RBFHSS
Revista Brasileira de Farmácia Hospitalar e Serviços de Saúde

Original Paper

Open Access

Anti-tobacco groups in Balneario Camboriu (Santa Catarina, Brazil): immediate and long-term tobacco smoking cessation rate

Fernanda Alberton FRONZA[1], Ericks Sousa SOARES[2], Thiago Mamôru SAKAE[3], Helena Iturvides CIMAROSTI[2]

[1]Prefeitura Municipal de Balneário Camboriú, Secretaria Municipal de Saúde, Balneário Camboriú, Santa Catarina, Brasil; [2]Programa de Pós-Graduação em Farmacologia, Universidade Federal de Santa Catarina (UFSC), Florianópolis, Santa Catarina, Brasil; [3]Departamento de Ciências Biológicas e da Saúde e de Ciências Sociais Aplicadas, Universidade do Sul de Santa Catarina (Unisul), Tubarão, Santa Catarina, Brasil.

Corresponding author: Cimarosti HI, helena.cimarosti@ufsc.br

Submitted: 29-07-2022 Resubmitted: 11-01-2023 Accepted: 16-01-2023

Double blind peer review

Abstract

Introduction: Tobacco smoking causes millions of deaths every year and is a risk factor for chronic non-communicable diseases, leading to a significant socioeconomic impact worldwide. In Brazil, the primary healthcare services for smokers include cognitive-behavioural approaches and pharmacological treatment offered through anti-tobacco groups. **Objective:** Considering the importance of the anti-tobacco groups and the need for more studies about them, this study aimed to determine the immediate and long-term tobacco smoking cessation rate of anti-tobacco groups in the city of Balneário Camboriu, Santa Catarina (Brazil), and to verify the existence of variables associated with successful smoking cessation. **Method:** Data from 256 participants were analysed, between 2015 and 2016, and the tobacco smoking cessation rate was investigated by applying questionnaires to 152 participants who accepted to participate. **Results:** The immediate and long-term cessation tobacco smoking cessation rates were 59.4% and 32.9%, respectively. When analysing the medication use, we observed that the bupropion hydrochloride and transdermal nicotine combined treatment increased almost three times more the chance of immediate cessation success, while attending the four group meetings increased this chance by seven times more. **Conclusion:** Although the analysed long-term variables did not present an association with the maintenance of a non-smoking status, our findings show the importance of anti-tobacco groups to achieve success and stop tobacco smoking.

Keywords: anti-smoking campaign, smoking prevention, tobacco use cessation, tobacco smoking.

Grupos antitabagismo em Balneário Camboriú (Santa Catarina, Brasil): fatores preditivos de cessação a curto e a longo prazo

Resumo

Introdução: O tabagismo é responsável por milhões de mortes anualmente e é um fator de risco para diversas doenças crônicas não transmissíveis, com significante impacto socioeconômico no mundo inteiro. No Brasil, o atendimento aos pacientes tabagistas nos serviços de atenção básica inclui abordagens cognitivo-comportamentais e tratamento farmacológico oferecidos por meio de grupos antitabagismo. **Objetivo:** Considerando a importância dos grupos antitabagismo, bem como a necessidade de mais estudos sobre eles, o presente estudo teve como objetivo determinar a taxa de cessação tabágica, tanto imediata quanto a longo prazo, de participantes de grupos antitabagismo nas unidades de saúde do município de Balneário Camboriú, Santa Catarina, e verificar a existência de variáveis associadas ao sucesso na cessação. **Método:** Foram analisados dados de 256 participantes entre 2015 e 2016 e a cessação tabágica a longo prazo foi investigada a partir da aplicação de questionários a 152 participantes que aceitaram participar do estudo. **Resultados:** As taxas de cessação imediata e a longo prazo foram de 59,4% e 32,9%, respectivamente. A análise do uso de medicamentos mostrou que o tratamento com cloridrato de bupropriona e nicotina transdérmica, em associação, eleva em quase três vezes a chance de um paciente alcançar sucesso imediato na cessação, enquanto que a adesão aos quatro encontros eleva esta chance em sete vezes mais. **Conclusão:** Apesar de as variáveis analisadas a longo prazo não terem sido associadas significativamente com a manutenção do status do paciente como não-fumante, fica evidenciada a importância dos grupos antitabagismo para o início de um longo caminho de sucesso na cessação do tabagismo.

