

Article

Parental Perceptions and Behaviors about Children's Exposure to Secondhand Smoke in Portugal

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Abstract: One of the sustainable development goals adopted by the United Nations is to ensure healthy lives and promote well-being for all. Tobacco consumption is a serious health problem that affects smokers and non-smokers exposed to secondhand smoke (SHS), particularly children. This study aims to describe parental perceptions of smoke-free rules, to analyze parental awareness about health risks associated with children's exposure to SHS, and to describe the prevalence of avoidance behaviors related to tobacco smoke, according to parental smoking status. This study includes 1175 parents from a representative sample of 1511 Portuguese children aged 4 to 9 years old in 2016. Parents who were non-smokers reported a higher level of agreement regarding smoke-free rules at home, inside the car, at playgrounds, and near the school entrance than smokers. A higher percentage of nonsmoking parents agreed that children whose parents smoke at home are more likely to become smokers themselves. Nonsmoking parents reported adopting more avoidance behaviors regarding exposure to SHS. The findings indicate that parental exposure perceptions and avoidance behaviors towards SHS were lower and less frequent among smokers. Health education, smoking cessation programs and smoking bans are needed to raise parental awareness and to protect children from SHS exposure.

Keywords: tobacco; secondhand smoke; children; parental awareness; avoidance behaviors; smoke-free rules



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1. Introduction

The 2030 agenda for sustainable development adopted by the United Nations defines 17 sustainable development goals, which are an urgent call for action by all countries [1]. One of the sustainable development goals is to ensure healthy lives and promote well-being for all ages. This particular goal includes some of the following targets: to end preventable deaths of newborns and children under 5 years of age; to strengthen the prevention and treatment of substance abuse; and to strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control [1]. Tobacco consumption is a serious health, social, and environmental problem on a global, national and local scale that affects not only smokers but also non-smokers exposed to secondhand smoke (SHS), particularly children [2]. Children's exposure to SHS is usually associated with an increased risk of infant mortality and morbidity [3]. In fact, health consequences of SHS in children include middle ear infections, reduced lung function, pneumonia, bronchitis, asthma exacerbations, sudden infant death syndrome, and lifelong cardiovascular risks [4,5]. Despite the evidence about the harmful effects of SHS on health, there is a high prevalence of children who continue to be exposed to tobacco smoke [6]. In fact, approximately 40% of children worldwide were exposed to SHS in 2004: the highest proportions exposed were estimated in Europe and in western Pacific and southeast Asia, whereas the proportion of children exposed were lower in the Americas, eastern Mediterranean regions, and Africa [3].

In Portugal, 6.1% of mothers and 11.2% of fathers smoked at home, and the children whose parents were smokers and with a lower level of education, were more exposed to SHS in this setting [7]. Parental smoking behavior at home is also an important predictor of children's tobacco consumption in the future [8,9]. In addition, evidence shows that the level of fine particulates (PM 2.5) inside the car when someone smokes is similar to the level of particulates found in a typical bar where smoking is allowed [10]. In Portugal, 4.5% of mothers and 8.3% of fathers reported smoking inside the car [7].

Parental awareness may be influenced by individual perceptions and may differ between smokers and non-smokers, leading parents to underestimate the risks associated with children's exposure to SHS [11,12]. Nevertheless, it is crucial for parents to establish rules that disallow anyone including themselves to smoke near children [13]. There are three ways to promote behavior change in general and smoking habits in particular: legislation, information, and health education [14]. Smoking bans and restrictions are proven to be an effective method for reducing SHS exposure [4]. Despite this evidence, only a small number of countries, states and municipalities have adopted measures to ban SHS inside vehicles. Smoke-free legislation in playgrounds was implemented in Portugal only in 2018; however, it is still permissible to smoke near school entrances.

