

Assessment of the Nutritional Status of Pregnant Adolescent Women: analysis of secondary data

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Resumo

Teenage pregnancy involves aspects related to different causes; however, it is a public health problem as it implies health risks for the mother/child binomial with socioeconomic impact. This study aimed to describe the nutritional status of pregnant adolescent users of public health services registered in the Food and Nutritional Surveillance System Network in 2018, according to the regions of Brazil, as well as the southern region of the country, and the health regions of the State of Santa Catarina. This is an epidemiological study with an ecological, descriptive design, whose sample involved pregnant teenagers attended in the primary care services of the Unified Health System in 2018. The variable evaluated was the body mass index classifying the nutritional status as underweight, adequate weight, and overweight. Data from 137,273 pregnant adolescents in 2018 in the five regions of Brazil were analyzed, with 11,417 in the southern region of the country, and 2,538 in the state of Santa Catarina. It was found that the South region had a significantly lower percentage of low birth weight when compared to the other regions. When analyzing the adequacy of the weight of pregnant women, the following significantly different sequence was obtained with regards to prevalence: Northern region was greater than the South which was greater than the Midwest and Northeast (equal to each other) and greater than the Southeast. As for overweight, there were no statistical differences between the Midwest, Northeast, and South of the country, and was the most prevalent between the regions. The data from the Southern region show an equal prevalence of underweight and eutrophy among the states, and regarding overweight, Paraná had a significantly lower percentage when compared to Rio Grande do Sul and equal to that of Santa Catarina. The nutritional status of pregnant adolescents in Santa Catarina, according to health regions, demonstrated regional inequalities, such as overweight in Alto Uruguai Catarinense and predominantly underweight individuals in Serra Catarinense. The importance of prenatal care by a multidisciplinary team is highlighted, stressing the need to carry out food and nutrition education as well as investments in actions that provide and encourage physical activity in safe and easily accessible places for this population group, especially in the Southern region of the country.

Palavras-chave: Pregnant woman. Nutritional status. Nutritional surveillance.

INTRODUCTION

Adolescence is characterized as the period of life between 10 and 20 years of age, defined by important physical transformations - growth and emergence of puberty, demonstrated by secondary sexual characteristics - psychological reorganization,

affectionate-sexual, behavioral, sociocultural, spiritual peculiarities, with search of projects for life and other perceptions of the world¹. Teenage pregnancy involves aspects related to the exercise of sexuality and reproductive life, the material conditions of life, and the

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multiple relationships of inequalities that are present in social life within the country. It should be seen as a turning point that results from multiple life experiences, with different meanings, approached in different ways and adopting different outcomes².

The gestational period is constituted by forty weeks, and is heterogeneous in its physiological, metabolic, and nutritional aspects. The first gestational trimester is characterized by major biological changes due to the intense cell division that occurs during this period. The second and third trimesters are part of another phase, in which the external environment will have a direct influence on the nutritional status of the fetus. Adequate weight gain, food intake, emotional factors, and lifestyle, among other factors, will determine the normal growth and development of the fetus^{3,4}. During this period, there are several physical changes and substantial changes in the mother's weight and body shape, related to metabolic and hormonal rhythms, demanding the process of integrating a new body image⁵.

Nutritional assessment of pregnant women includes anthropometric, dietary intake, biochemical, and clinical assessments. Anthropometric assessments are the most accessible, non-invasive, and quick exam recommended to assess nutritional status during pregnancy, including weight and height measurements⁴. From the relationship of these two measurements, the body mass index (BMI) is found, which provides information on energy reserves and is used to assess pre-gestational and gestational nutritional status as well as monitor weight gain during pregnancy⁶.

