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### **Study, evaluation and opinion of adolescents about electronic cigarettes in the city of Basrah**

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#### **Abstract**

Studies have shown that electronic cigarettes have gained immense popularity and their use has increased dramatically all over the world. However, little is known about the Study, evaluation and opinion e-cigarettes in third world countries such as Iraq . The aim of this study was to determine the perceptions of teenagers in Basra city e-cigarettes and whether the differences in said perceptions were affected by gender and level of education. We conducted a cross-sectional study in October 2019.throughout January 2020, using convenience sampling and interviewed 403 young individuals, aged 13 to ≤18years, to determine their knowledge, attitudes, and practices regarding e-cigarettes. The participants were questioned about their knowledge and its source. Attitudes were judged using four and five-point Likert scales while questions regarding practices focused on single and current use SPSS tests were applied to compare the knowledge, attitudes, and practices of teenagers with gender and level of schooling .The majority of participants knew what e-cigarettes were (68.7%) but did not know about their contents (55.8%) and had learned about them from either friends or the internet ( 60.%). Almost half of them ( 47.2%) believed that the reason for e- cigarette use was either peer pressure or to quit smoking conventional cigarettes. An overwhelming majority also stated that; it was either easy or very easy to obtain e-cigarettes ( , 68.7%), they would not try smoking e-cigarettes even if

a good friend of theirs recommended them (, 71.2%), they were not current e-cigarette smokers (, 91.8) and they would never promote e-cigarette use (, 92.1%). Statistically significant differences were found with males knowing more about e-cigarettes ( $p=0.006$ ) and being more common to either have smoked ( $p <0.001$ ) or be current e-cigarette smokers ( $p <0.001$ ). Furthermore, middle school students were more likely to have negative attitudes towards e- cigarettes believing they were more harmful ( $p=0.003$ ) and more addictive ( $p <0.001$ ) than conventional cigarettes Many people were aware of what electronic cigarettes are but still, it was evident that there was the lack of proper knowledge along with negative attitudes towards e-cigarette use among teenagers in Basra city due to cultural and social status and lack of advertising. Males and females had considerable differences in their opinions regarding e-cigarette use owing to such social practices being considered taboo by females and males having greater freedom due to patriarchal, familial and cultural systems and family relationship.

### **Keyword**

Study, evaluation and opinion of adolescents about electronic cigarettes

### **Introduction**

E-cigarette has been marketed since 2003 and it has evolved with the advancement of technology, from the first design mimic the conventional cigarette to the machinery type's cigarette. Basically, it consists of a battery as a power supply, a flow sensor, heating chamber (aerosol chamber/coil chamber) and solution called liquid. Brown and Cheng (2014) the mechanism of this devices is simple, where the user just needs to puff and then the flow will activate the e-cigarette. Subsequently the coil chamber will heat the solution to produce a vapour. Brown and Cheng (2014) the specialty of e-cigarette is their e-liquid. The e-liquid not only contain nicotine, propylene glycol or glycerol but also has of flavouring agents such as mint, fruits and tobacco itself. Jacobs et al. (1999) Besides that, there are potential substances or have been found by United State Food and Drugs Administration (FDA) such as nitrosamines and diethylene glycol inside the e-liquid and the cartridge. Based on the analysis FDA has regulated e-cigarette under the Federal Food Drugs and Cosmetic Act.4 With the safety of e-cigarette still in doubt, the use of Ecigarette among smokers and non-smokers are increasing in trend. In United States of America (USA), ever-used ecigarette prevalence among current smoker has been increasing from 9.8% in 2010 to 21.2% in 2011. Meanwhile among non-smoker the prevalence of ever use e-cigarette has increased to 4% in three years. Otherwise in Malaysia, there is an increment of ever used e- cigarette to 18.2% from year 2011 to year 2014 (Guillet et al., 2015; Hill Rice et al., 2017; Jacobs et al., 1999; K et al., 2015; Kalkhoran & Glantz, 2016; King et al., 2013; Ma et al., 2018; Manzoli et al., 2017; Palazzolo, 2013; Pokhrel et al., 2015).

