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Evaluation of the degree of tobacco addiction and the adequacy of orientation received by hospitalized smokers

Avaliação do grau de dependência tabágica e o grau de adequação das orientações recebidas por pacientes tabagistas hospitalizados

Gabriel Bordignon[1], Roddie Moraes Neto[1], Gustavo Lenci Marques[2]

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ABSTRACT: *Introduction*: Smoking is a chronic disease and a major risk factor for other diseases with high mortality. It's physician's duty to properly guide their patients to quit smoking. For that, the orientations must be scientifically based for effective management of the disease, with motivational interventions with or without pharmacotherapy. *Objective*: Analyze the dependence degree of hospitalized smokers, using Fagerström test, comparing received orientations about quit smoking with pharmacological and non-pharmacological orientation present in literature. *Methods*: cross-sectional observational study with structured questionnaire applied to 60 smokers at the moment of hospital discharge from "Complexo Hospital de Clínicas da Universidade Federal do Paraná" (CHC/UFPR). *Results*: The patient sample was composed of 31 male patients and 29 female patients. 68.3% of the patients had more than 55 years. The median of the dependence degree was 5 (average degree). There was statistically significant difference between groups with present and absent orientation, regarding to the degree of motivation. 44.2% of the patients who had received orientation were in action phase, indicating that physicians guide more patients who already begun planning quit smoking. 35.3% of the patients with absent orientation were in pre-contemplation and 41.2% were in contemplation, suggesting that patients who don't have an insight to quit smoking are less oriented. Between correctly and incorrectly oriented groups, there was statistically significant difference in the type of hospital guidance. Among incorrectly oriented, 18 were oriented only motivationally, indicating an insufficient orientation trend. *Conclusions*: 51,2% of the orientations are performed incorrectly, expressing the need to re-evaluate the approach and treatment of smoking. There is the need of active search of smokers during the medical care and correct orientation for efficient treatment of the disease, addressing motivational side and pharmacotherapy.

Keywords: Tobacco use cessation; Tobacco use disorder; Hospitalization.

RESUMO: *Introdução*: o tabagismo é uma doença crônica e um grande fator de risco para outras doenças com alta mortalidade. É dever do médico orientar corretamente seus pacientes quanto à cessação do tabagismo. Para tanto, as orientações devem ser embasadas cientificamente para manejo eficaz da doença, com intervenções motivacionais associadas ou não a farmacoterapia. *Objetivo*: analisar o grau de dependência da nicotina de pacientes tabagistas hospitalizados e comparar as orientações recebidas sobre cessação de tabagismo com a orientação farmacológica e não farmacológica preconizada pela literatura. *Métodos*: estudo observacional transversal com aplicação de questionário estruturado a 60 pacientes tabagistas no momento da alta hospitalar do Complexo Hospital de Clínicas da Universidade Federal do Paraná (CHC/UFPR). *Resultados*: amostra de pacientes composta por 31 pacientes do sexo feminino e 29 do sexo masculino. 68,3% possuíam mais de 55 anos. A mediana do grau de dependência nicotínica foi 5 (grau médio). Houve diferença estatisticamente significativa entre grupos com orientação presente e ausente em relação ao grau de motivação. 44,2% dos pacientes que receberam orientação estavam em fase de ação, indicando que o médico orienta mais os que já iniciaram planejamento de cessar o tabagismo. 35,3% dos pacientes com orientação ausente estavam em pré-contemplação e 41,2% em contemplação, sugerindo que pacientes que não possuem insight de cessar o tabagismo são menos orientados. Entre os grupos orientados de forma correta e incorreta, houve diferença estatisticamente significativa quanto ao tipo de orientação durante a hospitalização. Dentre os orientados de forma incorreta, 18 foram orientados apenas de forma motivacional, indicando uma tendência de orientação insuficiente. *Conclusão*: 51,2% das orientações são realizadas incorretamente, expressando necessidade de reavaliar a abordagem e tratamento do tabagismo. Faz-se necessária busca ativa dos tabagistas durante atendimento médico e orientação correta para tratamento eficiente da doença, abordando o lado motivacional e a farmacoterapia.

