

## Perception of pregnant women in Primary Health Care about healthy eating

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### Abstract

Pregnancy promotes several transformations in the female organism, leading to a greater energetic and nutritional demand. If the demand is not met, there will be a competition between the fetus and the mother, which can cause harm to fetal development. Although widely discussed, it is not very clear how pregnant women see healthy eating and whether they can follow it during their daily life. Therefore, it is important to know how pregnant women understand this theme, whether they are receiving guidance, what they do with the acquired knowledge, and what factors are influencing their dietary choices. The aim of this study was to verify the knowledge of pregnant women assisted in primary health care in Belém, PA concerning healthy eating, such as characterizing the socioeconomic and demographic profile and nutritional status of the participants. This is a quantitative-qualitative study conducted with 27 pregnant women enrolled at MHC Guamá using a questionnaire with socioeconomic and demographic data and a semi-structured form with questions about their perception of healthy eating and self-declared weight, height, and gestational age. Qualitative data were analyzed using the Similitude Analysis and Word Cloud methods. The study pointed out that most pregnant women are young, have a high school education, are single, have one minimum wage income, and know how to achieve a healthy diet. However, several factors influence their food choices such as the conditions of their food, nutrition, and health, and the access and consumption of healthy foods on a daily basis. Regarding nutritional status, the same percentage of eutrophic and overweight pregnant women was observed, which may be related to the various factors that influence their dietary choices.

**Keywords:** Maternal nutrition. Prenatal nutrition. Basic Health Unit.

### INTRODUCTION

Pregnancy is the phase of life that promotes various transformations in the female organism, leading to a greater energetic and nutritional demand. If this nutritional demand is not met, there will be a competition between the fetus and the mother, which may cause harm to fetal development<sup>1</sup>.

As in the pre-gestational period, good nutritional assistance is necessary during pregnancy, since maternal energy needs will be high, as they are linked to the great metabo-

lic, physiological, and structural requirements of the period related to the development of pregnancy<sup>2</sup>. With an adequate food intake, the nutritional needs of the fetus may be met, since its nutrient source is maternal feeding<sup>3,4</sup>.

Based on scientific evidence, the World Health Organization (WHO) suggests a healthy diet during pregnancy that contains adequate amounts of energy, proteins, vitamins, and minerals obtained through various foods, including fruits, vegetables, leafy greens, me-

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-ats, eggs, cereals and tubers, legumes, oilseeds, as well as milk and dairy products<sup>5</sup>.

An inadequate weight gain can cause low birth weight (LBW), prematurity, intrauterine growth restriction (IUR), and increased perinatal morbidity and mortality<sup>6</sup>. However, when weight gain is higher than recommended, the newborn may present asphyxia in childbirth, fetal macrosomia, and type 1 diabetes. In pregnant women, inadequate weight may cause gestational diabetes (GD), hypertension, postpartum weight retention, cesarean section, and increased risk of future obesity<sup>7</sup>.

Therefore, an adequate and healthy diet avoids problems such as insufficient weight gain, as well as excessive maternal weight gain, both being situations that can cause harm to the fetus. It is also noteworthy that an inadequate micronutrient intake reflects negatively upon pregnancy. However, the need of such an increased demand can be met by the micronutrient supplements<sup>6,7,8</sup>.

Due to the hormonal, emotional, and social influences that women experience during the gestational period, this is an opportune time for the development of effective actions to promote health and adequate/healthy eating,

as these individuals often seek clarification regarding adequate weight gain in this period<sup>9</sup>.

With regards to food, in order to have significant positive changes in eating behavior, knowledge about what to eat and awareness of the importance of healthy eating is paramount. However, there is a fine line between what individuals really know and what they actually do<sup>10</sup>. The consumption of varied foods of adequate quality by pregnant women is fundamental to achieving the energy and nutritional needs required by the period, and it is important to consider the recommendations of the food guides and cultural eating practices<sup>11</sup>.

