Habits, attitudes and beliefs of smokers in four Brazilian capitals

Hábitos, atitudes e crenças de fumantes em quatro capitais brasileiras

Versão original aceita em Português

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Abstract

Tobacco consumption is a major cause of death and disease, and quitting smoking is the most important thing smokers can do to benefit their health. As of the last census, 32.5% of the Brazilian population smoked, but little is known about how many wish to quit and which factors can influence them to make such a decision. **Objective:** To analyze the habits, attitudes and believes of smokers in four major Brazilian cities and compare the results with data from 17 European countries. **Methods:** A total of 800 smokers were interviewed. The interviews were conducted in person and individually, using a semi-structured questionnaire. Smokers were defined as individuals who smoke at least one cigarette per week. They were recruited by intentional sampling (confronted on the street and invited to answer the questionnaire) according to pre-established quotas based on social class, gender, occupation and age. Therefore, the number of interviews in a certain population stratum within the sample was determined according to the proportion of smokers generally represented by that stratum. **Results:** The majority of smokers interviewed presented a low to moderate degree of dependence and wanted to stop smoking. The greater was the motivation to quit, the higher was the number of quitting attempts, as well as the probability of having received medical advice. Only 21% of the smokers had been advised to stop smoking by their doctors. The factor cited by smokers as the one that would most influence their future efforts to stop was "concern about exposing children, relatives and friends to tobacco smoke". The population of Brazil, in contrast to those of European countries, seems to have a high degree of consciousness regarding the fight against tobacco.

Keywords: Tobacco use disorder; Tobacco; Health knowledge, attitudes, practice; Questionnaires

Resumo

A dependência de nicotina é a maior causa evitável de adoecimento e morte em nosso país, e deixar de fumar é a atitude mais importante que um fumante pode ter em favor de sua saúde. De acordo com dados do último censo, 32,5% da população brasileira adulta fuma, mas pouco se sabe sobre quantos deste grupo desejam parar e quais os fatores que os influenciariam a tomar a decisão de abandonar o cigarro. **Objetivo:** Analisar hábitos, atitudes e crenças de fumantes em quatro capitais do Brasil e compará-los com os de 17 países europeus. **Métodos:** 800 fumantes foram entrevistados. As entrevistas foram realizadas pessoalmente e individualmente, utilizando um questionário semi-estruturado. Definiu-se fumante como um indivíduo que fuma pelo menos um cigarro por semana. Os fumantes foram recrutados por amostragem intencional (os indivíduos eram interceptados nas ruas e convidados a preencher o questionário), de acordo com quotas pré-estabelecidas, divididas de acordo com classe social, sexo, ocupação e idade. Assim, a quota de entrevistas de um determinado extrato populacional dentro da amostra foi determinada de acordo com a proporção com que aquele extrato aparece no universo estudado. **Resultados:** A maioria dos entrevistados declarou desejar deixar de fumar e apresentou grau de dependência de nicotina de baixo a moderado. Quanto maior a motivação dos indivíduos para deixar de fumar, maior o número de tentativas que já haviam feito e maior a probabilidade de terem recebido conselho médico. Apenas 21% do total da amostra foram aconselhados pelos seus médicos a parar de fumar. O fator de maior influência futura nos esforços para parar de fumar foi "preocupação em expor crianças, família e amigos à fumaça do cigarro". O Brasil, se comparado a países europeus, parece ter uma população com um alto grau de conscientização na "luta antitabaco".

Descritores: Trastorno por uso de tabaco; Tabaco; Tabagismo; Conhecimentos, atitudes e prática em saúde; Questionários

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Introduction

In recent decades, there has been a progressive decrease in the prevalence of smoking, especially in some developed countries such as the United States of America, where the number of smokers has currently stabilized at 25% of the population

Decreasing these rates has shown itself to be more and more difficult. In order to achieve this objective, it is important to adopt, among other prevention measures, a public health approach designed to promote smoking cessation. However, three barriers must be overcome: 1) health services that do not recognize the need for specific treatment of nicotine dependence; 2) health professionals who are not properly trained to treat heavy smokers; and 3) nicotine addicts who are resistant to seeking help.[1-2]

Smoking is a multifactorial disease whose causes involve biological (inherited vulnerability),[3] psychological (stress levels and psychiatric comorbidities)[4] and social (educational level, income, social environment) factors.[5]

