

Prevalence and Awareness toward Smoking Electronic Cigarette (Vape) among Students of Medical Colleges at Baghdad

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Abstract

Background and Aim: Globally, the use of Electronic cigarette increase mainly among youth and adults, since electronic cigarettes smoking marketed as an effective way to quit tobacco smoking and safer than traditional cigarette smoking. However, they still a potential cause for many health hazards. The aim of this study was to collect baseline data for this important health problem to establish preventive and control measures.

Methodology: A cross sectional study conducted from December 2020 to April 2021. Data were collected from 624 of students of medical colleges at Baghdad (Baghdad, Al-Kindy, Al-Mustansiriyah and Al-Nahrian Universities) by using self-administrated questionnaire. Chi square test was used to assess the association between qualitative variables.

Results: The prevalence of using of electronic cigarette was 84 (13.5%) of study participants and 54 (64.3%) of them were smoking vape daily. Electronic cigarette use was significantly (<0.001) associated with gender among males 80 (22.7%) and family history of using electronic cigarette 49 (33.8%). About their awareness, 303 (48.5%) of them think that electronic cigarette was not safe, 239 (38.3%) of them think that it was addictive and 220 (35.3%) of them thinking that electronic cigarette is not an effective method for smoking cessation. The highest use rate of vape smoking was seen in participants who think that vape are absolutely safe (52.9%) and it was highly significant ($P < 0.001$), in those who think that the electronic cigarette is an effective method for smoking cessation (42.6%), it was highly significant ($P < 0.001$), and in those who think that vaping is addictive but less than cigarette (38.3%) and it was highly significant ($P < 0.001$).

Conclusions: Prevalence of current using electronic cigarette was 84 (13.5%) among students of medical colleges at Baghdad, and they have inadequate awareness about the health effects associated with using electronic cigarette. Enhance more educational programs for them to participate for planning of preventive and control measures.

Key Words: Prevalence, Awareness ,Vape

Introduction:

E-Cigarette is a device that heat a liquid usually composed of nicotine, solvents and flavoring chemicals stored in disposable or refillable cartridges into an aerosol and vapors for inhalation, e-cigarettes come in many shapes and sizes, most have a battery, a heating element, and a place to hold a liquid, they include vape pods, disposable and researchable electronic cigarettes, electronic pens, electronic pipes, electronic hookahs, mods and tank system which are all considered as electronic cigarette or vape. ⁽¹⁾

E-cigarettes appeared on the market since 2006, and then be growing in their sales. ⁽²⁾ Vape industries marketing and social media play a big role in making people believe that vape is safer than tobacco cigarettes. ⁽³⁾

The prevalence of e-cigarette use was increased, mainly among adolescents and adults (between 16 -30 years old). Globally, e-cigarette users increase from about 7 million in 2011 to approximately 68 million in 2020. ⁽⁴⁾ But, the recent studies confirmed that the using of electronic cigarette can cause multiple health outcomes and hazards like traditional cigarettes ⁽⁵⁾, flavors and other vaping products may lead to cause multiple adverse health effects ⁽⁶⁾, most of e- cigarettes usually contain

nicotine which is highly addictive material, so e-cigarette is addictive less or like tobacco cigarette ⁽⁷⁾, many hospitalized cases of acute lung injury associated with use of electronic cigarette were reported by CDC. ⁽⁸⁾

United States Food and Drug Administration (FDA) has stated that the electronic cigarettes use is unsafe and addictive, it conclude that e-cigarettes which contain many chemicals considered toxic and carcinogenic and may suspected of being harmful to humans. ^(9, 10) E-cigarettes are not approved by the FDA as a quit smoking aid and has authority to regulate manufacturing, sale and marketing of e-cigarettes ⁽¹¹⁾. WHO and CDC were considered also that the use of e-cigarettes is unsafe ^(12, 13).

Furthermore, there is an interest in raising awareness especially for health care workers toward e-cigarette use and its health effects, including conducting studies to assess medical students' awareness of e-cigarette use. ⁽¹⁴⁾ So that the aim of this study was to study the prevalence and awareness toward smoking of electronic cigarette (Vape) among students of medical colleges at Baghdad to collect baseline data for this important health problem to establish preventive and control measures.