Descritores: Abandono do uso de tabaco; Tabagismo; Hospitalização.

1. Medical Students of Federal University of Parana, Curitiba-PR, BR. ORCID: Bordignon G – https://orcid.org/0000-0002-9834-4762; Moraes Neto R – https://orcid.org/0000-0002-4936-592X. Email: gbordela@gmail.com; roddie.moraes@gmail.com.
2. Master's Degree in Internal Medicine. Adjunct Professor, Department of Medical Clinics, Federal University of Parana, Curitiba-PR, BR. ORCID: https://orcid.org/0000-0002-6057-0350. Email: gustavolencimarques@gmail.com.

Correspondence: Roddie Moraes Neto. Rua Jovino do Rosário, 475, Boa Vista. Curitiba, PR, BR. CEP: 82540-115. Email: roddie.moraes@gmail.com

INTRODUCTION

Smoking, besides being a chronic state characterized by nicotine dependence, is a major risk factor for other diseases and is related to a high mortality rate[1]. Smoking accounts for 45% of deaths due to acute myocardial infarction, 85% of deaths due to chronic obstructive pulmonary disease (COPD), 25% of deaths due to cerebrovascular disease (stroke), and 30% of cancer-related deaths. In relation to the latter, it is noteworthy that 90% of lung cancer cases occur among smokers[2]. Altogether, 21 diseases have formally been established to be caused by smoking (12 types of cancer, 6 categories of cardiovascular disease, diabetes, COPD, and pneumonia, including influenza)[3].

Data from the National Health Survey (2013) indicated that approximately 21 million people smoked cigarettes. Among these current smokers, 51% had tried to quit smoking in the 12 months preceding the interview, but only 5% had sought treatment, which indicates a low demand for the specialized treatment of smoking dependence[4,5].

Data obtained by the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (2018; Vigitel) indicated that the rate of smoking was 9.3%, and was almost twice as prevalent among males as among females. The city in which the present study was conducted (Curitiba) recorded the third highest rate of smoking among the capitals of the 26 Brazilian states and the Federal District[6].

In addition to the social and biological impacts of smoking, the cost to the health system is an important point, which highlights the need for proper medical and multidisciplinary guidance to obtain highly effective treatment, aiming to reduce the morbidity, mortality, and costs attributable to smoking. In a study that assessed the cost of smoking on the health system, it was estimated that about 8% of all health expenditure (approximately 39 billion reais) was allocated to medical care attributable to smoking, highlighting COPD, heart disease, and neoplasms (mainly lung cancer) as diseases that presented the highest direct costs[7].

Considering the dependence on smoking as a disease, it is necessary to consider smoking cessation as treatment and prevent possible relapses, both with motivational interventions, particularly pharmacotherapy and methods based on cognitive behavioral therapy. The former is an additional resource that aims to reduce the occurrence of abstinence syndrome (characterized by unpleasant signs and symptoms that arise when quitting smoking and vary with the degree of nicotine dependence) to increase therapeutic success[8,9]. The first-line pharmacotherapies for smoking cessation are nicotine replacement therapy (NRT), varenicline and bupropion[10].

Numerous studies have demonstrated the efficacy of NRT for smoking cessation. Meta-analyses showed that NRT almost doubled the chances of quitting compared with placebo[11,12].

For the decision regarding therapeutic planning in smoking cessation, it is essential to assess the degree of nicotine dependence, which can be performed using different approaches. Among them, the Fagerström test for nicotine dependence stands out. The test consists of a tool composed of six questions, with a score for each response. The scores obtained after administering the questionnaire is used to classify patients' smoking statuses into five degrees of dependence: very low, low, medium, high, and very high. Based on this classification, motivational treatment with pharmacotherapy is indicated for patients with scores greater than or equal to five (medium grade, according to the test)[8–10,13]. Smoking patients can also be classified according to the degree of motivation regarding the intent to cease smoking. The intent regarding smoking cessation is classified into the stages of pre-contemplation, contemplation, preparation, action, and maintenance. These stages correspond, respectively, to smokers who still do not manifest the intent to quit smoking, smokers who manifest this intent, smokers who manifest this intent and already have concrete plans for this, smokers who have already ceased smoking, and finally, smokers who stopped smoking at least six months ago[14].

