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Risk and protection factors for chronic non-transmittable diseases among the adult population of Brazil

This supplement presents a series of articles originating from analysis of the data from the first Brazilian population-based survey conducted by telephone, on chronic non-transmittable diseases (CNTD) (VIGITEL, 2006). Based on a probabilistic sample of 54,369 adults (≥ 18 years) living in households with a fixed telephone line, in all 26 state capitals and the federal district, VIGITEL (2006) provides a baseline for guiding the surveillance of risk and protection factors for CNTD in Brazil. Readers are presented with a dense debate on the prevalence and distribution of conditions and risk factors for CNTD, along with the associations that exist between these prevalences and certain explanatory variables, such as the important role of socioeconomic situation, as represented by the variable of schooling level.

Among the results, Ferreira et al and Schmidt et al estimated that more than one fifth of the population sampled had received a medical diagnosis of arterial hypertension, and that around 25,690,145 Brazilians have been diagnosed with this condition (10,528,959 men and 15,161,186 women). Self-reports are a valid indicator for measuring the prevalence of hypertension, provided that there have not been any restrictions on access to healthcare. Differentials relating to access probably explain some of the regional variations found. The article by Lima-Costa et al shows that high prevalences of risk factors are even more frequently present among elderly people (≥ 60 years). Most of this population group presents excess weight, insufficient physical activity during leisure time and low consumption of fruits and vegetables.

The estimated prevalences of diabetes (Schmidt et al) and osteoporosis (Martini et al) were shown to be of lesser magnitude, but no less important, given the significant consequences of these conditions. The analyses by Schmidt et al estimated the prevalence of self-reported diabetes of 5.3%, thus giving rise to the expectation that 6,317,621 adults are affected.

With regard to breast cancer screening, Viacava et al analyzed VIGITEL data together with data from the *Pesquisa Nacional por Amostra de Domicílios* (PNAD – National Household Sampling Survey) of 2003 and estimated that in 2007, the mammograph coverage for women aged 50 to 69 years, with and without a fixed telephone line, was around 70%. However, this coverage varied markedly between the state capitals, from 41.2% to 82.2%). Once again, this information highlights the inequality of access to healthcare services between the different geographical regions of Brazil.

Risk factors for CNTD that have already been described in the literature were covered by some authors in this Supplement. Azevedo et al showed that the highest prevalences of smokers were among young adults (18-29 years of age) and individuals of lower schooling level. It is possible that smoking control policies in Brazil are having more effect regarding preventing young people of higher socioeconomic level from starting to smoke. This is consistent with

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the principle of inverse equity: interventions are received firstly by the richer classes and subsequently reach the poorer strata, thereby possibly worsening the healthcare inequalities.

With regard to excess body weight, men and women present different prevalence trends relating to schooling levels. An analysis by Gigante et al showed that there were higher prevalences among men and women with higher and lower schooling levels, respectively. Another socioeconomic indicator (mean number of rooms in homes in the city), which was identified by Sichieri & Moura, was associated inversely with body mass index (BMI) among women.

Together, physical activity and a healthy diet constitute the most effective strategy for maintaining healthy body weight. Physical activity during leisure time and having healthy behavior are directly related to schooling level. In this regard, the data analyzed showed that the existence of places to practice sports activities close to home was inversely associated with BMI (Florindo et al) and with physical activity during leisure time (Barreto et al), while this was positively associated with healthy behavior among young people (Barreto et al).

Sufficient consumption of fruits and vegetables ($\geq$ 400 g/day) is an important protection factor against CNTD, because these foods are sources of micronutrients, fibers and other components and because of their low energy density. Lamentably, as is clear from the study by Jaime et al, the consumption of these foods in Brazil is well below the nutritional recommendations. Once again, higher consumption was shown to be associated with higher schooling levels, which goes against the desirable universality of reach of policies to stimulate such behavior.

Finally, VIGITEL demonstrated important inequalities regarding healthy behavior among young people (Barreto et al), self-assessed health (Barros et al) and self-reported previous medical diagnosis of CNTD, according to schooling level (Barreto & Figueiredo). Among young adults aged 25-29 years, nonsmoking status, physical activity practice and fresh fruit and vegetable consumption on five or more days a week were more frequently mentioned by participants with more than nine years of schooling (Barreto et al). On the other hand, reports of poor health (Barros et al) and current CNTD (Barreto & Figueiredo) were more frequent among individuals with lower schooling levels. These findings make it possible to discuss the social determination of behavioral patterns that affect health outcomes, and to identify target groups for interventions.

In summary, in this Supplement, readers are presented with analyses and evidence that not only provide updates for healthcare professionals but also provide guidance for health promotion policies and interventions and for surveillance and prevention of risk factors for CNTD in Brazil. Furthermore, the results from the studies published here will serve as the baseline against which future VIGITEL surveys may be able to measure the impact of such healthcare policies, programs and interventions and assist in advancing evidence-based public health practices within the institutions of the *Sistema Único de Saúde* (Brazilian National Health System).