Palavras-chave: abandono do uso de tabaco, prevenção do hábito de fumar, tabagismo.

Introduction

At the global level, smoking is responsible for approximately 6 million deaths every year, being considered a risk factor for chronic non-communicable diseases (CNCDs) such as stroke, heart attack, high blood pressure, diabetes and respiratory diseases[1]. In Brazil, CNCDs cause 72% of deaths[2] and 13% of all deaths are attributable to smoking[3], which reduces life expectancy by approximately 5 years[4].

In order to reduce morbidity, mortality and costs (medical expenses and inability to work), several national policies and programs were designed and implemented from 1980 onwards[5-6]. Creation of the National Smoking Control Program (*Programa Nacional de Controle de Tabagismo*, PNCT)[5,7] stands out, which includes anti-smoking groups made available in health units of the Unified Health System (*Sistema Único de Saúde*, SUS)[8]. These groups provide diverse information about the risks of smoking and the benefits of quitting the habit, using a cognitive-behavioral approach with or without pharmacological treatment[4,8].

The approach uses skills training, problem solving and social support techniques so that the patient can face symptoms related to withdrawal and psychological dependence and assist in the cessation process[9]. Medication support, through nicotine replacement therapy (NRT, transdermal patches) and bupropion hydrochloride (tablets), is provided to smokers with a high degree of nicotine dependence and who, obligatorily, participate in the cognitive-behavioral approach[8].

Considering the social impact of anti-smoking groups, the focus of this study was to investigate immediate and long-term smoking cessation among participants in anti-smoking groups in Balneário Camboriú, Santa Catarina (SC), as well as the existence of possible factors influencing cessation maintenance.

Methods

Study locus

The study was carried out in the municipality of Balneário Camboriú, a city on the north coast of Santa Catarina belonging to the mesoregion of Vale do Itajaí. According to estimated data from the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*, IBGE), Balneário Camboriú has a population of 149,227 inhabitants in an area of 45.21 km^2. Its population is 100% urban and made up of 52.4% women. The proportion of people aged 60 or over is 11.8% and 25.7% of the individuals aged at least 25 have Complete Higher Education. According to the Municipal Health Plan for 2022-2025, the municipality has 8 basic health units with 68.31% coverage of the total population, and offers assistance to smokers who want to quit smoking in 8 of its 14 neighborhoods.

Type of study

This is a retrospective, observational and descriptive cohort study, in which the records obtained from anti-smoking groups held in Balneário Camboriú from January 1st, 2015 to December 31st, 2016 were analyzed.

Target population

This paper analyzed the results obtained in anti-smoking groups funded by the SUS and carried out through the Balneário Camboriú Municipal Health Department. In all, 256 individuals participated in the anti-smoking groups during this period. The last group of the chosen period ended its activities in December 2016. As data analysis and application of the questionnaire began in January 2018, all users had already finished their participation in the groups at least one year ago. This period was chosen for the study, and not a more current one, because a smoking cessation program is considered effective when it presents a cessation rate equal to or greater than 30% one year after its closure[8].

Initially, the patients are referred to a medical appointment for profile assessment, level of motivation, smoking history and existence or not of comorbidities. Subsequently, they are invited to participate in the groups, where meetings take place in the health units as follows: once a week, during the first month; two fortnightly sessions, during the second month; and an open monthly meeting, in the third month[8]. All meetings last approximately 1 hour. At least two health professionals, a physician and a nurse, participate in the sessions, and other professionals may do so too, such as pharmacists, nutritionists, psychologists, etc. The content is presented through conversations and testimonials, self-help materials, folders, slides and films.

Data collection

Stage 1

The "Anti-smoking Treatment Information Collection Worksheets", which are mandatory to be completed by the anti-smoking groups teams, containing information regarding name, gender, age, Fagerström score (used to classify tobacco dependence), medication used for smoking cessation, cessation rate, mean session in which the patient stopped smoking and success rate (smoking cessation after the end of the sessions in the groups). The values of immediate success in smoking cessation were extracted and, as this was a data survey procedure, there were no exclusions.

