Prevalence and factors associated with smoking among tobacco growers in southern Brazil

Prevalência e fatores associados ao tabagismo entre fumicultores na região Sul do Brasil

Prevalencia y factores asociados al hábito de fumar entre los cultivadores de tabaco en el sur de Brasil

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ABSTRACT

Objective: identify the prevalence and factors associated with smoking in tobacco growers. **Method:** descriptive, cross-sectional research. Data collection occurred in 2012 through household survey and interviews, including application of a structured instrument and scale Fargeström. **Results:** there were 100 growers included, average age of $46,9 \pm 10,8$ years; 90(90%) married; 72(72%) white, average family composition $3,7 \pm 1,1$ people; median number of children 3(1-3), and the average study time $6 \pm 2,5$. The prevalence of smoking among tobacco growers was 17%, which had less education ($p = 0.010$) and fewer people in the household ($p = 0.049$). **Conclusion:** the prevalence of smoking among tobacco growers was higher than the national average, but the nicotine dependence was low, which can facilitate the smoking cessation process. Highlights the need to implement a program to control smoking among tobacco growers.
Key words: Nursing; Prevalence; Smoking; Rural Workers.

RESUMO

Objetivo: identificar a prevalência e fatores associados ao tabagismo em fumicultores. **Método:** estudo descritivo, do tipo transversal. A coleta de dados ocorreu em 2012 por inquérito domiciliar e entrevistas, incluindo aplicação de instrumento estruturado e escala de Fargeström. **Resultados:** foram incluídos 100 fumicultores, média de idade $46,9 \pm 10,8$ anos; 90 (90%) casados; 72 (72%) cor branca; composição familiar de $3,7 \pm 1,1$ pessoas, mediana de filhos de 3(1-3) e média tempo de estudo $6 \pm 2,5$ anos. Obteve-se prevalência de 17% de fumantes, os quais apresentaram menor escolaridade ($p = 0,010$) e menor número de pessoas no domicílio ($p = 0,049$). **Conclusão:** a prevalência do tabagismo entre fumicultores foi maior que a média nacional, porém, com baixa dependência da nicotina, o que pode facilitar o processo de cessação do tabagismo. Destaca-se a necessidade de implantar um programa para o controle do tabagismo junto a este grupo.
Descritores: Enfermagem; Prevalência; Hábito de Fumar; Trabalhadores Rurais.

RESUMEN

Objetivo: identificar la prevalencia y factores asociados con el consumo de tabaco en el cultivo del tabaco. **Método:** estudio descriptivo, transversal. Los datos fueron recolectados por medio de entrevistas en el 2012, que incluye la aplicación de un instrumento estructurado y escala Fargeström. **Resultados:** 100 cultivadores se incluyeron, la edad media $46,9 \pm 10,8$ años; 90(90%) se casó; 72(72%) blanco, la composición familiar de $3,7 \pm 1,1$ personas, mediana de 3 niños (1-3) y el tiempo promedio de estudio de $6 \pm 2,5$ años. La prevalencia de tabaquismo fue del 17%, que tenía menos educación ($p = 0,010$) y un menor número de personas en hogar ($p = 0,049$). **Conclusión:** la prevalencia de tabaquismo entre los productores de tabaco fue mayor que el promedio nacional, pero la dependencia de la nicotina fue baja, lo que puede facilitar el proceso de dejar de fumar. Destaca la necesidad de implementar un programa de control del tabaquismo entre los cultivadores de tabaco.
Palabras clave: Enfermería; Prevalencia; Hábito de Fumar; Trabajadores Rurales.

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INTRODUCTION

Each year approximately six million people die worldwide due to the consumption of tobacco products[1]. In Brazil, smoking causes about 200,000 deaths a year, which is the second leading cause of preventable death worldwide[2]. If current trends in tobacco expansion continue to grow, around eight million deaths worldwide will occur in 2030, as result of this habit[1].

