Smoking and poverty in Brazil: an analysis of the profile of the smoking population based on the 2008-09 Brazilian government Family Budget Survey

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Abstract *This paper aims to characterize the Brazilian population who spent money with tobacco products. POF dataset was used from IBGE of the years 2008 and 2009. The same definition that IBGE usually use for tobacco consumer was applied, which is someone has spent money with any kind of tobacco products and its derivatives. It was used individual aspects taking into account such as gender, schooling, age (over 14 years old), income lines, regions and ethnics to characterize these populations. Descriptive statistics were employed to estimate the results and the complex sample design of the survey was considered. According to our results, on average, 10% of the Brazilian population have spent money with tobacco products. Besides, these people are older, earn low salaries and have less schooling than someone who does not consume tobacco. Moreover, for this population 1.5% of the family budget is spent on tobacco products. Last but not least, the most of tobacco consumers are men. In general, money which is spent on tobacco products can cause impressive effects on domestic budget because this value could supply other important necessities to the family. Although there are many monitoring and prevention strategies to avoid tobacco consume, deep knowledge about this population that actually consume these products can increase the efficacy of more specific policies.*

Key words *Smoking, Brazilian population, health, Expenses*

Introduction

The World Health Organization ranks illnesses linked to smoking as the second most frequent cause of death worldwide, although they can be avoided. Ten thousand deaths per day are recorded as a result of consumption of tobacco products – associated with various types of cancer, lung and heart diseases, arterial hypertension and stroke[1-3].

The epidemic of chronic diseases and premature deaths caused by smoking which in the past principally affected the industrialized economies is expanding rapidly in the developing countries[4]. In the year 2011, approximately 80% of deaths arising from consumption of tobacco took place in countries with low and average income[5].

Further, the effects of the use of tobacco are not limited to the users themselves: evidence shows a high risk of lung cancer among those who are not smokers, that is to say, those who are exposed to so-called passive smoking. This risk is estimated at 20% for women, and 30% for men, who live with smokers. The WHO estimates the annual number of deaths arising from direct or passive smoking at around six million[6], since it is the factor responsible for one in every ten adult deaths. In 2011, tobacco was the factor responsible for one in every five deaths of men and one in every twenty deaths of women[4]. Pinto and Ugá[7] calculated the direct cost of hospitalizations in Brazil's Single Health System (*Sistema Único de Saúde* – SUS) as a result of illnesses related to tobacco in the year 2005. The illnesses analyzed were: cancer, and illnesses related to the circulatory and respiratory systems. The authors note that the expense attributable to smoking was 27.6% of the total costs of the procedures analyzed, for the three groups, and 36.3% of the total amount spent on chemotherapy.

Studies by the (*Aliança de Controle do Tabagismo* – 'Alliance for Control of Smoking') [a Brazilian NGO] show that Brazil spends approximately R$ 21 billion annually on treating patients with illnesses related to smoking, and smoking is responsible for 13% of the deaths in the country[8].

As well as the damage to health, tobacco causes significant impacts on the domestic budget, since this income could be applied to serve other needs that are more urgent in the family unit. The evidence available shows that poorer individuals smoke more and, for them, the money spent on tobacco represents a high opportunity cost, as it is money not invested in vitally important goods such as food, education and health[4]. However,

it is important to note that in families that have smokers, the percentage of total expenses that is incurred on tobacco products fell from 3% in 1995–96 to 2% in 2002–03.

Although Brazil is one of the world's largest producers of leaf tobacco, the government has taken several measures to reduce consumption of tobacco and tobacco-derived products[9]. According to Brazil's National Cancer Institute (*Instituto Nacional do Câncer* – INCA), in the area of education there are one-off actions, with continuous awareness campaigns, the objective of which is to disseminate information about prevention of cancer, both in relation to smoking and in relation to the other risk factors. In the economic area, actions that have supported government decisions are planned based on studies carried out to collect data on production, prices, advertising, consumption and tax revenue related to tobacco and its derivative products in Brazil. The imposition of high taxes on these products seems to be very effective, because surveys in several countries show a negative relationship between consumption of tobacco and the level of prices[10].

