School meals and consumption of ultra-processed food in Brazilian adolescents

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Schools covered by school meals are less likely to consume ultra-processed salty foods and soft drinks. Students who attend schools with cafeterias are more likely to consume ultra-processed salty foods, sweets and soft drinks.

BACKGROUND

- School meals plays a key role in student development and health. Public Brazilian schools offer free meals through the National School Feeding Program (PNAE).
- Studying that to identify the influence of food offered by the PNAE and sold by school cafeterias on the consumption of ultra-processed salty foods, soft drinks, and sweets in schools are vital to prevent unhealthy eating habits.
- We evaluated the association between **meals offered by the PNAE** and **school cafeterias** and the **consumption of ultra-processed foods** among **Brazilian adolescents.**

METHODS

- Cross-sectional study of 102,072 students (11-19 years old);
- Data: National School Health Survey (PeNSE) 2015 (Brazilian Institute of Geography and Statistics);
- Outcomes: consumption of ultra-processed salty foods, sweet foods, and soft drinks;
- Multivariate analysis using the Poisson regression model.

RESULTS

- Regular consumption of ultra-processed salty foods and soft drinks were associated with residing in a capital (PR=1.09, CI=1.06–1.11; PR=1.14, CI=1.11–1.17).

RESULTS CONTINUED

- Higher probability of consuming sweets was associated with female sex (PR=1.35, CI=1.33–1.38);
- Regular soft drinks consumption was associated with public school attendance (PR=1.12, CI=1.06–1.18) and male sex [PR=1.10, CI=1.08–1.13).

CONCLUSIONS

- School meals are associated with less consumption of ultra-processed foods by Brazilian adolescents, whereas the presence of a school cafeteria was related to a higher consumption of this food group.
- School meals can reduce food insecurity and the PNAE is a long-lasting program. These findings may support intervention strategies to promote healthy eating patterns by adolescents and young adults.

ADDITIONAL KEY INFORMATION

Conflicts of Interest: No competing interests exist.

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Variable	Industrialized/ultra-processed salty foods[a]		Sweets[a]		Soft drinks[a]	
	PRa (95% CI)	*p*	PRa (95% CI)	*p*	PRa (95% CI)	*p*
Availability of food at school						
PNAE		0.014		0.463		0.003
Yes	1		1		1	
No	**1.06 (1.01–1.11)**		1.02 (0.97–1.06)		**1.08 (1.03–1.14)**	
School cafeteria		<0.001		<0.001		<0.001
No	1		1		1	
Yes	**1.05 (1.02–1.08)**		**1.09 (1.07–1.11)**		**1.10 (1.07–1.13)**	

Table 1. Multivariable analyses of factors associated with the consumption of industrialized/ultra-processed salty foods, sweets, and sof drinks by 9th-grade adolescents in the 2015 PeNSE in Brazil. Effect measure is the PR 95% CI. Model adjusted for all explanatory variables. PeNSE: National School Health Survey; PNAE: Brazilian School Food Program. Bolded p-values denote signifcance (p<0.05). Regular consumption (at least 5 of the previous 7 days).

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