Stage 2

In the second stage, in order to address the maximum number of participants, no sample calculation was performed to define the number of interviews. A questionnaire with open and semi-open questions was applied in person to 152 participants who agreed to participate in the research and signed the Free and Informed Consent Form (FICF). At this moment, the interviewees' current status (smokers/non-smokers) was identified for comparison purposes at the end of the groups. Long-term success values were extracted (1 year after the end of the groups) and individuals who died, could not be located or did not want to participate in the research and/or sign the informed consent form were excluded.

Data analysis

The data were reorganized in Excel and the results were presented as mean ± standard deviation (SD) and percentage (%), when pertinent. The Student's *t* test was used for the analysis of quantitative variables and the chi-square test for qualitative

RBFHSS
Revista Brasileira de Farmácia Hospitalar e Serviços de Saúde

variables (success/failure). Fisher's Exact test was used for values below 5 and the relative risk (RR) was calculated as a relative association measure to answer how much higher the probability of achieving success is. The GraphPad Prism 5 software was used for the analyses. Subsequently, multivariate analysis by logistic regression was used to adjust the confounding factors in the association with the outcome of success, through the SPSS 20.0 software, presented by an OR (Odds Ratio) value that reflects the magnitude of the association investigated, determining the chance (odds) for successful cessation. A p-value < 0.05 for the variables associated with success/failure in immediate smoking cessation was used as cutoff point for inclusion of the variables in the multivariate analysis. p-values < 0.05 were considered statistically significant.

Ethical aspects

The project was approved on *Plataforma Brasil* by the Committee of Ethics in Research with Human Beings (*Ethics*, CEPSH) of the Federal University of Santa Catarina (*Universidade Federal de Santa Catarina*, UFSC) through Consubstantiated Opinion No. 2,390,955 (CAAE: 73449317.5.0000.0121).

Results

The characteristics of the 256 study participants are shown in Table 1. Practically two thirds of the participants (n=168) were women and their ages varied from 22 to 80 years old, with a mean of 51.2 ± 11.6 (52.5 ± 11.3 for women and 48.8 ± 12.1 for men; p=0.01). Approximately half of the patients studied up to Elementary School and the success rate achieved immediately after the end of the anti-smoking groups was nearly 60%. The analysis of medication use showed that almost 90% of the patients used some anti-smoking medication, such as transdermal nicotine and bupropion hydrochloride, and that almost half of them used medications to treat comorbidities, especially antihypertensives.

Table 1. General characteristics of the participants from the anti-smoking groups in Balneário Camboriú (SC), between 2015 and 2016.

Variáveis		N = 256 (%)
Gender	Female	168 (65.6)
	Male	88 (34.4)
Age group	20 - 29 years old	8 (3.1)
	30 - 39 years old	39 (15.2)
	40 - 49 years old	58 (22.7)
	50 - 59 years old	87 (34)
	60 - 69 years old	52 (20.3)
	70+ years old	12 (4.7)
Fagerström score (Dependence)	0 - 2 (Very low)	27 (10.5)
	3 - 4 (Low)	40 (15.7)
	5 (Average)	37 (14.4)
	6 - 7 (High)	84 (32.9)
	8 - 10 (Very high)	68 (26.6)
Schooling (years)	Up to 8	126 (49.2)
	From 9 to 11	83 (32.4)
	More than 11	32 (12.5)
	Not reported	15 (5.9)
Anti-smoking treatment	Successful	152 (59.3)
	Unsuccessful	104 (40.6)
Medications	Bupropion hydrochloride + transdermal nicotine	169 (66)
	Bupropion hydrochloride (isolated therapy)	23 (9)
	Transdermal nicotine (isolated therapy)	35 (13.7)
	No medication use	29 (11.3)
	Other medications	124 (48.4)

Source: Anti-smoking treatment information collection spreadsheets (Balneário Camboriú, 2015 – 2016).