In 2008 the WHO launched the program known as MPOWER (*Monitor, Protect, Offer, Warn, Enforce and Raise*), a package of policies based on the measures in the WHO Framework Convention on Tobacco Control (the 'WHO FCTC'). The central objective is to help reduce tobacco consumption by promoting implementation of the FCTC in the countries concerned. This package aims to provide incentive for formulators of public policies, in their relationship with society and the providers of health services, to conceive a world free of tobacco, offering the instruments that are necessary for reduction of consumption through promotion of a socio-economic and legal context that favors life without smoking.

The actions of this program center on the following activities: monitoring of the use of tobacco; adoption of prevention policies; protection of the population against tobacco smoke; offer of help in giving up smoking; warning about its dangers; compliance with prohibitions on advertising; and promotion and increase of taxes on the product. This package of measures aims to reduce smoking worldwide, with interventions of wide scope, and application of effective control policies, based on data collected and on a rigorous monitoring of the evaluation of its impact[11].

Since expanding tobacco consumption is a global problem, to be able to develop strategies for monitoring, prevention and combat of

smoking it is necessary to have knowledge of the profile of the population that consumes items related to this industry, especially because the impacts on health arising from its use are not limited only to the users themselves. This present study aims to characterize the population that reported expenditure on products related to tobacco (cigarettes, cigarillos and cigars, in particular), based on analysis of Brazil's Family Budgets Survey (*Pesquisa de Orçamentos Familiares* – POF) of 2008–2009[12]. The Brazilian Geography and Statistics Institute (IBGE) defines as 'smokers' those people who reported in the POF that they had spent money on articles relating to tobacco, whether they themselves are smokers or not. Thus, the criteria for characterization of this population as 'smokers' is the expenditure of income, not the act of smoking, although there is a close relationship between the financial expense and actual consumption.

This survey makes an important contribution to the literature by adding to the published data, and by employing quantitative methods on a database that measures recent expenditure (2008–09) on consumer products that are dangerous to health. This information makes it possible to analyze new aspects about smokers, since these individuals will be the people potentially demanding both public and private health services in the future.

Materials and methods

This study uses the database of the POF for the period 2008–9. The POF is a home-research survey, carried out by sampling, which brings together a group of information about the structure of the family budget, the nutritional situation, the products and services available and the living conditions of the Brazilian population. The aim of the POF is to delineate the consumption habits of the Brazilian family, independently of earnings. The survey was held over 12 months, thus providing an estimation of family budgets including alterations of expenses and income over the period of the year. The first POF was carried out in 1974–5, followed by surveys in 1987–8, 1995–6, 2002–3 and 2008–9.

The sample is representative of the Brazilian population and comprises permanent private domiciles for habitation of one or more persons, linked by family relationship, domestic dependence or customs of living together[12]. The domicile is the basic unit for investigation and analysis

of budgets, including the total number of people who comprise it, and may be a single person, or a group of residents who share the same source of food and, thus, carry out a group of food expenses in common. In most situations, for the purposes of publication of the POF by the IBGE, this consumer unit coincides with the 'family'.

The universe used for this study is people over the age of 14 who have incurred expense on items related to smoking that are present in the POF questionnaire. These are: cigarettes, disposable lighters, cigars, cigarillos, shredded tobacco, shredded tobacco for cigarettes, shredded tobacco for pipes, matches, cigarette holders, lighter fluids, lighter gas, lighter flint, rolling tobacco, snuff, rolled cigarettes, rolling paper for cigarettes, and cigarette paper. The section on results presents the profile – by gender, age, skin color, years of schooling and Region of Brazil – of the smoking and non-smoking population, with the help of descriptive statistics. The t and F tests were used to carry out statistical inferences making it possible to present and discuss the differences (if any) between the characteristics of the smoking and non-smoking populations.

Results

The total Brazilian population estimated by the POF is 180,745,058, of which those over the age of 14 total 135,676,655 people. Of these, 9.9% reported that they had had expenses on tobacco, and we will now treat them as the smoking population.

Considering the information available and the campaigns carried out, one could conclude that the fact that almost 10% of the adult population is smokers represents a significant percentage, although it is below the world average, which is 20% of adults[5].

In the Brazilian smoking population, men are predominant in all the age groups (Table 1). In the non-smoking population, women are prevalent, except in the age group 14 to 17. This shows that expenses on smoking are strongly linked to the male gender (63.5%).

