Recommendation of Smoking Cessation in an Adult Sample of the City of Rosario

Recomendación de abandono del tabaquismo en una muestra de adultos de la ciudad de Rosario

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ABSTRACT

Introduction: Smoking is the leading cause of preventable death worldwide; nevertheless, many physicians do not advice to quit smoking.

Objectives: The goal of this cross-sectional study was to evaluate the characteristics of tobacco use and the frequency of smoking cessation recommendation in adults in the city of Rosario between July and December 2010.

Methods: A closed survey was performed to adults attending the seven districts of the city of Rosario for reasons not related to health care, using a prearranged questionnaire based on non-probability convenience sampling.

Results: A total of 1,217 volunteers were surveyed; 57% were women and 11% worked in health care sectors. Mean age was 48 years; 28% were current smokers and 24% were former smokers. The median number of attempts to quit smoking was lower in former smokers (1 vs. 3 times; p < 0.0001). Of those who received advice to quit smoking, 72.5% attempted to do so during the preceding year, while 57% of those not receiving advice tried to quit smoking (p = 0.003). A multiple correspondence factor analysis with subsequent classification showed that current smokers who did not attempt cessation started smoking later in life and smoked fewer cigarettes per day.

Conclusions: The quality of the recommendation for smoking cessation and the self-perception of the risk associated with this addiction are aspects that are not systematically taken into account when this topic is raised. We consider that the present study emphasizes the importance of theses aspects, which should undergo further evaluation in the future for a better approach to the complexity of achieving tobacco cessation.

Key words: Smoking Cessation -Risk Factors -Prevention -Antismoking Campaigns.

RESUMEN

Introducción: El tabaquismo es la principal causa de muerte prevenible en el mundo; pese a ello, muchos médicos no aconsejan a sus pacientes dejar de fumar.

Objetivos: Evaluar las características del consumo de tabaco y la frecuencia en la recomendación de su abandono en adultos de la ciudad de Rosario mediante un estudio transversal realizado entre julio y diciembre de 2010.

Material y métodos: Encuesta cerrada prefijada realizada mediante muestreo no probabilístico por conveniencia a individuos mayores de edad concurrentes a los siete distritos de la ciudad de Rosario, a los cuales asistían por cuestiones no relacionadas con el cuidado de su salud.

Resultados: Se encuestaron 1.217 voluntarios; el 57% fueron mujeres y el 11% trabajaban en ámbitos relacionados con la atención de la salud. La edad promedio fue de 48 años; fumaban el 28% de los encuestados y el 24% eran extabaquistas. La mediana de intentos para dejar de fumar fue menor en extabaquistas (1 vs. 3 veces; p<0,0001). El 72,5% de los que recibieron la recomendación de dejar de fumar durante el año precedente intentaron hacerlo, mientras que de los que no recibieron consejo lo intentóel 57% (p=0,003). Se realizó un análisis factorial de correspondencias múltiples y posterior clasificación,que mostró que los tabaquistas que no intentaron dejar de fumar comenzaron a edades mayores y consumían menos cigarrillos diarios.

Conclusiones: La calidad de la recomendación de abandonar el hábito de fumar y la autopercepción del riesgo que esta adicción supone son aspectos no jerarquizados en forma sistemática al abordar esta temática. Consideramos que el presenteestudio pone de relieve la importancia de estos aspectos, los cuales se deberán profundizar en el futuro para una mejor aproximación a la complejidad del logro del cese del consumo de tabaco.

Palabras clave: Tabaquismo - Factores de riesgo - Prevención - Terapia antitabáquica

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INTRODUCTION

Smoking is a common addiction and an estimated 40% of the current population between 15 and 65 years of age is a current smoker. (1-4) In our country, about 9 million people smoke, and 3 million of them smoke 25 cigarettes per day or more. Each year, 400,000 deaths related to tobacco occur. (5-7)

Smoking is a risk factor for the development of several diseases (8-13) and is responsible of more than 10% of cardiovascular deaths worldwide, producing more deaths than HIV/AIDS, alcoholism, illegal drugs and car accidents. (14) It has also been demonstrated that tobacco cessation is always beneficial, independently of the severity of the damage already generated in a person. (15-23) However, several studies have demonstrated that a significant proportion of current smokers "disbelieve" the real risk they are exposed to, irrespectively of their education level . (24-26) In 2004, The TAMARA trial (27), including 6,497 physicians from Argentina, reported that 30% were current smokers and 22.4% were former smokers.

Successful smoking cessation is associated with the degree of physician advice to quit smoking; (28, 29) however, in the TAMARA trial, a significant proportion of doctors who smoked did not routinely advice their patients to stop the habit. (27) For this reason, we decided to investigate this problem to evaluate the characteristics of smoking habits in a sample of adults in the city of Rosario and estimate the impact of smoking cessation recommendation given by any physician previously in contact with the survey respondents.