Gestational weight gain is the result of important physiological changes such as increased plasma volume, red blood cells, cardiac output, body water, glomerular filtration rate, and decreased gastrointestinal

motility⁷. The maternal nutritional status and weight gain influence the risk of morbidity and mortality of the mother, the fetus, and the health of the future adult. Also, pre-pregnancy weight deficits and insufficient maternal weight gain have been associated with low birth weight, while exaggerated maternal weight gain constitutes an important risk factor for several diseases such as macrosomia, gestational diabetes, pre-eclampsia, and complications in childbirth, compromising the health of mother and child⁸.

In recent times, there has been an increase in the prevalence of excessive weight during pregnancy, and maternal obesity has become one of the most commonly observed risk factors in obstetric practice. Therefore, excessive weight gain during pregnancy needs immediate attention from health services, especially considering the adverse consequences arising from this condition⁹.

Anthropometric and food consumption data of users of the Unified Health System (SUS) are entered into the Food and Nutrition Surveillance System (SISVAN Web) by primary care workers, through an online platform accessed at the health center or ministry of health. The central administration of this system is carried out by the General Coordination of Food and Nutrition of the Ministry of Health. This health information system makes it possible to store data and generate information on the nutritional status and food consumption of primary care users within the Unified Health System with the objective that such information provides the diagnosis and monitoring of the food and nutritional situation of the Brazilian population. Thus, this information may contribute to the development of interventions on the risk factors associated with nutritional problems and the social determinants of food and nutritional

insecurity, both in the context of individual assistance and in the collective sphere¹⁰.

This study is justified because the theme is directly connected to the 3rd Sustainable Development Goal: “Ensure a healthy life and promote well-being for everyone, at all ages”, which is among the 17 goals that must be achieved by the member countries of the United Nations in the coming years. Among these goals are those that seek out quality health for people, especially for pregnant women and children. One of the goals is “to end preventable deaths of newborns and children under 5 years old”¹¹.

Another reason refers to research results that reveal that the first thousand days of life, from pregnancy to two years of age, are decisive for the full development of physical and cognitive health in adult life, representing the formation of adults who are taller, more intelligent, and less likely to develop chronic diseases¹¹. This interval

constitutes a “window of opportunity” to protect the newborn's life and ensure long-term benefits for the adult's health, cognition, and productive capacity¹². In view of this, the need for studies aimed at knowing the nutritional profile of pregnant adolescents is justified, considering the importance of nutritional care in this period. Early identification of the inadequate nutritional status of pregnant women contributes to timely interventions, resulting in a positive impact on the child's birth conditions and minimizing perinatal and neonatal mortality rates¹³.

According to this context, the objective of this study was to describe the nutritional status of pregnant teenagers, users of public health services registered in SISVAN Web, in 2018, according to the regions of Brazil, as well as the southern region of the country and health regions of the State of Santa Catherine.

METHODOLOGY

This is an epidemiological study of ecological design, developed with secondary data registered in the Food and Nutritional Surveillance System (SISVAN) of the Information Technology Department of the Unified Health System (DATASUS) within the public domain and freely accessible using electronic media.

Absolute and relative frequencies were collected for the classification of nutritional status, through the Body Mass Index (BMI) (underweight (BMI <18.5); adequate weight (BMI ≥ 18.5 and < 25); overweight (BMI ≥ 25 and < 30); and obese (BMI ≥ 30))¹⁴ of pregnant teenagers assisted in the Primary Care of the Unified Health System according to the Brazilian regions (Midwest, North, Northeast, Southeast, and South), the states of the Southern region (Rio Grande do Sul, Santa Catarina, and Paraná),

and of the 16 health regions of the State of Santa Catarina (Alto Uruguai Catarinense, Alto Vale do Itajaí, Alto Vale do Rio do Peixe, Carbonífera, Extreme South of Santa Catarina, Extreme West, Foz do Rio Itajaí, Greater Florianópolis, Laguna, Middle Vale do Itajaí, Midwest, Northeast, West, North Plateau, Serra Catarinense, and Xanxerê)¹⁵, for the year 2018.