A third of the adult population are smokers; the equivalent of 1.2 billion people[3]. Research[4] performed by the Surveillance of Risk and Protective Factors for Chronic Diseases through a telephone survey (VIGITEL), in 2012, in 27 Brazilian capitals, showed a 12.1%prevalence of smoking among adults, and the capital of Rio Grande do Sul - Porto Alegre, was the place with the highest frequency (18.2%) of adult smokers.

According to one Brazilian study[5], the prevalence of smoking is influenced by the number of years of education, the level of income and the position at work. In addition, this behavior is noticeably higher in rural areas when compared to urban areas, highlighting, too, the higher consumption of straw paper cigarettes at those locations[6].

A study[7] conducted in southern Brazil with families of tobacco growers and those who were not tobacco growers showed that 36.4% used to live with smokers at home; and the highest prevalence of smokers (39.4%) was among farmers who grew tobacco, with an average of 1.3 smokers per family. In the international context, a study indicated that rural residence was a potential risk factor for tobacco use among young people, associated with higher prevalence among adult smokers in the United States[8].

Based on the information noted above, this study is justified by the size of the problem that smoking represents in global public health and can assist with deepening understanding of this issue among tobacco growers, as the national reality needs studies on this subject. It is expected to help identify factors related to tobacco growers who handle tobacco in their daily routine, in addition to aspects associated with the use of tobacco, or the refraining from its use.

Knowledge of the problem can help nurses to propose health measures for this specific population, to promote smoking cessation and abstinence maintenance. The study aimed to identify the prevalence and factors associated with smoking among tobacco growers.

METHOD

This was a cross-sectional and descriptive study, conducted with tobacco growers in a southern Brazilian city. Considering the total number of tobacco grower families (129) in the county, the calculated sample size was 97 tobacco growers, with a confidence level of 95%, ratio of 50%, and error of 0.05. A simple random sampling process was applied, that is used when the investigator selects a representative subgroup, when confronted with a larger than necessary population.

Inclusion criteria were: being responsible for the production of tobacco, being rural workers and tobacco farmers, performing all stages of tobacco growing, and ability to respond to the research instruments. Tobacco growers who performed only some tobacco cultivation step or who were daily workers in tobacco cultivation were excluded.

Data collection was done during the month of January of 2012, through a home survey conducted by the researcher and six research assistants. For selection of research assistants, an informal invitation was provided to undergraduate of nursing students from the fourth semester, due to scientific knowledge related to health they had already acquired. The auxiliaries attended training and qualification for the activity, with the purpose of introducing them to the project, the objectives, and the method, with an emphasis on the instrument and procedures for data collection. A manual of guidelines to assist with completion of the data collection instrument was developed.

The survey was conducted through interviews, including demographic and socioeconomic issues. For smoking tobacco growers, the Fargeström scale was administered, which evaluates nicotine dependence and classifies smokers according to the following scores: from zero to 2 - very low dependence; 3 to 4 - low dependence; 5 - average dependency; 6 to 7 - higher dependency, and 8 to 10 - very high dependence[9].

In addition, the following variables were investigated: (1) Family composition: number of persons living in the house; (2) Sex: male or female; (3) Age: in years; (4) Marital status: married or living with a partner (who has a marital status of married or lives with a partner); separated, divorced, unmarried (who has a the civil status legally divorced or separated, approved by judicial decision); widow (who has a deceased partner); or single (who has his or her original marital status); (5) Number of children: if had children and how many; (6) Education: in years of study; 7) Monthly family income: calculated in minimum wages of people living in the same house, according to the national minimum wage of R$ 545.00; (8) Smoking status: smoker was an individual who regularly smoked one or more cigarettes per day or who had stopped smoking for less than six months; any person who ever smoked regularly and was not smoking for more than six months was considered a smoker in abstinence; an individual who had never smoked or who just tried tobacco, but did not become a smoker was considered a non-smoking person[10]; (9) Diseases caused by tobacco use: which disease the subject believed was caused by tobacco use; (10) Use of alcohol, if the person responsible for the production of tobacco ingests alcohol, how long (in years), type of beverage, the amount (doses per day) and unit (dose, can or bottle).