METHODS

We conducted a cross-sectional study in the city of Rosario between July and December 2010. A non-probability convenience sample of 1,217 adults attending the seven districts of the city for reasons not related with health care issues were surveyed. A closed prearranged questionnaire was administered by medical students of the Universidad Nacional de Rosario who were completing a mandatory internship required for the completion of the career. This study was developed in the setting of the community outreach and research project "Less salt, more life", that was previously approved by the School of Medicine of the Universidad Nacional de Rosario, resolution N° 5820/2010. A pilot test was implemented in order to validate the questionnaire and then the final phase of the sampling. After the first phase, the sections corresponding to smoking habits were not modified and since any survey respondent participating in the pilot test was excluded from the final phase of the project, the present study constitutes a sub-study of the project combining data from both phases.

Current smoker was defined as any subject who smoked at least one cigarette per week for at least one month. To be considered a former smoker, the participant should have quitted smoking for at least 6 consecutive months without subsequent relapse.

The identity of the survey respondents was masked and the authors expressed their adherence to the habeas data law (Argentine Republic N° 25.326).

Statistical analysis

The SPSS version 15 statistical package for Windows was used to calculate the descriptive values and for bivariate analysis. The analysis of contingency tables and the estimation of correlation coefficients were performed to determine the association between variables. The non-parametric Mann-Whitney U test was used to compare two groups, and ANOVA to compare more than two groups. Multiple comparisons were analyzed using the Bonferroni test for continuous variables and the Kruskal-Wallis test for categorical variables.

A multivariate analysis was performed, which includes a number of statistical tests to simultaneously assess a set of variables. As a first step, a multiple correspondence analysis was performed, consisting of a factor analysis that reduces the dimensions of a data matrix with qualitative or quantitative variables categorized by factors showing the largest amounts of total variance. (30) Then, the factorial coordinates were classified in clusters of subjects with similar characteristics to observe the variables associated and regroup the units of analysis in homogeneous classes.

The construction of the typology was performed considering the coordinates of the points in the factorial axes arising from multiple correspondence analysis and applying strategies of classification to improve the homogeneity of classes or clusters. Percentages were compared to give relevance to the most characteristics modalities in order to verify whether the relative frequencies were significantly higher in one class and, at the same time, lower in the other classes. Then, different classes were constructed for individuals, to avoid two subjects from belonging to different clusters, but the same value of a variable could be repeated in different classes, though with different intensity.

The analysis of the principal components and the construction of the sets were performed using SPAD (Système Pour l'Analyse des Donèes) version 4.51 CISIA-CERESTA, Paris, statistical software package.

A p value ≤ 0.05 was considered as statistically significant

Ethical considerations

The protocol was reviewed and approved by the Ethical Board of each institution, excluding the informed consent form as no sensitive data or clinical follow-up were required (in accordance to the Habeas Data Act 25,326 on Protection of Personal Data.

RESULTS

Fifty seven percent of the survey respondents were women, 73% had health insurance and 60% were treated in private institutions. Eleven percent of the participants worked in health care sectors and 65% had at least completed the secondary level of education. The average age of the participants was 48.5 ± 16.9 years. Among the survey respondents, 28% were current smokers, 24% were former smokers and the rest of the participants had never smoked. Non-smokers age was 48.6 ± 18.2 years, that of current smokers was 43.24 ± 15.50 years and of former smokers 54 ± 14.6 years (p < 0.001). The average age current and former smokers started smoking was similar (18.4 ± 7.1 years vs. 18 ± 5.6 years, respectively, p = 0.510). There were no significant differences in the maximal level of education reached between the members of the three groups (p = 0,142). The correlations be-

tween the age the participants started smoking and the number of cigarettes smoked per day were calculated in current smokers (r = 0.098, p = 0.071) and former smokers (r = -0.231, p = 0.0001).

The number of attempts to quit smoking was lower in former smokers compared to current smokers (p < 0.0001; median former smokers: 1 attempt; median current smokers: 3 attempts).

Among current smokers (n = 337), only 59% reported having received advice to quit smoking from any physician contacted during the previous year. In this group, 66% reported attempting to stop smoking. Of those who received advice to quit smoking within the last year, 72.5% attempted to do so, while 57% of those not receiving advice tried to quit smoking (p = 0.003).

The structure of the data was simultaneously described using the multiple correspondence analysis. Figure 1 shows the plot of factorial axes resulting from the correspondence analysis where the representative points of the variable categories and their reciprocal positions can be analyzed on a plane divided in quadrants. The different modalities of the variables were placed, from left to right, accompanying smokers who never attempted to quit the habit or who failed to do so up to former smokers.