In order to learn how to deal with such resistance and motivate smokers to quit smoking, it is important to become familiar with their various sociodemographic, biological and psychological characteristics.[6]

An example of such an effort was a study conducted in Europe,[7] in which characteristics and attitudes of smokers in 17 European countries were studied. A total of 10,295 individuals over the age of 18 who smoked at least one cigarette a day were interviewed face-to-face and individually. This was the first and only comparative study of a representative sample in European countries to date. Its main objective was to suggest different health policies based on the beliefs of smokers in each country. The results show that the majority of smokers wanted to stop smoking, although the percentages varied considerably among countries (84% of Swedes were motivated, compared to 40% of Austrians, Germans and Italians). However, only 34% were counseled by their physicians to stop smoking, and only 11.6% received advice on how to do so.

There are few statistical data regarding the use of tobacco in developing countries. In addition, a great deal of this data is of poor quality, and the methodologies used to collect it are very different. The latest data regarding the prevalence of smoking in Brazil, for example, was published in 1989,[8] although there have been other isolated studies. In a study published in 1995 in the city of Porto Alegre (state of Rio Grande do Sul), the prevalence was 34.9% among men, and 29.5% among women. In addition, smoking was more common among individuals of lower socioeconomic status between the ages of 30 and 39.[9] According to more recent, still unpublished, data from the Ministry of Health, there was a decrease in the prevalence of smokers in Rio de Janeiro that was more significant among men than among women (down to 23% for men and 20% for women). However, the 1989 *Pesquisa Nacional de Saúde e Nutrição* (National Health and Nutrition Survey), these figures were 38% and 24% for men and women, respectively. It was also determined that more girls start smoking than boys (12% and 8%, respectively)*.

There is virtually no information available regarding the habits, attitudes and beliefs of Brazilian smokers. Little is known about why they smoke, how many want to stop, what would influence their decision to stop, their degree of dependence, etc.

Knowledge of the Brazilian smoker profile would make it possible, as in the European study, to adopt more effective treatments, as well as to carry out tobacco prevention programs and stop-smoking campaigns that would reach the target population.

In order to compare data from Brazilian studies to those from other studies, it is essential that the same methodology be used. Otherwise, it would be impossible to evaluate the efficacy of our prevention policies in comparison to those of more developed countries.

The main objective of the present study was to profile smokers in four Brazilian capitals (Porto Alegre, Recife, Rio de Janeiro and São Paulo) and compare the results to data from 17 European countries.

Methods

The initial questionnaire used in the field was a Portuguese translation of a questionnaire originally developed in English by a diverse group of international specialists and sponsored by Smithkline Beecham.[7] The questionnaire was translated and adapted for use in Brazil by the authors of the present study. The questions added to the original questionnaire were, among others, four questions from the Fagerström Nicotine Dependence Test (FNDT). In the interviews, smokers were asked to rate how strongly they believed certain statements regarding smoking habits and their intention to stop smoking to be true using a scale from 0-10 (0 = totally disagree and 10 = totally agree). Participants were also asked whether they had been advised to stop smoking and had been counseled on how to go about it from their doctors. Questions regarding perception of smoking risk were also included. Data were tabulated using software created by *Levantamentos e Pesquisas de Marketing* (LPM, Marketing Survey and Research, São Paulo, Brazil).

The sample comprised 800 smokers between 14 and 65 years of age. In order to increase detection power, especially among teenagers, smokers were defined as individuals who smoked at least one cigarette per week and not as those who smoked at least one cigarette per day, as was done in the European study.[10] For the same reason, DSM-IV criteria for nicotine dependence were not used since these fail to detect individuals in the early stage of dependence.

