consultation (ANC) is a contact used by 87.9% of women during their pregnancy and would appear to be the preferred channel of information for these women. Despite this information, dietary restrictions persist during pregnancy in the study area. Many of these women (97.1%) believe that a pregnant woman should not eat eggs, pork, and sorrel. A low rate compared to the Tokouzan results who found nearly 7 out of 10 pregnant women (69%) receiving nutritional advice on diet during pregnancy. Of these, 38% said they had received nutritional advice from health professionals. This proportion is higher than that found by Houndégla et al, who found that only 24.6% had received advice from health workers on diet and nutrition during pregnancy [9].

These results shows that majority of women (84.6%) had heard of the pregnant woman feeding from ANC and radio channels. This result is like those of Tokouzan in Benin, where nearly 7 out of 10 pregnant women (69%) had received nutritional advice on diet during pregnancy [8]. In addition, they are much higher than those found by Houndégla et al in Cotonou, according to whom only 24.6% had been advised by health workers on their diet and nutrition during pregnancy [9].

The results for attendance at antenatal clinics (ANC) are slightly higher than those found by Mbayo Muganza et al in Pweto (DR Congo), who found that 75% of women attended antenatal clinics at every appointment [13].

The study revealed that 97.1% of women observed dietary restrictions during pregnancy and 63.7% of women consumed lime or limestone. Our results on dietary restrictions are not better than those of Mbayo Muganza G et Al, who found that 34.5% of women in the Pweto region (DR Congo) stated that they did not eat certain foods, including eggs (22.39%), pork (12.69%) and sorrel (5.97%) [13].

Women of childbearing age consumed an average of 1663 ± 462 ml of water per day. This intake would cover the expected

external intake requirement of 2500 ml, of which an average of 1000 ml would come from food [14].

Dietary change during pregnancy was reported by 10.3% of the sample in this study and was induced by specific factors such as disgust, lack of appetite and concern about feeding the child. Despite this involuntary dietary change, the study reveals that 100% of individuals do not adopt a particular diet during pregnancy. The average number of meals eaten per day was 1.63 ± 0.703. Our results are like those of Essé Sonia-Estelle et al found in Abidjan, where 98.81% of women did not follow any diet during pregnancy and the rest followed diets for health reasons or simply to avoid excesses of certain nutrients. According to the survey, 1.19% of these women followed no special diet at all [10].

Consumption of toxic substances (alcohol and tobacco) accounted for 13.7% during pregnancy. These results are like those of Yao et al (Abidjan), who found that 15.28% of the study population consumed alcohol [11]. Consumption of limestone (kaolin) by women of childbearing age during pregnancy remained high, at 63.7% of the sample.

In addition, 42.1% of individuals had practiced physical exercise during pregnancy, such as walking. These findings are lower than those of Houndegla HN in a study conducted in Cotonou, which showed that of the 93.8% of pregnant women who practiced physical activity, 70.9% said that pregnant women should walk, especially at the end of pregnancy to facilitate childbirth.

The results also revealed that individuals who had eaten food from 5 or more groups the previous day accounted for 6.3%. This is close to the rate of 9.6% of women who know that a varied diet is essential during pregnancy or women diet should be diversified during pregnancy; with this low level of information, teenage girls are increasingly the victims, as they are not even targeted by activities around this theme. This is still a long way short of the 70% threshold for ensuring that women of childbearing age have a nutritious diet.

An analysis of the food groups consumed by these women shows that grains, roots and tubers, dark leafy vegetables and meat, poultry and fish are the most common. The diet is low in fruit, foods rich in vitamin A and dairy products. This suggests a risk of micronutrient deficiencies in this diet.

These results are lower than those of Azemfack Jul who, in his study conducted in Cameroon, found a proportion of minimum dietary diversity of 44.5% [15]. This rate of minimum dietary diversity is also lower than that found by Wankeu N E, of 70.9% for pregnant women who had consumed 5 or more food groups on the eve of the survey in 2020 in Koulouba, Mali. [8].

These results confirm those of the IPC 2023 on household food security, according to which the prevalence of inadequate food consumption is particularly marked in 13 of the 26 provinces of the Democratic Republic of Congo. The results show that the proportion of households with poor or borderline food consumption (indicative of Phase 3 and 4 of the IPC IAA) is higher than the national average of 60%. The province of Kasaï-Oriental is one of the 13 provinces identified by the IPC, with a prevalence of between 70 and 79% of households with a Poor or Borderline Food Consumption Score (FCS) [16].

These results corroborate those of the MICS 2018 survey, which show a minimum dietary diversity among infants and young children aged 6 to 23 months in the province of Kasaï Oriental of 9.9% for those still on milk diet and 4.4% for non-breastfed subjects [17].

As can be seen, the quality of feeding for children aged between 6 and 23 months also remains inadequate, as the rate is below 70% in Kasaï Oriental.[18]

This research found that 9.6% of women of childbearing age have knowledge of a diversified diet during pregnancy, while the rest have very vague, diverse, and sometimes contradictory knowledge, opening the door to non-recommended practices. The belief and practice of these dietary prohibitions in the diet of a pregnant woman is widespread.

This knowledge and practice are still essential if women of childbearing age are to enjoy good nutrition before, during and after pregnancy. Poor nutrition in women of childbearing age perpetuates intergenerational malnutrition (mother-foetus), with irreversible long-term consequences for the child and future adult.[18]

v.   Conclusion

There is little awareness of the basics of nutrition for pregnant women. Approximately one in 10 women would have heard about the diet of pregnant women during nutritional education.

No particular attention is paid to eating habits during pregnancy. All the women surveyed have no special diet during pregnancy. In addition, they consume foods that are contraindicated during pregnancy (alcohol, coffee and limescale).

Women's minimum dietary diversity, which is only 6.3% instead of the 70% recommended by the WHO and FAO in one community, confirms this lack of attention. The practices of women of childbearing age show that the diet of women in the Bipemba Health Zone is not adequate. Similarly, anachronistic consumption of 3 food groups indicates poor dietary quality, compared with a minimum level of at least 5 food groups.

It is also important to note that not only is the diet not nutritious, and no special diet is introduced during pregnancy, but on the contrary the consumption of calcium during pregnancy and of foods contraindicated during pregnancy, in this case alcohol and coffee, is widespread.

Recommendations

In view of this conclusion, efforts should be made in this area to:

- Intensify actions to promote good eating habits for women of childbearing age in the community, health facilities, etc.

- Develop community educative interventions around the topic of nutrition for pregnant women, for teenage girls, to prepare them for their future life as mothers.

- Include a nutrition module in primary school curricula to ensure that all children and future leaders have a sound knowledge of nutrition, which will enable them to practice good eating habits.

Declarations

Author Contribution: BNP: Concept, design, data analysis, manuscript preparation and manuscript revision; MM and HB: Data collection, literature survey, statistical analysis, and interpretation, prepared first draft of manuscript.

Conflict of Interest: The authors declare no conflict of interest.

Consent to Publish: The authors agree to publish the paper in Medical Journal.

Data Availability Statement: The datasets used or analyzed during the current study are available from the corresponding author on reasonable request.

Institutional Review Board Statement: This study was conducted in accordance with the Declaration of Helsinki and approved by the ethic committee of Human Nutrition Department, Faculty of Public Health, Official University of Mbuji-Mayi (UOM), Kasaï Oriental Province, Democratic Republic of Congo.

Informed Consent Statement: Informed consent was obtained from all subjects involved in this study.

Research Content: The research content of manuscript is original and has not been published elsewhere.

vi.   References

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