Methodology:

A cross sectional study was conducted during the period from December 2020 to April 2021. Data

were collected from 768 of students of medical colleges at Baghdad city (Baghdad, Al-Kindy, Al-Mustansiriyah and Al-Nahrian Universities) by using self-administrated questionnaire.

Four medical colleges at Baghdad city were conveniently selected, and then we select the 4th and 5th grades from each college (due to these grades continue attend to their colleges during epidemic of COVID 19 while other grades (1st, 2nd and 3rd grades) were with electronic teaching, It was difficult to access the 6th grade due to their clinical practical commitment at teaching hospitals.

The total number of students of 4th and 5th grades for these four colleges was 1922. We take the 40% of students from each 4th and 5th grades by simple random sampling. A self-administrated questionnaire was obtained from Saudi study (Medical College of King Khalid University) ⁽¹⁵⁾, this questionnaire was reviewed by experts to be applicable for Iraq.

Awareness toward electronic cigarette: Participants were assessed aware regarding vape who answer awareness questions:

- Electronic cigarette is unsafe (less dangerous than tobacco).
- Electronic cigarette is addictive.
- Electronic cigarette is not an effective method of smoking cessation.
- Electronic cigarette can cause health illness (lung cancer, COPD, MI and stroke).

Participants with 60% or more for the correct answer for each question regarding awareness were considered to have good awareness while low or inadequate awareness were considered if they were less than 60%.

The data analyzed using Statistical Package for Social Sciences (SPSS) version 24. Categorical data presented by frequencies and percentages. Chi square test was used to assess the association between vape

smoking and certain variables, while fisher exact test was used instead when the expected frequency was less than 5. A level of P -value ≤ 0.05 was considered significant.

Approval of deanship of Medical colleges (Baghdad, Al Mustansiriyah, Al-Nahrain and Al-kindi) was obtained, and a verbal consent was obtained from students who were participated in the study, the data was kept confidentially at the computer with password, use them only for medical research.

Results:

624 students of medical colleges at Baghdad city were complete the questionnaire and participated in this study , Regarding smoking habits of the participants, we noticed that 207 (33.1%) of the participants smoking tobacco, hookah or both and the current electronic cigarette smokers were represented 84 (13.5%) of study participants, 54 (64.3%) of them use it daily. Of the e-cigarette smokers, 33 (39.3%) of them were smoking e- cigarette for a period from 6 – 12 months,; 51 (60.7%) of them had stopped smoking other traditional types after switching to e- cigarette; 43 (51.2%) of them were less satisfied with e-cigarette compared to traditional types and 42 (50%) were smoking e-cigarette due to curiosity or for pleasure as shown in table (1). Figure 1 shows the evaluation of awareness about electronic cigarette smoking. It was noticed that 252 (40.2%) of participants think that electronic cigarette are not safe. 418 (67%) of the participants believed that electronic cigarette can cause multiple health illness and 220 (35.3%) of them think that the electronic cigarette vape is not an effective way for smoking cessation. In addition, 239 (38.3%) of them think that the electronic cigarette was addictive.

The participants considered have inadequate awareness toward electronic cigarette health effects (safety, addiction and smoking cessation method).

Table 1: Distribution of study participants (students of medical colleges at Baghdad 2021) by smoking habits

Type of current smoking n= 624		
Tobacco, hookah or mixed	207	33.1
Electronic cigarette (Vape)	84	13.5
Current Electronic cigarette smoking n=84		
Daily	54	64.3
Occasionally	30	35.7
Duration since Electronic cigarette smoking (Month) n= 84		
During One month	4	4.8
More than one month to 6 months	18	21.4
6 – 12	33	39.3
> 12	29	34.5
Stopping smoking other traditional types after switching to Electronic cigarette		
Yes	51	60.7
No	33	39.3
Electronic cigarette satisfaction compared to traditional types		
Less	43	51.2
Same	25	29.8
More	16	19.0
Motivation for using Electronic cigarette		
Safer than cigarette	13	15.5
Cheaper than cigarette	2	2.4
Easier to use than cigarette	10	11.9
Quit smoking	17	20.2
Others (curious, Pleasure, etc.)	42	50.0