It is known that healthy eating has been widely discussed in all environments, but it is not very clear how pregnant women receiving care at primary healthcare services see healthy eating and if they can follow a healthy diet in daily life.

In view of the above, this research aimed to verify the knowledge of pregnant women being attended to in the Primary Health Care system in Belem, Para, Brazil about healthy eating, such as characterizing the socioeconomic and demographic profile and nutritional status of these participants.

## MATERIALS AND METHODS

This is a quantitative and qualitative study, with data collection occurring between June and August 2021, at the Municipal Health Center of Guamá (MHC Guamá), in Belém, PA. The sample size was defined by the Epi Info 7 program, version 1.4.3 for android, according to the average number of pregnant patients attended to by the unit's nutritionist in a 12-month period. The study included 27 pregnant women attended at MHC Guamá aged 18 to 34 years old.

This study was previously approved by the Ethics Committee on Research with Human Beings (ECR), under opinion no. 4729447. All pregnant women were informed of the objectives of the study, as well as of the risks and benefits, and those who agreed, signed the Informed Consent Form (ICF). Data were collected through a questionnaire with questions about socioeconomic and demographic data, such as age, education, marital status, source of income,

and income. To determine nutritional status, weight, height, and gestational age reported by the participants and/or contained in their Pregnancy Book were also collected. To assess the perception of healthy eating, a semi-structured form created from the guidelines of the Food Guide for the Brazilian population was applied, which also served as a parameter for analyzing the answers about food<sup>12</sup>. The form contained 13 questions about what they defined as healthy food, if according to their understanding, the diet was healthy, whether they consumed fruits, vegetables, industrialized, cereals, and legumes, and fried foods, as well as the frequency of their consumption. It was also asked if they received any professional guidance, if they could put into practice the guidance received by the nutritionist, in addition to their

number of daily meals and water consumption. The answers were recorded with the authorization of the participants and signature in the form of recording.

For the analysis of socioeconomic and demographic data and nutritional status, the answers were organized in a database, tabulated, and analyzed using the Microsoft Excel 2013 version program, supporting the preparation of figures, tables, and statistical analysis. Regarding qualitative data, the recordings were heard and fully transcribed. The transcriptions were analyzed using the IRAMUTEQ software (Interface of R pour les Analyses Multidimensionales de Textes et de Questionnaires), which provides various types of textual analyses, from frequency of words to similarity analysis<sup>13</sup>, and is used herein the Similitude Analysis and Word Cloud methods.

## RESULTS

Socioeconomic and demographic characteristics are set out in Table 1. It is observed that the majority were between 18 and 23 years old (51.8%, n=14), had completed high school (59.2%, n=16), and were married or lived in a stable union (59.2%, n=16).

Regarding housing, 55.5% (n=15) reported having their own home. As for income, 92.5% (n=25) received up to 1 minimum wage, and the source of income was divided between formal work (18.5%, n=5), informal work (18.5%, n=5), government aid pro-

grams (22.2%, n=6), another source of income (22.2%, n=6), or without income (18.5%, n=5).

Regarding nutritional status, Figure 1 shows that 44.4% (n=12) of the pregnant women had adequate nutritional status for gestational age. However, the percentage of overweight pregnant women is also worth mentioning. Adding the same percentages of overweight (29.6%, n=8) and obese (14.8%, n=4) pregnant women, it was observed that 44.4% (n=12) were overweight.

**Table 1** - Socioeconomic and demographic characteristics of pregnant women participating in the study, Belém-PA, 2022.