Health education focuses on the enhancement of knowledge and attitudes towards improving personal and community health, and can influence smoking habits by helping people make responsible decisions regarding disease prevention and health promotion [14,15]. Therefore, it is important to understand parental perceptions and attitudes towards children's exposure to SHS in order to develop effective interventions to protect children's health [16]. Those interventions can target not only parents (through coverage of treatment interventions—pharmacological, psychosocial and rehabilitation—for substance use disorders, and health education), but also children (through health education included in the school curriculum preferentially linked to biology education) [1,17]. Preventive programs regarding children's exposure to SHS have been implemented in Portugal, such as the "Smoke-Free Homes" which has revealed effectiveness in preventing parental smoking, and therefore in reducing the rate of children exposed to SHS at home and inside the car [18]. However, most smoking prevention programs have not been implemented in Portuguese schools due to lack of resources.

This is the first nationally representative study conducted in Portugal to describe parental perceptions about smoke-free rules (at home, in the car, at playgrounds, and at school entrances), to analyze the level of parental awareness about health risks associated with children's exposure to SHS, and to describe the prevalence of avoidance behaviors related to tobacco smoke, according to parental smoking status.

2. Materials and Methods

This is a descriptive cross-sectional study which included 1175 parents from a representative sample of 1511 Portuguese children aged 4 to 9 years old. The overall sample was estimated from a population of 949,567 based on estimated the resident population on 31 December 2014, according to a 95% confidence interval and a maximum error of 2%. The data collection locations were randomly selected to ensure national representativeness, stratified by region according to the Nomenclature of Territorial Units for Statistics (NUTS II) and by type of school (kindergarten and elementary school). Once the data collection locations were selected, the respective quota at kindergartens and elementary schools was filled (a class of each grade). All selected kindergartens and elementary schools agreed to participate and completed the study.

Of the 1175 participants, 305 were parents of children aged four to five years old attending the kindergarten, and 870 were parents of children aged six to nine years old attending elementary school. Approximately 78% of the parents were female (mother, stepmother or father's partner), and the large majority of parents reported living with their children (99.8%). The mean age was 38.3 (SD = 5.7), with an age range of 20 to 60 years. Most parents were married (83.3%), had a higher education (40.1%), and lived in the city

(63.6%). Regarding smoking status, 74.0% of parents were non-smokers and 26.0% were smokers (20.1% were daily smokers and 5.9% were occasional smokers).

A self-reported questionnaire was administered to parents. The questionnaire was based on the Changes in Child Exposure to Environmental Tobacco Smoke-Wales questionnaire (CHETS) and on the Knowledge, Attitudes, and Preventive Efforts to Avoid SHS Exposure Scale [19,20]. Bilingual qualified faculty members at the University of Minho, who had previous experience in conducting tobacco survey research, translated the questionnaire into Portuguese. The questionnaire was supplied to a set of specialists in Education and Psychology who were requested to comment on the adequacy of the questions included in the instrument. The questionnaire was used in previous studies to assess children's exposure to SHS and contained multiple choice questions, as well as open-ended questions [14,19]. Core questions were assessed: 1. Sociodemographic variables (age, gender, household members, parental level of education, place where children live) 2. Parental smoking status (parents were classified as smokers if they responded "I smoke every day" or "I smoke sometimes", with all other responses classified as non-smoking parents (non-smokers and ex-smokers) 3. Parental perceptions about smoke-free rules at home, cars, outdoor playgrounds, and school entrances (for which participants were asked to please indicate their level of agreement on of the listed statements, presented in a Likert scale, recoded into the two categories of "I strongly agree/I agree" vs. "I disagree/I strongly disagree".) 4. Parental risk perception of exposure to SHS (for which participants were asked to please classify each statement as "True" or "False"). and 5. Parental avoidance behaviors related to SHS exposure (for which participants were asked to please indicate the frequency of the listed behaviors, presented in a Likert scale, recoded into two categories: "Yes (Always/Often/Sometimes) vs. No (Never)".