Active smokers are often hospitalized due to some smoking-related morbidities. Hospitalized smokers are generally more willing to follow tobacco guidelines. It is known that the combination of motivational intervention and pharmacotherapy with NRT after hospital discharge increases the cessation rate when compared to isolated motivational intervention during hospitalization. Therefore, an intensified approach is necessary in this patient profile, since there is a greater willingness to stop smoking[13,15–17].

OBJECTIVE

The present study aimed to assess the degree of nicotine dependence among smokers hospitalized at the "Complexo Hospital de Clínicas da Universidade Federal do Paraná" (CHC/UFPR) and compare the guidance received by these patients on smoking cessation during hospitalization with the pharmacological and non-pharmacological guidance recommended in the literature.

METHODS

To perform the proposed analysis, a descriptive cross-sectional observational study was conducted at CHC/UFPR, located in Curitiba, state of Paraná. The study sample consisted of 60 smokers hospitalized at CHC/UFPR, and the questionnaires were administered on the days these patients were discharged from the hospital, from January to August 2019.

The study protocol (CAAE 99748018.0.0000.0096) was approved by the Ethics Committee on Research in Human Beings of the CHC/UFPR (approval number 3.737.758). All participants provided informed consent and signed the free and informed consent form.

The instrument used in the study was a questionnaire administered by the researchers and contained 11 data fields including those regarding gender, age, level of education, comorbidities, reason for hospitalization, presence at the intensive care unit, degree of motivation to cease smoking, smoking load in pack-years, what the patient knew about smoking cessation, previous guidance received on smoking cessation, and the nature of any guidance received on smoking cessation during the current hospitalization. In addition, the Fagerström test was performed to assess the degree of nicotine dependence. The questions were objective in assessing the social, educational, and related aspects of smoking. The questionnaire was administered by the researchers at a single meeting at the patient's bedside, in the form of a structured interview, lasting approximately 30 minutes.

With the data obtained, it was possible to divide the sample into two groups: those who received and those who did not receive guidance on smoking cessation during hospitalization at CHC/UFPR. If received, we assessed whether the orientation was only a motivational intervention or a motivational intervention associated with pharmacotherapy. Finally, the group that received guidance during hospitalization was divided into two other groups: correct orientation and incorrect orientation, in comparison to the literature. At the end of the administration, the patients were instructed to quit smoking, according to the Smoking Cessation Guideline, used as the basis for the present study.

A database was built in Microsoft Corporation Excel® and the data were analyzed. All data collected regarding the variables assessed were described using summary measures. The qualitative variables were described as proportions and quantitative variables as medians and interquartile ranges. Variables of interest were compared between patients who received guidance and those who did not. The differences between the two groups of patients were assessed using the Mann–Whitney–Wilcoxon test for quantitative variables and Fisher's exact test for qualitative variables.

All statistical analyses were performed conducted using Software R, considering a significance level of 5%. Quantitative variables were evaluated for normality using the Shapiro–Wilk test and the normal distribution hypotheses were rejected.

RESULTS

Sixty questionnaires of patients hospitalized at CHC/UFPR from January to August 2019 were evaluated. The study sample comprised 31 females (51.7%) and 29 males (48.3%). Overall, 68.3% of the study subjects were older than 55 years. Thirty-nine patients had attained up to 8 years of education and 21 had attained more than 8 years of education.

Regarding comorbidities, 36 patients (60%) had hypertension, 19 (31.7%) had diabetes, 10 (16.7%) had COPD, 9 (15%) had cerebrovascular disease, and 11 (18.3%) had previously been diagnosed with an infarction.

In terms of the degree of motivation, 13 patients (21.7%) were found in the pre-contemplation stage, 19 (31.7%) in the contemplation stage, 6 (10%) in the preparation stage, 21 (35%) in the action stage and 1 (1.7%) in the maintenance stage. A median smoking load of 36 pack-years was calculated for the 60 patients included in the present study.

In the table regarding the descriptive analysis of the study sample profile (Table 1), we assessed the variables in question, the number of patients corresponding to each variable, and the proportion/median in the first and third quartiles.

