



Original Article

Knowledge, Perceptions and Use of Electronic Cigarettes Among Health Professionals

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ABSTRACT

In the developing era we are facing increasing prevalence of tobacco use and rapid increase of e-cigarette. Health professionals are no longer found to abstain from e-cigarettes. The growing interest of vaping in our society leads to us a debate that e-cigarette are the tools to refrain from smoking or these are provoking people towards more smoking. **Objectives:** To evaluate the knowledge and concepts of e-cigarettes. What are the attitudes of vaping in health care professional? **Methods:** A descriptive cross-sectional study based on questionnaire filling survey, filled by 350 health professionals working in Jinnah hospital Lahore. The questionnaire comprised of four parts: demographic data, knowledge and attitudes toward vaping behavior, interest and trend of e-cigarettes, and perception of harms and health related risks. **Results:** Data were collected from 350 individuals. Average age of health professionals included in study was 30.6±2.60. A large percentage was found for former smokers 22% and current smokers 39%. A cumulative percentage of 42%, electronic cigarettes were supported by the health professionals. Despite of good knowledge most of the professional had opinion in support of e-cigarettes up to 64% and the results were significantly proven by p-value 0.03. E-cigarettes are less harmful than combustible tobacco smoking with and cumulative percent of 76%. **Conclusions:** Health care professionals have favorable attitudes towards vaping or e-cigarettes perceived thought of vaping is less harmful than tobacco smoking is also highlighted. It is important to highlight the health-related problems by e-cigarettes in our society to control the behaviors of population towards e-cigarettes.

INTRODUCTION

A cartridge filled with nicotine (liquid) and other chemicals that produce inhalable smoke is call e-cigarette or vape. A quantity of nicotine varies in different types or e-cigarettes that is also a primary addictive component [1]. There is a debate if the nicotine percentage is fulfilled or increased in smokers who are habitual about combustible cigarettes or e-cigarettes. Also, the inhalable nicotine serves as a source of nicotine to non-smokers community [2]. Varying concentrations of nicotine in electronic devices not only facilitates enhancing the quantity of nicotine intake but also other substances present in e-cigarettes facilitate the absorption of nicotine, or improving to bioavailability of it

[3]. It is found an increasing trend of vaping is more among adolescents or youngsters. Also a remarkable use of vaping is highlighted among tobacco smokers who want to quit smoking and use e-cigarettes as an alternate. But instead of decreasing the time of smoking there are found the increase incidence of its usage [4]. The e-cigarettes are not found helpful in stopping person from tobacco smoking according to literature. Although it found as an add on in nicotine intake. In some people vaping is more like a social trend than a need. In some youngsters e-cigarettes is like a life-style or social need [5]. In the developing era the smoking and adolescent are found co-related. A study

conducted in US has recorded the increasing prevalence of smoking up to 78% in high school students. And up to 48% in middle school children since 2017-2018. The increasing availability of e-cigarettes and tobacco proved to be the major contributor to promote smoking [6]. If we conclude on the surveys held on the prevalence of e-cigarettes, which proved the increased prevalence of e-cigarettes. 0.8% to 4.9% in 10 years 2011 to 2019. The use of vaping created a hype in 2014 and later than most of the smokers preferred e-cigarettes over combustible cigarettes. Same trend of prevalence was found in other developed countries like Canada and USA [7]. Mostly the researchers evaluated that the trend of vaping is more in young population in college students. And if we talk on gender discrimination that vaping trend in 40% more in males than females. Young adults are more prone to e-cigarettes if our society keep on advertising and providing the stock to the population [8]. The regulatory bodies like FDA, since 2016 the e-cigarettes and the use of all tobacco products (cigars, hookah, pipe tobacco) now fall under the authorization of FDA. The FDA controls the deceiving information and quality of tobacco products by all the tobacco manufacturers and retailers. Newly regulated rules must be implemented and follow by all the suppliers [9]. In Malaysia, and Singapore, there are no regulatory bodies that control the products quality and limit of use. There are therefore no specific guidelines for the tobacco uses. Also, there are no guidelines for the quality if liquid in e-cigarettes and that's why there is uncontrolled use of aerosols that is affecting health and environment. No one is unaware of the aerosols and toxins that are produced. There is a misconception that tobacco is different than e-smoking. While nicotine that is an addicting product is available in such a large and purified amount in vape [10]. Health effects that are caused by the vaping and smoking include, the infection of upper respiratory track. Vaping can no longer prevent us from harms of nicotine. The infections of mouth and throat inflammations are less. The propylene glycol present in vape are the risk factors for eye-diseases and damaging spleen [11]. The person who is habitual of vaping also found to have a change in behaviors. Meanwhile e-cigarettes cause less side-effects of nausea and vomiting. The emitted smoke from e-cigarettes, e-juices and smoking-devices found increasing the risk for lungs cancers. [12] The aerosols and harmful chemicals serve as a contributor towards the risk associated. Nicotine effects a person's heart-rate and many users complain the elevated heart rate and blood-pressure. Centre Of Disease Control in USA is a regulatory body that controls the quality and availability of tobacco products. Use of tetrahydrocannabinol (THC) which are proven to cause EVALI product associated lung injuries in the users. While further investigation is