The data collection took place from January to August 2016 at kindergartens and elementary schools. The study was approved by the directors of all elementary schools and kindergartens included in this research. The questionnaires were delivered by a researcher to the directors of each elementary school and kindergarten and to the teachers of the selected classes. Teachers were informed by a researcher about the procedure of administering the questionnaires, according to a protocol that included practical instructions. The teachers delivered the questionnaire and an informed consent form to the children who, in turn, took them home to be filled and signed by their parents, within a week. All subjects gave their informed consent for inclusion in the study. The study was conducted in accordance with the Good Clinical Practice Guidelines of the Declaration of Helsinki and the current legal regulation about confidentiality of data. The protocol was approved by the Ethics Committee of the Regional Health Administration—Lisbon and the Tagus Valley (Proc.004/CES/INV/2016).

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), 24.0 version for Windows. Statistical analysis were conducted and frequencies, contingency tables and chi-square tests were analyzed. A significance level of 0.05 was considered.

3. Results

Table 1 shows the results regarding parental perceptions about smoke-free rules, according to their smoking status (non-smokers vs. smokers). The majority of participants agreed with policies that prohibit smoking, regardless of whether or not they were smokers. However, parents who were non-smokers reported a significantly higher level of agreement than parents who were smokers regarding smoke-free rules: at home ($\chi^2 = 5.4$; $p = 0.020$); inside the car ($\chi^2 = 36.9$; $p < 0.001$); near school entrances ($\chi^2 = 19.6$; $p < 0.001$); and at playgrounds ($\chi^2 = 9.91$; $p = 0.002$).

Table 1. Parental perceptions about smoke-free rules at home, cars, school entrances, and playgrounds according to parental smoking status (Portugal, 2016).

	Non-Smoker (N = 869)			Smoker (N = 306)			Non-Smoker vs. Smoker (Ag vs. Dg) Test	
	N	Ag %	Dg %	N	Ag %	Dg %	χ^2	p
Parents should always prohibit smoking inside their homes.	815	97.7	2.3	279	94.6	5.4	5.4	0.020
Smoking should be prohibited inside the car.	789	97.2	2.8	259	87.3	12.7	36.9	<0.001
Smoking should be prohibited near school entrances.	725	95.8	4.2	243	87.7	12.3	19.6	<0.001
Smoking should be prohibited in playgrounds.	741	96.4	3.6	253	91.3	8.7	9.91	0.002

Ag = Agree; Dg = Disagree.

Regarding risk perception of exposure to SHS according to parental smoking status, Table 2 shows that both smokers and non-smokers were aware of the health risks associated with SHS exposure, as the majority of the participants agreed that exposure to SHS was harmful to the health of children (non-smokers: 99.9%; smokers: 99.3%).

Table 2. Parental risk perception of exposure to secondhand smoke (SHS) according to parental smoking status (Portugal, 2016).

	Non-Smoker (N = 869)			Smoker (N = 306)			Non-Smoker vs. Smoker (T vs. F) Test	
	N	T %	F %	N	T %	F %	χ^2	p
SHS contains carcinogens.	775	99.6	0.4	275	98.9	1.1	0.75	0.388
I can get rid of tobacco smoke if I open a window or turn on a fan.	719	24.9	75.1	279	25.8	74.2	0.04	0.838
SHS is harmful for an adult's health.	825	99.6	0.4	295	100.0	0.0	0.15	0.703
Exposure to SHS causes heart attacks in adults.	482	78.8	21.2	210	83.8	16.2	2.02	0.155
Exposure to SHS can cause lung cancer in non-smokers.	730	97.5	2.5	259	93.1	6.9	9.72	0.002
SHS is harmful to children's health.	827	99.9	0.1	296	99.3	0.7	0.87	0.352
Exposure to SHS causes ear infections in children.	286	37.8	62.2	119	27.0	73.0	3.92	0.048
Exposure to SHS is associated with allergies in children.	503	85.1	14.9	173	77.5	22.5	4.82	0.028
Exposure to SHS worsens asthma in children.	766	99.6	0.4	278	98.9	1.1	0.70	0.403
Exposure to SHS is associated with sudden death of newborns.	324	71.6	28.4	127	77.2	22.8	1.17	0.280
I do not harm children if I smoke when they are not in the house or in the car.	823	12.3	76.9	298	21.1	69.1	12.7	<0.001
Tobacco smoke remains inside the house or car for many hours after someone has smoked, even if the windows are opened.	831	86.2	5.1	297	82.2	7.4	2.06	0.151
Children whose parents smoke at home are more likely to become smokers themselves.	832	86.3	6.6	296	69.6	16.6	29.6	<0.001