From a public health perspective, the major question dealing with e-cigarette use is its relation to tobacco smoking: does e-cigarette use decrease smoking consumption and promote smoking cessation, or does it represent a

gateway to nicotine addiction and consequently to tobacco smoking initiation? A Cochrane Review, updated in 2016, concluded that nicotine e-cigarettes helped smokers stop smoking in the long term compared with placebo e-cigarettes, but the evidence was rated low under the GRADE system (Hartmann-Boyce et al., 2021). An opposite conclusion was achieved by a meta-analysis of 38 studies focused on e-cigarettes and smoking cessation in real-world and clinical settings: the odds of quitting traditional cigarettes were 28% lower in those who used e-cigarettes than in those who did not (Kalkhoran & Glantz, 2016). Among adolescents, e-cigarettes seem to be a gateway to tobacco smoking. A recent meta-analysis on people aged 14–30 years found that the risk of tobacco smoking was 3–4 times higher in e-cigarettes ever users than in never users (Soneji et al., 2017). E-cigarettes seem to play a similar role in tobacco smoking initiation in adults. Indeed, in an Italian longitudinal study on people aged 30–75 years (Manzoli et al., 2017), exclusive e-cigarette users were much more likely to have switched to tobacco smoking after 2 years of follow-up (38.9%) than to have quit whatever type of smoking (18.8%). Conversely, only 26% of dual users had quit tobacco smoking, whereas 57.4% had started smoking only tobacco. The increase in e-cigarette use, particularly among teenagers and young adults Ooms et al. (2016), as well as the limited evidence regarding the safety profile of e-cigarettes, highlight the urgent need for reinforcing education and awareness of e-cigarette use, starting from school and university educational programmers. In this respect, the smoking attitudes and behaviors of nursing students are particularly important because, as future health professionals, they will play a central role in promoting healthy habits and counselling their patients about smoking cessation (Richardson et al., 2014). Moreover, understanding nursing students' smoking habits might be valuable for the future development of tobacco control activities promoted by the university. However, there is scarce knowledge on e-cigarette use among nursing students in Europe. A recent study on French military nursing students found a high prevalence of both ever and current e-cigarette use (36 and 25%, respectively) (Guillet et al., 2015) Moreover, studies on medical/health professional students found a large variability in e-cigarette current use, with the proportion of current vapers ranging from 1.6% [20] to 20.6% (Franks et al., 2017). later on and could also result in an adverse influence on birth outcomes and offspring development. High-level thinking skills, such as the ability to digest and filter information and spot patterns, are fostered via concept-based curriculum and teaching (Luayabduwahidshihab et al., 2021). Nursing is a work done to help the individual – sick or healthy – to do activities that contribute to his or her health (Lee et al., 1995; Popova & Ling, 2013; Rom et al., 2015; shihab et al., 2018; Soneji et al., 2017; Staudt et al., 2018; Zhou et al., 2015).

### **3.4. Statistical data analysis:**

The data were analyzed by using four and five-point Likert scales while questions regarding practices focused on single and current use. The data entry and analysis were done by SPSS Version 20.

Table 1: Demographics, socioeconomic, smoking habits, and lifestyle characteristics distribution of our study participants (N = 403) in Basra city

Items	No	F	%
Gender	Male	277	68.7%
	Female	126	31.3%
Age	12-13	59	14.7%
	14-15	53	13.1%
	16-17	37	9.2%
	≤18	254	63%
Level deduction for student	Intermedia school	110	27.4%
	Secondary school	32	7.7%
	Institute	48	12%
	College	213	52.9%
Social status	Signals	369	91.6%
	Marred	31	7.7%
	Others	3	0.7%
Family Income	Less than 75,000 DI	78	19.4%
	Between 75,000 to 90000 DI	107	26.6%
	1000,000 and more DI	218	54%