There were 300 smokers interviewed in Rio de Janeiro, 300 in São Paulo, 100 in Porto Alegre and 100 in Recife. These cities were chosen because the first two are the largest cities in the country and the two others offer a panorama of the southern and northeastern regions. Face-to-face interviews were conducted individually by LPM professionals, using a semi-structured questionnaire. Experienced interviewers were pretrained in how to administer the questionnaire. On the first two days, interviews were conducted under supervision, and groups consisting of five interviewers and one supervisor were formed. If the supervisor noticed any irregularities, interviews were invalidated. Smokers were recruited by intentional sampling (passers-by were invited to complete the questionnaire) according to pre-established quotas. In order to ensure that the sample would reflect the true profile of Brazilian smokers, the quotas were based on unpublished data (provided by SmithKline Beecham) regarding smoking

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* NOTE: Figueiredo VC, 2004. Divisão de Epidemiologia e Vigilância da COMPREV/Instituto Nacional de Câncer. Personal communication.

prevalence in 1998. The quotas were divided according to social class, gender, occupation and age. Social classes were subdivided into the categories A1, A2, B1, B2, C and D, according to the *Instituto Brasileiro de Geografia e Estatística* (IBGE, Brazilian Institute of Geography and Statistics). Therefore, the quota of interviews in a certain population stratum within the sample (women in Rio de Janeiro, for example) was fixed according to the proportion of smokers generally represented by that stratum. If, for example, the (unpublished) study from which we obtained the data showed that, in São Paulo, 55% of smokers were male and 45% were female, of the 300 smokers interviewed in São Paulo, 55% would be male and 45% would be female.

In practical terms, each interviewer was designated to work in a certain area, to conduct a certain number of interviews with interviewees fitting certain profiles. An example of such an assignment would be: 20 interviews in Copacabana with people aged 14 to 65 who smoke at least some cigarettes a week, being 10 male and 10 female, two aged 14 to 18, four aged 18 to 34, eight aged 34 to 54 and six aged 55 to 64; one from class A1, two from class A2, three from class B1, four from class B2, five from class C and five from class D, being 10 workers and 10 unemployed individuals. All data were collected in 1999. Since interviewees were recruited through intentional sampling according to quotas (in case an individual with certain characteristics refused to complete the questionnaire, interviewers looked for another individual with the same characteristics), there were no sample losses.

Aiming to compare the "anti-smoking climate"[12] in Brazil to that found in the European countries, the principal author of the present study decided to use a "thermometer" created by a series of professionals[11] in order to carry out this evaluation in the aforementioned European countries. The anti-smoking climate (ASC) may be defined as the tendency of a population to quit smoking. The ASC thermometer was created by selecting the five most significant statements and questions from among the 21 that comprise the questionnaire. The following were the statements and questions chosen: "Smoking is the leading cause of disease and death in my country."; "Would you like to stop smoking sometime?"; "The government should take more measures to assist individuals in their attempts to quit smoking"; "Have you ever made a serious attempt to quit smoking?"; and "There should be non-smoking areas in restaurants and other public places."

In order to rate the statements "Smoking is the leading cause of disease and death in my country", "The government should take more measures to assist individuals in their attempts to quit smoking", and "There should be non-smoking areas in restaurants and other public places", interviewees used a 10-point scale, according to the degree of agreement. These results were multiplied by 100, resulting in a maximum of 300 points. The remaining two questions were answered with a "yes" or a "no". The country score corresponded to the percentage of smokers answering "yes". The total thermometer score was calculated by adding the individual question scores together.

At the end of the study, the data were sent to Pinney Associates for statistical analysis. Headquartered in the United States, Pinney Associates is a privately funded science-based health consulting firm that specializes in data analysis.

In order to analyze the Brazilian data, categorical variables were compared using the Pearson chi-square test. Continuous variables were analyzed using one-way analysis of variance. In order to determine correlations between degree of nicotine

dependence and age group, we used the test for linear trend, based on a linear regression model that uses the FNDT score as the dependent variable and the age group as the independent variable (with the values 1, 2, 3, 4 and 5 for the age groups equal to the 18 to 24, 25 to 34, 35 to 44, 45 to 54 and 55 to 64 age brackets, respectively).

For comparisons between Brazil and the European countries, categorical variables were analyzed using the Mantel-Haenszel tests or logistic regression, or both. Analysis of variance, using location as the secondary factor, was used to analyze continuous variables. In order to assess statistical significance in the multiple comparisons, we defined an *a priori* alpha level of 0.003, obtained through Bonferroni correction.

As in the European study,[7] smokers were divided into four groups in order to analyze the results obtained regarding degree of motivation and degree of nicotine dependence:

Group 1: Highly dependent/Highly motivated – Smokers who smoke more than 30 cigarettes a day and want to stop or who smoke between 10 and 29 cigarettes a day, have the first cigarette within 30 minutes of waking and want to stop.