T = True; F = False; SHS = Secondhand smoke.

However, there were some misconceptions about the risks of exposure to SHS, as smokers were more unaware about the risk of non-smokers developing lung cancer caused by exposure to SHS than nonsmoking parents ($\chi^2 = 9.72$; $p = 0.002$). Some parents also showed a lack of knowledge about the short-term effects of SHS exposure on children's health: parents who smoked were more unaware that exposure to SHS caused ear infections in children ($\chi^2 = 3.92$; $p = 0.048$) and that SHS was associated with allergies in children ($\chi^2 = 4.82$; $p = 0.028$). In addition, parents who were smokers reported a significantly higher level of agreement than nonsmoking parents about not harming children if they smoked at home or inside the car when children were not present ($\chi^2 = 12.7$; $p < 0.001$). A significantly

higher percentage of nonsmoking parents agreed that children whose parents smoked at home were more likely to become smokers themselves than parents who were smokers ($\chi^2 = 29.6; p < 0.001$). Thus, a higher prevalence of non-smokers was aware of the parenting modeling effect in the children's future smoking behavior compared to smokers.

Table 3 shows the results regarding parental avoidance behaviors related to SHS exposure, according to parental smoking status. There were significant differences between non-smokers and smokers in all avoidance behaviors, as nonsmoking parents reported adopting avoidance behaviors regarding SHS more frequently than parents who were smokers. Non-smokers stated that they usually move away when someone is smoking near them ($\chi^2 = 305.0; p < 0.001$) and avoid sitting in smoking sections when the nonsmoking section of a public place is full ($\chi^2 = 62.2; p < 0.001$). The most adopted behavior consisted in avoiding smoking sections in public places, such as restaurants (non-smokers: 97.4%; smokers: 72.7%; $\chi^2 = 141.1; p < 0.001$), followed by cleaning clothes after exposure to SHS (non-smokers: 92.5%; smokers: 75.7%; $\chi^2 = 45.6; p < 0.001$). The less adopted avoidance behavior by parents was asking smokers to put out their cigarettes (non-smokers: 26.4%; smokers: 5.6%; $\chi^2 = 45.9; p < 0.001$).

Table 3. Parental avoidance behaviors related to SHS exposure according to parental smoking status (Portugal, 2016).

	Non-Smoker (N = 869)			Smoker (N = 306)			Non-Smoker vs. Smoker (Yes vs. No) Test	
	N	Yes %	No %	N	Yes %	No %	χ^2	<i>p</i>
When I am close to someone who is smoking, I remove myself to a place where I am not exposed.	618	91.4	8.6	181	29.3	70.7	305.0	<0.001
If I am in the presence of people smoking, and I cannot leave the place, I ask them if it is possible to put out the cigarette.	568	26.4	73.6	251	5.6	94.4	45.9	<0.001
When I go to a public place, like a restaurant, I try to sit in the non-smoking section.	765	97.4	2.6	245	72.7	27.3	141.1	<0.001
If the non-smoking section of a public place is full, I sit in the smoking section.	524	19.5	80.5	169	50.8	49.2	62.2	<0.001
I wash my clothes after being exposed to SHS, even if they are clean.	700	92.5	7.5	227	75.7	24.3	45.6	<0.001

SHS = Secondhand smoke.

