

Polish e-cigarettes: users reasons to start vaping – a survey of 1142 Polish vapers

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A – Study Design, B – Data Collection, C – Statistical Analysis, D – Data Interpretation, E – Manuscript Preparation, F – Literature Search, G – Funds Collection

Summary Background. The electronic cigarette (EC) is a small device used as a potentially less harmful alternative to regular cigarettes. It is often advertised as a new tool for smoking cessation. After its introduction to the market in 2004, ECs became a global hit with few billion USD worth sales each year. Although it has global popularity, not much is known about the real reasons users choose them instead of other tobacco products.

Objectives. To understand the reasons why Polish vapers start using ECs.

Material and methods. This was a cross-sectional study based on an especially prepared questionnaire. This included the multiple choice question: “What made you start vaping e-cigarettes?”. A link to a survey published on the Survey Monkey web platform was distributed among EC facebook groups and vaper forums.

Results. After collection of the results of the survey (run during in the last 6 months of 2016), 1142 responses were included into final analysis. The studied population included mainly men in the age group of 18–25 with secondary and higher education, living in urban areas. Three major reasons to start vaping were stated: lack of unpleasant odour (65.7%), belief in less harmfulness of ECs (64.6%) and better taste of ECs (58.8%) in comparison to regular cigarettes.

Conclusions. Perception of lesser harmfulness of e-cigarettes, lack of unpleasant odour and better taste of ECs as compared to regular cigarettes are important reasons for Polish vapers to start using ECs. Because many users switch to ECs from cigarettes and are convinced about their positive health effects, family physicians should inform them about lack of evidence on EC safety and encourage them to quit smoking no matter which nicotine delivery system they use.

Key words: e-cigarettes, Electronic Nicotine Delivery Systems, surveys and questionnaires, vaping, Poland.

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Background

Electronic cigarettes (EC), also called e-cigarettes, are hand-size devices designed to imitate cigarette smoking. Instead of tobacco combustion being used to produce smoke in regular cigarettes, electronic cigarettes vaporize (by heat) a liquid containing nicotine and other additives (e.g. propylene glycol, flavouring agents) producing vapour inhaled by user (referred to as vaping) [1]. Health effects of e-cigarettes usage are still unclear. On one hand, heating instead of combustion should produce less cancerogenic substances and improve the health effect of e-cigarettes, but on the other hand, vaping has potential addictive effects, risk of other than nicotine substance usage, uncertainty about product engineering or quality of compounds and nicotine concentrations, possible harmful lung inflammation due to very small emitted particle size and increase of oxidative stress. The aforementioned brings about doubt about e-cigarettes having positive health effects [2].

In order to understand the usage of e-cigarettes better, it is important to understand the motivations of users behind the choice of electronic cigarettes. So far not many studies covered this topic. A Hungarian study by Péntzes et al. on 826 Hungarians found that smoking cessation, taste variety, perceived social norms and convenience when smoking is prohibited were the major motivators to vape. However, the study was done only on university students [3]. A Spanish study by Bunch et al. confirmed

that reduction of tobacco-smoking and will to quit smoking or to use e-cigarettes in places where smoking is prohibited were the most important drivers to vape. Still, the study sample was relatively small ($n = 600$) [4]. In Poland, Brożek et al. concluded that leading motivators were quitting tobacco, a perceived less harmful impact on health and the price. This study was also conducted on students [5]. Other studies also dealt with the topic, but the subjects were mainly adolescents or students [6–8]. The lack of general population-based studies regarding motivation for vaping has lead us to design the following research.

Objectives

To identify the main reasons among Polish e-cigarettes users for taking up vaping.

Material and methods

This was an especially prepared cross-sectional online survey. Order of questions, sentence grammar, pilot study were designed by the authors on the basis of their previous experience [9, 10]. The survey included 38 questions, and was distributed on the Internet (electronic cigarette Facebook groups and Internet e-cigarette forums) by a web-based survey platform (Survey Monkey). Most questions were of single choice with a 5-point



Likert scale, a few questions were of multiple choice. Inclusion criteria were: no previous survey completion, age of participant between 13–70, at least one question more filled-in beyond the demographic questions, awareness of e-cigarettes. The survey was available online between July 1st, 2016 and January 1st 2017. All surveys filled-in by the end of the study were checked for meeting inclusion criteria. Acquired data was then verified for normality of distribution and equality of variances. The results of the quantitative variables are presented as a mean (\pm SD), median, minimum and maximum. In this paper, we present selected results of this survey, dealing with the question of the reasons for which electronic cigarettes users begin vaping. The survey was piloted in a group of 20 students in order to exclude typos and mistakes.