Socioeconomic and demographic profile	N	%
<b>Age</b>		
18 -23 years old	14	51.8
24-28 years old	6	22.2
29-34 years old	7	26.0
<b>Education</b>		
Incomplete Elementary	4	14.8
Incomplete High School	6	22.2
Complete High School	16	59.2
Complete Higher Education	1	3.8
<b>Marital Status</b>		
Single	11	40.7
Married	8	29.6
Stable union	8	29.6
<b>Type of Housing</b>		
Temporary	7	25.9
Rented	5	18.5
Own	15	55.5
<b>Source of Income</b>		
Formal work	5	18.5
Informal work	5	18.5
Government aid programs	6	22.2
Other	6	22.2
No income	5	18.5
<b>Income</b>		
Up to 1 minimum wage	25	92.5
From 1 to 2 minimum wages	2	7.4

Regarding food intake, 96.3% (n=26) of the pregnant women answered that they consume fruits and vegetables, ranging from daily to a few times a week. As for the consumption of cereals and legumes, 96.3% of the pregnant women reported consuming this group of foods. Meanwhile, 81.4% (n=22) of pregnant women reported consuming industrialized food, and 88.8% (n=24) reported eating fried foods, ranging from daily to two to three times a week. Many reported that they know the harms of excessive consumption of industrialized and fried foods; however, they also said that

they avoid them as much as possible, yet desire to eat them when someone is eating near them or they eat them due to the issue of income, stating that it is this type of food that can be acquired easily (Figure 2).

*"Very difficult. Only when you can't go shopping for food at the market, but it's rare."* (G5 on industrialized food consumption).

*"Sometimes yes, I use Saturday to be like my garbage day, sometimes I eat coxinhas, the kind of fried food that I have a lot of cravings for, so I eat."* (G14).

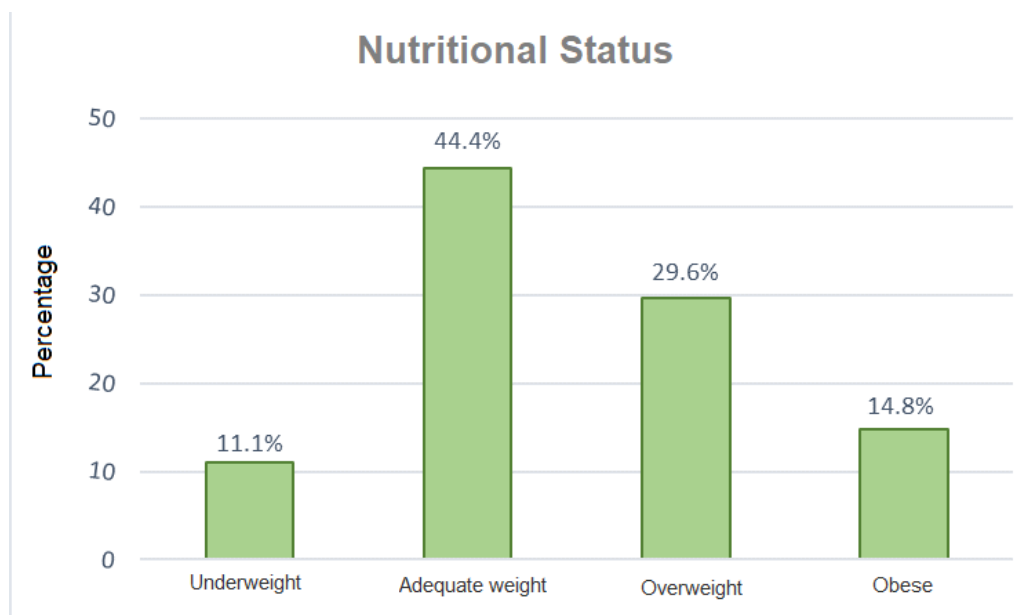


Figure 1 - Graph of the nutritional status of pregnant women participating in the study, Belém-PA, 2022.