For assessing the need of conformity of content of the instrument, issues and the performance of the research assistants, a pilot test was conducted with three tobacco growers. After applying the pilot test and analysis by the research assistants, some minor adjustments required reformulation of some questions of the instrument. The sample used in the pilot test was not part of the final sample.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 20.0. Categorical variables were described by absolute and relative frequency, and continuous variables, through means and standard deviation (SD) or median and interquartile, according or whether or not there was a distribution similar to normal. All associations with $p < 0.05$ were considered statistically significant.

The distribution of the variables was verified using the Shapiro-Wilk statistic. For variables with asymmetric distribution, the Mann-Whitney test was used. Variables with no significant abnormality were represented by mean and standard deviation (SD), and the Student t-test was conducted. Categorical variables were compared by the Pearson chi-square or Fisher's exact test. Variables with $p < 0.20$ in the bivariate analysis were included in a Poisson regression model. The effect was expressed as prevalence ratios, with 95% of confidence interval.

According to ethical standards of research in human beings, the project was approved by Research Ethics Committee of Regional Integrated University of Alto Uruguay and Missions protocol No CAAE 0055.0.284.000-11.

RESULTS

The study included 100 tobacco growers responsible for tobacco production at home; all were men, with a mean age of 46.9 ± 10.8 years.

Among the interviewees, 90 (90.0%) were married and 89 (89.0%) had children, with a median of 3.0 (1.0-3.0) children. The mean years of schooling was 6.0±2.5; the median monthly family income was R$1500.00 (1000.00 to 2500.00); and, the mean number of people per house was 3.7 ± 1.1, ranging from one to six people in the tobacco growing families.

There was a prevalence of tobacco smoking in 17 (17.0%) of those responsible for tobacco production. The average age for onset of tobacco use was 16.9 ± 4.8 years, with an average of smoking time equal to 29.3 ± 14.5 years. Among smokers, all were using commercial cigarettes and seven (41.2%) also used straw paper cigarettes.

Sixteen (94.1%) of those responsible for tobacco production reported having tried to quit smoking, but without success. One of the reported reasons for the difficulty in the termination process was nicotine addiction, mentioned by 13 (61.9%) of the smoking tobacco growers. In the evaluation of nicotine dependence, there was a median of 4.0 (2.0 to 5.5), ranging from 1.0 to 8.0, which is considered low dependence.

Tobacco growers were quizzed about diseases that could be caused by tobacco use, and the most cited were respiratory system diseases (95%), cancer (90%) and gastrointestinal disorders (69%). Consumption of alcoholic beverages was reported by 90 (90%) tobacco growers, with an average of 24.7 ± 10.2 years of use. These and other data are presented in Table 1.

In order to increase the power of statistical analysis when evaluating the association between variables in the category of smoking status, smokers in abstinence were excluded. Table 2 demonstrates a significant association between years of study and the number of people in the house, as tobacco growers responsible for the production of tobacco and smokers had lower educational levels (p = 0.010) and a smaller number of people at home (p = 0.049).

Table 1 - Smoking status, nicotine addiction and alcohol use by tobacco growers responsible for tobacco production, Rio Grande do Sul, 2012

Variables (N = 100)	n (%)
Smoking status	
Nonsmoker	58 (58.0)
Smokers in abstinence	25 (25.0)
Smokers	17 (17.0)
Age of onset of tobacco use‡	16.9±4.8
Time (years) of use‡	29.3±14.5
Type of cigarette*	
Comercial cigarette	17 (100.0)
Straw cigarette	7 (41.2)
Tried to quit smoking	16 (94.1)
What prevented smoking cesation*	
Nicotine dependence	13 (61.9)
Lack of will	4 (19.0)
Signs and symptoms of abstinence	4 (19.0)
Fagerström scale†	4.0 (2.0-5.5)
Very low (0-2 points)	5 (29.4)
Low (3-4 points)	6 (35.3)
Medium (5 points)	2 (11.8)
High (6-7 points)	3 (17.6)
Very high (8-10 points)	1 (5.9)
Diseases that could be caused by tobacco use*	
Respiratory	95 (95.0)
Cancer	90 (90.0)
Gastrointestinal	69 (69.0)
Cardiac	67 (67.0)
Neurological	64 (64.0)
Impotence / infertility	55 (55.0)
Circulatory	52 (52.0)
Renal	37 (37.0)
Depression	35 (35.0)
Alcohol consumption	90 (90.0)
Time of alcohol use (years)‡	24.7±10.2

Note:
* Multiple answers;
‡ Mean ± SD;
† Median (25-75 percentile).