Group 2: Little dependent/Little motivated – Smokers who smoke fewer than 10 cigarettes a day and want to stop or who smoke between 10 and 29 cigarettes a day, do not smoke within 30 minutes of waking and do not want to stop.

Group 3: Highly dependent/Little motivated – Smokers who smoke more than 30 cigarettes a day and do not want to stop or who smoke between 10 and cigarettes a day, have the first cigarette within 30 minutes of waking and do not want to stop.

Group 4: Little dependent/Little motivated – Smokers who smoke less than 10 cigarettes a day and do not want to stop or who smoke between 10 and 29 cigarettes, do not smoke within 30 minutes of waking and do not want to stop.

Results
1. Description of the sample
Of the 800 smokers interviewed, 53% were male, 47% were female, 37.3% were single and never married, 11.1% were single and living with a partner, and 34.4% were married.

The following was the distribution among the age groups: 11.7% of smokers were under 18; 20.4% were between 18 and 24; 21.2% were between 25 and 34; 23.3% were between 35 and 44; 14.7% were between 45 and 54; and 8.7% were between 55 and 64. Family income was expressed as the number of *salários mínimos* (SMs, Brazilian minimum monthly wage) as follows: 27.8% of interviewees earned up to 3 SMs; 17.6% earned from 3 to 5 SMs; 28.1% earned from 6 to 10 SMs; 14.6% earned from 11 to 20 SMs; and 11.4% earned 20 or more SMs. At the time of the present study, one SM was R$130.00, or US$77.00. Regarding social class, 1% of the sample belonged to class A1; 5.2% to class A2; 8.6% to class B1; 17.6% to class B2; 37.5% to class C; and 29.7% to class D. As for educational level, 12.7% were illiterate; 32% had completed elementary school but had not completed junior high school; 25.9% had completed junior high school but had not completed high school; 23% had completed high school but had not completed college; and 6.4% had completed college.

2. Profile of smokers in fourn Brazilian capitals
The majority of the interviewees (45.5%) were moderate smokers (11 to 20 cigarettes a day). Light smokers (6 to 10 cigarettes a day) constituted 42.9% of the sample. When asked how they would rate their cigarettes, 22.2% rated them as high tar, 31.7% as medium tar, and 44% as light. Few of the

individuals interviewed in the present study smoked more than 21 cigarettes a day. In terms of absolute cigarette consumption, interviewees from different age groups smoked at varied rates (p < 0.0002), and participants under 18 years smoked the smallest number of cigarettes on average (mean = 11.8, standard deviation = 8.5).

1) Nicotine dependence

Of the total sample, the mean FNDT questionnaire score was 4.11, which represents low to moderate nicotine dependence. This mean was 4.21 in females and 4.02 in males. The degree of nicotine dependence varied significantly according to the interviewee age (F = 5.71; p < 0.0001). The FNDT score for interviewees up to 17 years was 3.42 (low); it was 3.48 (low) in the 18-24 age group; 4.15 (moderate) in the 25-34 age group; 4.42 (moderate) in the 35-44 age group; 4.84 (moderate) in the 45-54 age group; and 4.27 (moderate) in the 55-64 age group. The result of the test for linear trend was significant (t = 3.97; p < 0.0001), showing that dependence increased in parallel with age. Furthermore, dependence in individuals younger than 24 was significantly lower than in individuals over 25 (t = 4.78; p < 0.0001).

2) Motivation to stop smoking

At the time of the interview, 80.5% of smokers stated a desire to stop smoking.

Smokers who wanted to stop, but presented high dependence (Group 1), constituted 44.8% of the total sample (n = 358). Those who wanted to stop and presented lower dependence (Group 2) constituted 35.7% of the sample (n = 285).

Smokers who were not motivated and presented high dependence (Group 3) constituted 10.8% of the sample (n = 7), and those who were not motivated and did not present dependence (Group 4) constituted 8.6% (n = 69).

Of the smokers in the two groups that expressed the wish to stop smoking (Groups 1 and 2), 66.4% had made previous attempts to quit, whereas only 33.4% of smokers in the non-motivated groups (Groups 3 and 4) had made previous attempts to quit (χ^2 = 56.3, p < 0.0001).