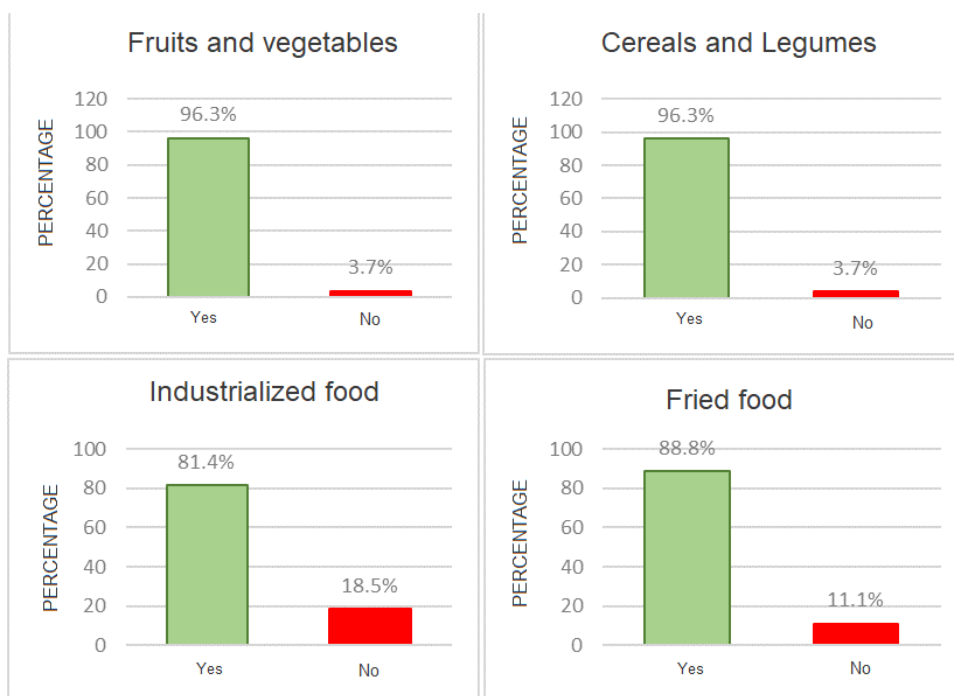


Figure 2 - Food intake of pregnant women participating in the study, by food group, Belém-PA, 2022.







## DICUSSION

In this study, it was possible to analyze socio-economic and demographic data of pregnant women attended to at a healthcare center of the most populous neighborhood of Belem<sup>14</sup>, as well as their perception of healthy eating, how their diet is, and their nutritional status.

Pregnant women living on a minimum wage, mostly single, without having reached higher education level, are conditions that seem to be directly linked to food choices and quality of life. Low schooling can result in difficulties in understanding the importance of care during pregnancy, such as the immediate onset of prenatal care and the appropriate eating habits<sup>15</sup>. Moreira *et al.*<sup>9</sup> also consider that it is of great value to observe the social and cultural environment in which these women are inserted, because aspects such as social class, schooling, access to knowledge, food prices, and easier access to ultra-processed foods can hinder the support of healthy eating.

A study conducted to evaluate the presence of food insecurity in pregnant women treated in health units in Paraná concluded that pregnant women with low income have a predominance of food insecurity<sup>16</sup>. This data becomes relevant because if pregnant women have food insecurity it may affect their nutrition and the fetus.

Regarding nutritional status, 44.4% of the pregnant women were eutrophic, a datum similar to that found by Rufino *et al.*<sup>17</sup> when evaluating the nutritional status of pregnant women attended to at a health center in Ceará, where 45.5% of the pregnant women were eutrophic. Gomes *et al.*<sup>18</sup> also found in their research conducted in the state of Maranhão that 54.4% of the pregnant women were eutrophic.

It is necessary to emphasize that, although the majority of pregnant women in this study have adequate Body Mass Index (BMI) for Gestational Age (GA), the number of overweight

pregnant women, that is, the total percentage of obese and overweight pregnant women, is equal to the number of eutrophic pregnant women, which is worrisome. As in the present study, the study by Rufino *et al.*<sup>17</sup> also found an important percentage of overweight pregnant women, totaling 49.5%. A similar result was found in a study conducted in a public maternity hospital in Manaus, where 43.3% of the pregnant women were overweight or obese<sup>4</sup>.

It is important to highlight that obese pregnant women are more likely to develop gestational diabetes, hypertension, cesarean section, postpartum weight retention, and their babies have a higher risk of fetal malformation, macrosomia, type 1 diabetes, and higher perinatal mortality<sup>7,19</sup>.

