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Food safety at home: a study of handling practices across Brazil

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Foodborne diseases (FBD) are an important public health issue worldwide, causing significant economic and social losses. According to the Brazilian Ministry of Health, a total of 6,874 FBD outbreaks were reported between 2014 and 2023, resulting in 110,614 illnesses and 121 deaths. Most of these outbreaks occurred at home. It is essential to control food safety throughout the food chain - from farm to fork - and care at home is a crucial step to reduce FBD. This study aimed to assess food handling practices in Brazilian households with implications that may reach many other nations worldwide. To achieve this, a cross-sectional study was conducted using a questionnaire created on Google®Forms, including questions related to sociodemographic profile and food handling practices. The data were analyzed by binomial logistic regressions in RStudio (version 4.2.2). Categorical variables were converted into factors, and the model was adjusted to predict the probability based on education level and social class. The assessment included the ROC curve, AUC, and the extraction of coefficients, confidence intervals, and *p*-values. A total of 5,000 individuals across the entire Brazilian territory responded to the questionnaire, with the majority being females aged between 25 and 55 years. Most participants had higher education and monthly family incomes exceeding four minimum wages. Regarding the handling and consumption of animal products, 46.3% of participants reported having the habit of washing meat in the kitchen sink and 24.1% usually consume undercooked meat. In addition, 26.2% washed eggs before storing them, and 17.4% consumed either raw or undercooked eggs. Many participants reported defrosting food at room temperature (39.5%). Statistical analysis showed that the education level plays an important role in eating behaviors. A significant decrease in the likelihood of washing meats in the kitchen sink and eggs (before storing them) was observed as the educational level increased. Specifically, regarding meat washing, the postgraduate level showed a significant reduction in the behavior ($p<0.001$). Social class also significantly influences practices such as consuming raw eggs. For

example, compared to Class B, Class D showed significantly lower likelihood of consuming raw eggs (p<0.05). Individuals from lower social classes (C, D, E) showed a significantly lower likelihood of consuming raw eggs and undercooked meat (p<0.05). The practice of washing raw meat in the kitchen sink should be avoided, as it can lead to cross-contamination. Consuming undercooked or raw animal products also presents a microbiological risk, so it is important that meats and eggs are thoroughly cooked. The practice of defrosting food at room temperature is not recommended, as safe cooling or defrosting involves keeping food at an appropriate temperature, typically in the refrigerator or using a microwave oven. In conclusion, some Brazilians practice improper food handling at home, likely due to a lack of knowledge or negligence about the risks involved. Therefore, effective communication on food safety is crucial to prevent FBD and promote safer practices.

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