continued on the chemicals that make inhalable smoke in vaping [13]. There is also a sociodemographic difference recoded in users. Mostly the young males of wealthy background are found habitual of smoking e-cigarettes. A social influence and media advertisement also promote its use in generation who are un-aware of the harms associated. Objectives of this study were: To assess the knowledge in association of use of e-cigarettes. Which sociodemographic class is more prone towards e-cigarettes? How the mass media contributing the use of vape? And a comparison of perceived and actual harms by e-cigarettes.

METHODS

A specially designed questionnaire tested to calculate the perceived harms and level of knowledge was used. The questionnaire consisted of 4 parts, including sociodemographic, smoking status and knowledge, attitude and perceived thoughts and mass media exposure. The questionnaire consisted of MCQS that classified the variables. A total sample of 350 was included. The sample size of 357 was calculated using the World Health Organization sample size determination in health sciences software version 2.0. Cross-sectional studies parameters for estimating p-value with specific relative precision of 50% (0.50). This was a descriptive cross-sectional study based on questionnaire filling survey, for health professionals working in Jinnah Hospital Lahore. A purposive sampling technique was used to select the samples. Descriptive and inferential statistics were done to calculate the frequencies and percentages and cumulative frequencies. Data were analyzed on IBM SPSS version 23.0; chi square tests were applied to calculate the association of knowledge and perceived harms. Statistically significant results were recorded.

RESULTS

Results were described in terms of binomial theorem. The demographic calculations were recorded for the health professionals. Frequencies for vaping and tobacco smoking were calculated and cumulative percentages were compared (Table 1). Average age of health professionals included in study was 30.6 ± 2.60 . a large percentage was found for former smokers 22% and current smokers 39%. Vape users also found in increasing percentages. so far the mass media roles were evaluated in smoking cessations. The results support that mass media are found promoting vaping via social media influencers while tobacco cessation ads were less.

Sociodemographic characteristics and behavior		N=350, n (%)
Age (years)		
Mean ± SD = 30.6±2.60		
22		22 (16%)
30		30 (67%)
45		45 (24%)
Personal Smoking status		
Former Smoker		22%
Current Smoker		39%
Never Smoked		53%
Personal Vaping Status		
Vape user		14%
Dual user		32%
None		64%
Have you heard any mass media campaign on cessation of smoking		
Yes		26%
No		74%
Do you think you can promote smoking cessation in future		
Yes		82%
No		10%
Maybe		8%
Have you seen any advertisement on vaping		
Yes		62%
No		38%

Table 1: Demographic data of health professionals and response rate of smoking and vaping behavior

A specifically designed scoring table used to check the level of scoring of knowledge and perception, to evaluate the behaviors of house officers of health professional towards e-cigarettes (Table 2). Knowledge about e-cigarettes was measured by a questionnaire that included compositions of the liquids that are used in vapes and health harms associated with all the chemical substances. level of knowledge with the following statements: (1= Strongly disagree, 5= Strongly agree). The hazards of e-cigarettes have been clearly demonstrated. The hazards associated with the chemical substances have been clearly demonstrated. Survey questions from CDC Adult Tobacco Survey (Centers for Disease Control and Prevention) were used to evaluate the knowledge. the questionnaire was assessed by pilot testing and have significant findings. Health professionals were found to have good knowledge about the health harms of cigarettes although the knowledge of harms was not supporting for the smoking abstinence, on average of 42% electronic cigarettes were supported by the health professionals.

Attitudes and perception		Total N= 350 n (%) Cumulative percentages of response rates
Knowledge on electronic cigarettes	Cutoff values	
Poor	Less than 3	38%
Good	3 or above	62%

Perception and attitudes towards electronic cigarettes		
Favorable		42%
Less Favorable		58%
Knowledge on health hazards	Cutoff values	
Poor	Less than 3	75%
Good	3 or above	25%
Media exposure		
High exposure		11%
Less exposure		89%

Table 2: Attitudes and perception towards E-Cigarettes

The Table 3 correlated the knowledge and behaviors of health professional towards e-cigarettes. Despite of good knowledge most of the professional had opinion in support of e-cigarettes upto 64% and the results were significantly proven by p-value 0.03.

	Supporting behaviors towards e-cigarettes N (%)	Negative response towards e-cigarettes N (%)	p-value
N=350			
Knowledge on health harms			
Poor	34%	18%	0.03
Good	56%	56%	

Table 3: Crosstabulation of positive and negative response rate in association of knowledge

Chi square tests were applied to evaluate the association with cross-tabulation of knowledge of health harms and perceptions for e-cigarettes (Table 4). Another table to compare the knowledge and attitudes that e-cigarettes in more or less harmful than combustible tobacco smoking with and cumulative percent of 76% the perception was clear that the e-cigarette is considered less harmful than tobacco smoking among health professionals.