As for questions related to the consumption of fruits, greens, and vegetables (FGV), fried foods, cereals and legumes, and industrialized food, the vast majority of FGV's are present in their daily life, as well as the consumption of rice and beans (cereal and legumes), and most of the interviewees reported consuming every day. Data that deserve to be highlighted is that even consuming fresh products, there was still the presence of industrialized food, among 81.4% of the pregnant women interviewed.

A study on the food intake of pregnant women treated in healthcare centers in Bahia found an adequate consumption of fruits and vegetables among the participants<sup>20</sup>. Zuccolotto *et al.*<sup>21</sup> concluded in their study that pregnant women who consume vegetables, fruits, legumes, meat, rice and beans (the Brazilian standard) are less likely to develop obesity. On the other hand, pregnant women with a pattern of consuming snacks and ultra-processed foods have a higher risk of developing overweight and obesity. A study conducted in Sao Paulo concluded that pregnant women who had a high weight gain, consumed more fried foods and less vegetables<sup>22</sup>.



Teixeira and Cabral<sup>23</sup> mention that the consumption of industrialized foods by pregnant women is closely linked to speed and convenience.

When asked about nutritional orientation, the majority said that they received guidance regarding the adequacy of a nutritionally balanced diet; however, half of them report that they are not always able to put them into practice, influenced by both the social and financial environment. Moreira *et al.*<sup>9</sup> also obtained a similar finding in their study with women who received prenatal care in the primary care program in Rio de Janeiro, where there were also reports of the financial barriers in obtaining food.

Figure 3 shows that the word "eat" was more frequent, which refers to the importance of depending on the term "food" from the term "proper food", since the act of eating is not only related to nutrient intake or thinking about health, but also relates to more complex aspects:

*"Every nutritional substance is "food", but it is also known that not all food is proper food. In fact, to turn a food into proper food, it takes not only the critical act of cooking, but also the way in which food is prepared<sup>24</sup>."*

With this, it is understood that "eating" revolves around several aspects that not only the act of seeking nutrients, but the environment in which that person is inserted, eating habits, as well as cultural, financial, and psychological issues. So, when a pregnant woman is feeding, she is not thinking only about the nutrients, but the most diverse questions mentioned above, even if unconsciously. Dietary changes become complex and, therefore, we must consider the environment, especially the beliefs and tastes of pregnant women, where these women should be seen beyond a mere body to be nourished and looked upon with a biopsychosocial view. According to the Food Guide for the Brazilian Population<sup>12</sup>, food is more

than nutrient intake, also taking into account the social and cultural aspects of food practices.

The words "fruit, vegetables, and greens" were also highlighted, showing that most know, or at least have a notion, of the path of healthy eating, which, according to the Food Guide for the Brazilian Population<sup>12</sup>, should be based on fresh or minimally processed foods. When asked about what healthy eating is, in their point of view, the participants answered, in general, that healthy eating is based on fresh foods. They already present a notion of what is important to be consumed and what makes up healthy eating, as can be seen below:

*"I think eating fruits, vegetables, legumes."* (G6)

*" Oh, healthy eating for me is... What is it? Fruits, vegetables, juice, but no sugar, because they started to add sugar, but I think it is no longer healthy."* (G7)

*"It's a diet that won't hurt, both for me and for my son, like fruit, vegetables, greens, that doesn't have many carbohydrates."* (G17)

From the statements, it is perceived that pregnant women know of fresh foods, which presupposes that this concept is already rooted in most people. However, there are still difficulties that make them not follow a healthy diet, which are habits that have not been built and may be associated with a lack of time or financial resources. This may be reflection on how issues inherent to personal aspects, such as low schooling, unemployment, and other factors, such as access to the aid programs, food insecurity, and violence, influence changes in this food context. Therefore, the importance of a nutritionist having an integral and humanized look, with a non-verticalized knowledge which devalues the subject, seeking to understand the environment in which these pregnant women are inserted, combining better strategies individually for behavioral

changes when possible<sup>9</sup>.