We divided the smoking and non-smoking groups by age groups, to discover an age distribution within each. The 31-45 age group had the highest percentage of smokers, and the 18–30 age group had the largest percentage of non-smokers.

The average age of smokers is 43.4, and of non-smokers 39.3. From the value of the t test (-818.13) and from the F value (930063.12), the

null hypothesis that the averages are equal is rejected. Thus, it can be stated that among smokers there are more men and that they are older than the non-smokers.

Table 2 shows the population by years of schooling, and age groups.

Firstly, it is observed that the younger people stand out for having more years of schooling. This can be attributed to the improvement in living conditions, and expansion of access to schooling, since the mid-1990s, which was the period when the country almost achieved universal access to primary education[13,14]. We note that 38.6% of the non-smoking population over the age of 76 reports zero years of schooling, and this percentage is even higher (53.6%) among smokers. In the population with 12 or more years

of schooling, 8.1% are non-smokers and 5.5% smokers.

The results show a high percentage of individuals aged 18 to 30 who do not have even completed primary education. Of these, 50.9% are smokers and 33.4% non-smokers. The results also show tobacco consumption seems to have a negative correlation with level of education – a result that is similar to that shown by Cavalcante and Pinto[15].

In Table 3 it is seen that there is significant difference between smokers and non-smokers in relation to numbers of years of schooling, from the observed statistic of χ^2 (793368.96). This difference indicates that, in general, the smoking population has less years of schooling than the non-smoking. However, the contingency coef-

Table 1. Percentage distribution of smokers and non-smokers by age group and gender - Brazil, 2008-2009.

Age group	Smokers			Non-smokers		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
14-17	58.0	42.0	1.5	58.0	42.0	1.5
18-30	67.9	32.1	21.4	67.9	32.1	21.4
31-45	62.0	38.0	34.1	62.0	38.0	34.1
46-60	60.6	39.4	30.6	60.6	39.4	30.6
61-75	68.3	31.7	10.7	68.3	31.7	10.7
76 and over	62.4	37.6	2.0	62.4	37.6	2.0
Total	63.5	36.5	100.0	63.5	36.5	100.0

Source: IBGE[12], Family Budgets Survey 2008-2009.

Table 2. Percentages of smoking and non-smoking population by years of schooling and age group - Brazil, 2008-2009.

Condition	Years of study	Age group						
		15-17	**18-30**	**31-45**	**46-60**	**61-75**	**Over 75**	**Total**
Non-smokers	Zero	1.1	3.2	5.9	11.5	24.3	38.6	8.9
	1-4	9.5	9.0	22.0	33.3	43.7	41.8	22.2
	5-7	51.6	21.2	23.0	12.4	5.1	3.8	20.1
	8	37.1	49.0	31.4	23.2	11.6	8.6	32.8
	9-11	0.1	10.2	6.2	7.9	6.9	3.8	7.3
	12 or over	0.0	6.6	10.7	11.0	7.9	3.3	8.1
	Not determined	0.5	0.8	0.7	0.7	0.3	0.1	0.6
Smokers	Zero	1.6	2.3	7.9	12.9	28.0	53.6	11.2
	1-4	19.6	15.1	27.7	36.0	45.4	28.6	29.3
	5-7	48.9	33.5	29.3	14.6	6.8	2.8	23.0
	8	24.0	37.8	24.8	20.7	8.9	6.2	24.3
	9-11	0.0	5.9	4.9	7.4	5.9	3.6	5.9
	12 or over	0.0	4.7	4.4	8.1	4.4	5.3	5.5
	Not determined	5.8	0.7	1.0	0.4	0.6	0.0	0.7

Source: IBGE[12], Family Budgets Survey 2008-2009.

Table 3. Smokers and non-smokers, by years of study and results of association tests - Brazil, 2008-2009.

Condition	Years of study							Total	
	Zero	**1 - 4**	**5 - 8**	**9 - 11**	**12 - 14**	**15 or +**	**ND***	**N**	**%**
Non-smokers	87.9	87.4	88.9	92.5	91.8	93.0	89.1	122307939	90.1
Smokers	12.1	12.6	11.1	7.5	8.2	7.0	10.9	13368716	9.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	135676655	100.0
Chi-squared test	Statistic = 793368.96		d.f. = 6	Significance = 0.00	C = 0.076				

Source: IBGE[12], Family Budgets Survey 2008–2009. * Not determined.

ficient (C) – at 0.076 – shows a low association between the levels of study analyzed.

