

**Objective:** To estimate associations between environmental and individual factors and the consumption of FV among adults in a Brazilian urban context.

**Methods:** Data from the surveillance system for risk factors for chronic diseases of Brazilian Ministry of Health was used (VIGITEL—2008/2009/2010). A cross-sectional telephone survey was carried out with 5826 adults (45.8 % men and 54.2 % women, mean age 39.5 years) in the urban area of Belo Horizonte. Individual variables was collected by telephone interviews. The frequency of FV consumption was assessed from number of servings, weekly frequency and a FV intake score. Georeferenced variables was used to characterize the food environment. The number of stores selling FV (supermarkets, hypermarkets, shops and markets specialized in selling FV) and the neighborhood quartiles of family income were investigated and combined to score FV intake. Weighted multilevel linear regression was used to evaluate the associations between the food environment and the FV intake score.

**Results:** We observed that the food environment was not associated with FV intake score and higher FV intake score in women and physically active people during leisure time and lower scores in smokers. It was also observed increase in FV intake score with increasing age as well as schooling. The neighborhood income joined the scores of FV intake, showing that the score of consumption increases as the total income of the neighborhood increases.

**Conclusion:** The food environment was not associated with FV consumption, showing that in this case, family income explains much of the context variables associated with FV intake.

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Fruit and vegetable consumption and food environment in a Brazilian capital: a multilevel analysis

Topic: Exposure - Environmental factors

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**Background:** Environmental, social and individual factors influence eating patterns, which in turn affect the risk of many chronic diseases. Fruit and vegetable (FV) consumption plays a protective role in the onset of non-communicable diseases.

**Objective:** To test associations between environmental factors and the consumption of FV among adults in a Brazilian urban context.

**Methods:** Data from the surveillance system for risk factors for chronic diseases of Brazilian Ministry of Health was used (VIGITEL—2008/2009/2010). A cross-sectional telephone survey was carried out with 5826 adults (45.8 % men and 54.2 % women, mean age 39.5 years) in the urban area of Belo Horizonte. Individual variables was collected by telephone interviews. The frequency of FV consumption was assessed from number of servings, weekly frequency and a FV intake score. Georeferenced variables was used to characterize the food environment. Weighted multilevel linear regression was used to evaluate the associations between the food environment and the FV intake score.

**Results:** The results showed higher FV intake scores in women and people physically active and lower scores in smokers. We observed a positive relationship between the number of grocery stores in the neighborhood and FV intake score and a negative relationship

between worse health vulnerability index (HVI) and the score of FV consumption.

**Conclusion:** Characteristics of the neighbourhood that people live are associated with FV in urban Brazilian adults. Surveillance systems as VIGITEL are interesting tools in this type of research and with the information based on GIS, are important tools for planning actions to promote fruit and vegetable consumption.

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Evaluation of the iodine situation on the background of USI in Kazakhstan

Topic: Exposure - Environmental factors

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**Background:** In 2003 the Republic of Kazakhstan (RK) was one of the first countries of CIS region adopted the Law on mandatory iodization of table and cattle salt. Based on the results of the national Multiple Indicator Cluster Survey (MICS) of 2006 and the subsequent application, the country was certified in 2010 as reached universal salt iodization (USI). After this time, researches on iodine deficiency at the national level were not held in Kazakhstan.

**Objectives:** The evaluation of the situation on iodine intake at the national level by urine iodine excretion, revelation of salt iodization quality and the awareness level of the population on iodine deficiency, comparison of indicators overtime in RK.

**Methods:** A cross-sectional survey of 2011 included 64 clusters on 22 women in each cluster. The women of reproductive age (15–49 years) were interviewed and 1,145 salt samples were collected from their households for quantitative determination of iodine, and 1,296 their urine samples were analyzed on content of iodine by ammonium persulfate digestion method, based on the Sandell-Kolthoff reaction. It was conducted a comparative analysis of the results with data from national studies before adopting USI strategy (1999) and MICS (2006).

**Results:** The urinary iodine median at women in 2011 was 181.1 mg/l, in 2006–235.9 mg/l, in 1999–93.9 mg/l. The prevalence of iodine deficiency of women was 22.8 % in 2011, it was 15.9 % in 2006, and 54.2 %—in 1999. In 2011 the percentages of salt samples with adequately iodized salt (C15 ppm) were 95.9 %, in 2006—91.4 %, in 1999—29 %. In 2011 among interviewed women 92.7 %, n = 1303 knew that salt is iodized, in 2004 these were 93.3 %, n = 1 500, and only 58.6 % were aware of the need to use iodized salt, n = 4800 in 1999.

**Conclusion:** Since the adoption of the Law on mandatory salt iodization consumption percentage of adequately iodized salt has increased, which in turn affected the rising of urinary iodine levels at the population. After 8 years of USI median of urinary iodine excretion decreased slightly comparing with 2006, but remained in the normal range on the background of adequately iodized salt coverage more than 90 %. It indicates the necessity of periodic biological monitoring and continuing communication activity among population on long-term and constantly basis.