For data analysis, overweight and obesity were grouped, and the variable overweight was created. Descriptive statistics were used, through absolute and relative frequencies. In comparing the nutritional status of pregnant adolescents between the regions of Brazil and the states of the Southern region, the t test between two proportions was used, with a significance level of 5%. Analyses were performed using the Statistica version 13 program.

RESULTS

Data from 137,273 pregnant adolescents in 2018 in the five regions of Brazil were analyzed, with 11,417 in the southern region of the country, and 1,936 in the state of Santa Catarina.

The classification of the nutritional status of pregnant adolescents according to regions of Brazil is shown in Table 1. It was found that the Southern region had a significantly lower percentage of underweight individuals when compared to the other regions, followed by the Southeast region. On the other hand, the Midwest, Northeast, and North were statistically equal and with higher prevalences than the Southeast and Southern regions. When analyzing the adequacy of the weight of pregnant women, the following significantly different sequence was obtained with regards to prevalence: Northern region was greater than the South which was greater than the Midwest and Northeast (equal to each other) and greater than the Southeast. As for overweight, there were no statistical differences between the Midwest,

Northeast, and South of the country, and was the most prevalent between regions when considering the absolute frequency for this classification. The Northern region was the region that significantly presented the lowest percentage of overweight when compared to the others.

Table 2 shows the nutritional status of pregnant teenagers among the states in the southern region. The data show an equal prevalence of low and adequate weight among the states. As for overweight, Paraná had a significantly lower percentage when compared to Rio Grande do Sul and equal to that of Santa Catarina.

Data regarding the nutritional status of pregnant adolescents in the State of Santa Catarina were analyzed considering the health regions and it was observed that underweight predominates in the Serra Catarinense, while the Midwest had the lowest prevalence (FIGURE 1). As for overweight, Alto Uruguai Catarinense stands out with the highest percentage and Serra Catarinense with the lowest (FIGURE 2).

Table 1 – Nutritional status of pregnant adolescents registered in the Food and Nutritional Surveillance System, according to regions of Brazil, 2018. Itajaí (SC), 2019.

Country Region	Underweight	%	Adequate	%	Overweight	%	Regional Total
Midwest	1 764	33.75 ^a	2204	42.17 ^a	1 259	24.08 ^{a,c}	5 227
Northeast	20 466	33.71 ^a	25 770	42.45 ^a	14 472	23.84 ^a	60 708
North	7 233	32.81 ^a	10 169	46.12 ^b	4 646	21.07 ^b	22 048
Southeast	11 804	31.17 ^b	15 657	41.34 ^c	10 412	27.49 ^c	37 873
South	2 783	24.38 ^c	5 012	43.9 ^d	3 622	31.72 ^a	11 417
Total of Brazil	44 050	32.09	58 812	42.84	34 411	25.07	137 273

