Pediatric observation as an opportunity for parental smoking cessation

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ABSTRACT

INTRODUCTION Children's exposure to parental tobacco smoke is a public health concern. Guiding parents towards smoking cessation plays a key role in protecting the child's health. This study aims to evaluate parents' smoking habits and their availability for a smoking cessation intervention in the context of a pediatric consultation or hospitalization.

METHODS This was a prospective study conducted between January 2020 and October 2021 in a level two hospital in the central region of Portugal. Parents of all children hospitalized or seen in a pediatric consultation unit during this period were approached consecutively and fulfilled an anonymous survey about their smoking habits, nicotine dependence and motivation to quit smoking.

RESULTS A total of 133 questionnaires were evaluated, 39 from hospitalization and 94 from consultation. Smoking exposure was 39.8% in the study sample. Among smoking parents, 57% of parents at inpatient and 23% at outpatient consultation were probably in the preparation phase for smoking cessation.

CONCLUSIONS Pediatric hospitalization and outpatient consultation may be excellent opportunities for the implementation of measures to raise awareness and intervene in parental smoking cessation.

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INTRODUCTION

Half of the children worldwide are estimated to live with adult smokers at home[1]. As such, children's exposure to environmental smoke remains a public health problem. The likelihood of this exposure is associated with epidemiological characteristics such as economic difficulties, belonging to social minorities, and residing in urban areas[2,3].

Susceptibility to the deleterious effects of secondary and tertiary tobacco smoke exposure is higher in early childhood, due to frequent hand-to-mouth contact with objects, clothes, or carpets contaminated with derivatives of tobacco combustion, as well as immature hepatic metabolism and a higher respiratory rate than adults[2,3]. This leads to a decrease in lung development associated with an increased risk of respiratory infection, exacerbation of bronchial asthma[4,5], lung cancer in adulthood[6], and sudden infant death[1]. Therefore, tobacco exposure in early childhood increases morbidity and mortality[7]. Furthermore, parental smoking habits are associated with an increased likelihood of future smoking habits in their children[8].

Any contact with pediatric healthcare services may provide an opportunity to raise awareness, educate and promote parental smoking cessation to improve the current and future well-being of their children. This study aims to know parental smoking habits and their availability for a brief intervention for smoking cessation in the context of pediatric hospitalization or hospital outpatient consultation.

METHODS

We conducted a prospective study between January 2020 and October 2021 using a convenience sample of parents/caregivers of children hospitalized or observed in a pediatric consultation at a level two hospital in the central region of Portugal. Upon obtaining written informed consent, parents were asked to fill in a survey questionnaire (Supplementary file Questionnaires 1 and 2) regarding their age, sex, marital status, education level, personal and partner employment status, smoking habits, exposure to smoking during pregnancy, motivation to quit smoking, age and sex of the child, and motive for observation or hospitalization. Smoking dependence was assessed using a short version of the Fagerström test for nicotine dependence[9], which defines the degree of dependence as mild, moderate, or severe, through the question: 'How long after waking up do you smoke your first cigarette?' with responses 1st cigarette in the first 30 minutes of the day (severe), 1st cigarette between the first 30 to 60 minutes of the day (moderate), and 1st cigarette after the first 60 minutes of the day (mild).

We interpreted as motivation for smoking cessation the positive and simultaneous answer to two questions: 'Have you made any attempt to quit smoking in the last year?' and 'Do you intend to quit smoking within one month?'.

The model of Prochaska and Di Clemente[10] describes five stages of change in smoking cessation: pre-contemplation,

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contemplation, preparation, action, and maintenance. A positive and simultaneous answer to the aforementioned questions has been used as an indication of a probable phase of preparation for smoking cessation.

All parents/caregivers of children hospitalized or seen in a pediatric consultation were consecutively included, with those whose questionnaires were incompletely answered being excluded.

Statistical analysis

The descriptive analysis of the variables under study consisted of obtaining frequencies and percentages for categorical variables and means with standard deviation for quantitative variables. The association between reason for hospitalization or consultation and the different variables under analysis were assessed using Fisher's exact test and Wilcoxon's test. Statistical analysis was conducted using SPSS® Statistics software, version 27.0 for Mac®, and R version 4.2.2.

RESULTS

A total of 133 surveys were included in the study, 39 (29%) from parents/caregivers present during hospitalization and 94 (71%) from those observed during consultations. Most surveys were answered by the maternal figure, either during hospitalization or outpatient consultation (89.7% and 90.4%, respectively). Sociodemographic and smoking characteristics of parents are presented in Table 1.

Respiratory illness was the most frequent cause of hospitalization (73.1%), while 61.7% of children observed in an outpatient consultation unit had a previous history of respiratory symptoms (Table 2).