The approval from the Ethics Committee was not required for this research.

Results

A total number of 1288 questionnaires were collected. Respondents not satisfying inclusion criteria (16 duplicates, 86 questionnaires with no age provided, 6 with age out of inclusion range, 35 with only demographic pages filled, 2 with no answer to the question about knowledge of e-cigarettes and 1 with negative answer to that question) were removed. A total number of 1142 surveys were included in the final analysis. Participants were mainly Polish males younger than 26 years, with secondary or higher education, living in cities (Table 1). One out of ten (11.7%, $n = 134$) respondents were current cigarettes smokers, while 61.6% ($n = 704$) were former cigarette smokers (Table 1). In their responses, most participants chose lack of unpleasant odour as the reason which made them start vaping (65.7%). Almost the same percentage (64.6%) claimed that e-cigarettes were less harmful than cigarettes. Better taste was the third most common answer (58.8%) (Table 2).

		<i>n</i> (%)	Total <i>n</i> (%)
Age	< 18	134 (11.7)	1142 (100)
	18–25	603 (52.8)	
	26–45	312 (27.3)	
	> 45	93 (8.1)	
	min	13	
	max	69	
	mean (SD) median	25.9 (\pm 11.1) 21	
Gender	men	978 (85.6)	1142 (100)
	women	164 (14.4)	
Education	higher	280 (24.5)	1142 (100)
	secondary	575 (50.3)	
	vocational	134 (11.7)	
	primary	153 (13.4)	
Country of residence	Poland	1121 (98.2)	1142 (100)
	other	21 (1.8)	
Place of residence	city over 1 mln inhabitants	140 (12.3)	1142 (100)
	city over 500,000 to 1 mln inhabitants	134 (11.7)	
	city over 100,000 to 500,000 inhabitants	225 (19.7)	
	city over 10,000 to 100,000 inhabitants	322 (28.2)	
	city up to 10.000 inhabitants	119 (10.4)	
	rural areas	202 (17.7)	
	Cigarettes smoking	current smokers	
former smokers		704 (61.6)	
never smokers		133 (11.7)	
no data		171 (15.0)	

Table 2. Reasons for starting vaping provided by the study participants in a response to the multiple choice question "What made you start vaping e-cigarettes?" $n = 1142$. Participant was asked to choose from one of proposed answers or type in one on his own in the field 'other'

Answer	<i>n</i> (%)
ECs does not leave unpleasant odour	750 (65.7)
I think ECs are less harmful than regular cigarettes	738 (64.6)
ECs have better taste than regular cigarettes	672 (58.8)
Vaping is cheaper than smoking	610 (53.4)
I tried to quit smoking	486 (42.5)
I was curious with regard to the taste of ECs	306 (26.8)
Vaping is allowed in places where smoking is forbidden	237 (20.7)
Need to decrease emotional tension/stress	204 (17.9)
Possibility of vaping other substances than nicotine liquids	112 (9.8)
ECs are more fashionable than regular cigarettes	80 (7.0)
Other answers	36 (3.1)
Hard to say	11 (1.0)

Discussion

WOBASZ and WOBASZ II – the two main Polish representative epidemiologic studies, found that between the years 2003–2005 and 2014–2015 (respectively), the prevalence of smoking decreased for men – from 39.0% to 29.9%, and for women – from 23.8% to 20.5% [11]. However, the number of smokers is still high, especially in the group of 45–54 years old where the percentage of smokers is the highest and equals 35.9% [11]. In our study, only 8.1% of participants were of that age, the majority (91.9%) were less than 45 years old, confirming that vaping was typical for young people. E-cigarette users younger than 26 constituted 64.5% of all participants (Table 1).

The most frequent reasons for smoking, as declared by WOBASZ study participants, were the force of habit, the calming effect of smoking and the "pleasure" of smoking [11]. These were not similar to motivators for vaping found in our research. Lack of unpleasant odour, lesser harmfulness and better taste of electronic cigarettes compared to regular cigarettes were identified in our study as the main reasons to start vaping among the study population. This is consistent with many other studies, which identified better smell as one of the advantages of e-cigarettes [12]. However, lack of unpleasant odour was not the most common reason for electronic cigarettes usage according to a systematic review of e-cigarettes studies by Glasser et al. [12]. This suggests that this finding may be specific to our population. The three most common reasons to vape listed by Glasser were: to address tobacco withdrawal symptoms, to evade smoke-free policies and because ECs are perceived as less harmful than regular cigarettes. It is interesting that smoking cessation in the studied group was not one of the most common reasons to use electronic cigarettes – it was ranked in 5th position. E-cigarettes were perceived by their users more as a device with a good smell than a tool to quit bad habit.