Table 1 – Description of the sample profile (n=60).

Variable		Number of patients	Proportion/median (Q1; Q3)
Sex	Female	31	51.7%
	Male	29	48.3%
Age group (years)	18–35	2	3.3%
	36–54	17	28.3%
	55–64	21	35.0%
	≥65	20	33.3%
Level of education	≤8 years of education	39	65.0%
	>8 years of education	21	35.0%
Comorbidities	Hypertension	36	60.0%
	Diabetes	19	31.7%
	COPD	10	16.7%
	Cerebrovascular disease	9	15.0%
	Previous infarction	11	18.3%
Degree of motivation	Pre-contemplation	13	21.7%
	Contemplation	19	31.7%
	Preparation	6	10.0%
	Action	21	35.0%
	Maintenance	1	1.7%
Pack-years		60	36 (25; 55.25)

SOURCE: The author (2019).

Of the 60 patients interviewed, 44 (73.3%) reported having knowledge about pharmacological treatment for smoking cessation, while 56 patients (93.3%) had knowledge about the risks of smoking.

A total of 48 patients (80%) received guidance in the pre-hospitalization period. Thirty-one patients (64.6%) received only motivational guidance and 17 (35.4%) received motivational guidance associated with pharmacotherapy. Similarly, 43 patients (71.7%) received guidance during hospitalization at CHC/UFPR, 28 (65.1%) of them received only motivational guidance, and 15 (34.9%) received motivational guidance associated with pharmacotherapy. Of the 43 patients who received guidance during hospitalization, 21 (48.8%) were oriented correctly.

Table 2 shows the results regarding previous guidance and guidance received by patients during hospitalization.

Table 3 shows the results of the Fagerström test and the distribution of responses obtained for each question. The median Fagerström test score was 5, which indicates a medium grade nicotine dependence in the population studied.

Table 2 – Pre-hospitalization guidance and orientation received during hospitalization

Variable		Number of patients	Proportion/median (Q1;Q3)
Received guidance in the pre-hospitalization period		48	80.0%
Type of guidance received in the pre-hospitalization period	Motivational	31	64.6%
	Motivational + pharmacotherapy	17	35.4%
Received guidance during hospitalization		43	71.7%
Correct orientation received		21	48.8%
Type of guidance received during hospitalization	Motivational	28	65.1%
	Motivational + pharmacotherapy	15	34.9%

SOURCE: The author (2019).

Table 3 – Fagerström test (n=60)

Variable		Number of patients	Proportion/median (Q1;Q3)
Time until the first cigarette, minutes	>60	12	20.0%
	31–60	6	10.0%
	6–30	18	30.0%
	<6 minutes	24	40.0%
Difficulty not smoking in prohibited places		36	60.0%
The first cigarette of the morning brings the most satisfaction		19	31.7%
Smokes more in the early hours of the morning		10	16.7%
Smokes even when bedridden by illness		49	81.7%
Cigarettes per day	<11	17	28.3%
	11–20	30	50.0%
	21–30	5	8.3%
	>30	8	13.3%
Fagerström test score		60	5 (3; 6)

SOURCE: The author (2019).

As show in the table comparing patients who did and did not undergo orientation during hospitalization (Table 4), there was a significant difference between the groups regarding the variable “degree of motivation” (p=0.03). Of the 21 patients who were in the action stage regarding the motivation to cease smoking, 19 received guidance, representing 44.2% of all patients who were instructed. Among patients who did not undergo orientation, 76.5% had the lowest level of motivation to cease smoking (pre-contemplation and contemplation).

Table 4 – Comparison between patients who did and did not undergo orientation during hospitalization (n=60)

Variable		Number of patients	Present orientation (n=43)	Absent orientation (n=17)	P-value
Degree of motivation	Pre-contemplation	13	7 (16.3%)	6 (35.3%)	0.03
	Contemplation	19	12 (27.9%)	7 (41.2%)	
	Preparation	6	5 (11.6%)	1 (5.9%)	
	Action	21	19 (44.2%)	2 (11.8%)	
	Maintenance	1	0	1 (5.9%)	

SOURCE: The author (2019).