From the point of view of income, and also of level of schooling, the results show that the consumption of tobacco is more concentrated in the populations with lower income. According to these data, 84% of the smoking population earns in the range of one to three times the minimum wage per capita, 8.4% have income from three to five times the minimum wage, and 7.5% have income higher than five times the minimum wage, per capita. In per capita terms, the income of smokers is R$ 867.52, statistically lower than that of non-smokers, which is R$ 957.79, in accordance with the t test (198.71) and F test (49096.70).

It is found that 33.6% of the population has expenses of more than 1.51% on tobacco-derived products, while 23% of the population spends up to 0.5% of their income. Individuals from a lower income group and with lower schooling are the most susceptible to consumption and, thus, to the ills arising from tobacco products[15].

Instead of focusing on cigarettes, the most popular product, this study decided to analyze all the expenditure involved in articles related to tobacco. An average expense of 2.23% of income on these articles was found. This estimate could be caused by a wider range of products being included, since the median is 1.24% – thus, it is very close to the results indicated by the FGV[16]. Consumers spend, on average, non-updated monetary amounts of R$ 9.80 per month on these products, the values of which vary from R$ 0.10 to R$ 200.00.

The study also analyzed where these populations live and found that there are significant differences (χ^2 = 174777.45) between smokers and non-smokers in accordance with the regions where they live. The South and Southeast had higher percentages of smokers than the others – respectively 11.2% and 10.6%. Further, the percentages for the Center-West, Northeast and North are very similar: at 8.4%, 8.7% and 8.5%, respectively. However, it is not possible to identify association between the regions, since the contingency coefficient is very low (0.036).

The results are similar to those presented by Barros et al.[17], since the South and Southeast show the highest percentages in comparison with the other regions.

Similar conclusions were found in the surveys of the Vigitel system (*Sistema de Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito de Saúde – Health Inquiry Monitoring System for Chronic Disease Risk Factors and Protection*).

A majority proportion of the population analyzed stated that themselves to be white (49.1%), followed by those who said they were of mixed ancestry ('pardo') (41.4%). Among the smoking population, those stating themselves to be white were 46.8%, those of mixed-ancestry 41.6%, and those of African racial identification 10.2%. From the skin color data it is not possible to affirm that there is a significant differential between smokers and non-smokers.

However, as shown by Table 4, there are significant differences between the groups. The mixed-ancestry and African-Brazilian populations have higher proportions of smokers: respectively 12.4% and 12.3%.

Based on these data it is possible to conclude that the χ^2 test indicates that there is an association between all the classifications that refer to smokers or non-smokers in relation to the category variables (gender, color and regions of the country). However, the results obtained for the contingency coefficients (C) in general show a weak degree of association.

Table 4. Percentage distribution of smokers and non-smokers by color or ethnicity and results of association tests - Brazil, 2008-2009.

Condition	Color or ethnicity						Total	
	White	African-Brazilian	Asiatic	Mixed ancestry	Indigenous	Does not know	Quantity	%
Non-smokers	90.6	87.7	90.2	90.1	87.6	92.9	122307939	90.1
Smokers	9.4	12.3	9.8	9.9	12.4	7.1	13368716	9.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	135676655	100.0
Chi-squared test	Statistic = 101020.94		d.f. = 1	Significance = 0.00	C = 0.027			

Source: IBGE[12], Family Budgets Survey, 2008-2009.

Discussion and final considerations

The profile of the population that reported expenditure on products arising from tobacco (cigarettes, cigarillos, cigars, and others) in the POF of 2008–9 was analyzed. The sample comprised people aged 14 or over, and the variables observed were: gender, age, racial identification, years of schooling, geographical region, and income.

According to the results, 10% of the Brazilian population is smokers – which is a considerable percentage. The statistical tests used (*t* test, χ^2 test) for the group of data analyzed made it possible to conclude that there are significant differences between the smoking and non-smoking populations in relation to all the variables.