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In table (4.1 ) present of (68.7%) of them male ,with majority of age with ≤18 (63%) of them, and student college present (52.9%)with social state (91.6%) of them was signals present (54%) with family incomes of 1000,000 and more DI,

Table 2: part two : Table representing the knowledge, attitudes and practices compared with gender student

	Items	Valuable	Male %	Female %	p-values
1	Do you know what e-cigarettes are?	Yes	30.3	6.2	<0.001*
		No	38.5	25.1	
2	If yes, then how did you learn about them	Internet	10.2	0,5	<0.001*
		Friend	14.9	1.2	
		Television	17,4	0.2	
		Magazine	18.4	1.2	
		Newspapers	2	6.2	
		Did not know about e-cigarettes	2.7	25.1	
3	Are you aware of the various ingredients and chemicals in e-cigarette smoke?	Yes	19.4	24.8	<0.006*
		No	17.1	38.7	

4	Do you know about the different levels of nicotine in e-cigarettes?	Yes	8.9	27.5	<0.002*	
		No	7.9	55.6		
		Stress	4.7	1.2	<0.001*	
		Depression	8.2	2.7		
		Peer pressure	2.5	8.7		
5	What do you think makes people start smoking e-cigarettes?	Acceptability In family	14.4	10.4		
		Recreational use	6	13.3		
		To quit smoking regular cigarettes	17.1	10.7		
6	How effective do you think e-cigarettes are in helping people quit smoking regular cigarettes?	extremely effective	5	7.9	<0.062*	
		Slightly effective	10.4	15.1		
		No idea	15.4	35		
		Slightly ineffective	1.7	2.5		
		Extremely ineffective	4	3		
7	What do you think about the statement "people harm themselves when smoking e-cigarettes"	Strongly agree	10.7	22.3	0.456	
		agree	12.4	78.4		
		Undecided	8.4	12.7		
		Disagree	3	3.2		
		Strong Disagree	2	6		
8	When comparing harmful effects of e-cigarettes to regarding cigarettes ,how harmful do you think they are	Much harmful	more	6.7	11.2	<0.061*
		Slightly harmful	more	3	7.4	
		Equally harmful		7.7	27	
		Slightly harmful	less	11.4	13.41	
		Much harmful	less	7.7	4.5	
10	When comparing the addiction of e-cigarettes to regular cigarette ,how do you think they are	Much addictive	more	7.4	18.4	0.028
		Slightly addictive	more	4.2	5.7	
		Equally addictive		11.4	20,6	
		Slightly less addictive		8.2	12.9	
		Much less addictive		5.2	6	
11	What do you think about the statement "all tobacco products are dangerous"?	Strongly agree	18.4	40.2	<0.028*	
		Agree	12.9	15.4		
		Undecided	3	3.2		
		Disagree	1.7	2.5		
		Strong disagree	0.5	2.2		
11		Yes	14.2	26.8	<0.503	

	Do you think smoking e-cigarettes makes people young people "fit in", feel "cool" and become socially more acceptable?	No	22,3	36.7	
12	How easy do you think it is to buy e-cigarettes for young people of your age?	Very easy	14.9	17.1	<0.004*
		Easy	13.2	23.6	
		Difficult	5.2	18.9	
		Very difficult	3.2	4	
13	If a good friend of yours wanted you to try e-cigarettes, would you try them?	Definitely will	6.7	4.5	<0.001*
		Probably will	9.2	8.4	
		Probably will not	5.5	6.5	
		Definitely will not	15.1	44.2	
14	If you ever try smoking e-cigarettes, do you think you would do it with your guardian's permission?	Yes	9.9	26.6	<0.137
		No	9.9	21.8	
15	Are you surrounded by, or live with people who use and promote the use of e-cigarettes?	Yes	21.4	17.9	0.216
		No	24.1	45.7	
16	Do you, or have you ever smoked e-cigarettes? (Even one or two puffs.)	Yes	14.9	8.9	<0.001*
		No	21.6	54.6	
17	Are you a current e-cigarette smoker? (Smoked in the past 30 days.)	Yes	5.5	2.7	<0.001*
		No	31	60.8	
18	Would you ever promote or recommend the use of e-cigarettes to other people if you got the chance to?	Yes	5	3	<0.001*
		No	31.5	60.5	

