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BRIEF COMMUNICATION

Profile of Brazilian smokers in the National Program for Tobacco Control

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Objective: The treatment of tobacco addiction in Brazil has expanded in recent years; however, we must increase knowledge about the characteristics of individuals who adhere to cessation programs in order to adjust treatments to specific characteristics of the target population that favor success. The aim of this study was to describe the characteristics of smokers who present to Brazilian public health units seeking help to quit smoking based on the experience of a primary health care unit that covers a poor community in the city of Rio de Janeiro.
Methods: Data were collected at a Teaching Health Center from January 03 2012 to January 03 2014.
Results: Mean patient age was 49.32±11.82 years, and 71% were women. About half of the participants successfully quit smoking (n=125, 51%). Higher levels of nicotine dependence were associated with lower levels of smoking cessation. There was a notable decrease in the probability of remaining smoking throughout the first month of treatment. After 3 weeks of treatment, only 19% had not quit smoking. The probability of quitting smoking decreases by 2% for every additional year of age.
Conclusion: There is a need to revise and expand current strategies to make them more effective in preventing smoking since childhood.

Keywords: National Program for Tobacco Control; smoking; smoking cessation; tobacco; tobacco use cessation products

Introduction

Smoking is the leading preventable cause of death worldwide. It causes six million deaths worldwide per year, mostly in low- and middle-income countries.[1] For many years, smoking was viewed as a lifestyle and was ostensibly encouraged by advertising. Currently, there is an understanding that smoking is a disease caused by nicotine dependence, and it is therefore classified in the ICD-10 under the group of mental disorders and behaviors resulting from the use of psychoactive substances. In addition to nicotine, various substances which are present in the composition of cigarettes are causal factors for tobacco-related diseases.[2]

Despite efforts in implementing the Brazilian National Program for Tobacco Control, the rate of successful treatment is still low (about 20%).[3] The odds of success can be improved by further knowledge of the characteristics of individuals who adhere to the program, so that treatment can be adjusted to the specific characteristics of the target population.[4]

The aim of this study was to describe the characteristics of smokers who seek help to quit smoking in Brazilian public health units, based on the experience of a primary health care unit that covers a poor community in the city of Rio de Janeiro.

Methods

This was a retrospective cohort study. Clinical records of all patients undergoing treatment for tobacco control during the study period (from January 03 2012 to January 03 2014) at the Teaching Health Center of Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz (FIOCRUZ), Rio de Janeiro, Brazil, were extracted and recorded in an electronic database.

The health professionals of the Teaching Health Center have assisted the low-income population of the Manguinhos community, covering approximately 20,000 inhabitants, since 1967. Manguinhos is located in the north zone of the city of Rio de Janeiro. In this region, the household density is 2.8 persons per dwelling. For more than 50% of residents, the mean educational attainment level does not exceed primary education.

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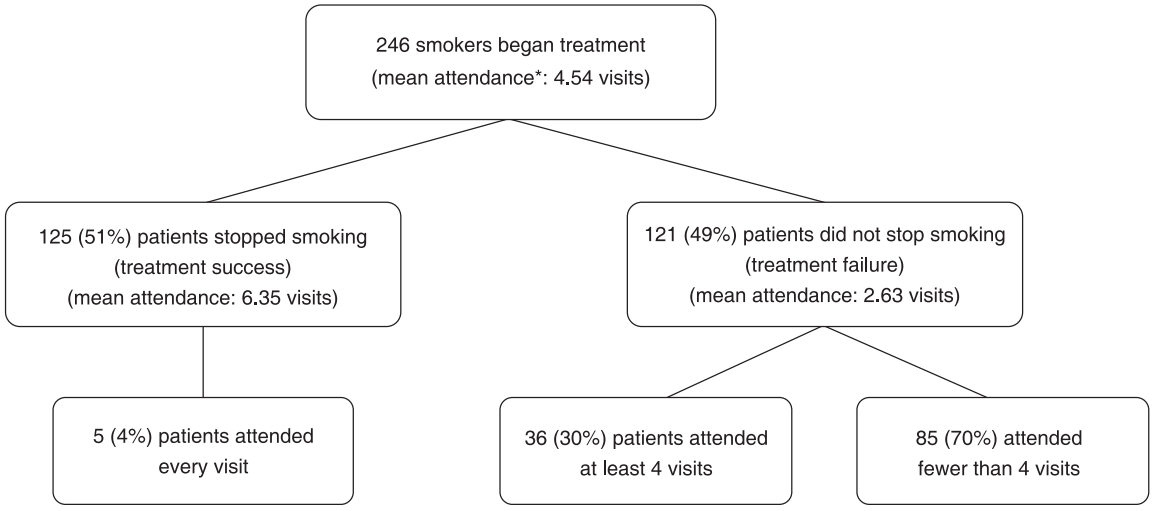

