

Association between dietary patterns and dietary sodium-to-potassium ratio among pregnant women in two Brazilian cities 2018-2021

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Dietary patterns rich in ultra-processed foods, fats, industrialized seasonings and sweetened beverages are more strongly associated with a higher dietary sodium-to-potassium ratio among pregnant women

BACKGROUND

Understanding the dietary aspects related to the sodium-to-potassium ratio through the analysis of dietary patterns can be an essential tool in preventing negative health outcomes for both pregnant women and their babies.

This study aimed to evaluate the association between dietary patterns and dietary sodium-to-potassium ratio among pregnant women in two Brazilian cities.

METHODS

This cross-sectional study analyzed the dietary patterns and sodium-to-potassium ratio of the diets of 490 pregnant women from Macaé (Rio de Janeiro) and Pinhais (Paraná), Brazil.

The data were accessed from a multicenter study on iodine deficiency (EMDI-Brazil). Dietary patterns were estimated *a posteriori* using the exploratory factor analysis (EFA).

Multiple logistic regression models were built for each of the identified dietary patterns and the association with sodium-to-potassium ratio was adjusted for confounding variables.

RESULTS

The mean age of the pregnant women was 27 years old; 44% were mixed race; 60.5% had a high school education; 74% had a *per capita* income below 1 minimum wage; 82.5% were married; and 51% did not work outside the home. Regarding health status, 51% were overweight, 10% had gestational or pre-gestational diabetes, 19% were hypertensive, 25% smoked, and 5% consumed alcoholic beverages.

61% of pregnant women had a sodium-to-potassium ratio greater than 1.0. Pregnant women with this result consumed more calories compared to those with a sodium-to-potassium below 1.0 ($p < 0.05$).

We did not observe any statistically significant associations between sociodemographic and health characteristics and the dietary sodium-to-potassium ratio among pregnant women.

The results of the exploratory factor analysis (EFA) indicated 5 dietary patterns under the criteria of *eigenvalues* >1 and *scree plot* test.

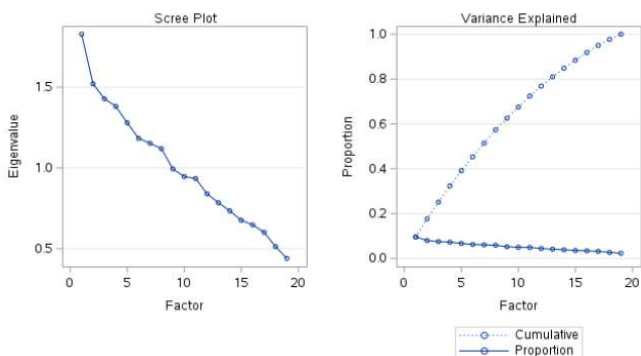


Figure 1. Scree plot and the proportion of variance explained by each dietary pattern.

The characteristics of each dietary pattern can be observed below:

Table 1. Distribution of factorial loadings of the identified dietary patterns, eigenvalue, and proportion of variance explained and cumulative variance of each dietary pattern for pregnant women from two Brazilian cities treated in the primary healthcare network, 2018-2021

Food items	Dietary patterns				
	Traditional brazilian	Breakfast	Snacks	Prudent	In natura
Cereals and their products	0,67	-0,12	0,01	0,18	0,03
Beans, legumes, and nuts	0,74	-0,01	-0,08	-0,06	0,08
Dairy products	-0,11	0,42	-0,08	0,22	-0,09
Fish and seafood	0,18	-0,46	-0,04	-0,08	-0,07
Fats and oils	0,45	0,54	0,12	-0,11	0,14
Breads	0,18	0,70	0,08	-0,13	0,05
Processed meats	0,00	0,10	0,73	-0,13	0,03
Salt, sauces, and industrial seasonings	0,06	-0,02	0,69	0,05	0,12
Savory snacks	-0,08	0,03	0,45	0,18	-0,25
Red meats	0,04	0,09	-0,27	-0,50	0,22
Poultry and its products	0,14	-0,07	0,12	0,65	0,14
Natural fruit and/or vegetable juices	-0,21	0,26	-0,17	0,46	0,13
Soft drinks	-0,26	-0,13	0,31	-0,49	0,13
Vegetables and their products	0,12	0,06	0,05	-0,05	0,49
Equits	-0,17	-0,03	-0,18	0,24	0,45
Coffee and tea	0,14	0,26	0,12	-0,13	0,49
Roots and tubers	0,09	-0,44	0,06	0,08	0,49
Sweetened beverages	0,37	0,09	0,10	-0,02	-0,45
Eigenvalue	1,61	1,54	1,51	1,37	1,34
Proportion of variance explained by each dietary pattern	0,10	0,08	0,07	0,07	0,07
Cumulative proportion of variance	0,10	0,18	0,26	0,34	0,41

Pregnant women who adhered to the "Breakfast" and "Snacks" patterns were 62% (OR 1.62; 95% CI 1.30-2.02) and 152% (OR 2.52; 95% CI 1.83-3.47) more likely to have a dietary sodium-to-potassium ratio greater than 1.0, respectively (adjusted analysis).

Table 2. Association between dietary patterns and dietary sodium-to-potassium ratio among pregnant women from two Brazilian cities treated in the primary healthcare network, 2018-2021

Dietary patterns	Crude	Adjusted*
	OR (IC 95%)	OR (IC 95%)
Brazilian traditional	0,99 (0,83-1,19)	0,91 (0,75-1,11)
Breakfast	1,68 (1,36-2,08)	1,62 (1,30-2,02)
Snacks	2,59 (1,89-3,55)	2,52 (1,83-3,47)
Prudent	0,64 (0,52-0,79)	0,64 (0,52-0,79)
In natura	0,54 (0,44-0,67)	0,45 (0,35-0,58)

CONCLUSIONS

The findings of this study showed a positive association between dietary patterns composed of unhealthy food groups, such as ultraprocessed foods, fats, and sugary beverages, and sodium-to-potassium ratio greater than 1 among Brazilian pregnant women.

An inadequate diet can lead to significant health outcomes for the mother, such as gestational diabetes, hypertension, and excess weight, and for the baby, including premature birth. Therefore, we should underscore the need for public policies on food and nutrition geared to this population in order to promote access to healthy and safe eating practices.

ADDITIONAL KEY INFORMATION

No conflicts of Interest

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