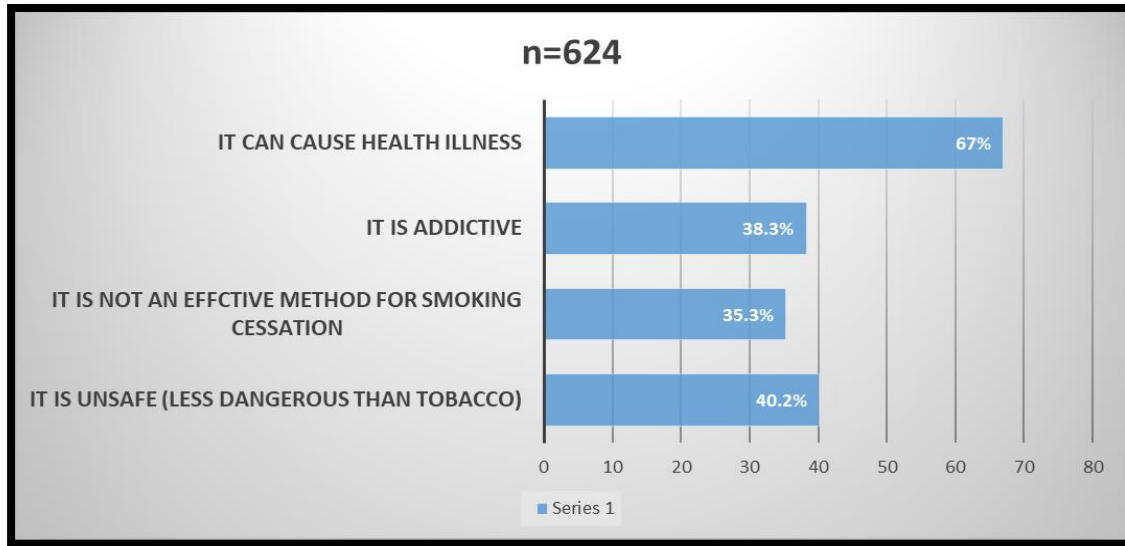


Figure 1: Evaluation of the studied sample awareness about Electronic cigarette smoking

The distribution of electronic cigarette smoking according to demographic characteristics is shown in table (2). The use rate of electronic cigarette vape smoking was highly seen among males (24.6%) and it was highly statistically significant ($P < 0.001$), in those who had positive family history of e- cigarette smoking (33.8%) and it was highly statistically significant, $P < 0.001$), and in those who had positive friends history (32.2%) and it was highly statistically significant, $P < 0.001$). No statistical significant associations found ($P > 0.05$) between prevalence of vape smoking with age, residence and monthly income (table 2).

The distribution of electronic cigarette smoking according to awareness of participants is shown in

table (3). There is a statistical significant association found between prevalence of electronic cigarette smoking and awareness about the safety, effective method for smoking cessation and addiction ($P = <0.001, <0.001$ and <0.001 respectively), the highest use rate of electronic cigarette smoking was seen in participants who think that electronic cigarette is absolutely safe and it was highly statistically significant (52.9%), in those who think that electronic cigarette is an effective way for smoking cessation, it was highly statistically significant (42.6%), and in those who think that electronic cigarette is addictive but less than cigarette and it was highly statistically significant (38.3%).