When typology was constructed, five classes of individuals were identified grouping units of analysis with similar characteristics (Table 1). Class 1 grouped current smokers who started smoking at 15 to 30 years of age, had not attempted to quit smoking, smoked less than 20 cigarettes and had health insurance. Class 2 was formed by current smokers with university level of education, who had tried to quit smoking between 2 and 3 times but did not succeed, had received medical advice, smoked less than 20 cigarettes per day and had health insurance. Class 3 included non-smokers, with university level of education, who worked in the health care sector, were not treated in the public health care system and had health insurance. Class 4 consisted of non-smoking women with a primary level of education, who were treated in the public health care system, did not have health insurance and did not work in the health care sector. Finally, class 5 included

former smoking men who had smoked 20 cigarettes per day or more, had complete secondary level of education, had attempted to quit smoking 1-3 times, were not treated in the public health care system and had health insurance.

Figure 2 shows the units of analysis according to the cluster they belong to: class 1 at the left, followed by class 2, class 3 in the upper center of the diagram, class 4 in the lower part of the diagram, and class 5 at the right, coincidental with the modalities of the variables shown in Figure 1.

In summary, the results of the multidimensional analyses showed that most smokers who attempted to quit but did not succeed, had university level of education and had received medical advice, while those who quitted smoking were men and heavy smokers (> 20 cigarettes per day), with secondary level of education. Conversely, non-smokers had university level of education and worked in the health care sector, while another group of non-smokers were women with primary level of education, did not work in the health care sector and had no health insurance. Moreover, smokers who never attempted to quit started smoking later in life than former smokers (15-30 years vs. 10-30 years) and smoked fewer cigarettes per day (p < 0.0001).

DISCUSSION

The rate of smoking habits is our study was 28% and was similar to that found in other studies and in two national surveys of risk factors for non-transmissible diseases. (27, 31) The fact that almost half of the smokers had not received medical advice to stop smoking deserves special attention. Our study restricted this answer to the year before the survey was performed, so some type of bias may be present, as the fact of having received advice in the past years or of not having contact with any physician during the period considered. However, recall biases could have occurred in both ways if the question had not had a temporal restriction. Nevertheless, it is well known that the success in tobacco cessation is related to the frequency of medical advice and with the number of attempts to do so. (32-36) Therefore, recommendations to quit

Fig. 1. Projection of variable modalities in the first two factorial axes resulting from the multiple correspondence analysis
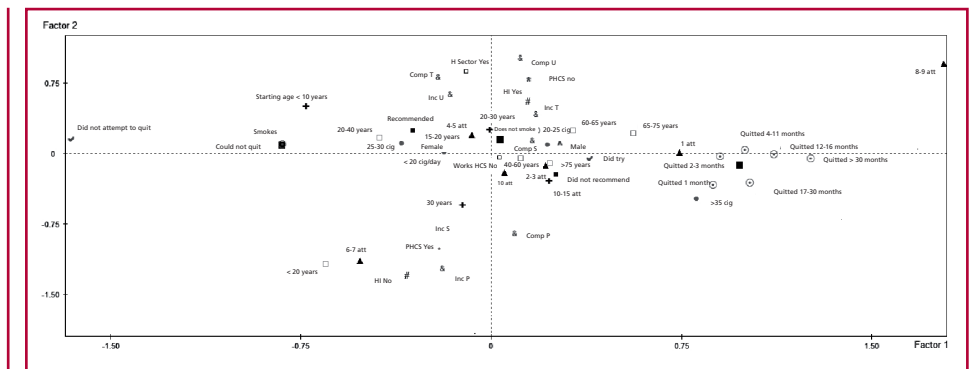
Class	Variables	Characteristic modalities	% of modality in the class
1 (n = 116, 10%)	Smoking addiction	Yes	100.00
	Have you tried to quit smoking?	No	100.00
	Number of cigarettes per day	< 20	68.97
	Starting age	15-30 years	81.03
2 (n = 185, 15%)	Smoking addiction	Yes	97.30
	Highest level of education	Incomplete university education	18.38
	Have you tried to quit smoking?	Yes	100.00
	Number of attempts to quit smoking	2-3	42.16
	Have you received advice to quit smoking from your primary care physician?	Yes	75.68
	Number of cigarettes per day	< 20	70.81
	Starting age	15-20 years	70.82
	Health insurance	Yes	81.08
3 (n = 405, 33%)	Smoking addiction	No	97.53
	Highest level of education	Incomplete or complete university education	56.73
	Are you treated in the public health care system?	No	90.12
	Health insurance	Yes	97.78
	Do you work in the health care sector?	Yes	15.06
4 (n = 306, 25%)	Smoking addiction	No	63.73
	Gender	Female	64.71
	Highest level of education	Complete or incomplete primary education	53.59
	Are you treated in the public health care system?	Yes	97.06
	Health insurance	No	76.47
	Do you work in the health care sector?	No	93.79
5 (n = 205, 17 %)	Smoking addiction	Former smoker	100.00
	Gender	Male	64.39
	Highest level of education	Complete secondary education	34.15
	Have you tried to quit smoking?	Yes	100.00
	Number of attempts to quit smoking	1-3	87.37
	Have you received advice to quit smoking from your primary care physician?	No	70.73
	Are you treated in the public health care system?	No	81.95
	Health insurance	Yes	97.07
	Starting age	10-30 years	48.78
	Number of cigarettes per day	> 20	49.76