Table 1. Sociodemographic and smoking characteristics of parents

Characteristics	Hospitalization (N=39)		Outpatient consultation (N=94)	
	%	n	%	n
Age (years), mean ± SD	35.74 ± 8.49		39.04 ± 6.88	
Marital status				
Single	23.1	9	14.9	14
Married	69.2	27	51.1	48
Divorced	7.7	3	10.6	10
Other (civil union, widowed)	0	0	23.4	22
Education level				
Up to 9th Grade	25.6	10	38.3	36
Up to 12th Grade	30.8	12	34.0	32
Higher education	43.6	17	27.7	26
Employment status				
Employed	74.4	29	80.8	76
Unemployed	25.6	10	14.9	14
Other	0	0	4.3	4
Partner employment status				
Employed	84.6	33	86.2	81
Unemployed	10.3	4	2.1	2
Other	5.1	2	11.7	11
Current smoker				
Yes	17.9	7	13.8	13
No	82.1	32	86.2	81
Presence of smoker cohabitant				
Yes	10.3	4	41.5	39
No	89.7	35	58.5	55

Continued

Table 1. Continued

Characteristics	Hospitalization (N=39)		Outpatient consultation (N=94)	
	%	n	%	n
Age began smoking habits, mean ± SD	15.57 ± 2.99		17 ± 3.3	
Average tobacco consumption (cigarettes/day)	9.85	9.85	6.92	6.92
Duration of smoking habit (years), mean ± SD	3.59 ± 8.35		20 ± 5.63	
Short version Fagerström dependence test				
1st cigarette in the first 30 minutes of the day	14.3	1	23.1	3
1st cigarette between the first 30 to 60 minutes of the day	57.1	4	53.8	7
1st cigarette after the first 60 minutes of the day	28.6	2	23.1	3
Smoking locations				
At home	14.3	1	15.4	2
In the car	0	0	15.4	2
Outdoors	14.3	1	38.5	5
Other	71.4	5	30.7	4
Motivation to quit smoking				
Attempts to quit smoking in the previous year	85.7	6	38.5	5
Intention to quit smoking in one month	57.1	4	46.2	6
Positive answer to both questions	57.1	4	23.0	3

Table 2. Children's personal and clinical characteristics

Characteristics	Hospitalization (N=39)		Outpatient consultation (N=94)	
	%	n	%	n
Age (years), mean ± SD	3.1 ± 4.1		7 ± 5.1	
Gender				
Female	48.7	19	43.6	41
Male	51.3	20	56.4	53
Reason for hospitalization				
Unanswered	33.3	13		
Answered	66.7	26		
Respiratory illness	73.1	19		
Neurologic illness	7.7	2		
Gastrointestinal illness	7.7	2		
Other (ENT, urinary, endocrinological)	11.5	3		
Previous wheezing episodes, age (years)			26.6	25
1–5			60	15
>5 to 10			16	4
>10			24	6
Recurrent acute otitis media			17	16
Recurrent acute tonsilitis			13.8	13
Pneumonia			4.3	4

DISCUSSION

In the study sample, the number of children exposed to tobacco smoke were 8 (20.5%) of inpatients and 45 (47.9%) of outpatients. In total, 39.8% of children were exposed to tobacco smoke at some point in their lives, a figure in line with previous studies[11].

Among smoking parents who answered the survey, 35% (n=3 inpatient, and n=4 outpatient) were potentially in the preparation phase for smoking cessation. After identifying this preparation phase, the D-day to stop smoking should be scheduled and pharmacological, behavioral, and emotional support should be offered.

Motivation to quit smoking relates inversely with nicotine dependence[12]. Most respondents (57.1% in the inpatient and 53.8% in the outpatient clinic) had moderate nicotine dependence, so availability for smoking cessation should be considered an opportunity not to be missed.

Availability and motivation for smoking cessation may be related to child disease and higher frequency of respiratory pathology in pediatric age. Our results support this hypothesis, as a higher percentage of parents were motivated for smoking cessation during hospitalization, probably also due to the greater severity of the underlying clinical condition.

Smoking cessation is the best strategy to obtain health gains in the short-term[13] and in a more cost-effective manner[14]. Clinical Effort Against Secondhand Smoke Exposure (CEASE) has been shown to yield satisfactory results in Pediatrics when aimed to reduce parental smoking prevalence[15,16]. Approaching parents in this context may lead to greater openness and a unique opportunity to maximize the chances of smoking cessation and, consequently, reduce the rate of children exposed to tobacco smoke.

Limitations

As limitations of this study, we note that a convenience sample was used. Nonetheless, since we used a consecutive sampling of hospital patients, we believe to have obtained a more reliable approximation to the target population, considering we intend to implement a hospital smoking cessation program directed at parents of children who are hospitalized or evaluated at the outpatient clinic. We also note, as a possible sampling bias, the voluntary nature of the survey, which may have led to more frequent answers from non-smoking parents or from those more aware of the secondary effects of smoking. A social desirability bias may have also been present due to the subject of the survey and the way smoking is frowned upon in Portugal. Finally, during the data collection period we observed a higher rate of admissions due to respiratory illness, which may have influenced the results. The study period included part of the COVID-19 pandemic, so the authors consider that the total number of responses obtained was influenced by this fact due to less mental and emotional availability for the families of patients to collaborate with this study.

CONCLUSIONS

Pediatric consultations and pediatric hospitalizations provide excellent opportunities to implement awareness-raising measures and brief smoking cessation interventions aimed at smoking parents.

CONFLICTS OF INTEREST

The authors have completed and submitted the ICMJE Form for disclosure of Potential Conflicts of Interest and none was reported.

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There was no source of funding for this research.

ETHICAL APPROVAL AND INFORMED CONSENT

Ethical approval was obtained from the hospital's Ethics Committee (Approval number: 15-02-2020; Date: 5 March 2020). Participants provided informed consent.

DATA AVAILABILITY

The data supporting this research are available from the authors on reasonable request.

PROVENANCE AND PEER REVIEW

Not commissioned; externally peer-reviewed.

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