In the comparison between patients who underwent correct and incorrect orientation during hospitalization (Table 5), there was a significant difference (p=0.026) between the groups regarding the type of guidance received during hospitalization (motivational or motivational with pharmacotherapy). Among patients who underwent incorrect orientation, 18 (81.8%) were oriented only in a motivational manner. In addition, there was a significant difference (p=0.012) in the distribution of patients who reported difficulty not smoking in forbidden places, given that 18 (81.8%) patients who were incorrectly instructed had this difficulty.

Table 5 – Comparison of the distribution of correct and incorrect orientations received during hospitalization (n=60).

Variable		Number of patients	Correct orientation (n=21)	Incorrect orientation (n=22)	P-value
Degree of motivation	Pre-contemplation	7	3 (14.3%)	4 (18.2%)	0.79
	Contemplation	12	5 (23.8%)	7 (31.8%)	
	Preparation	5	2 (9.5%)	3 (13.6%)	
	Action	19	11 (52.4%)	8 (36.4%)	
	Maintenance	0	0 (0%)	0 (0%)	
Type of guidance received during hospitalization	Motivational	28	10 (47.6%)	18 (81.8%)	0.026
	Motivational + pharmacotherapy	15	11 (52.4%)	4 (18.2%)	
Difficulty not smoking in prohibited places		27	9 (42.9%)	18 (81.8%)	0.012

SOURCE: The author (2019).

DISCUSSION

As shown in the results presented, 65% of smokers assessed had less than 8 years of education, consistent with the literature, which demonstrates that the prevalence of smoking decreases with increasing level of education[4–6].

We found that 80% of the patients reported having received guidance in the pre-hospitalization period and 73% had knowledge about pharmacological treatment and smoking cessation. In the literature, 73% of the patients who sought treatment were able to obtain it, showing that >20% did not receive adequate care to stop smoking[5].

Classically, it has been reported that approximately 20.7% of smokers acquire COPD, which is close to the data obtained in the present study, in which 16.7% of the subjects had COPD[18].

The United States Preventive Services Task Force suggests (level of evidence, A; high degree of certainty that the net benefit is substantial) that physicians ask all adults about smoking, advise them on tobacco use, and provide motivational and pharmacotherapeutic interventions[19]. Comparing this recommendation with our findings, we observed an orientation rate of only 71.7%, which demonstrates an insufficient amount of guidance regarding smoking cessation, since hospitalized patients are more willing to accept the guidance provided by physicians and health agents[9].

Comparing the groups who did and did not undergo orientation regarding the degree of motivation for smoking cessation, we observed that the group with the highest proportion (44.2%) of those who underwent orientation were in the action phase. This indicates that patients who established a risk between smoking and the disease for which they were hospitalized, or the finding that smoking is harmful to their health, were already on a plan to quit smoking. The physician, noting this, should guide cessation more frequently using motivational intervention or motivational intervention with pharmacotherapy.

However, often, patients are oriented insufficiently, evidenced by the high percentage (81.8%) of patients who received only motivational orientation. This is understandable as physicians often tend to give motivational guidance and fail to use the pharmacological approach, despite the high level of scientific evidence in support of the pharmacological approach to smoking cessation[19]. What reinforces this finding even more is that patients with difficulty not smoking in forbidden places (i.e., patients who had a medium level of dependence) are the ones who received the least amount of guidance correctly (81.8%).

Among patients who did not undergo orientation during hospitalization, 76.5% of them had the lowest levels of motivation (pre-contemplation and contemplation stages), which may suggest that patients who did not have insight that quitting smoking is important for their health are not guided by physicians. However, this concept needs to be reviewed by professionals, since the current literature states that guidance based on motivational stages is not superior compared to guidelines not based on these stages[20].

The present study had as limitations the sample size, the analysis of data derived at a single medical center, the inclusion of patients admitted exclusively to a tertiary hospital and the non-coverage of patients of all socioeconomic levels.

CONCLUSION

We concluded from this analysis that the degree of nicotine dependence among smokers hospitalized at CHC/UFPR was medium (five points in the Fagerström test). In addition, we found that most of the guidelines (51.2%) are followed incorrectly.

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