3) Habits, attitudes and beliefs of smokers

Aiming to investigate the habits, attitudes and beliefs of smokers, we compared smokers in each group regarding degree of agreement with a series of statements using a 0-10 scale (0 = totally disagree and 10 = totally agree).

Figure 1 shows that, regardless of the degree of dependence, the groups of individuals presenting higher motivation (Group 1 + Group 2) scored higher than did those presenting lower motivation (Group 3 + Group 4) on the following statements on policies and habits regarding cigarettes: "I would prefer that my partner did not smoke"; "Smoking is the leading cause of disease and death in my country"; "Stronger warnings on cigarette packs should be mandatory"; "All tobacco advertising should be banned in Brazil"; "The tobacco industry should be held responsible for the illnesses and deaths attributed to cigarette smoking." (p ≤ 0.04 for all comparisons).
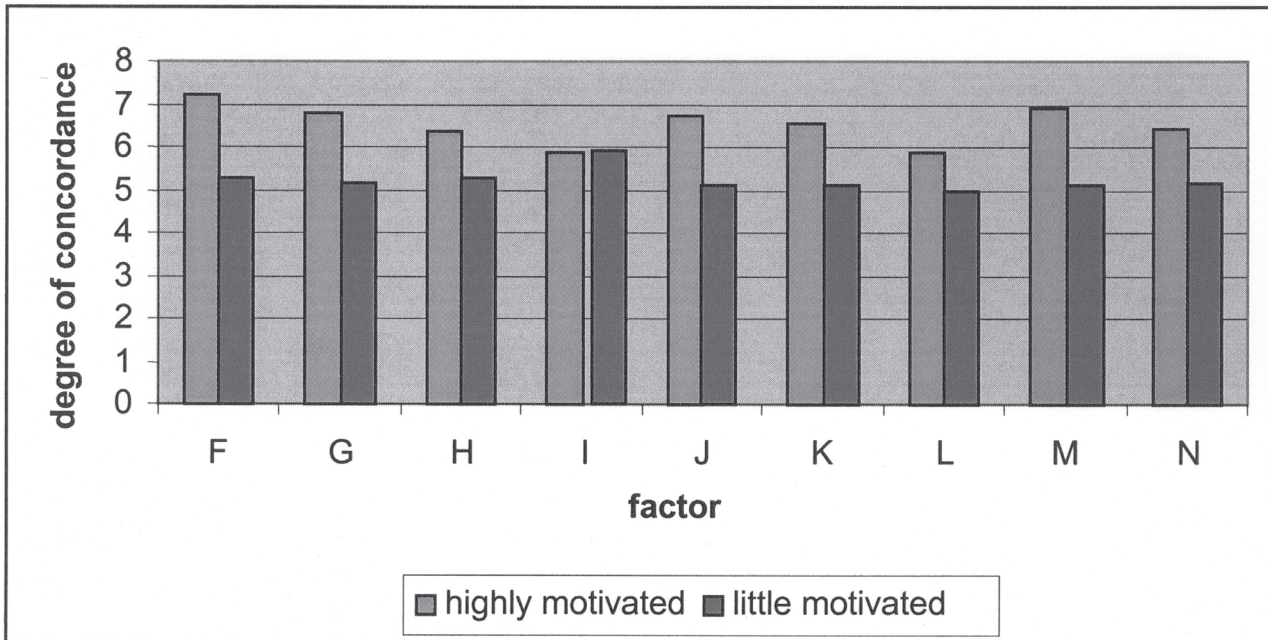

Figure 1 - Mean degrees of concordance between the smoking-related opinions and habits of smokers highly motivated to quit and those of smokers presenting little motivation to do so

Affirmations:

F - I would prefer that my partner did not smoke. G - If there were a pill that would stop me from smoking forever, I would buy it. H - I would stop smoking tomorrow if I thought I could. I - I really try to wait before having the first cigarette of the day. J - Stronger warnings should be put on cigarette packs. K - All cigarette advertising should be banned in Brazil. L - All tobacco company sponsorships should be banned in Brazil. M - Smoking is the leading cause of disease and death in my country. N - Cigarette companies should be held responsible for the illnesses and deaths attributed to smoking.
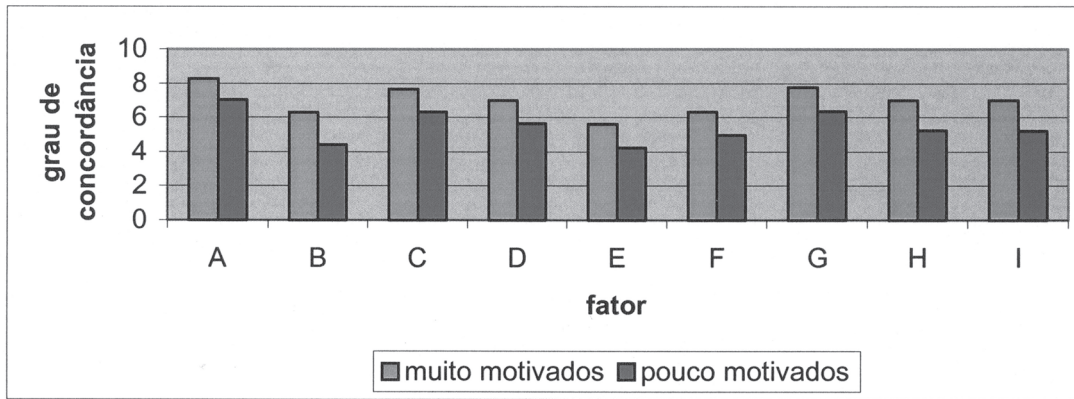
Figure 2 - Degrees of concordance between the two groups (highly motivated and little motivated) regarding factors that influence the decision to stop smoking

Factors:

A - Concern about exposing children and family members to cigarette smoke. B - Free telephone counseling. C - Concern that children may take up smoking because of the example set. D - Physician advice to stop smoking. E - Pharmacist advice regarding the dangers of smoking. G - Increased evidence that smoking is harmful to one's health. H - Wider availability of efficacious treatments and products designed to assist smokers in giving up the smoking habit. I - Clinics providing affordable pharmacotherapy and psychotherapy to smokers wishing to quirt smoking.

Figure 2 shows that the factor that would most strongly influence future efforts to stop smoking was "concern about exposing children, family and friends to tobacco smoke" (mean concordance = 8.27), followed by "increasing evidence that tobacco is harmful to one's health" (7.79); "concern that their children may start smoking following their example" (7.66); "availability of low-cost treatment" (7.0); and "doctor's advice" (7.01). The degree of concordance for all of the statements was higher in the groups of individuals presenting high motivation (Group 1 + Group 2) than in the groups of individuals presenting low motivation ($p \leq 0.004$).

For all means shown in Figures 1 and 2, standard deviation ranged from 2.83 to 4.40, and standard error ranged from 0.15 to 0.53.

4) Physician counseling

Of the total sample, 47.3% had already been warned by a physician, and there was variation among the four groups ($p < 0.0001$). More individuals (56.5%) in the group that presented high dependence and high motivation (Group 1) had been warned, compared with 31.7% in the group of individuals presenting the lowest dependence and lowest motivation (Group 4) ($p < 0.0001$). Similarly, more individuals (44.3%) in the group that presented the least dependence and wished to stop (Group 2) had been warned, compared with 31.8% ($p = 0.04$) in the groups of individuals presented with lower motivation (Groups 3 and 4), with a difference approaching statistical significance ($p = 0.06$). However, only 21% of the total sample received advice from their physician on how to quit smoking.

Despite the fact that 65.8% of the sample sees a physician at least once a year and that 50.4% of smokers asserted that they would pay for an efficient product, only 30.4% would visit their doctor in search of the medication.

5) Risk perception

Smokers were shown a list of six diseases (acute myocardial infarction, arterial hypertension, asthma, lung cancer, pulmonary emphysema and brain hemorrhage) and asked which ones were directly related to tobacco. The disease that was most often associated with tobacco consumption was lung cancer (92%), and the one that was least often associated was arterial hypertension (0.7%). Nevertheless, smokers believed that pure nicotine was related to the following diseases: lung cancer (79.9%), pulmonary emphysema (67.5%) and asthma (64.6%).

Of the total sample, 6.17% believed that only one of the diseases listed was related to tobacco consumption, whereas 58.5% believed that all of them were related.