After the end of the four sessions of the cognitive-behavioral approach implemented in the groups, the patients who were immediately successful in smoking cessation were compared to those who were not (Table 2). To analyze the continuous variables (age and Fagerström score), categories based on the mean value

Table 2. Variables associated with successful/unsuccessful immediate smoking cessation.

Variables		Successful n=152 (%)	Unsuccessful n=104 (%)	p	RR (95% CI)
Gender	Female	57.7	42.2	0.46	0.92 (0.75 - 1.1)
	Male	62.5	37.5		
Age ≥ 50 years old	Yes	63.5	36.4	0.10	1.1 (0.96 - 1.4)
	No	53.3	46.6		
Fagerström score	0-5	66.3	33.6	0.06	1.2 (0.99 - 1.4)
	6-10	54.6	45.3		
Schooling ≥ 8 year	Yes	59.1	40.8	0.85	1.0 (0.82 - 1.2)
	No	57.9	42.0		
Medication use	Yes	65.6	34.3	<0.0001	6.3 (2.1 - 18.6)
	No	10.3	89.6		
Bupropion hydrochloride + transdermal nicotine	Yes	71.6	28.4	<0.0001	2.0 (1.4 - 2.7)
	No	35.6	64.3		
Bupropion hydrochloride (isolated therapy)	Yes	43.4	56.5	0.10	0.71 (0.44 - 1.1)
	No	60.9	39.0		
Transdermal nicotine (isolated therapy)	Yes	51.4	48.5	0.30	0.85 (0.60 - 1.1)
	No	60.6	39.3		
Other medications	Yes	58.0	41.9	0.68	0.96 (0.78 - 1.1)
	No	60.6	39.3		
Attendance to all 4 meetings	Yes	78	21.6	<0.0001	2.9 (2.0 - 4.1)
	No	25.5	74.4		

Source: The authors. RR: Relative Risk, 95% CI: 95% Confidence Interval.

found were used. For schooling, the category of more than 8 years of study (formerly Complete Elementary School) or not was determined. Subsequently, a multivariate analysis was performed to estimate the magnitude of the association between the different variables and the outcome (success in cessation) (Table 3).

Table 3. Variables associated with successful smoking cessation analyzed by means of logistic regression.

Variables	OR	95% CI	p
Anti-smoking medication use	3,1	0,64 - 15,3	0,16
Treatment with bupropion hydrochloride + transdermal nicotine	2,7	1,01 - 7,5	0,04
Attendance to all 4 meetings	7.3	3.91 - 13.9	<0.0001

Source: The authors. OR: Odds Ratio, 95% CI: 95% Confidence Interval.

Among the factors that assist in smoking cessation are use of anti-smoking medications and participation in group meetings. Our data showed statistical significance for the participants who used some anti-smoking medication and, when evaluating the main drugs used, we also observed a significant difference for those who used bupropion hydrochloride and transdermal nicotine, as well as for participation in the 4 group meetings. The multivariate analysis showed that treatment with bupropion hydrochloride and transdermal nicotine increases the chance of the patients achieving immediate success by almost 3 times, while adherence to 100% of the meetings increases this chance by 7 times. Variables such as gender, age, schooling and Fagerström score showed no association with cessation success.

Of the total of 256 patients, 59.4% answered the questionnaire. Nearly 33% of the patients declared themselves non-smokers and less than 25% of the smokers remained abstinent 1 year after the treatment.

Different variables related to success or failure in maintaining long-term cessation were analyzed (Table 4). When comparing the interviewees who were successful to self-declared smokers, none of the variables showed significance in determining maintenance of long-term success. Despite this, men aged at least 50 years old presented a higher rate in smoking cessation maintenance, with Fagerström scores from 0 to 5, schooling over 8 years, using anti-smoking medication, participation in the 4 meetings and not using any medication to treat comorbidities.

Discussion

Our study shows that more than half of the participants achieved immediate smoking cessation in the anti-smoking groups in Balneário Camboriú, with medication use and, mainly, participation in group meetings as important influencing factors.