Figure 1 Characteristics of study participants, stratified by treatment failure or success. * Out of seven scheduled visits. All participants attended the first visit.

Treatment consisted of seven weekly visits: one (the first) to complete clinical records, four for cognitive-behavioral therapy (CBT), and the last two for patient follow-up. Participants who came to the first visit but did not attend every visit were not excluded, but those who did not come to at least four meetings were considered cases of treatment failure (patients who did not stop smoking) (Figure 1). The proportion of treatment success (main response variable) was calculated using the number of patients who quit smoking after treatment onset (first visit) as the numerator, and the total number of the patients who began treatment (those who attended the first visit) as the denominator.

Blood pressure and body weight were measured at all visits. Drug treatment was prescribed to all participants during the first CBT session. The prescribed treatment, which was provided regularly to all study participants, consisted of transdermal nicotine replacement therapy (NiQuitin Patches). All participants joined the drug treatment. The dosage was selected according to the Brazilian Ministry of Health protocol. Briefly patients who smoke more than 20 cigarettes per day use the following scheme: weeks 1 to 4 weeks, 21-mg patch, 24 hours a day; weeks 5 to 8, 14-mg patch, 24 hours a day; weeks 9 to 12, 7-mg patch, 24 hours a day. Patients who smoke 10-20 cigarettes a day and those who smoke their first cigarette within 30 minutes of waking up use the following scheme: weeks 1 to 4, 14-mg patch, 24 hours a day; weeks 5 to 8, 7-mg patch, 24 hours a day.

Tobacco dependence was assessed using the Fagerström scale (classification criterion: 0-2 points, very low; 3-4 points, low; 5 points, moderate; 6-7 points, high; 8-10 points, very high).[5] Alcohol dependency screening was performed using the CAGE scale, a four-item questionnaire that can indicate potential problems with alcohol abuse. The CAGE questionnaire (Cutting down, Annoyance by criticism, Guilty feeling, and Eye-openers) is useful in helping to make a diagnosis of alcoholism.[6]

Statistical analysis

Relative frequencies and means ± standard deviations were calculated for the characteristics of interest. The factors included in the analyses were sociodemographic characteristics, tobacco use variables, tobacco history, medical history, lifestyle habits, and body weight and blood pressure measurements. Statistical tests were employed as appropriate and 95% confidence intervals (95%CI) were calculated. A Kaplan-Meier curve was plotted to assess the probability of remaining smoking throughout the first 64 days of treatment. Cox proportional hazards modeling was used to evaluate the effect of age on the time required to quit smoking, adjusted by gender, dependence level, and income. All analyses were performed in the R-3.1.1 software environment.

Ethics statement

The study followed the principles set forth in the Declaration of Helsinki and was approved by the Institutional Review Board of the facility where the study was carried out through the Ethics Committee of Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz (ENSP/FIOCRUZ) (protocol 624,550).

Results

During the study period, 246 smokers sought treatment at the Teaching Health Center. Smokers were enrolled in a tobacco treatment group mainly due to friends' advice (36%) or their own initiative (30%). A large portion of smokers (36%) lived with other smokers.