In table (4.2) present Males significantly knew more about what e-cigarettes were ( $p < 0.001$ ), different ingredients present in their smoke ( $p = 0.006$ ) and different levels of nicotine ( $p = 0.002$ ). Whereas more females chose the option I do not know about e-cigarettes ( $p < 0.001$ ) and thought depression was the cause of e-cigarette smoking ( $p < 0.001$ ). Furthermore, statistically significant differences were also found when comparing gender, if the individuals had ever tried smoking e-cigarettes ( $p < 0.001$ ), were they current e-cigarette smokers ( $p < 0.001$ ) and if they would promote or recommend e-cigarette use ( $p = 0.001$ ). More females answered no to the aforementioned questions. Significantly more females also

thought that e-cigarettes were equally harmful as regular cigarettes ( $p < 0.001$ ), strongly agreed with tobacco products being dangerous ( $p = 0.028$ ), thought it was difficult to buy e-cigarettes ( $p = 0.004$ ) and that they definitely would not try e-cigarettes if a good friend of their asked them to ( $p < 0.001$ ).

An overwhelming majority of the individuals (68.7%) knew what e-cigarettes were and more than half of these individuals (52%) learned about e-cigarettes from friends while about one-third of them (36.5%) found out through the internet. We also found that majority of individuals did not know about the various ingredients in e-cigarette smoke (55.8%), neither did they know about the different levels of nicotine (83.1%).

Almost half of the participants ( $n = 190$ , 47.1%), said that people started smoking e-cigarettes due to peer pressure and to quit smoking regular cigarettes. The majority of the participants ( $n = 238$ , 59.1%) did not believe that people started smoking to "fit in" or "feel cool". About one-third of the individuals ( $n = 129$ , 32%) strongly agreed that people harm themselves when smoking e-cigarettes and that they are equally harmful and equally addictive when compared to regular cigarettes. While more than half of the participants (50.4%) had no idea how effective e-cigarettes were in helping people quit smoking regular cigarettes. Most people (86.8%) strongly agreed or agreed with all tobacco products being dangerous with about two-thirds (68.7%) of the participants saying that it was either easy or very easy to buy e-cigarettes.

Table 3: Table representing the knowledge, attitudes and practices compared with level of schooling

	<b>Items</b>	<b>Valuable</b>	<b>Intermedia school - Secondary school %</b>	<b>Institute College %</b>	<b>p</b>
1	Do you know what e-cigarettes are?	Yes	15.9	52.9	
		No	19,4	11.9	<0.001*
2	If yes, then how did you learn about them	Internet	5.2	19,8	
		Friend	6.9	28.8	
		Television	2.2	2.5	
		Magazine	0.7	1	<0.001*
		Newspapers	0.7	0.7	
		Did not know about e-cigarettes	19.4	11.9	
3	Are you aware of the various ingredients and chemicals in e-cigarette smoke?	Yes	10.4	33.8	
		No	24.8	31	<0.001*
4	Do you know about the different levels of nicotine in e-cigarettes?	Yes	3.7	13.1	
		No	31.5	51.7	<0.02*
		Stress	3.2	9,8	
		Depression	5.5	11.4	
		Peer pressure	15.1	7.9	