6) Comparison with European data

According to the ASC thermometer – see Table 1 -, Brazil was the country with the highest ASC score (378), whereas Austria had the lowest score (258). Furthermore, Brazil had higher scores than the majority of the countries ($p < 0.0001$), except for Ireland ($p = 0.007$), Luxemburg ($p = 0.015$), Poland ($p = 0.033$), and Sweden ($p = 0.051$), differences approaching the level of statistical significance.

Discussion
1. Brazilian data

This study has made available, for the first time, data regarding the habits, attitudes and beliefs of Brazilian smokers in relation to smoking cessation.

Despite some methodological differences such as study sample size and inclusion criteria (in our study, smokers were defined as individuals who smoked at least one cigarette per week, rather than at least one per day), we believe that the data we obtained can be compared to those from the European study cited. We shall now discuss the data that we feel have significant implications for anti-tobacco policies in Brazil.

In our study, the variable that seems the most relevant is the high percentage of smokers who are motivated to give up the habit, which suggests that Brazil finds itself at a favorable

Table 1 – Anti-smoking thermometer. Individual scores for five affirmations, together with overall scores, showing scores obtained in Brazil in comparison to those obtained in various European countries. Countries are listed in descending order by total score

Nº	Country	Leading cause of death	Desire to quit	More government involvement	Attempts to quit	Smoke-free environments	Total score	p
1	Brazil	66	80	82	60	90	378	–
2	Poland	59	69	73	76	91	368	0.033
3	Sweden	49	84	55	80	90	358	0.0512
4	Greece	59	72	74	49	86	340	<0.0001
5	Ireland	63	62	72	55	86	338	0.0066
6	United Kingdom	55	66	64	67	81	333	<0.0001
7	Spain	55	56	71	44	84	310	<0.0001
8	Denmark	76	45	33	68	84	306	<0.0001
9	Holland	41	65	45	75	80	306	<0.0001
10	France	49	59	64	51	82	305	<0.0001
11	Finland	36	73	47	63	84	303	<0.0001
12	Belgium	45	56	61	53	85	300	<0.0001
13	Italy	54	37	66	49	85	291	<0.0001
14	Luxemburg	37	43	63	58	85	286	0.0149
15	Portugal	52	43	66	41	82	284	<0.0001
16	Germany	43	38	61	43	81	266	<0.0001
17	Austria	41	38	61	38	80	258	<0.0001

moment in terms of the possibility of reducing the prevalence of smoking. We also observed a significantly high level of public consciousness regarding the hazards of passive smoking. Brazilian smokers express great concern in relation to the ill effects that cigarette smoke has on third parties. In view of this fact, we can conclude that the Brazilian government should take advantage of this concern for others in public health campaigns and use it as a motivating factor in the creation of smoke-free environments.

Of those interviewed, more Brazilians than Europeans stated that the government should be more active in assisting individuals in their attempts to quit smoking. Therefore, greater effort should be made to increase the availability of treatment, providing, if possible, free medication and establishing smoking cessation clinics in public hospitals. Edict 1.575, issued August 29, 2002,[12] stating the commitment of the government to offer free psychological counseling and medication (nicotine replacement and buproprion therapy), is in keeping with this finding. If this decree is enacted, more individuals will stop smoking, thereby reducing overall prevalence of smoking and smoking-related morbidity and mortality within a significantly shorter length of time than would control strategies focused solely on prevention.[13]

It is well known that physician counseling to stop smoking significantly increases abstinence rates among smoking patients.[14] In view of this and other reported data, we can suggest that Brazilian health professionals should take a more active stance in the fight against smoking, not only advising patients to quit smoking but also orienting them as to how this can be achieved, prescribing appropriate medication and bearing in mind that health professionals are behavioral role models, making smoking in the presence of a patient highly inappropriate.[15] Therefore, we should provide more extensive education for profesionals in training.[16] The data obtained in our study are comparable to those of studies previously conducted in Brazil. In a study conducted in 1992, 24.9% of Brazilian doctors were found to be smokers.[17] In addition, in a study carried out at the *Universidade Federal do Rio Grande do Sul* (Rio Grande do Sul Federal University), few students reported having been instructed in minimal interventions used to orient patients in smoking cessation.[18]