Evaluating the smoking cessation success rate is a major challenge, considering the lack of municipal data. Added to this is the low adherence among the participants in anti-smoking groups in studies. Although anti-smoking groups in Balneário Camboriú have existed since 2013, there was no information about the participants' profile and evolution. The data analysis herein presented outlined the profile of individuals who sought help to quit smoking between 2015 and 2016, and it was possible to compare the results they achieved immediately after the end and 1 year after the last meeting of the groups. Despite efforts to interview as many of the 256 participants as possible, 152 individuals participated in Stage 2, which may have masked some variables and reduced their statistical relevance. Another limiting factor is the characterization of individuals as smokers or non-smokers through self-report and not through biochemical tests, such as measurement of carbon dioxide emissions.

One of the challenges of the PNCT is to reach an ever-increasing target audience, whether with strategies to reduce smoking among women and populations with lower income and schooling levels, as well as mechanisms to reduce/eradicate experimentation among adolescents[7].

Table 4. Variables related to successful and unsuccessful long-term smoking cessation maintenance.

Variables		Successful n=152 (%)	Unsuccessful n=104 (%)	P	RR (IC 95%)
Gender	Female	29.4	70.5	0.19	0.73 (0.47 - 1.1)
	Male	40.0	40.0		
Age ≥ 50 years old	Yes	34.3	65.6	0.60	1.1 (0.70 - 1.8)
	No	30.1	69.8		
Fagerström score	Yes	39.3	60.6	0.16	1.3 (0.88 - 2.1)
	No	29.4	70.5		
Schooling ≥ 8 years	Yes	32.4	67.5	0.80	1.0 (0.66 - 1.7)
	No	30.5	69.4		
Medication use	Yes	33.8	66.1	0.55	1.4 (0.53 - 4.0)
	No	23.0	76.9		
Bupropion hydrochloride + transdermal nicotine	Yes	32.3	67.6	0.84	0.95 (0.59 - 1.5)
	No	34.0	66.0		
Bupropion hydrochloride (isolated therapy)	Yes	46.1	53.8	0.29	1.4 (0.77 - 2.7)
	No	31.6	68.3		
Transdermal nicotine (isolated therapy)	Yes	34.3	65.6	0.60	1.0 (0.55 - 1.8)
	No	32.8	67.1		
Other medications	Yes	25.6	74.3	0.06	0.62 (0.39 - 0.98)
	No	41.4	58.5		
Attendance to all 4 meetings	Yes	37.2	62.7	0.06	1.7 (0.93 - 3.2)
	No	21.4	78.5		

Source: The authors. RR: Relative Risk, 95% CI: 95% Confidence Interval.

In our study, we noticed greater female participation (Table 1), similarly to what is reported in other studies[10-11-12]. It is described that women are more prone to seeking assistance because they attend health services more[9-13]. In data from the VIGITEL 2017 publication[14], the percentage of male smokers in 2017 (13.2%) was higher than that of women (7.5%), suggesting greater search for smoking cessation treatments by women. It is important to note that, despite this, they are more exposed to stress-generating factors that can hinder quitting smoking, such as hormonal cycles, greater concern about weight and more chances of depression[15-17]. Faced with the same tobacco exposure, for example, women are more likely to suffer harms to health, such as decline in lung function and Chronic Obstructive Pulmonary Disease (COPD)[17]. Regarding smoking cessation treatments, they show the same effectiveness for men and women, except in the case of pregnant smokers[15]. Thus, the relationship between the increased risk of harms to health and the search for treatment is evident.

Regarding age, we observed a variation of 52.5 ± 11.3 years old for women and 48.8 ± 12.1 years old for men, with no difference in the treatment results, corroborating previous studies[9,15]. As for schooling, this is a variable item. It is known that the strategies for the tobacco industry expansion encourage its consumption by populations with lower income and schooling levels[13,18] and, here, we observed that most of the participants studied up to Elementary School. A study carried out in countries from Latin America and the Caribbean reports the association of lower schooling levels with higher tobacco consumption, with an inverse relationship between smoking prevalence and income[16]. As an aggravating factor, it is estimated that four out of five smokers live in middle-/low-income countries, making these populations more vulnerable[3]. The success rate of almost 60% is in agreement with other studies that present variations in their methodologies and success values (from 58% to 82%)[9,12,13].