4. Discussion

The current study aimed to describe parental perceptions, awareness and avoidance behaviors regarding exposure to SHS according to parental smoking status, due to the increased risk of infant morbidity and mortality associated with tobacco smoke, and to the increased importance of achieving sustainable development goals [1,3].

The majority of parents agreed with smoke-free rules in home, cars, school entrances, and outdoor playgrounds regardless of their smoking status. However, parents who were non-smokers reported a higher level of agreement with these rules than parents who were smokers. Other studies reinforced that exposure perceptions were lower among smokers compared to non-smokers, as smokers perceived children as being less exposed to SHS in various situations [12]. These results have important implications, as parental perceptions about smoke-free rules can be a main indicator of children's exposure to SHS [21].

Regarding parental awareness about health risks associated with exposure to SHS, the majority of the participants agreed that tobacco smoke is harmful to the health of adults and children. However, parents who smoked showed a lack of knowledge about the short-term effects of SHS exposure in children's health compared to nonsmoking parents, as well as misconceptions about the risks of exposure to SHS (e.g., they believed they were not harming children when smoking at home or inside the car when children were not present). In fact, some parents are usually not well-informed about passive smoking, as they believe

that exposure does not occur in the absence of odor and visible smoke, or if smoking occurs outdoors or in indoor ventilated environments [22,23]. These beliefs may be interpreted as defensive responses and cognitive dissonances in smokers, as a basis to justify smoking and to protect self-image [24]. These findings are particularly relevant as misunderstanding about the risks associated with SHS perpetuates exposure of a large percentage of children worldwide [12]. In fact, some studies revealed an association between parental knowledge about SHS and smoke-free homes [11,25]. The presence of smokers in the household may influence beliefs and perceptions towards smoking behaviors, contributing to normalized tobacco consumption in family contexts and thus to the underestimation of SHS exposure risks [26]. In the current study, non-smokers were more aware of the parenting modeling effect in children's future smoking behavior than smokers. This finding was similar to the one found by Rosen and Kostjukovsky who reported that parents who smoked regularly had lower risk perceptions regarding children's exposure to SHS [11].

Most participants reported that they adopted avoidance behaviors related to SHS exposure, such as avoidance of tobacco smoke in public spaces, and cleaning clothes after exposure to SHS. Non-smokers reported more frequent avoidance behaviors than smokers, especially related to distancing themselves from individuals who were smoking. Therefore, different risk perceptions between smoking and nonsmoking parents have an important impact on the decision making process about the allowance of smoking around children [27]. Parental awareness of SHS exposure can result in protective behaviors and, consequently, it is a potential intervention target to help protect children [27].

One limitation of this study is that it relied on self-reported measures. Participation was voluntary and may not reflect non-responders. The parental cooperation rate was not assessed, which would have been useful to identify how many surveys were sent home and how many surveys were completed by parents. A longitudinal study would allow obtaining subtle information regarding possible fluctuations in parental perception (due to eventual changes in the legislation or in parental smoking) and their impact on children's exposure to SHS. It would be useful to explore associations between parental risk perceptions and the prevalence of children exposed to SHS. It would also be relevant to analyze parental perceptions and behaviors according to parental gender, socioeconomic status or level of education, as parental smoking and a low educational level were found to be risk factors for children's exposure to SHS at home [7]. Smoke-free legislation in playgrounds was implemented in Portugal in 2018. Thus, it would be important to explore, in the future, if this smoking ban might have had an impact on parental perception and behaviors towards SHS.