In Brazil, the harmful effects of low-tar cigarettes, as well as those of smoking in general, are still underestimated, reducing the likelihood of future attempts at smoking cessation.[19] This fact indicates the need to create public service announcement campaigns about the dangers of smoking, especially the danger to nonsmokers since, according to the interviewees, one the most influential factors in making the decision to stop smoking is the knowledge of such dangers. It is important to note that our study was conducted prior to the publication of photographs on cigarette packs illustrating the ills of smoking. Such measures should have the expected positive impact of further reducing the numbers of smokers in Brazil. However, Brazilian smokers still attribute the majority of tobacco-related illnesses to the nicotine itself, which will likely be a stumbling block to the use of nicotine replacement therapy in the treatment of nicotine withdrawal syndrome.

Tobacco use is currently considered a pediatric disease. In the United States alone, 1.23 million minors (individuals under the age of 18) become smokers every year.[20] Through the finding that FNDT scores increased in parallel with age bracket, our study provides evidence that the degree of nicotine dependence increases over the years. Therefore, anti-smoking campaigns should specifically target young

people, attempting to impede the progression of dependence, which would make it more difficult for these individuals to quit smoking in the future.

Finally, we observed that the smokers who were more motivated to quit were also those who had previously tried to quit the greatest number of times. Therefore, campaigns aiming to increase motivation are likely to increase the chance that individuals will attempt to stop smoking.

The limitations of the present study must be taken into account. The study sample, for example, was not proportional to the number of inhabitants in each of the four respective Brazilian cities and therefore did not allow an effective city-by-city analysis. Therefore, the analyses of Recife and Porto Alegre were favored, to the detriment of those of Rio de Janeiro and São Paulo.

2. Comparison with the European data

In the Brazilian sample, 80.5% reported having the desire to stop smoking. This would seem to be a very promising finding if compared with other countries[4] such as Germany (38%; $p < 0.0001$), Austria (38%; $p < 0.0001$) and Italy (37%; $p < 0.001$). Among the European countries in which smokers were more motivated, percentages varied from 85% (in Sweden; $p = 0.267$) to 61% (in Ireland; $p = 0.003$) (Table 1). It is notable that Sweden was the only European country in which the degree of motivation was greater than that observed in Brazil, and that the difference was less than significant. This result is inconsistent with what is generally expected for a developing country, although it may have been influenced by the following limitations of our study and its findings:

1) The idea of an ASC is quite complex, and the ASC thermometer instrument has not been tested for reliability and validity.

2) Since the study was conducted in large metropolitan centers, the Brazilian sample consisted principally of middle-class individuals with higher levels of education than those of the general population, thereby bringing our sample composition closer to that of the European sample.

3) There were differences between the two studies in terms of the inclusion criteria. In our study, we included individuals aged 14 years and older, whereas the European study excluded individuals younger than 18. Therefore, our sample, overall, tended to be less nicotine dependent and thus more motivated to stop smoking. The data are comparable, however, since, with the exception of the sample definition, we used the same methodology and the percentages of more dependent smokers in Brazil (groups 1 and 3) were similar to those seen in Europe (56% and 55.4%, respectively).

Despite such limitations, our results allow us to suggest measures designed to reduce the prevalence of smoking in Brazil and consequently reduce tobacco-related morbidity and mortality. Such measures would include the following:

1) making use of concern for third parties in public health campaigns;

2) stepping up efforts to enact Edict 1.575, issued August 29, 2002,[8] which offers free medication and access to smoking cessation clinics;

3) offering more information about smoking cessation techniques to health professionals in training;

4) creating public service announcement campaigns that warn of the dangers of smoking;

5) making young people a target of health education campaigns aiming to increase the motivation to quit among smokers.

Although we faced some difficulty in comparing the Brazilian data to those from the European countries, it is clear that the current level of anti-smoking consciousness creates a favorable climate in Brazil. This finding surprised us since Brazil is a country where the price of a pack of cigarettes is low and cigarettes are still sold to minors, not to mention the fact that, at the time of the study, tobacco advertising was still permitted on television. It seems that, despite these obstacles, mobilization of the media and of anti-smoking groups (medical societies and private organizations) has had a real impact. The present study should encourage not only changes in government policies regarding smoking control but also continuity in the work done by non-governmental societies and organizations in reducing the prevalence of smoking in Brazil.

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