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## INTRODUCTION

Prevalence of overweight, obesity and non-communicable diseases (NCDs) has risen substantially in the past three decades in every region, and most rapidly in low- and middle-income countries (NG *et al.*, 2014). This scenario seems to be mainly driven by changes in the global food system, which delivers more processed, energy-dense, palatable, affordable and effectively marketed foods than ever before (Swinburn *et al.*, 2011).

The extensive marketing strategies used by the food industry, particularly those directed to children (e.g. persuasive techniques), have been considered one of the main drivers of unhealthy eating behaviors (Swinburn *et al.*, 2013). Thus, the regulation of this marketing becomes an important part of a set of actions to combat obesity (WHO 2010; 2013). Food marketing surveillance, especially in mass communication channels (such as television), is therefore imperative for the establishment of appropriate measures related to this issue.

## OBJECTIVE

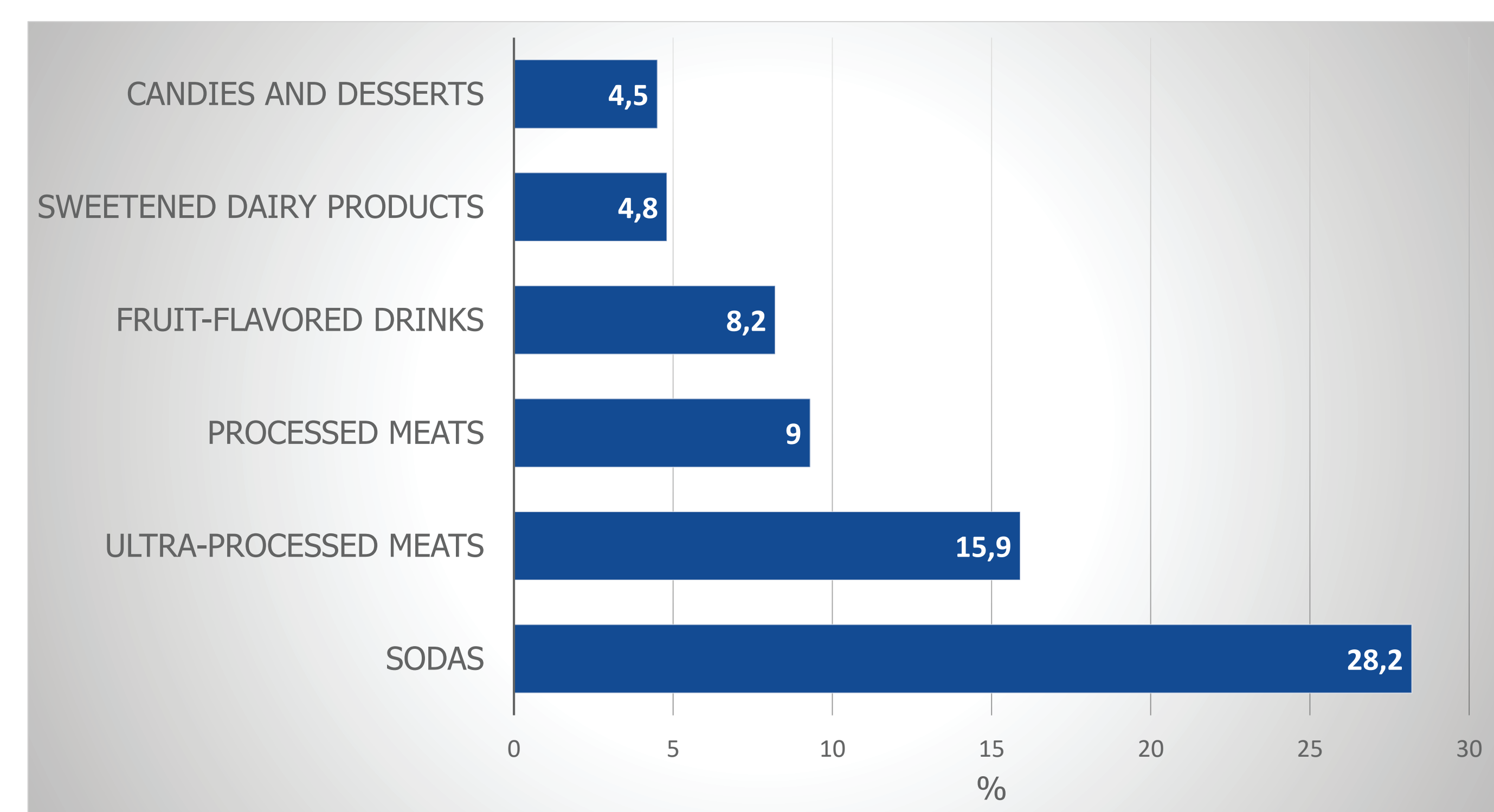
To assess the nutritional profile of foods and non-alcoholic beverages advertised on Brazilian television by applying the Pan American Health Organization (PAHO) and the World Health Organization (WHO)-Europe nutrient profiling (NP) models.