Source: SISVAN, 2019¹⁶

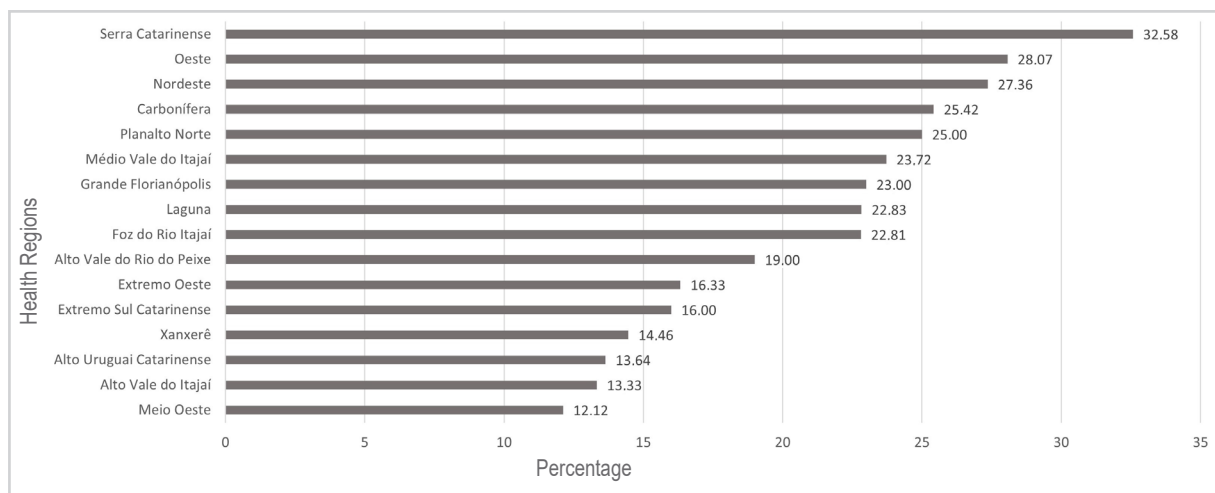
Note: different superscript letters in the same column show statistically different values (p<0.05) according to the t test between two proportions.

Table 2 – Nutritional status of pregnant adolescents registered in the Food and Nutritional Surveillance System, according to states in the Southern region, 2018. Itajaí (SC), 2019.

State	Underweight		Adequate		Overweight		Total
	n	%	n	%	n	%	
Paraná	1 346	26.02 ^a	2 286	44.19 ^a	1 541	29.79 ^a	3 948
Rio Grande do Sul	842	22.66 ^a	1 608	43.28 ^a	1 265	34.26 ^b	2 909
Santa Catarina	598	23.56 ^a	1 123	44.25 ^a	817	32.19 ^{a,b}	1 936
Total	2 786	24.4	5.017	43.9	3 623	31.7	11 426

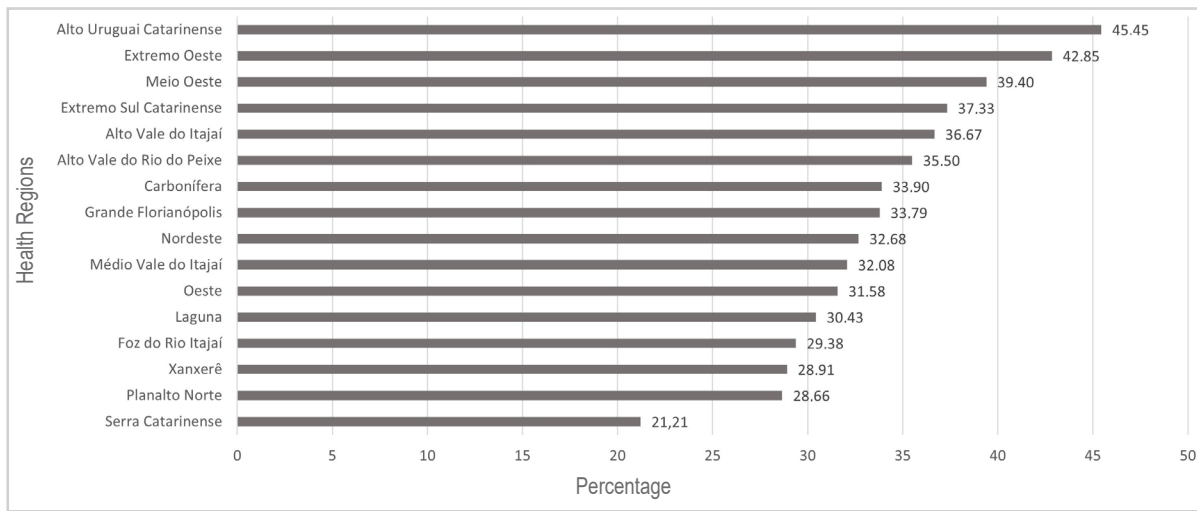
Source: SISVAN, 2019¹⁶

Note: different superscript letters in the same column have statistically different values ($p < 0.05$) according to the t test between two proportions.