Mean participant age was 49.38±11.86 years, and 71% were female. Almost half of the group was single,

Table 1 Proportion of success in quitting smoking according to sociodemographic factors and level of tobacco and alcohol dependence

	Total	Quit smoking
Female	165 (71)	80 (48)
Male	69 (29)	39 (57)
Age, years	49.38±11.86	50.00±10.71
Marital status		
Single	102 (44)	47 (46)
Married	86 (37)	48 (56)
Separated/divorced	20 (8)	11 (55)
Widowed	17 (7)	9 (53)
Other	9 (4)	4 (44)
Income (× minimum wage)*		
⩽ 2	159 (68)	79 (50)
2-4	55 (23)	30 (55)
4-7	11 (5)	7 (64)
> 7	9 (4)	3 (33)
Educational attainment		
Less than primary education	105 (46)	51 (46)
Primary education	47 (20)	24 (51)
Secondary education	63 (27)	36 (57)
Higher education	15 (7)	5 (33)
Alcoholism†	46 (53)	27 (58.7)
Tobacco dependence level‡		
Very low	9 (4)	6 (66.7)
Low	21 (9)	12 (57.1)
Moderate	31 (13)	14 (45.2)
High	88 (37)	47 (53.4)
Very high	94 (39)	44 (46.8)

Data presented as n (%) or mean ± standard deviation.
* Minimum wage = US$ 393.38 per month (July 10 2014).
† Measured using the CAGE scale.
‡ Measured using the Fagerström scale.

and 34% were married. The majority of participants (68%) had a monthly income of two times the Brazilian minimum wage or less (i.e., US$ 786.76 or less) and low educational attainment (Table 1).

A large proportion of participants reported that their smoking habits were strongly associated with anxiety reduction (92%), sadness (79%), coffee intake (85%), and the end of a meal (91%).

The leading reason to continue smoking reported was the supposed calming effect of tobacco (83%), and the main reasons to quit smoking were concern for future health (95%), being a bad example for children (92%), family wellbeing (84%), actual dependence (84%), and economic issues (84%).

Most smokers reported moderate (49%) or poor (36%) self-perceived health. The main health problems reported were depression (55%), gastric disorder (49%), and hypertension (32%).

Participants who had already tried to quit smoking reported that the main abstinence symptoms were anxiety (67%), agitation (62%), irritability (58%), and craving (58%).

The majority of smokers (76%) presented high or very high levels of tobacco dependence before starting treatment, and half (53%) were also alcohol dependent.

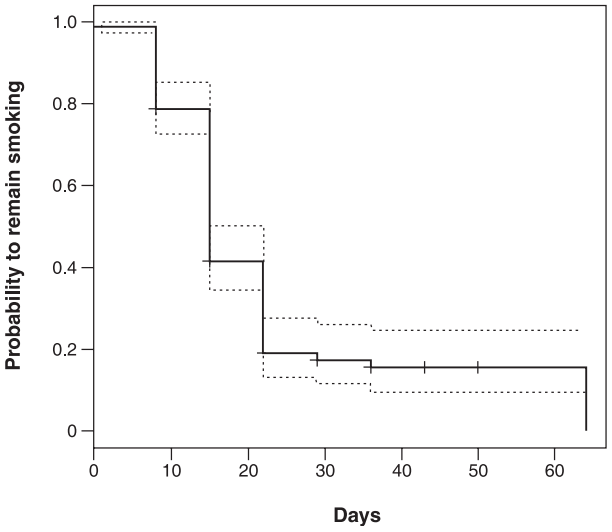

Figure 2 Kaplan-Meier curve showing probability of continued smoking throughout the first 64 days of treatment.

The mean Fagerström scale score was 6.74±2.06, which represents high tobacco dependence (Table 1).

About half of the participants achieved smoking cessation (n=125, 51%). As 85 participants (15%) did not attend least four treatment visits, these cases were classified as treatment failures (Figure 1). Mean length of time to smoking cessation after the start of treatment was approximately 2 weeks (mean = 15.91± 8.14 days).

The Kaplan-Meier curve shows a marked decline in the probability of still smoking throughout the first month of treatment. Within 3 weeks of starting treatment, only 19% of participants had not quit smoking (Figure 2). The probability of quitting decreased 2% for every additional year of age (adjusted by sex, dependence level, and income) (hazard ratio = 0.98; $p < 0.03$).