## METHODS

We applied the television food advertising monitoring protocol created by the International Network for Food and Obesity/Non-communicable Diseases (NCDs) Research, Monitoring and Action Support (INFORMAS) (KELLY B *et al.*, 2013) for data collection. Three free-to-air channel (with the highest audience) TV programming was recorded from 6am to 12am, for eight days (four week days and four weekend days, excluding holidays), randomly selected from April 1<sup>st</sup> to 30<sup>th</sup> 2018. All food-related ads were coded using a systematic approach and classified according to the PAHO (PAHO, 2016) and the WHO-Europe (WHO, 2015) NP models as "eligible"/"not eligible" for marketing restrictions. Absolute and relative frequencies were used to describe the proportion and types of food and beverage ads. The nutritional profile of foods was compared by day (weekday/weekend day), time of the day (morning/afternoon/evening) and types of TV program.

## RESULTS

A total of 1,610 food and beverage ads were broadcasted, representing 18.1% of the total ads shown on the three selected channels. Over 80.0% of all foods and beverages advertised on Brazilian TV channels did not meet the PAHO and the WHO-Europe nutritional quality standards and were considered "eligible" for marketing restrictions. Although the applied NP were consistent in identifying the major food categories contributing to unhealthy food advertising, the PAHO model is more aligned with the Brazilian Dietary Guidelines (BRAZIL, 2014) when selecting items to be targeted for marketing restrictions. The proportion of unhealthy food ads was significantly higher on weekends, in the afternoon, and during soap operas programming.



**Figure 1.** Top six most frequently advertised foods and non-alcoholic beverages that did not meet the PAHO NP model standards and would be eligible for marketing restrictions (n=1,334). April 2018.

**Table 1.** Proportion of food and non-alcoholic beverage ads classified as eligible for marketing restrictions according to the PAHO and the WHO/Europe NP models, by day, time of the day and types of program. April 2018.

	Total (n)	Food and beverage ads eligible for marketing restrictions			
		PAHO		WHO/Europe	
		%	95%CI	%	95%CI
<i>Day</i>					
Weekday	1,023	77.8	75.2 - 80.2	78.3	75.7 - 80.7
Weekend	587	91.7	89.1 - 93.6	91.0	88.4 - 93.0
<i>Time of the day</i>					
Morning	295	77.5	72.0 - 82.2	74.5	68.9 - 79.5
Afternoon	603	94.3	92.0 - 96.0	91.9	89.1 - 94.0
Evening	712	72.1	68.5 - 75.4	75.5	72.0 - 78.7
<i>Types of program</i>					
Soap opera (not specifically for children)	423	88.6	85.1 - 91.3	87.6	84.0 - 90.4
News, commentary, political programs	315	63.5	57.7 - 68.9	67.0	61.3 - 72.3
Children: cartoon, other show for children	172	80.9	73.5 - 86.5	75.4	67.8 - 82.0
Others*	700	83.0	79.5 - 85.9	84.0	80.7 - 86.9
<b>Total</b>	<b>1,610</b>				

CI: confidence interval.

\*Miscellaneous entertainment, series, movies, reality shows, religious.

## CONCLUSION

The findings of the present study indicate a potential high exposure of the Brazilian population to unhealthy food marketing and an inefficient enforcement of existing regulations. Legal experts need to be sensitized to work in conjunction with public health actors to guarantee that current restrictive policies are implemented

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