Trends in the environmental impacts of unprocessed or minimally processed, processed, and ultra-processed animal products in Brazil over 30 years

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Background:

We aim to assess the trends in the consumption of unprocessed or minimally processed, processed, and ultra-processed animal products, and the environmental impacts associated with them.

Methods:

We have used data from five Brazilian Household Budget Surveys (1987, 1996, 2003, 2009, 2017). Animal products (beef, pork, poultry, eggs, fish, milk, and cheese) were classified into NOVA food groups: unprocessed or minimally processed (G1), processed (G3), and ultra-processed (G4). We estimated the share (%) of each food group to daily kcal per capita, as well as carbon footprint (CF), water footprint (WF) and ecological footprint (EF) per 1000 kcal-day. Trends over the years were tested using linear regression considering the population size as a weighting factor.

Results:

From 1987 to 2017, the dietary share of G1 animal products decreased 2% (15.5-15.2%, p-trend < 0.001), while the share of G3 and G4 products increased by 88% (1.6-3.0%, p-trend < 0.001) and 340% (4.3-1.1%, p-trend < 0.001), respectively. CF in g CO2 eq per 1000 kcal remained the same for G1 products (921.4-946.2, p-trend = 0.278) and increased by 124% (30.9-69.3, p-trend < 0.001) and 319% (50.7-212.5, p-trend < 0.001) for G3 and G4 products, respectively. WF in litres per 1000 kcal decreased by 11% for G1 products (846.7-752.5, p-trend < 0.001), and increased by 130% for G3 (24.3-55.9, p-trend < 0.001) and 323% for G4 products (42.5-179.8, p-trend < 0.001). Similarly, EF in m2 per 1000 kcal decreased by 5% for G1 products (6.06-5.73, p-trend < 0.001), and increased by 67% for G3 (0.24-0.40, p-trend < 0.001) and by 305% for G4 products (0.21-0.85, p-trend < 0.001).

Conclusion:

The consumption of processed and ultra-processed animal products has been increasing along with their environmental impact, suggesting that the reduction of their consumption would be beneficial for both human and planet health.