Most of the population presented a high or very high degree of nicotine dependence, consistent with the existing literature[9-13]. The use rate for anti-smoking medications of nearly 90% is in agreement with Fiore et al.[15], who encourage prescribing these drugs, except when there are contraindications or special groups. The high use of medications occurs due to free distribution to the groups' participants, easing adherence to the treatment. This is confirmed in previous studies where 81% and 94% of the patients who received medications free of charge resorted to some pharmacological treatment[12,13]; however, any interruption in dispensing puts effectiveness of the treatment at risk[19]. When pharmacological treatment was not free of charge, only 34.3% reported using some medication[10]. In the study by Jeremias et al.[9], the pharmacological treatment also depended on acquisition by each patient, although most of them used some type of anti-smoking medication. Taking into account the minimization of possible associated risks, medication use is a factor that assists in successful cessation.

In turn, regarding the medication use to treat comorbidities, with a mean age of 51 years old among the patients, the presence of comorbidities associated both with smoking and with aging is expected, which also increases the probability of pathologies[12]. Nearly 50 diseases are causally related to the smoking habit, especially cardiovascular and respiratory ones and tumors[4], corroborating the data herein presented. Prescribing bupropion hydrochloride and NRT for the smoking cessation treatment considerably increases the success rates and should be widely encouraged. Anti-smoking medications help patients achieve success; however, in the practice, significant differences are not always found between different treatment regimes, which can include cognitive-behavioral approach meetings alone or in association with drug therapy[9]. The greater the participation frequency in the groups, the more support is provided to the patients, as well as the discussion of strategies to deal with risk situations, contributing better results than other counseling modalities[13,21].

There was no association between age, gender, schooling or Fagerström score with cessation success. Other studies also found no gender differences in terms of success rates[12,22], although it has been proposed that men respond better to the pharmacological treatment than women, who are more influenced by biological, family and social factors[17,22]. By predicting nicotine dependence, the Fagerström score could be associated with higher failure rates[9]; however, such relationship was not evidenced either in this or in other studies carried out with the same purpose[12-13], proving the complexity of addictions to chemical substances.

The analysis of the participants' status one year after the research showed that 33% did not continue to smoke, similarly to what was found in a previous study carried out in Uruguay, where 35% of the patients stated not having smoked for at least 1 year after the end of the treatment[10]. The abstinence rate of 25% after 1 year of the end of the treatment is associated with limited treatment options, adverse drug effects, low adherence to the treatment and costs, among others[23]. A review of 61 studies considered first-line and conducted with 27,647 participants showed that the abstinence rate after 1 year was 19.9%, indicating that 1 out of 5 participants remained without smoking after 1 year of treatment[20]. Similarly, Azevedo and Fernandes[11] observed a success rate of 35%, but this analysis was performed 6 months after the therapeutic intervention.

The results related to cessation vary across studies reporting well-managed clinical trials and data from the clinical practice. Although a number of studies indicate that success values in the clinical practice tend to be lower than those obtained in targeted studies, the good results herein shown are in line with this finding[19-20]. As tobacco dependence is multifaceted and broad, there seems to be no ideal formula for success, requiring adaptation to find the best way to deal with difficulties in a non-standard way.

The variables related to success and failure in maintaining cessation did not show significance. Whereas some studies associate success with different variables, in the practice these results vary greatly across populations, showing the complexity of the smoking habit and its treatment. Llambi et al.[10] report the association of 3 variables with success after 1 year of the intervention, namely: 1) use of specific pharmacological therapies; 2) adherence to the treatment (pharmacological or not); and 3) absence of previous depression. A number of reviews show that medications help quit smoking[12,20]; however, significant differences are not always found between treatment schemes and approach, as in the current study and in previous surveys[9].