6	What do you think makes people start smoking e-cigarettes?	Acceptability In family	1.5	2.4	<0.001*
		Recreational use	5.5	13.7	
		To quit smoking regular cigarettes	4.5	19.6	
6	How effective do you think e-cigarettes are in helping people quit smoking regular cigarettes?	Extremely effective	8.4	4.4	
		Slightly effective	8.4	17.1	
		No idea	14.9	35.7	<0.001*
		Slightly ineffective	1.2	3	
		Extremely ineffective	2.2	4.7	
7	What do you think about the statement "people harm Themselves when smoking e-cigarettes"	Strongly agree	18.4	14.6	
		agree	8.2	23.6	
		Undecided	2.5	18.6	<0.001*
		Disagree	2	4.2	
		Strong Disagree	4.2	3.7	
8	When comparing harmful effects of e-cigarettes to regular cigarettes, how harmful do you think they are?	Much more harmful	8.7	9.2	
		Slightly more harmful	4	6.4	
		Equally harmful	13.6	21.3	<0.001*
		Slightly less harmful	4.7	20.1	
		Much less harmful	4.2	8	
9	When comparing the addiction of e-cigarettes to regular cigarettes, how addictive do you think they are?	Much more addictive	17.6	8.1	
		Slightly more addictive	3.5	6.5	
		Equally addictive	4	28	<0.001*
		Slightly less addictive	6.2	14.9	
		Much less addictive	4	7.2	
10	What do you think about the statement "all tobacco products are dangerous"?	Strongly agree	25.1	33.5	
		Agree	6.7	21.6	
		Undecided	0.7	5.5	<0.002*
		Disagree	1	3.2	
		Strong disagree	1.7	1	
11	Do you think smoking e-cigarettes makes people young people "fit in", feel "cool" and become socially more acceptable?	Yes	15.6	25.3	
		No	19.6	39.4	0.329
12	How easy do you think it is to buy e-cigarettes for young people of your age?	Very easy	9.4	22.6	
		Easy	7.2	29.5	
		Difficult	12.9	11.1	<0.001*
		Very difficult	5.7	1.5	



13	If a good friend of yours wanted you to try e-cigarettes, would you try them?	Definitely will	5.2	6	
		Probably will	3.2	14.4	<0.015*
		Probably will not	2	9.9	
		Definitely will not	24.8	34.5	
14	If you ever try smoking e-cigarettes, do you think you would do it with your guardian's permission?	Yes	14.1	17.6	
		No	21.1	47.2	<0.002*
15	Are you surrounded by, or live with people who use and promote the use of e-cigarettes?	Yes	14.6	15.7	
		No	20.6	49.2	<0.001*
16	Do you, or have you ever smoked e-cigarettes? (Even one or two puffs.)	Yes	7.4	16.3	0.217
		No	27.8	48.4	
17	Are you a current e-cigarette smoker? (Smoked in the past 30 days.)	Yes	4.2	3.9	
		No	31	60.8	0.115
18	Would you ever promote or recommend the use of e-cigarettes to other people if you got the chance to?	Yes	2.7	5.3	
		No	32.5	59.5	0.802

In table (4.3) present, when the level of schooling was compared with the responses, statistically significant differences were found. school students knew more about what e-cigarettes were ( $p < 0.001$ ), learned about e-cigarettes through their friends ( $p < 0.001$ ), were more aware of its ingredients ( $p < 0.001$ ) and did not know about its different levels of nicotine ( $p = 0.02$ ). When their attitudes were compared with level of schooling, more middle school students thought: peer pressure was the cause of e-cigarette smoking ( $p < 0.001$ ), e-cigarettes were extremely effective in helping people quit regular cigarettes ( $p = 0.001$ ), people were harming themselves by smoking e-cigarettes ( $p < 0.001$ ), e-cigarettes were much more harmful ( $p = 0.003$ ) and much more addictive ( $p = 0.002$ ) than regular cigarettes. Furthermore, more middle school students strongly agreed with all tobacco products being dangerous ( $p = 0.001$ ), thought it was either difficult or very difficult to buy e-cigarettes ( $p < 0.001$ ), said they definitely would not try e-cigarettes if a good friend of theirs' asked them too ( $p = 0.015$ ), said that they would try it with their guardian's permission ( $p = 0.002$ ) and that they either lived with, or were surrounded by, people who use and promote the use of e-cigarettes ( $p < 0.001$ ).