*"Look, we know when you're making a mistake, I told my husband "I know she's going to fight with me because I'm overweight", but I didn't find anything so unusual. I already knew she was going to give me a "slap on the wrist" and tell me what I really had to do, you know?" (G5)*

*"In parts not, because I feed on some inappropriate things, that use preservatives, industrialized things, which is part of a diet that is not good, you know. Sometimes yes, I use Saturday to be like my garbage day, sometimes I eat coxinhas, the kind of fried food that I have a lot of cravings for, so I eat." (G14)*

*"At the beginning of the pregnancy "everything was normal" in my diet, but due to my income, and I depend on the baby's father, then he stopped helping, so I had to eat what I had." (G17)*

When observing Figure 4, we observe the occurrence of a semantic range of words: eating, fruit, no, vegetable, yes, which are related, as well as in the word cloud, to the opinion of pregnant women about what is healthy eating. This leads to the same reasoning of the previous figure, which demonstrates the knowledge of the benefits of fresh and minimally processed foods, as can be identified in the statements:

*"It's eating... for me at least I have a stomach problem, for me it is to eat every 3 hours, eating fruit, vegetables, greens, beans, rice, white meat, red meat." (G12)*

*"Healthy eating to me is eating a lot of vegetables in my pregnancy. Regulate more in salt to not harm me" (G13)*

*"Healthy eating is you ingest a lot of fruit, take plenty of water, it's eating greens, not eating too much fried food." (G27).*

## CONCLUSION

This study allowed us to know the perception of pregnant women about healthy eating through attentive listening where future mothers could tell how they view eating, a crucial act for health at such an important moment in life and

From the statements the knowledge of pregnant women about healthy eating is noted once again, which show in a simple and direct way, an understanding of what is adequate and inadequate for a healthy diet. Moreira *et al.*<sup>9</sup>, point out that what pregnant women eat has a direct relationship with what generates pleasure when feeding, yet not running away from their financial reality. In this study, the pregnant women justified the exclusion of FVG due to the price and the search for foods that cause greater satiety.

Some limitations were found in the carrying out of this study. During the pandemic period in which the world was inserted, there was a greater concern with social distancing. Therefore, the search for more airy places for interviews as well as the option not to measure anthropometric measurements to avoid a greater exposure of the pregnant woman, led to the collection of information contained in the pregnancy books and/or reported by the pregnant woman. There was also a larger number of pregnant women who refused to participate in the study, either because it was a recorded interview or due to other reasons. This did not prevent us from reaching the sample n determined, which, although small, was proportional to the number of pregnant women attended to in the service studied. Another limitation refers to the data collection instrument used, which was not previously validated also due to the pandemic scenario.

On the other hand, this study allowed us to know how pregnant women understand healthy eating, whether they are receiving guidance during prenatal care, what they do with the acquired knowledge, and what factors are influencing their dietary choices.

what could be negatively interfering their diet.

The study pointed out that most pregnant women are young, have high school education, are single, and have as income only one minimum wage salary. When analyzing their

statements, it can be inferred that they know how to have a healthy diet; however, social and economic factors, consolidated eating habits, among others, influence their dietary choices, and are determining factors in their situation of diet, nutrition, and health, as well as access and consumption of healthy food in their daily lives.

Regarding nutritional status, the same percentage of eutrophic and overweight pregnant women was observed, which increases the risk of complications during pregnancy and may be related to the various factors that influence their dietary choices. It is noted how

much economic conditions can totally influence food choices, since pregnant women know what a nutritionally balanced diet should be, are guided by the professional nutritionist, but the financial limitation may be preventing them from putting this into practice, as reported by some study participants.

It is also worth mentioning that "eating" involves many factors besides "nourishing" and that pregnant women can suffer indirect influences beyond the economic factor, leading to the consumption of unhealthy foods, mainly influenced by the gestational "cravings" widely known in public knowledge and which was reported by them.

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