	E-cigarettes are harmful than smoking tobacco n (%)	E-cigarettes are less harmful than smoking tobacco n (%)	p-value
N=350			
Level of knowledge on e-cigarettes			
Poor	24%	34%	0.12
Good	60%	76%	
Level of knowledge on e-cigarettes			
Favorable /positive	24%	34%	0.12
Less favorable /negative	60%	76%	

Table 4: Association of knowledge of health harms and perceived concept e-cigarettes are harmful than smoking or not

DISCUSSION

E-cigarettes have harmful effects that should not be ignored by the health professionals. Even they are smokers majority of the doctors have a thought to be a part of the cessation campaign of smoking tobacco. Similar studies have been conducted in America which concluded that the young adults who are visiting dental consultants have more knowledge and want to work on cessation of smoking either combustible tobacco smoking and vaping [14]. Oral

health enlightens or help people to quit smoking. In the young persons even the young doctors perceive smoking e-cigarettes is less harmful than the tobacco smoking. Many local studies enlighten that the e-cigarettes are less harmful and does not affect oral hygiene. Although the amount of nicotine proven a high intake via e-cigarettes. Same results supported by our study that electronic cigarettes are less harmful than combustible tobacco by a cumulative percentage of 76% [15]. Many studies support that the smoking is not a tool for cessation for smoking but in enhances the quantity intake of nicotine per day. Though this is true, that vaping is less harmful than smoking but the risk factors associated with nicotine intake cannot be neglected. In our study the overall scoring in knowledge table was no more than 80% in youngsters. Although this study proven the calculations of nicotine is more in e-cigarettes that is an addictive substance [16]. Although the medical postgraduate trainees and consultants score up to 100% in knowledge against health harms by e-cigarettes. But the thought of e-cigarettes is not a tool fit smoking cessation got significantly proved a favorable attitude towards E-cigarettes by 42.076%. Some surveys for medical undergraduate students held recorded very less knowledge for health harms in combustible tobacco-smoking and e-cigarettes smoking. [17]. Lewis and Goldstein in 2019 worked on lung injuries, their study highlighted the harms of e-cigarettes smoking in persons who were suffering from lung injuries. The harms of vaping cannot be neglected in persons who have already damaged tracheas. Headache nausea and COPD were reported with significant results [18]. Health professionals are considered to be the royal models and perform the main role in cessation of smoking [19]. Cancer, stroke, lung diseases, heart diseases, diabetes, chronic bronchitis and chronic obstructive pulmonary disease (COPD) are the associated diseases of smoking. Smoking is also proven to be the risk factor for some other diseases like; tuberculosis, certain eye diseases, and rheumatoid arthritis. For the past decades e-cigarettes were used to help chain smokers quit the habit of smoking [20]. Another observational study based on effectiveness and safety which were associated with e-cigarettes in dual users of tobacco smokers and e-cigarettes smokers. The study was conducted in Malaysia to highlight the upcoming trends and associated public health issues in the society [21]. Doctors are the persons who must be included in cessation smoking campaigns, because they are the experts about harms and associated risk factors. Doctors are considered to be best fit to educate people regarding health harms and benefits associated with a subject. In current scenario the vape is in increasing trend in the population. As a part of behavioral support, the e-cigarettes promotes satisfaction in chain

smokers for nicotine therapy and cessation of smoking. In our study population the response rate to support smoking cessation by health professional had a positive output of more than 80% [22]. A meta-analysis conducted in Indonesia, Qatar, Greece, and USA, studied the overall tobacco load and associated disease burden in adults. The main aim was to highlight the global health issues and increasing disease burden of COPD by Palipudi et al., in 2016 [23]. There are some studies which conclude that the e-cigarettes are the leading agent towards tobacco smoking in young adults. Collins et al., although there is no evidence that exposure to e-cigarette advertisements affects the pattern use of e-cigarettes among the public. the advertisements effect the perception of people and community. Our study highlighted that more influence is on general public and non-medical people. Vape users also found in increasing percentages. so far the mass media roles were evaluated in smoking cessations. The results support that mass media are found promoting vaping via social media influencers while tobacco cessation ads were less [24-25].

CONCLUSIONS

Significant results of increased prevalence of smoking were recorded among health professional which is such a dilemma to our society. Having the concept of health harms associated with e-cigarettes, increasing trends were recorded. E-cigarette is not a tool for tobacco replacement was obvious. But it also found associated with promoting smoking habits in youngsters. Clear guidelines must be implemented by the government to control to quality of e-cigarettes.

Conflicts of Interest

The authors declare no conflict of interest.

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