Understanding how parents perceive exposure to SHS can help health professionals and teachers to tailor the information provided to parents, as well as to correct parental misconceptions, to raise parental awareness of exposure in various circumstances, and to help parents better protect their children [12]. It would also be useful to analyze false myths and beliefs associated with SHS with parents [7]. Thus, health education is crucial to reduce children's exposure to tobacco smoke [21]. Health policymakers should consider creating a regular health education program to raise parental awareness and emphasize the importance of practicing strict rules for smoking restriction [13]. For prevention, effective interventions should be promoted and implemented at schools to reduce the prevalence of children exposed to SHS and to increase 100% smoke-free homes and cars. Banning smoking inside the car and near school entrances should also be legislated. Laws banning smoking in cars carrying children have been introduced in a number of jurisdictions in the United States, Australia, Canada, South Africa, Bahrain, Mauritius and Puerto Rico [28]. A quasi experiment conducted in Canada concluded that legislation that bans smoking in cars reduces children's exposure to SHS inside cars [29]. A longitudinal study conducted in the United States found that smoking bans at home and in the car were positively associated with greater likelihood of smoking cessation [30]. School outdoor entrances have been neglected in most smoke-free policies in Europe, as opposed to Canada, Australia, and

the United States [31]. People were more frequently observed smoking at primary school entrances in European countries with a lesser extent of tobacco control policies [31].

Health professionals and teachers have an important role in protecting children from exposure to SHS, and should recommend and encourage parents not to smoke near children. Teachers should develop and implement health education programs included in the school curriculum targeting children, as it provides scientific bases for sustainable health literacy [15]. Pediatricians should assess and monitor parental smoking status and refer parents who smoke to smoking cessation consultations [32]. Smoking cessation consultations should be reinforced in order to reduce the prevalence of parents who smoke and, consequently, to prevent children's exposure to SHS [7].

The main strength of this study is that it is the first nationally representative study conducted in Portugal to describe parental perceptions about smoke-free rules (at home, in the car, at playgrounds, and at school entrances), to analyze the level of parental awareness about health risks associated with children's exposure to SHS, and to describe the prevalence of avoidance behaviors related to tobacco smoke, according to parental smoking status. Since the main source of children's exposure to SHS is parental smoking, it is important to address parental misconceptions about this topic in order to develop and implement effective measures and programs to control children's exposure to SHS and to achieve sustainable development goals, such as to ensure healthy lives and promote well-being for all [1,7].

It can be concluded that parental perceptions, awareness and avoidance behaviors towards children's exposure to SHS differ by parental smoking status. In fact, parental perceptions of exposure and parental avoidance behaviors were lower and less frequent among smokers. Parents who smoked have also shown some misconceptions about this topic that should be analyzed and corrected by health professionals and teachers.

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References

1. United Nations. *Transforming our World: The 2030 Agenda for Sustainable Development*; United Nations General Assembly: New York, NY, USA, 2015.
2. World Health Organization (WHO). *Report on the Global Tobacco Epidemic, 2008: The MPOWER Package*; WHO: Geneva, Switzerland, 2008.
3. Öberg, M.; Jaakkola, M.; Woodward, A.; Peruga, A.; Prüss-Ustün, A. Worldwide burden of disease from exposure to second-hand smoke: A retrospective analysis of data from 192 countries. *Lancet* **2011**, *377*, 139–146. [[CrossRef](#)]
4. U.S. Department of Health and Human Services. *Children and Secondhand Smoke Exposure—The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*; U.S. Department of Health and Human Services: Atlanta, GA, USA, 2006.
5. Raghuvver, G.; White, D.; Hayman, L.; Woo, J.; Villafane, J.; Celermajer, D.; Ward, K.; Ferranti, S.; Zachariah, J. Cardiovascular consequences of childhood secondhand tobacco smoke exposure: Prevailing evidence, burden, racial and socioeconomic disparities: A Scientific Statement from the American Heart Association. *Circulation* **2016**, *134*, e336–e359. [[CrossRef](#)] [[PubMed](#)]
6. World Health Organization (WHO). *WHO Report on the Global Tobacco Epidemic, 2009*; WHO: Geneva, Switzerland, 2009.