Table 2 - Association between variables of interest and smoking status of tobacco growers and those responsible for tobacco production, Rio Grande do Sul, 2012

Variable*	Smoking Status		p value**
	Smoker	non-smoker	
Age	49.0 ± 13.1	44.0 ± 10.6	0.106
Marital status			1.000
Married/partner	16 (94.1)	52 (89.7)	
Separated/divorced	-	-	
Single	1 (5.9)	6 (10.3)	
Years of education	5 (3-6)	6 (5-8)	0.010
Monthly family income in R$	1.400 (800-2.000)	1.850 (1.000-2.625)	0.151
Number of people living at home	3 (2.5-4)	4 (3-5)	0.049
Fagerström scale			-
Low	11 (64.7)	–	
Medium	2 (11.8)	–	
High	4 (23.5)	–	
Consumes alcoholic beverages			0.188
Yes	14 (82.4)	54 (93.1)	
No	3 (17.6)	4 (6.9)	

Note:
* Categorical variables expressed in frequency and percentile; Continuous variables expressed as mean ± SD or median (25-75 percentile);
**Variables for the number of people in their home and years of education were analyzed using the Mann-Whitney test; variables related to monthly family income and age were analyzed using Student's t-test; other variables were analyzed using Chi-square test or Fisher's exact test

DISCUSSION

This study aimed to identify the prevalence and factors associated with smoking among tobacco growers. The average age among those responsible for tobacco production found in this study is consistent with the reality of another study[11] conducted with the same population, revealing that this group basically includes middle age adults. In addition, the practice of tobacco cultivation has passed from generation to generation.

The number of children in tobacco growing families has remained the same over the years, characterizing the properties of small families and, therefore, the need for labor recruitment. A similar result was found in a study conducted in the state of Paraná[12].

In this study, those responsible for tobacco production had incomplete elementary education, as found in other literature publications[11-13]. Low educational levels collaborate with the vulnerability of tobacco growers, constituting one of factors that contributes to the increase in poisoning risk from pesticides. Difficulty with reading can interfere with the interpretation of the product label and with a lower knowledge about the risks of exposure[7].

The mean of persons in the house was 3.7 people; similar results were observed in other studies[7,12], with means of 3.8 to 3.9 people, which is supported by the Brazilian Institute of Geography and Statistics[14], according to which the national average is 3.0 persons per family. These results show a trend of generations reducing the number of children, which in turn, is reflected in ever smaller families, even in rural areas.

Considering that mechanization is limited and that tobacoo production requires a significant number of workers, some changes in family structure, especially the decline in fertility rates, reflect the way that tobacco production will be organized in the future; there will either be a reduction in the harvest or workers will have to be hired[15].

The prevalence of smoking among those responsible for tobacco production was 17%, with an average of 29.3 ± 14.5 years of consumption. Studies[11,16] with similar populations showed variations in smoking prevalence from 10% to 23.5%. The prevalence of smoking found in this investigation is higher than the national average[4] and close to the percentage of 20.4% prevalence in rural areas, as published by Special Survey of Tobacco Use[17]. According to an international study[18], rural residence and cultivation of tobacco are risk factors for smoking, maybe because tobacco producers have easier access to tobacco.

The age of smoking initiation had an average of 16.9 ± 4.8 years, with a minimum age of eight years. National studies[11,16] have presented similar results. According to research[17] in 2011, 17-19 years was the predominant age group for the initiation to regular consumption of tobacco products. One international study[18] with people ≥18 years of rural areas, found that the onset smoking age occurred in the group of 12 to 20 year olds. It is known that the sooner tobacco dependence is established, the greater the risk of premature death. A difference of a few years in beginning tobacco use can increase by almost twice the risk of harm to human health[17].

