

Prevalence of E-cigarette Use Among Parents and Their Opinions on Tobacco Counseling for Their Child Provided by Pediatric Dentists

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Introduction

The use of electronic cigarettes (EC's) also known as e-cigs or vapes has significantly increased in the last decade. EC's are battery operated devices, which produce aerosols containing nicotine, flavoring, and other chemicals which are inhaled by the user. Some EC's look like regular cigarettes, pipes, and cigars but they can also resemble pens, USB sticks, keys and other everyday items¹. In 2021, the CDC reports that 18.7% (46 million) of U.S. adults currently used any tobacco products.² Cigarettes were the most frequently reported tobacco product (11.5%) followed by ECs (4.5%).² ECs started as an aid to help adults quit smoking conventional cigarettes, but their popularity has increased among adults, teens and even children, who were nonsmokers before. This suggests that tobacco cessation is not the primary reason for EC use in the younger population.

According to the CDC, 19.6% (3 million) of high school students and 4.7% (550,000) of middle schoolers reported current EC use in 2020.³ Prior to the introduction of EC's smoking among youth has declined over the past few decades as a result of public health campaigns and tobacco interventions, but we are now seeing that the decline is slowing down.⁴ It is reported that ECs are more appealing than conventional cigarettes because of general curiosity, good flavors, use by friend or family, low cost, easy availability and convenience of use.⁵

A major concern with EC use among the youth is social media and marketing tactics used by EC companies. Advertisements imply that ECs are less harmful than traditional cigarettes or a cessation aid, which is not necessarily true. There are still many harmful effects of EC including nicotine addition, increased risk of lung disease, heart attacks, and mouth/throat irritation.^{7,8} Advertisements also promote the ability to use ECs in areas where conventional cigarettes are banned, such as indoors and in urban areas because of the designs of ECs and their lack of odor.⁹ This can reinforce that it will be easy to hide from parents and can be used in school. Lastly, these companies use sensory appeals to target adolescents. Adolescence is a period of psychosocial development in which individuals are more likely to engage in sensation seeking than at other stages of development¹⁰. These companies highlight the pleasurable sensations produced by flavors and odors, and use animations, graphics, and music to play on the sensation seeking needs of youth.⁹

Pediatric dentists are dedicated not only to the patient's oral health but also their overall health, which include tobacco and nicotine prevention and cessation.⁶ The American Academy of Pediatric Dentistry (AAPD) recommends that all pediatric dentists begin providing counseling on tobacco use to children aged 6 to 12, provide referrals to primary care and behavioral providers for substance use, and documenting tobacco use by patients and parents in records.¹¹ A study found that only about 1 in 5 pediatric dentists report having received training on tobacco counseling and do not consider themselves well prepared for tobacco interventions.¹² As the use of ECs increase in younger populations, pediatric dentists should be prepared to provide cessation services.

Objectives

Primary objectives:
To determine the extent to which parents are likely 1) to discuss tobacco use/cessation with their children and 2) to want their pediatric dentist to discuss tobacco cessation/use with their children.

Exploratory objectives:
Our working hypotheses are that parents who are EC users are more likely to 1) discuss tobacco use/cessation with their children and 2) to want their pediatric dentist to discuss tobacco cessation/use with their children compared to non-users.