Systolic and diastolic blood pressure did not change significantly 3 months after the start of treatment (mean decrease, 10 mmHg). Approximately 37% of participants reported a fear of gaining weight. The mean variation in body weight 3 months after treatment was +1.10 kg (95%CI 0.25-2.00).

Discussion

Smokers' family and friends were the most frequent sources for smoking cessation support.[7] Government programs for tobacco control have helped curtail the smoking epidemic in Brazil and elsewhere in the world.[8]

In Brazil, the group that most often seeks help at smoking cessation support groups in public health units are women with a mean age of 50 years and low educational attainment.[9] Perhaps, this group represents a population that does not work and thus has a more flexible schedule to attend weekly therapy sessions at health units. Tobacco control program sessions generally occur on weekdays,

during business hours, which hinders the participation of smokers who work.

Individual characteristics as well as the influence of friends and family are proving to be important precipitating factors of smoking onset. It is common to find two or more smokers within the same family. Smokers generally choose to associate with friends who also smoke, while nonsmokers prefer to relate with other people who do not smoke.[10]

People who smoke for many years have difficulty reporting specific situations that are more related to an urgent need to smoke. This may be because almost all situations in their lives are already tobacco-related. Among the situations most strongly associated with the need to smoke, anxiety, sadness, and nervousness are commonly reported by smokers. However, in opposite situations, such as times of happiness and celebrations, smokers report a similar urge to smoke.[11]

When smokers are asked about the benefits of tobacco use, they generally report that smoking is able to calm them.[12] This probably occurs because, in general, drugs are used as a means of escaping from a problem.[13,14] A study revealed that reducing psychologic symptoms of distress improves quality of life in people with drug dependence.[15] Otherwise, smokers report that health issues are one of the main reasons that lead smokers to quit. Many people seek help to stop smoking because they are already starting to feel the harmful effects of smoking on their health.[16] A study conducted in Europe in 2005-2010 revealed that more than 40% of former smokers mentioned a current health condition as the main reason to stop smoking, and about 30% stopped to prevent future health problems.[17]

Several symptoms of smoking abstinence have been described in the literature, including a craving for cigarettes, anger, anxiety, depression, difficulty concentrating, impatience, insomnia, restlessness, constipation, cough, dizziness, and increased dreaming.[18] These symptoms are more frequent in the first weeks after smoking cessation, and disappear over time. The craving for cigarettes is unique in that, although it also decreases over time, it can still recur several years after smoking cessation.[13]

Hypertension is a frequent problem among smokers. In this study, we did not detect a significant change in blood pressure after tobacco cessation, as participants in the tobacco treatment group were still using nicotine patches during the evaluation period.[19]

Weight gain is very common in early treatment of tobacco cessation. The appetite increase often reported by recent ex-smokers is probably related to anxiety, which is one of the most common symptoms of withdrawal.[20]

Treatment outcomes for patients with concurrent alcohol and tobacco dependence are generally worse than for people addicted to only one drug. Many treatments do not promote smoking cessation during alcoholism therapy. Some research, however, has suggested that concurrent treatment for both addictions may improve outcomes.[20]

The level of nicotine dependence found among people seeking smoking cessation treatment at health services appears to be high, indicating that smokers with greater nicotine dependence seek more help to quit than those who are less dependent.[20] However, this specific group of smokers seems to be less successful in achieving smoking cessation than those with a low degree of dependence.[21]

Because the present study was retrospective and involved secondary data collected from clinical records, some potential data quality issues must be considered (e.g., missing or incomplete information, data collection by different professionals, use of different measuring instruments), as the data used for analysis were not originally collected for research purposes.

The increase in public policies to fight smoking in recent decades has already shown some beneficial results in reducing the prevalence of smoking in Brazil. In 2012, the prevalence of smoking among Brazilian adults had decreased 3.9 percentage points compared to 2006.[22] Some authors consider smoking a pediatric disease, because it usually begins in adolescence.[23] However, the treatment provided through the public health care system in Brazil predominantly reaches older individuals and females. Despite some actions undertaken in public schools, there is a need to revise and expand tobacco control strategies in the country to make them more effective in preventing smoking since childhood.

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Disclosure

The authors report no conflicts of interest.

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