The use of commercial cigarettes and the straw paper cigarette, or haystack, as it is popularly known, or hand-rolled in the artisanal mode, has also been found in other studies[11,17]. The use of hand-rolled cigarettes is more common in rural areas and by older people, who preserve the custom of smoking these.

In relation to smoking cessation, 16 (94.1%) tobacco growers responsible for tobacco production had already tried to quit smoking without success. Nicotine addiction was among the reported factors which prevented their smoking cessation. Previous findings[17] showed that 45.6% of people aged 15 years and over who smoked tried to quit smoking in the last 12 months.

The nicotine addiction in smoking tobacco growers was low. A similar result was found in a study[19] conducted in Chinese rural and urban areas. The mean total score was equal to 3.39, and in rural areas the percentage of low dependence was 85.1%[18].

The findings of this survey, like other studies, showed lower percentage of nicotine addiction, reinforcing the need for specific strategies for these individuals to encourage cessation.

The results indicated that tobacco growers responsible for tobacco production had a good level of knowledge about the harm caused by tobacco use, and believed that cigarette use was responsible for respiratory diseases, cancer and gastrointestinal problems. Despite the lack of studies with tobacco growers on this subject, date in the literature[17] showed that among people aged 15 years or older, 96.1% believed that smoking caused serious illness. Public awareness of the health harms from cigarettes has helped to prevent tobacco use as well as development of more effective therapeutic approaches, resulting in a reduction in smoking among this population[20].

In relation to the variables studied, years of education showed a significant association for tobacco growing smokers, which was in line with another study[18] where people with a lower educational level were five times more likely to become smokers (p < 0.01). Results derived from a previous study[17] indicate that people with 11 years of education or more accounted for about half the percentage of tobacco users as compared to less educated people. The higher level of education results in a greater receptiveness to information about the harmful effects of smoking.

Tobacco growing smokers and those responsible for tobacco production had fewer individuals in their homes (p ≤ 0,049), which can be associated with a declining fertility rate of women and men, due to smoking. The literature[21-22] shows that the prevalence of infertility in women is higher among smokers compared to nonsmokers, and men who smoke have a lower concentration of sperm, lower sperm motility and increased abnormalities in sperm form and function.

Most tobacco growers of this study were users of alcoholic beverages. Similar results were found in another study[11], in which 92.3% consumed alcohol. The alcohol consumption causes harms to health, increasing by around nine times the risk of oral cancer, and when associated with smoking, this risk becomes 35 times higher, in addition to being associated with an increased risk of liver cancer[23]. Alcohol consumption affects the social behavior of individuals and their performance at work, and can cause accidents.

CONCLUSION

The prevalence of smoking among those responsible for tobacco production was higher than the national average, however, when compared to Porto Alegre and rural areas, the prevalence was lower. Among the factors associated with smoking among tobacco growers, lower levels of education and fewer people living at home were important factors. The use of straw paper cigarettes is consistently common in rural areas and among the elderly, who preserve the custom of smoking. In addition, its availability favors tobacco consumption.

Most of the smokers tried to cease tobacco use, without success. Nicotine dependence among tobacco growers was low, which reinforces the importance of seizing the moment to encourage and assist them with smoking cessation. The priority target of health promotion actions should be the prevention of tobacco consumption among tobacco growers, which increases the risk of becoming dependent on nicotine and diseases that could arise. Thus, the implementation of a specific program for tobacco control among tobacco growers must be emphasized.

Tobacco growing is a controversial activity. On one hand, there are public health agencies with strong performance in the development of actions and programs for tobacco control. On the other hand, there are the tobacco growing families, who find in tobacco an important source of family income, with companies that provide technical assistance, transportation of the product, and integral purchase of the harvest.

Tobacco production has a number of implications, which raise questions concerning the sustainability of cultivation. However, the great challenge is to articulate an anti-smoking policy by creating alternative activities to tobacco growing.