Methods

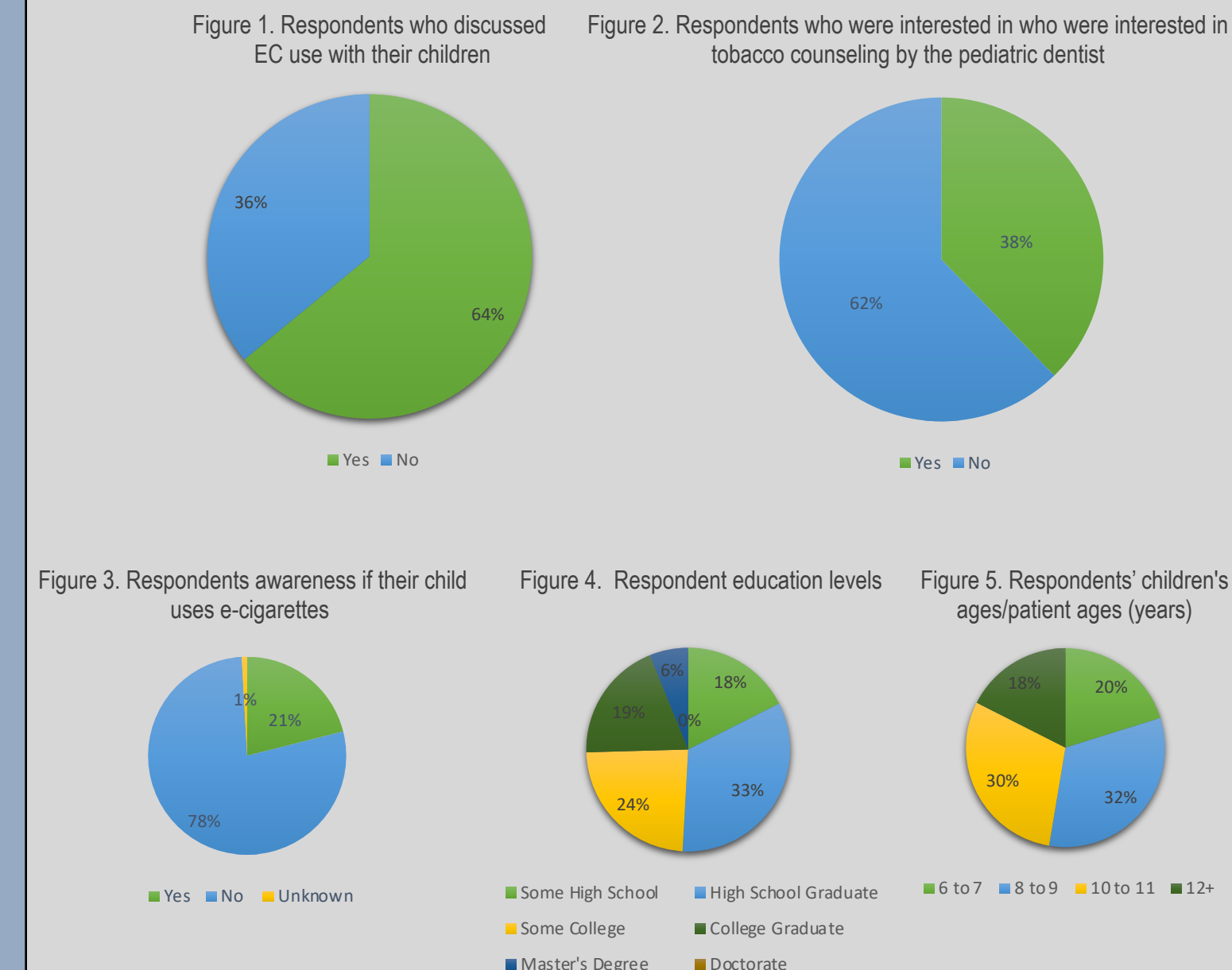
This is a cross-sectional study in which data collection occurred from February to March 2024. When a patient presented to the Montefiore pediatric dental clinics for any dental appointment, their parents or legal guardians who met the inclusion criteria were asked by the researcher to participate in the study by completing a survey. Inclusion criteria included the parents or legal guardians of patients aged 6 to 13 years old. Only one survey per family qualified. If they chose to participate, they scanned a QR code with their cellphones and completed a survey electronically. The survey asked about demographics of the parents/legal guardians including gender, ethnicity, and education level, if they use tobacco products including e-cigarettes, if they discuss e-cigarette use with their children, and if they would be interested in tobacco prevention counselling for their child from a pediatric dentist. The survey also asked the age of their child. No personal identifiers were included in the study.