Source: SISVAN, 2019¹⁶

Figure 1 – Underweight pregnant adolescents registered in the Food and Nutrition Surveillance System, according to the health regions of Santa Catarina, 2018.



Source: SISVAN, 2019¹⁶

Figure 2 – Overweight pregnant adolescents registered in the Food and Nutritional Surveillance System, according to the health regions of Santa Catarina, 2018.

DISCUSSION

In this study, there was a predominance of normal weight, but attention should be paid to the prevalence of overweight individuals in the southern region of the country, which surpassed underweight women in this population group.

Nutritional extremes play a decisive role in fetal growth and birthweight. Excess maternal weight is a risk factor for gestational diabetes, arterial hypertension syndrome, thromboembolism, fetal macrosomia, prematurity, neural tube defects, and is also related to the increased demand for cesarean deliveries and surgical wound complications¹⁷.

Studies found in the five regions of the country show an increase in overweight in this population group.

In the Southern region, a study estimated the prevalence of overweight during pregnancy and

identified its association with socioeconomic, demographic, and obstetric history. Moreover, pre-pregnancy overweight variables in pregnant women who use healthcare units in Colombo, Paraná, and found the prevalence of overweight of 46.2%¹⁷.

In the Southeast region, a study conducted at the Hospital of the Faculty of Medicine of Jundiaí (SP) with the objective of determining the prevalence of overweight and pre-pregnancy and gestational obesity as well as verifying the existence of an association with the birthweight of the baby in 712 hospitalized pregnant women, the authors observed that 324 (47.2%) reported problems during pregnancy, such as: systemic arterial hypertension (n=89/27.5%), anemia (n=44/13.6%) and diabetes (n=23/7.1%). The prevalence of overweight was 35% (247

pregnant women)¹⁸.

In the Northeast region, Batista *et al.*¹⁹, observing the quality of life of pregnant women who sought multidisciplinary primary care during pregnancy, found that the age ranged between 19 and 38 years old, first-time mothers (95%), married (85.4%), employed (70.7%), and were sedentary (80.5%), with an average gestational age of 21 weeks, average family income above 8 minimum wages, higher education level (65.9%), and adequate nutritional status (58.6%). In another study, Gomes *et al.*¹³, evaluating the nutritional status of pregnant women attending a Primary Care Center in Caxias, MA, observed that more than half of the sample had adequate weight (54.4%), while the other half of the pregnant women was at nutritional risk, represented mainly by underweight (19.1%) and overweight (26.5%) individuals.

In the Midwest region, Godinho *et al.*²⁰

evaluated 164 pregnant women hospitalized in a high-risk public maternity hospital in Goiânia (GO) and observed that almost half (47.8%) of the interviewees had pre-pregnancy overweight and the other half (48.5%) an adequate nutritional status. During pregnancy, more than half (53.4%) of the pregnant women were overweight.

A prospective study with 457 pregnant women assisted in primary care in the Northern region, in Cruzeiro do Sul, Acre found 18.6% of pregnant women with insufficient weekly weight gain and 59.1% with excessive weight gain, and it was associated with higher blood pressure values in the beginning of the third gestational trimester²¹.

The limitations of the present study are inherent to the secondary data source, the health information systems, with the biggest disadvantages being related to the lack of standardization in data collection.

CONCLUSION

The results obtained in this study draw attention to the high prevalence of excess weight in the Southern region, especially in the states of Rio Grande do Sul and Santa Catarina. When evaluating the health regions of Santa Catarina, the data show nutritional inequalities, high prevalence of nutritional deficits in some regions

and overweight in others. The importance of prenatal care by a multidisciplinary team is highlighted, stressing the need to carry out food and nutrition education and investments in actions that provide and encourage physical activity in safe and easily accessible places for this population group.

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