Table 1. Description of the five class structure constructed according to the modality of the variables which provided statistically significant contribution.

smoking should be given during every medical consultation, independently of the physician's specialty, and smokers should be encouraged to contact healthcare professionals in order to implement the corresponding strategies. (36)

It has been suggested that the quality of the recommendation for tobacco cessation should be optimized to obtain better outcomes; (32, 33, 36) however, the best approach to achieve it still remains unclear. (33, 34, 36) Although this is real, we found a statistical as-

sociation in our sample between any advice during the year before the survey and smokers' attempt to quit smoking. We believe that the interventions performed are positive, independently of the physician's formation in this topic.

However, we consider that the greatest contribution of our study derives from the multiple correspondence analysis with subsequent classification in clusters which showed that the subgroup of current smokers who did not attempt cessation had started
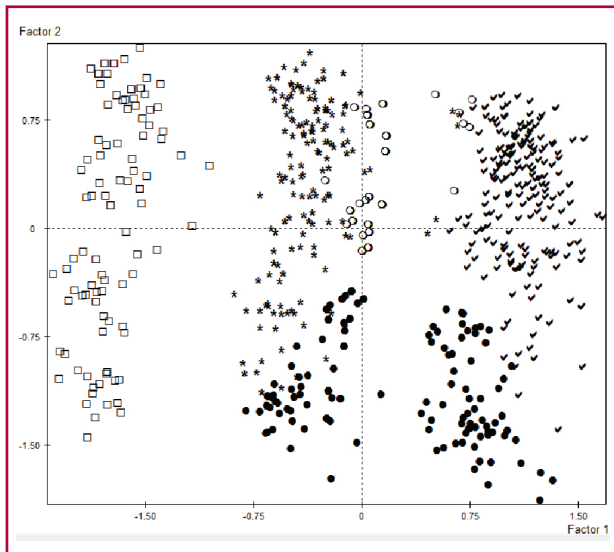
Fig. 2. Projection of the individuals in the factorial axes by class (□ Class 1, * Class 2, ° Class 3, ● Class 4, √ Class 5)

smoking later in life and smoked less cigarettes per day. Multiple correspondence analysis exhibits a nonlinear correlation between the variables; in this way, it was possible to observe the organization of the variables in a factorial plane and the proximity of the different categories with tobacco addiction. (30) After partition was made, the configuration of the classes reflected a gradient from the current smoker situation to the non-smoker situation, associated with different individual characteristics. In this way, different typologies were constructed in order to identify the possible risk situations of current smokers.

Some studies suggest that some smokers may not try to quit smoking because they disbelieve the risk they are exposed to. (37) Under this perspective, a subgroup of current smokers who smoke "few" cigarettes per day may feel a false sensation that their addiction is "safe". Although the relation between smoking habits and pulmonary diseases and neoplasms is somehow linear with the magnitude of tobacco consumption, this does not occur with cardiovascular diseases and with the overall risk the individual is exposed to. (38, 39) Therefore, even occasional smoking represents a considerable risk, which some subjects may not consider significant.

Our study was not specifically designed to investigate smoking habits and has some limitations related with its cross-sectional nature. These results should be complemented with longitudinal follow-up studies and, eventually, with a possible qualitative investigation to triangulate the information, helping to understand in depth the complex topic here described.

CONCLUSIONS
Tobacco cessation may be one of the most important actions a current smoker may take for his/her health.

Medical advice is crucial to succeed in quitting smoking. However, like other publications, our study suggests that interventions in this matter are quite insufficient. Although it is clear that medical advice has a positive impact in the attempts to give up smoking, it is evident that many subjects do not succeed. However, some individuals do not even make the attempt, which is perhaps more severe. In this sense, it is interesting to recall that the profile of the population analyzed shows that most participants had health insurance and a secondary level of education or greater. Based on a multiple correspondence analysis and subsequent classification, our study suggests that some of these individuals start smoking later in life, smoke less number of cigarettes per day and have a high level of education. Possibly, this may be due to a wrong perception of "lower risk", a finding that should be confirmed with further follow-up studies.

Conflicts of interest
None declared.
(See authors' conflicts of interest forms in the web / Supplemantary Material).

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