REFERENCES

1. World Health Organization (CH). WHO report on the Global Tobacco Epidemic, 2011: warning about the dangers of tobacco 2011 [Internet]. Geneva (CH): WHO; 2011 [cited 2014 Sep 01]. Available from: http://www.who.int/tobacco/global_report/2011/en/.

2. World Health Organization (CH). Global health risks: mortality and burden of disease attributable to selected major risks [Internet]. Geneva (CH): WHO; 2009 [cited 2014 Sep 01]. Available from: http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf

3. Instituto Nacional de Câncer (BR). Tabagismo: dados e números no mundo [Internet]. Rio de Janeiro: INCA; [s.d.] [cited 2014 Sep 01]. Available from: http://www.inca.gov.br/releases/press_release_view_arq.asp?ID=1493

4. Ministério da Saúde (BR), Secretaria de Vigilância em Saúde, Departamento de Vigilância de Doenças e Agravos não Transmissíveis e Promoção de Saúde. Vigitel Brasil 2012: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico [Internet]. Brasília (BR): Ministério da Saúde; 2013 [cited 2014 Sep 01]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/vigitel_brasil_2012_vigilancia_risco.pdf

5. Silva LM, Lacerda JFA, Araújo EC, Cavalcanti AMTS. Prevalence of smoking among health professionals. Rev Enferm UFPE on line [Internet]. 2008 [cited 2014 Sep 01];2(1):118-27. Available from: http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/view/413

6. Souza T, Mattos FF. [The social representation of smoking among adults and its implications for health: study conducted in a rural community in the state of Minas Gerais]. Arq Odontol [Internet]. 2012 Jul-Sep [updated 2015 Jun 06; cited 2014 Sep 01];48(3):159-65. Available from: http://revodonto.bvsalud.org/pdf/aodo/v48n3/a06v48n3.pdf Portuguese.

7. Bonato AA. A fumicultura e a Convenção-Quadro: desafios para a diversificação [Internet]. Curitiba: Departamento de Estudos Sócio-Econômicos Rurais (DESER); 2009 [cited 2014 Sep 01]. Available from: http://www.deser.org.br/pub_read.asp?id=146

8. Lutfiyya MN, Shah KK, Johnson M, Bales RW, Cha I, Grath CM, et al. Adolescent daily cigarette smoking: is rural residency a risk factor? Rural Remote Health [Internet]. 2008 Jan-Mar [updated 2015 Jun 16; cited 2014 Sep 01];8(1):875. Available from: http://www.rrh.org.au/publishedarticles/article_print_875.pdf

9. Fagerström KO, Schneider NG. Measuring nicotine dependence: a review of the Fagerstrom Tolerance Questionnaire. J Behav Med [Internet]. 1989 Apr [updated 2015 Jun 16; cited 2014 Sep 01];12(2):159-82. Available from: http://link.springer.com/article/10.1007%2FBF00846549#page-1

10. Frare e Silva RL, Carmes ER, Schwartz AF, Blaszkowski DS, Cirino RHD, Ducci RDP. Smoking cessation among patients at a university hospital in Curitiba, Brazil. J Bras Pneumol [Internet]. 2011 Jul-Aug [cited 2014 Sep 01];37(4):480-7. Available from: http://www.scielo.br/pdf/jbpneu/v37n4/en_v37n4a10.pdf.

11. Riquinho DL, Hennington EA. [Tobacco cultivation in the south of Brazil: green tobacco sickness and other health problems]. Cien Saude Colet [Internet]. 2014 Dec [cited 2014 Sep 01];19(12):4797-808. Available from: http://www.scielo.br/pdf/csc/v19n12/1413-8123-csc-19-12-04797.pdf Portuguese.