7. Precioso, J.; Rocha, V.; Sousa, I.; Araújo, C.; Machado, J.C.; Antunes, A. Prevalence of Portuguese children exposed to secondhand smoke at home and in the car. *Acta Med. Port.* **2019**, *37*, 499–504. [[CrossRef](#)] [[PubMed](#)]
8. Brown, K.; Palmersheim, K.; Glysch, R. *Factors Associated with Youth Smoking in Wisconsin*; University of Wisconsin: Madison, WI, USA, 2008.
9. Precioso, J.; Macedo, M.; Rebelo, L. Relation between parents' tabagism at home and the consumption of tobacco by their children: Implications to prevention. *Rev. Port. Med. Geral Fam.* **2007**, *23*, 259–266.
10. Edwards, R.; Wilson, N.; Pierse, N. Highly hazardous air quality associated with smoking in cars: New Zealand pilot study. *N. Z. Med. J.* **2006**, *119*, 103–106.
11. Rosen, L.; Kostjukovsky, I. Parental risk perceptions of child exposure to tobacco smoke. *BMC Public Health* **2015**, *15*, 90–101. [[CrossRef](#)]
12. Myers, V.; Shiloh, S.; Rosen, L. Parental perceptions of children's exposure to tobacco smoke: Development and validation of a new measure. *BMC Public Health* **2018**, *18*, 1031–1042. [[CrossRef](#)]
13. Junus, S.; Chew, C.; Sugunan, P.; Meor-Azis, N.; Zainal, N.; Hassan, H.; Abu-Mansor, M.; Abu-Zamri, H.; Hss, A. Parental health risk perceptions and preventive measures on children's exposure to secondhand smoke (SHS) of tobacco cigarette in Malaysia: A Nationwide study. *BMC Public Health* **2021**, *21*, 1860. [[CrossRef](#)]
14. Precioso, J.; Araújo, C.; Machado, J.; Samorinha, C.; Becoña, E.; Ravara, S.; Vitória, P.; Antunes, H. A educação para a saúde na proteção das crianças da exposição ao fumo ambiental do tabaco. *Educ. Soc. Cult.* **2013**, *38*, 13–29.
15. Zion, M.; Cohen, H. Drinking-Related Metacognitive Guidance Contributes to Students' Expression of Healthy Drinking Principles as Part of Biology Teaching. *Sustainability* **2021**, *13*, 1939. [[CrossRef](#)]
16. Mahabee-Gittens, E.M.; Merianos, A.L.; Stone, L.; Tabangin, M.E.; Khoury, J.C.; Gordon, J.S. Tobacco Use Behaviors and Perceptions of Parental Smokers in the Emergency Department Setting. *Tob. Use Insights* **2019**, *12*, 1179173X19841392. [[CrossRef](#)] [[PubMed](#)]
17. Precioso, J.; Araújo, C.; Samorinha, C.; Machado, J.C.; Rocha, V.; Becoña, E.; Vitória, P.; Antunes, H. Children's exposure to secondhand smoke: A preventive program assessment. *Psicol. Saúde Doenças* **2017**, *18*, 591–601. [[CrossRef](#)]
18. Precioso, P.; Alves, R.; Silva, C.; Machado, J.C.; Gonçalves, F.; Sousa, I. Assessing the effectiveness of an educational program in preventing children's exposure to secondhand smoke at home and in the car. *Atas Saúde Ambient.* **2020**, *8*, 134–147.
19. Moore, G.; Holliday, J.; Moore, L. *Research into the Impact of Smoke-Free Legislation in Wales: Childhood Exposure to Environmental Tobacco Smoke Wales*; Cardiff Institute of Society, Health and Ethics: Cardiff, UK, 2008.