Conclusion

The analysis of different variables associated with successful smoking cessation shows the major importance of anti-smoking groups. Participation in all group meetings proves to be a decisive factor for successful cessation, followed by medication

use. A study of this magnitude is of utmost importance for the population analyzed, useful for future studies by way of comparison/expansion, with the inclusion of new variables that may be analyzed and related or not to success. Smoking cessation is directly related to reductions in morbidity, mortality and health costs, and should be more valued by public policies.

Testimonies from some participants of anti-smoking groups in Balneário Camboriú can be viewed in: https://www.youtube.com/watch?v=3GnOSb8VKTs.

Funding sources

This paper was financially supported by the Commission for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*, CAPES) and the National Council for Scientific and Technological Development (CNPq).

Collaborators

FA and HI prepared the project; FA was in charge of data collection; FA and TM analyzed the data; FA, TM and HI interpreted the data; FA, ES and HI wrote and critically reviewed the article. The authors assume full responsibility for the data published and guarantee the accuracy and integrity of the article.

Acknowledgments

The authors would like to thank the research participants for making this paper possible. To the Balneário Camboriú City Hall and Municipal Health Department, for authorizing this research. To Professor Dr. Tadeu Lemos (Pharmacology Department, UFSC) for his comments and contributions.

Conflict Of Interest Statement

The authors declare no conflicts of interest in relation to this article.

References

1. Brasil. Ministério da Saúde; Secretaria de Vigilância em Saúde; Departamento de Análise de Situação de Saúde. Plano de ações estratégicas para o enfrentamento das doenças crônicas não transmissíveis (DCNT) no Brasil 2011-2022. Brasília, DF: Ministério da Saúde, 2011: 160. Disponível em <bvsms.saude.gov.br/bvs/publicacoes/plano_acoes_enfrent_dcnt_2011.pdf> Acesso em: 19 de abril de 2017.
2. Malta DC, Andrade SSCA, Oliveira TP, *et al*. Probabilidade de morte prematura por doenças crônicas não transmissíveis, Brasil e regiões, projeções para 2025. Rev. Bras. Epidemiol., 2019; 22: 1-13. DOI: 0.1590/1980-549720190030.
3. Pinto MT, Bardach A, Palacios A, *et al*. Carga de doença atribuível ao uso do tabaco no Brasil e potencial impacto do aumento de preços por meio de impostos (Documento técnico IECS, 21). Buenos Aires: Instituto de Efectividad Clínica y Sanitaria, 2017. Disponível em <http://www.iecs.org.ar/wp-content/uploads/Reporte-completo.pdf> Acesso em: 10 de maio de 2021.
4. Pinto MT, Pichon-Riviere A, Bardach A. Estimativa da carga do tabagismo no Brasil: mortalidade, morbidade e custos. Cad. Saúde Pública, 2015; 31(6): 1283-1297. DOI: 10.1590/0102-311X00192013.
5. Cavalcante TM. O controle do tabagismo no Brasil: avanços e desafios. Arch. Clin. Psychiatry, 2005; 5(32): 283-300. DOI: 10.1590/S0101-60832005000500006.
6. Romero LC, Costa e Silva V. 23 anos de controle do tabaco no Brasil: a atualidade do Programa Nacional de Combate ao Fumo de 1988. Rev Bras Cancerol, 2011; 57:305-314. Disponível em <https://rbc.inca.gov.br/index.php/revista/article/view/659> Acesso em: 11 de julho de 2019.
7. Campos PCM, Gomide M. O Programa Nacional de Controle do Tabagismo (PNCT) na perspectiva social: a análise de redes, capital e apoio social. Cad. Saúde Colet, 2015; 23(4): 436-444. DOI: 10.1590/1414-462X201500040241.
8. Brasil. Portaria nº 761, de 21 de junho de 2016. Valida as orientações técnicas do tratamento do tabagismo constantes no Protocolo Clínico e Diretrizes Terapêuticas - Dependência à Nicotina. Diário Oficial da União, Brasília, DF. 2016: 68. Disponível em <https://bvsms.saude.gov.br/bvs/saudelegis/sas/2016/prt0761_21_06_2016.html> Acesso em: 19 de abril de 2017.
9. Jeremias, E, Chatkin JM, Chatkin G, *et al*. Smoking cessation in older adults. Int J Tuberc Lung Dis, 2012; 16(2): 273-8. DOI: 10.5588/ijtld.11.0312.
10. Llambí ML, Esteves, E, Blanco ML, *et al*. Factores predictores de éxito en el tratamiento del tabaquismo. Rev. Méd. Urug., 2008; 24(2): 83-93, 2008. Disponível em <http://www.scielo.edu.uy/scielo.php?script=sci_arttext&pid=S1688-03902008000200003&lng=es&nrm=iso> Acesso em: 29 de abril de 2022.
11. Azevedo RCS, Fernandes RF. Factors relating to failure to quit smoking: a prospective cohort study. Sao Paulo Med J, 2011; 129(6): 380-386. DOI: 10.1590/S1516-31802011000600003.
12. Sattler AC, Cade NV. Prevalência da abstinência ao tabaco de pacientes tratados em unidades de saúde e fatores relacionados. Cien Saúde Colet, 2013; 18(1): 253-264. DOI: 10.1590/S1413-81232013000100026.
13. Goyatá SLT, Silva MJD, Souza WA, *et al*. Impacto do programa de apoio ao tabagista de um município do sul de Minas Gerais, Brasil. Cien. Enfer., 2014; 20(1): 77-88. DOI: 10.4067/S0717-95532014000100007.
14. Brasil. Ministério da Saúde. Vigitel Brasil 2017: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília, DF: Ministério da Saúde, 2018. Disponível em <http://bvsms.saude.gov.br/bvs/publicacoes/vigitel_brasil_2017_vigilância_fatores_riscos.pdf> Acesso em: 31 de agosto de 2018.
15. Fiore MC, Jaén CR, Baker TB, *et al*. Treating tobacco use and dependence: 2008 update. Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service, 2008. Disponível em <https://www.ncbi.nlm.nih.gov/books/NBK63952> Acesso em: 21 de abril de 2017.