12. Perondi MA, Zotti CF, Kiyota N, Villwock APS. Prospecção de meios de vida alternativos ao cultivo do tabaco no sudoeste do Paraná. Cadernos Ciência Tecnologia [Internet]. 2011 [cited 2014 Apr 08];28(3):675-96. Available from: http://ainfo.cnptia.embrapa.br/digital/bitstream/item/86689/1/Prospeccao-de-meios-de-vida.pdf

13. Associação dos Fumicultores do Brasil (BR). Escolaridade [Internet]. [Local desconhecido]: AFUBRA; [cited 2014 Sep 01]. Available from: http://www.afubra.com.br/index.php/conteudo/show/id/75

14. Instituto Brasileiro de Geografia e Estatística (BR). Pesquisa Nacional por Amostra de Domicílios. Síntese de Indicadores. Brasília (DF): IBGE; 2011 [updated 2015 Jun 17; cited 2014 Sep 01]. Available from: ftp://ftp.ibge.gov.br/Trabalho_e_Rendimento/Pesquisa_Nacional_por_Amostra_de_Domicilios_anual/2011/Sintese_Indicadores/sintese_pnad2011.pdf

15. Riquinho DL, Hennington EA. Health, environment and working conditions in tobacco cultivation: a review of the literature. Cien Saude Colet [Internet]. 2012 Jun [cited 2014 Sep 01];17(6):1587-600. Available from: http://www.scielo.br/pdf/csc/v17n6/v17n6a22.pdf

16. Oliveira RM, Santos JLF, Furegato ARF. [Sociodemographic profile of smokers admitted to the psychiatric ward of a general hospital]. Rev Bras Enferm [Internet]. 2014 [cited 2014 Sep 01];67(3):381-5. Available from: http://www.scielo.br/pdf/reben/v67n3/0034-7167-reben-67-03-0381.pdf Portuguese.

17. Instituto Nacional de Câncer (BR). Organização Pan-Americana de Saúde. Pesquisa especial de tabagismo – PETab: relatório Brasil [Internet]. Rio de Janeiro: INCA; 2011 [cited 2014 Sep 01]. Available from: http://www.inca.gov.br/rbc/n_57/v03/pdf/17_resenha_pesquisa_especial_tabagismo_petab_relatorio_brasil.pdf

18. Cai L, Wu X, Goyal A, Han Y, Cui W, Xiao X, et al. Patterns and socioeconomic influences of tobacco exposure in tobacco cultivating rural areas of Yunnan Province, China. BMC Public Health [Internet]. 2012 Oct [cited 2014 Sep 01];12(1):842. Available from: http://www.biomedcentral.com/content/pdf/1471-2458-12-842.pdf

19. Wu J, Yang T, Rockett IRH, Xing R, Karalic S, Li Y, et al. Nicotine dependence among rural-urban migrants in China. BMC Public Health [Internet]. 2011 May [cited 2014 Sep 01]10;11:296. Available from: http://www.biomedcentral.com/content/pdf/1471-2458-11-296.pdf

20. Oliveira PPV, Sihler CB, Moura L, Malta DC, Torres MCA, Lima SMCP, et al. First reported outbreak of green tobacco sickness in Brazil. Cad Saude Publica [Internet]. 2010 Dec [cited 2014 Sep 01];26(12):2263-9. Available from: http://www.scielosp.org/pdf/csp/v26n12/05.pdf

21. El-Melegy NT, Ali MEM. Apoptotic markers in semen of infertile men: association with cigarette smoking. Int Braz J Urol [Internet]. 2011 Jul-Aug [cited 2014 Sep 01];37(4):495-506. Available from: http://www.scielo.br/pdf/ibju/v37n4/a09v37n4.pdf

22. Practice Committee of the American Society for Reproductive Medicine (US). Smoking and infertility: a committee opinion. Fertil Steril [Internet]. 2012 Dec [cited 2014 Sep 01]98(6):1400-6. Available from: http://www.fertstert.org/article/S0015-0282(12)01954-1/pdf

23. Feitosa RCL, Pontes ERJC. [Survey of the life-styles and factors associated with the occurrence of cancer in smokers from the city of Sidrolândia (MS, Brazil)]. Cien Saude Colet [Internet]. 2011 Feb [cited 2014 Sep 01];16(2):605-13. Available from: http://www.scielo.br/pdf/csc/v16n2/v16n2a24