20. Gharaibeh, H.; Haddad, L.; Alzyoud, S.; El-Shahawy, O.; Abu Baker, N.; Umlauf, M. Knowledge, Attitudes, and Behavior in Avoiding Secondhand Smoke Exposure Among Non-Smoking Employed Women with Higher Education in Jordan. *Int. J. Environ. Res. Public Health* **2011**, *8*, 4207–4219. [[CrossRef](#)] [[PubMed](#)]
21. Jurado, D.; Munõz, C.; Luna, J.; Fernández-Crehuet, M. Environmental tobacco smoke exposure in children: Parental perception of smokiness at home and other factors associated with urinary cotinine in preschool children. *J. Expo. Anal. Environ. Epidemiol.* **2014**, *14*, 330–336. [[CrossRef](#)] [[PubMed](#)]
22. Ribeiro, F.; Moraes, M.; Caixeta, J.; Silva, J.; Lima, A.; Pereira, S.; Fernandes, V. Perception of parents about second hand smoke on the health of their children: An ethnographic study. *Rev. Paul Pediatr.* **2015**, *33*, 394–399. [[CrossRef](#)]
23. Rosen, L.; Lev, E.; Guttman, N.; Tillinger, E.; Rosenblat, S.; Zucker, D.; Myers, V. Parental Perceptions and Misconceptions of Child Tobacco Smoke Exposure. *Nicotine Tob. Res.* **2018**, *20*, 1369–1377. [[CrossRef](#)]
24. Gibbons, F.; Eggleston, T.; Benthin, A. Cognitive reactions to smoking relapse: The reciprocal relation between dissonance and self-esteem. *J. Pers. Soc. Psychol.* **1997**, *72*, 184–195. [[CrossRef](#)]
25. Evans, K.; Sims, M.; Judge, K.; Gilmore, A. Assessing the knowledge of the potential harm to others caused by second-hand smoke and its impact on protective behaviors at home. *J. Public Health* **2011**, *34*, 183–194. [[CrossRef](#)]
26. Arechavala, T.; Continente, X.; Pérez-Rios, M.; Schiaffino, A.; Fernandez, E.; López, M. Sociodemographic factors associated with secondhand smoke exposure and smoking rules in homes with children. *Eur. J. Public Health* **2019**, *29*, 843–849. [[CrossRef](#)]
27. Myers, V.; Rosen, L.; Zucker, D.; Shiloh, S. Parental perceptions of children's exposure to tobacco smoke and parental smoking behaviour. *Int. J. Environ. Res. Public Health* **2020**, *17*, 3397. [[CrossRef](#)] [[PubMed](#)]
28. Canadian Cancer Society. *Laws Banning Smoking in Cars with Children—International Overview*. 2014. Available online: <http://www.ash.org.uk/files/documents/ASH909.pdf> (accessed on 24 November 2021).
29. Nguyen, H. Do smoke-free car laws work? Evidence from a quasi-experiment. *J. Health Econ.* **2013**, *32*, 138–148. [[CrossRef](#)] [[PubMed](#)]
30. Brook, J.; Zhang, C.; Brook, D.; Finch, S. Voluntary smoking bans at home and in the car and smoking cessation, obesity, and self-control. *Psychol. Rep.* **2014**, *114*, 20–31. [[CrossRef](#)] [[PubMed](#)]
31. Henderson, E.; Continente, X.; Fernández, E.; Tigova, O.; Cortés-Francisco, N.; Gallus, S.; Lugo, A.; Semple, S.; O'Donnell, R.; Clancy, L.; et al. Secondhand smoke exposure and other signs of tobacco consumption at outdoor entrances of primary schools in 11 European countries. *Sci. Total Environ.* **2020**, *743*, 140743. [[CrossRef](#)] [[PubMed](#)]
32. Precioso, J.; Sousa, I.; Correia, C.; Samorinha, C.; Araújo, C.; Macedo, M.; Antunes, H. *O Essencial Sobre Tabagismo*; Associação para a Prevenção e Tratamento do Tabagismo: Braga, Portugal, 2014.