The individuals belonging to the lower income levels and of age 30-35 are the largest consumers of tobacco. Further, it was observed that the smoking population has fewer years of schooling than the non-smokers. This shows the need for investment in the creation of opportunities for access to formal education, and increased schooling time, in Brazil, especially in primary education, since the population with a low level of schooling becomes more vulnerable to the appeal of advertising for consumption of tobacco products[18].

As Lacerda et al.[19] showed, the communications media are an important link that helps in the understanding of the dynamics between human behavior, the social context and public policies, and international studies on advertising related to tobacco show that the press may have favored adoption of policies of control in some countries.

The results arising from the investigation of Barreto et al.[20], which used the National School Children's Health Survey (*Pesquisa Nacional de Saúde do Escolar* – PeNSE), show that the probability of being a regular smoker increases with age and there is a higher prevalence among people who are in public schools, have a mother with a low level of schooling, and/or state themselves to be of mixed racial ancestry.

This evidence can also orient the direction given to educational campaigns to combat this damaging habit, especially among the young population and those who are in the lower income groups and have less schooling, since they are the most affected. On this point, focusing on educational actions *in health* and *on health*[21] could be a promising way forward.

Although the coverage of the Brazilian health system is universal, at least in legal terms, it can show itself to be insufficient in practical terms, precisely for the lowest-income population (the first deciles), which is the part of the population that is most dependent on the public health system[22], and which, according to Neri and Soares[10], has the worst access to the health assets, becomes ill more frequently and consumes less health services, aggravating a situation of income inequality. Also, this population is more burdened by taxes on the consumption of these products, since they are not charges according to spending power.

The study by Cavalcante and Pinto[15] on the 1995-6 POF also aimed to find the percentage of income spent on tobacco. The authors found that the percentage spent on green vegetables was proportionately lower than the amount spent on smoking products, especially in the income group below twice the minimum wage. They also found a similar pattern when comparing these expenses with those on education and personal hygiene.

Studies by the Getúlio Vargas Foundation (FGV) show that the population's expenditure

on cigarettes has been maintained in recent years and that the weighting of these expenses on consumers' monthly budget is significant: they spend 1.20% of their average income on buying cigarettes, compared to 0.60% on acquiring rice and beans[16]. The impact of these expenditures in relation to total income also differed by age group. The portions of the smoking population that have higher income spend less, in relative terms, while they also have greater accessibility to the means for suspension of the habit.

Barros et al.[17] show, through the PNAD (National Home Sampling Survey – *Pesquisa nacional por amostragem de domicílios*) for 2008, that daily consumption of tobacco is higher among individuals that are in the lower deciles of income, and the contrary is the case for those in the highest deciles.

As well as smoking being damaging to health, the expenditure on tobacco has an effect on the domestic budget, since the income spent on these products could be diverted to serve other priorities and needs of the family unit, such as education, health and clothing.

The characterization of the profile of the smoking population and the non-smoking population could contribute to formulation and implementation of public policies directed to the various population profiles in relation to prevention and overcoming of smoking habits, with policies focused on those that are most susceptible to the consumption of these products.

Collaborations

A Bazotti was responsible for work motivation, the section on materials and methods, besides the text development, as well as the critical review. M Finokiet and IL Conti worked the Introduction. MTA França performed the analysis of the results and critical review of the text. PD Waquil worked the methods.

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References

1. Brasil. Instituto Nacional de Câncer José Alencar Gomes da Silva. *A situação do tabagismo no Brasil: dados dos inquéritos do Sistema Internacional de Vigilância, da Organização Mundial da Saúde, realizados no Brasil, entre 2002 e 2009*. Rio de Janeiro: Inca; 2011.

2. Instituto Nacional de Câncer, Coordenação Nacional de Controle de Tabagismo e Prevenção Primária. *Coordenação nacional de controle de tabagismo 1996-2001*. Brasília: Ministério da Saúde; 2002.

3. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA* 2004; 291(10):1238-1245.

4. Iglesias R, Jha P, Pinto M, Costa-E-Silva VL, Godinho J. *Controle do tabagismo no Brasil*. Washington: World Bank; 2007. (Documento de Discussão Saúde, Nutrição e População).

5. Eriksen M, Mackay J, Ross H. *El Atlas del tabaco*. 4ª ed. Atlanta, Nueva York: Sociedad Americana contra el Cáncer, Fundación Mundial del Pulmón; 2012. [acessado 2013 nov 10]. Disponível em: http://www.TobaccoAtlas.org

6. World Health Organization (WHO). *Global estimate of the burden of disease from second-hand smoke*. Geneva: WHO; 2010.