Lesser harmfulness was chosen as the second most common reason to start vaping by our study participants, however, there is not enough evidence to confirm that the harmfulness of electronic cigarettes is much lower than the one of traditional tobacco products [12]. It was also one of two main reasons for a change to e-cigarettes identified in a small Polish study on 69 subjects by Daniuk et al. [13]. The other main reason in that study was desire to use fashionable technological innovations, which was shared only by 7% of participants in our study. The third most common motivation to start vaping was the better taste of electronic cigarettes. This is mentioned in many studies,

especially in that of teenagers and students [14–16]. Such was an important reason to start vaping for 58.8% of our participants. A recent Eurobarometer study found that 12% of all Europeans started vaping because they liked e-cigarette flavours [17], which confirms that the taste of electronic cigarettes may attract new vapers and draw people to nicotine addiction. However, it was found that additives improving the taste of e-cigarettes, especially strawberry and cherry flavour, may increase electronic cigarettes toxicity [18, 19]. This underpins the need for providing proper information about possible side effects that should be targeted to future and present electronic cigarettes users.

Nearly 12% of our respondents were currently smoking cigarettes (Table 1). On comparing this figure with that of the 20.7% participants who claimed that they started vaping because it was allowed in places where smoking was forbidden (Table 2), it may be concluded that some vapers used e-cigarettes because of a strong nicotine addiction. Electronic cigarettes have been allowed in public places as a more acceptable way to inhale nicotine when regular cigarettes were not allowed, thus smokers with strong nicotine craving might use them to satisfy their habit. This tendency may be dangerous, because rather than encouraging smokers to quit, it makes nicotine inhalation more socially acceptable.

In a study on medical students and medical athletes by Shpakou et al., the youngest age of first attempt of smoking regular cigarettes was 12 years. Moreover, the traditional cigarette was listed as the first tobacco product to be smoked by a majority of participants (88.7%) [8]. The minimum age of participant in our study was 13, which confirms that the youngest teenagers are already experimenting with electronic cigarettes. This highlights the urgent need for regulations to ban e-cigarettes usage by the youngest.

The limitation of the study was the fact that it was not representative for the whole of the Polish population. Participants were limited to users of electronic cigarette facebook groups and internet forums. However, this approach made it possible to reach the targeted population – Polish ECs users. According to recent data, 81.9% of all Polish households have access to Internet, which makes online survey a reliable source of information and one of the best ways to conduct survey-based studies [20]. This approach enabled us to acquire over 1100 unique

responses from e-cigarettes users, and, thus the results may be generalised to Polish electronic cigarettes users actively using the Internet. The studied population consisted mainly of men (85.6%) with secondary or higher education (74.8%) living in Poland (98.2%) and definitely speaking in Polish as this was language of the survey. Dominance of men in the vapers population is also seen in other studies [21]. In such population, these results may be true, however, they cannot be generalized to the Polish population as a whole.

Regarding our study, family physicians should be aware that smoking cessations is not the main reason for vapers to try e-cigarettes – a perceived lack of harm, a pleasant smell and taste are the most important factors to start vaping. Family physicians should inform their vaping patients that lack of harmfulness of electronic cigarettes is not truly confirmed and that e-cigarettes are currently undergoing studies to confirm their safety. Moreover, they may use the knowledge why electronic cigarette users reach for e-cigarettes, for their benefit. For example, in trying to encourage patients to quit smoking, they may start discussions about the unpleasant odour or the bad taste of cigarettes. In addition, instead of the reaching for ECs, the family physician may propose more evidence-based methods like varenicline or nicotine replacement therapy.

Conclusions

Although the health effects posed by electronic cigarettes are still unclear, vapers tend to perceive them as less harmful than regular cigarettes. According to our study, a perceived lack of harmfulness, a better smell and taste are important factors attracting Polish vapers to start vaping. Because of the aforementioned, more information about possible side effects of vaping should be aimed at their users. What is more, family physicians, being the first stage in the healthcare system to discuss smoking cessation with patients, should inform their patients that inhalation of any addictive substance is harmful no matter which delivery system is used (regular cigarette, e-cigarette, pipe, shisha etc.). They should also encourage them to quit smoking or vaping on each visit, assess and improve their motivation and advise evidence-based methods of smoking cessation in accordance with medical guidelines.

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Conflicts of interest: The authors declare no conflicts of interest.

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