Results

A total of 114 respondents who were parents/legal guardians of our patients completed the survey. Descriptive statistics were employed to summarize data. Of the 114 respondents, seven (6%) report using any tobacco products such as cigarettes, cigars, pipes, smokeless, or chewing, etc. Only one respondent (0.9%) reported using ECs. The number of respondents who discussed EC use with their child was 73 (64% - 54%, 73% with a 95% CI). *Figure 1*. The number of respondents who were interested in tobacco counseling by the pediatric dentist was 43 (38% - 29%, 47% with a 95% CI). *Figure 2*.

When the respondents were asked if they are aware if their child is using ECs or vapes, 24 were aware (21%), 89 were unaware (78%), and one was unsure (0.9%). *Figure 3*. Respondents had multiple educational backgrounds including some high school (20, 18%), high school graduates (38, 33%), some college (27, 24%), college graduates (22, 19%), Master's degree 7 (6%), but no doctorate degrees. *Figure 4*. The ages of the patients ranged from 6 to 7 years (23, 20%), 8 to 9 years (37, 32%), 10 to 11 years (34, 30%), and 12+ years (20, 18%). *Figure 5*.

Results



	Some high school N = 20 (18%) ¹	High School Graduate N = 38 (33%)	Some college N = 27 (24%)	College Graduate N = 22 (19%)	Master's Degree N = 7 (6.1%)	p-value ²
Discussed EC use with child	13 (65%)	23 (61%)	20 (74%)	13 (59%)	4 (57%)	0.8
Interested in tobacco counseling from pediatric dentist	8 (40%)	16 (42%)	8 (30%)	8 (36%)	3 (43%)	0.9

¹n (%)

²Fisher's exact test

Table 1. Association between likelihood to discuss EC use with their children and accept tobacco counselling from pediatric dentist and respondent education level

	Patient Age (years)		p-value ²
	6-9 N = 60 (53%) ¹	10-12+ N = 54 (47%)	
Discussed EC use with child	32 (53%)	41 (76%)	0.01
Interested in tobacco counseling from pediatric dentist	23 (38%)	20 (37%)	0.9

¹n (%)

²Pearson's Chi-squared analysis

Table 2. Association between likelihood to discuss EC use with their children and accept tobacco counselling from pediatric dentist and patient age

Analysis

Exploratory analyses were used to assess any associations between respondent demographics and their likeliness to provide and accept EC counseling. A Fisher's Exact test revealed no significant association between respondent education level and their likeliness to discuss EC use with their child or accept tobacco counseling from the pediatric dentist (P=0.8, P=0.9, respectively). *Table 1*.

Correspondingly, a Chi-squared test revealed no significant association between patient age and respondent's likeliness to accept tobacco counseling from the pediatric dentist. However, respondents with children aged 10-12+ were more likely to discuss EC use with their child than those with children aged 6-9 years old. (P=0.01, P=0.9 respectively). *Table 2*. Statistical significance is claimed at p ≤ 0.05.

Discussion

The authors were surprised that so few respondents were tobacco users, especially only one respondent reporting EC use. The working hypotheses were that parents who are EC users themselves are more likely to discuss EC use with their children and more likely to accept tobacco prevention counselling from their pediatric dentist. However, the authors could not carry out an exploratory analysis due to the small number of respondents who use tobacco products. This result highlights the limitation of this study, namely a small sample size. The authors also found a significant association between older children (10-12+ years) and respondents being more likely to discuss EC use with them versus younger children (6-9 years old). In this study, respondents were only included if their children were 6 to 13 years old. The authors were also surprised to find that a small minority of respondents were interested in pediatric dentists providing tobacco prevention regardless of their age. Future studies may include a larger sample size and surveying respondents of older patients.

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