7. Pinto M, Uga MA. Os custos de doenças tabaco-relacionadas para o Sistema Único de Saúde. *Cad Saude Publica* 2010; 26(6):1234-1245.

8. Pinto MT, Riviere AP. Relatório Final Carga das doenças tabaco-relacionadas para o Brasil. Fundação Oswaldo Cruz, 2012. [acessado 2014 ago 13]. Disponível em: http://www.actbr.org.br/uploads/conteudo/721_Relatorio_Carga_do_tabagismo_Brasil.pdf

9. Silveira RLL, Dornelles M. Mercado mundial de tabaco, concentração de capital e organização espacial. Notas introdutórias para uma geografia do tabaco. Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales. [En línea]. Barcelona: Universidad de Barcelona, 10 de octubre de 2010, vol. XIV, nº 338. [acessado 2014 nov 25]. Disponível em: http://www.ub.es/geocrit/sn/sn-338.htm

10. Neri MC, Soares WL. *Pobreza, Ativos e Saúde no Brasil*. Rio de Janeiro: Fundação Getúlio Vargas; 2002. (Ensaios Econômicos, 465)

11. Instituto Nacional do Câncer, Organização Pan-Americana da Saúde. *Pesquisa especial de tabagismo – PETab: relatório Brasil*. Rio de Janeiro: INCA; 2011

12. Instituto Brasileiro de Geografia e Estatística (IBGE). *Pesquisa de Orçamentos Familiares 2008-2009. Antropometria e estado nutricional de crianças, adolescentes e adultos no Brasil*. [Internet]. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística; 2010. [2014 ago 13]. Disponível em: http://www.ibge.gov.br/home/estatistica/populacao/condicaodevida/pof/2008_2009_encaa/pof_20082009_encaa.pdf

13. Oliveira RP. Da universalização do ensino fundamental ao desafio da qualidade: uma análise histórica. *Educ. Soc.* 2007; 28(100):661-690.

14. Franco C, Alves F, Bonamino A. Qualidade do ensino fundamental: políticas, suas possibilidades, seus limites. *Educ. Soc.* 2007; 28(100):989-1014.

15. Cavalcante T, Pinto M. Considerações sobre tabaco e pobreza no Brasil: consumo e produção de tabaco. In: Brasil. Ministério da Saúde (MS), Organização Pan-Americana da Saúde. *Tabaco e Pobreza, um círculo vicioso - A Convenção Quadro de Controle do Tabaco: uma resposta*. Brasília: MS; 2004. p. 97-136.

16. Agência Brasil. Consumidor gasta mais com cigarros do que com arroz e feijão. [acessado 2014 dez 15]. Disponível em: http://memoria.ebc.com.br/agenciabrasil/noticia/ 2013-05-31/consumidor-gasta-mais-com-cigarros-do-que-com-arroz-e-feijao

17. Barros AJD, Cascaes AM, Wehrmeister FC, Martínez-Mesa J, Menezes AMB. Tabagismo no Brasil: desigualdades regionais e prevalência segundo características ocupacionais. *Cien Saude Colet* 2011; 6(9):3707-3716.

18. Fundação Oswaldo Cruz. A fotografia da Fome. *Radis Comunicação em Saúde* 2003; 8:8-9.

19. Lacerda AE, Mastroianni FC, Noto AR. Tabaco na mídia: análise de matérias jornalísticas no ano de 2006. *Cien Saude Colet* 2010; 15(3):725-731.

20. Barreto SM, Giatti L, Casado L, De Moura L, Crespo C, Malta DC. Exposição ao tabagismo entre escolares no Brasil. *Cien Saude Colet* 2010; 15(Supl. 2):3027-3034.

21. Falkenberg MB, Mendes TPL, Moraes EP, Souza EM. Educação em saúde e educação na saúde: conceitos e implicações para a saúde coletiva. *Cien Saude Colet* 2014; 19(3):847-852.

22. Mesa-Lago C. O sistema de saúde brasileiro: seu impacto na pobreza e na desigualdade. *Nueva Sociedad* 2007; out:115-131.