16. Bardach A, Perdomo HAG, Gándara RAR, *et al*. Niveles de ingreso y prevalencia de tabaquismo en América Latina: revisión sistemática y metaanálisis. Rev Panam Salud Publica, 2016; 40(4): 263-71. Disponível em <https://www.scielosp.org/article/rpsp/2016.v40n4/263-271> Acesso em: 31 de agosto de 2018.

17. Baraona L, Lovelace D, Daniels JL, *et al*. Tobacco harms, nicotine pharmacology, and pharmacologic tobacco cessation interventions for women. J Midwifery Women's Health, 2017; 62(3): 253-269. DOI: 10.1111/jmwh.12616.

18. Silva LCC, Araújo AJ, Queiroz AMD, *et al*. Smoking control: challenges and achievements. J. Bras. Pneumol., 2016; 42(04): 290-298. DOI: 10.1590/S1806-37562016000000145.

19. Pacek, LR, Mcclernon FJ, Bosworth HB. Adherence to pharmacological smoking cessation interventions: a literature review and synthesis of correlates and barriers. Nicotine Tob Res, 2017; 20(10): 1163-1172. DOI: 10.1093/ntr/ntx210.

20. Rosen LJ, Galili T, Kott J, *et al*. Diminishing benefit of smoking cessation medications during the first year: a meta-analysis of randomized controlled trials. Addiction, 2018; 113(5): 805-816. DOI: 10.1111/add.14134.

21. Mazoni CG, Fernandes S, Pierozan PS, *et al*. A eficácia das intervenções farmacológicas e psicossociais para o tratamento do tabagismo: revisão da literatura. Estud Psicol, 2008; 13(2): 133-140. DOI: 10.1590/S1413-294X2008000200005.

22. West R, Evins AE, Benowitz NL, *et al*. Factors associated with the efficacy of smoking cessation treatments and predictors of smoking abstinence in EAGLES. Addiction, 2018; 113(8): 1507-1516, 2018. DOI: 10.1111/add.14208.

23. Gómez-Coronado N, Walker AJ, Berk M, *et al*. Current and emerging pharmacotherapies for cessation of tobacco smoking. Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, 2018; 38(2): 235-258. DOI: 10.1002/phar.2073.