## **Dissection**

Our principal finding was that more than half of the teenagers did not have any significant knowledge about e-cigarettes and showed a restraining attitude towards its use. On the contrary, previous studies have shown that increased advertising and branding about e- cigarettes has markedly contributed to a rapid rise in e-cigarette consumption among high school students (Singh et al., 2016). An analogous finding was laid forward in a cross-sectional study conducted in England (K et al., 2015) which concluded that teenagers use e-cigarettes to experiment with the product rather than to utilize it for its actual intended purpose, that is, to quit smoking.

Secondly, we found statistical differences in the knowledge, attitude, and practices between males and females with males having a more positive outlook towards e-cigarettes with much more of them being current users as concluded by a previous study (Pearson et al., 2012). This is perhaps due to males being much less likely to be judged on their views and practices as compared to females owing to strong patriarchal beliefs which are deeply embedded in Pakistani culture (Lee et al., 1995) This could be further explained by the fact that such social practices by females are considered a taboo in Iraq.

We also found that an overwhelming majority of e-cigarette users held beliefs consistent with the claims made in e-cigarette advertisements; people showed a significantly positive attitude towards the use of e-cigarettes considering it a less dangerous, and hence, a better alternative to conventional cigarettes which is consistent with the results of previous studies (Coleman et al., 2016). The motivation for using e-cigarettes also came from the thought that these could help them avoid regular cigarette smoking which was also concluded in recent studies (Pepper et al., 2014). Furthermore, those participants who were not currently enrolled in any school also believed that people smoke e-cigarettes to stop smoking regular cigarettes and they also believed that e-cigarettes were less harmful than regular cigarettes, hence, proving that the reduced harms perception of e-cigarettes was associated with increased likelihood of usage of e-cigarettes, as is consistent with another study (Pokhrel et al., 2015) .Furthermore, most participants stated that their families were not supportive of e-cigarette use, that if they were to smoke e-cigarettes they would do so without their guardian's permission and that they would not promote the use of e- cigarettes. Hence, showing that the social acceptability of e-cigarettes is low and that they are considered harmful by a vast majority of the population. The majority also believed that smoking e-cigarettes did not make one look cool or trendy and that all tobacco products are equally dangerous. This reasoning could be responsible for their reduced willingness to try e-cigarettes. Quite a few of the participants also thought that e-cigarettes were equally addictive and had no idea about the effectiveness of e-cigarettes in order to quit smoking regular cigarettes. This could be because most of the participants did not know anyone who was using e-cigarettes to quit smoking regular cigarettes or that they did not know anyone who was successful in their

attempt to do so. The reduced knowledge about e-cigarettes could also be because of the novelty of e- cigarettes and the lack of data available on it.

### **Conclusions**

This study was carried out to find out the knowledge and attitude of teenagers towards electronic cigarettes and according to our results, it was evident that though a majority of population had a basic idea about electronic cigarettes, there was lack of proper knowledge along with negative attitudes towards e-cigarette use among teenagers in basra city due to cultural and social stigmas and lack of advertising. Also, it was observed that males and females had considerable differences in their opinions regarding e-cigarettes use owing to such social practices being considered taboo by females and males having greater freedom due to patriarchal, familial and cultural systems.

### **Recommendations**

We recommend, through our study in the research, to an increase in health awareness about the harmful effects of electronic cigarettes, as well as through media channels and making advertisements in the streets to educate young people., About infection from the spread of Covid 19 virus through the use of smoking

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