Table 2: Association between electronic cigarette smoking of students of medical colleges at Baghdad and socio-demographic characteristics 2021

Variable	E-cigarette use n=84	Non E-cigarette use n=540	Total n= 624
Age (Year)			
21 - 22	43 (14.2%)	260 (85.8%)	303
23 - 24	41 (12.8%)	280 (87.2%)	321
P= 0.6 d.f= 1 $\chi^2=0.62$			
Gender			
Male	80 (24.6%)	245 (75.4%)	325
Female	4 (1.3%)	295 (98.7%)	299
*P <0.001 d,f= 1 $\chi^2=72.43$			
Residence			
With family	69 (13.9%)	426 (86.1%)	495
University housing or other	15 (11.6%)	114 (88.4%)	129
P= 0.493 d.f=1 $\chi^2=0.64$			
Monthly household income ⁽¹⁶⁾			
< 500.000 ID	4 (9.8%)	37 (90.2%)	41
500.000 – <1000.000 ID	15 (10.3%)	131 (89.7%)	146
1000.000- <1500.000 ID	39 (14.7%)	227 (85.3%)	266
>1500.000 ID	26 (15.2%)	145 (84.8%)	171
P= 0.47 d.f=3 $\chi^2=2.53$			
Family history of using electronic cigarette			
Positive	49 (33.8%)	96 (66.2%)	145
Negative	35 (7.3%)	444 (92.7%)	479
*P<0.001 d.f=1 $\chi^2=67.10$			
Friends history of using electronic cigarette			
Positive	55 (32.2%)	116 (67.8%)	171
Negative	29 (6.4%)	424 (93.6%)	453
*P<0.001 d.f=1 $\chi^2=70.72$			
*Significant difference between percentages using Pearson- χ^2 -test at 0.05 level.			

Table 3: Association between electronic cigarette smoking and awareness of students of medical colleges at Baghdad towards use of e-cigarette 2021

Variable	Electronic cigarette use n=84	Non Electronic cigarette use n=540	Total n= 624
Safety of electronic cigarette			
Electronic cigarette is absolutely safe	9 (24.3%)	28 (75.7%)	37
Unsafe, but less dangerous than tobacco	52 (20.7%)	199 (79.3%)	251
Unsafe, but more dangerous than tobacco	7 (13.5%)	45 (86.5%)	52
Not sure	16 (5.6%)	268 (94.4%)	284
*P <0.001 d.f=3 $\chi^2=30.02$			
Smoking electronic cigarette can cause/diseases			
Yes	52 (12.4%)	366 (87.6%)	418
No	25 (16.2%)	129 (83.8%)	154
Not sure	7 (13.5%)	45 (86.5%)	52
P=0.499 d.f=2 $\chi^2=2.05$			
electronic cigarette is an effective method for smoking cessation			
Yes	40 (42.6%)	54 (57.4%)	94
No	29 (13.2%)	191 (86.8%)	220
Not sure	15 (4.8%)	295 (95.2%)	310
*P<0.001 d.f=2 $\chi^2=88.09$			
Do you think that electronic cigarette is addictive?			
Electronic cigarette is addictive as tobacco cigarette	12 (12.2%)	86 (87.8%)	98
Electronic cigarette is addictive, but less than tobacco cigarette	54 (38.3%)	87 (61.7%)	141
Electronic cigarette is not addictive	13 (16.5%)	66 (83.5%)	79
Not sure	5 (1.6%)	301 (98.4%)	306
*P<0.001 d.f=3 $\chi^2=112.15$			
*Significant difference between percentages using Pearson- χ^2 -test at 0.05 level.			

Discussion:

In present study, the prevalence of current used of e- cigarettes was 13.5% among students of medical colleges at Baghdad.

There is a gender significant association ($P < 0.001$) of e- cigarette smoking with males (24.6%) more than female (1.3%) among present study participants, this finding agreed with studies of, UAE⁽¹⁷⁾, Qatar⁽¹⁸⁾, Saudi⁽¹⁹⁾, Turkey⁽²⁰⁾ Malaysia⁽²¹⁾, and Pakistan⁽²²⁾ and USA⁽²³⁾.

In present study, it was noticed that the highest use rate of e- cigarette was among those with family and friend history of smoking e- cigarette and it was highly significant ($P < 0.001$), this agreed with USA study⁽²³⁾, two Saudi studies^(19, 24) Qatar⁽¹⁸⁾ and Turkey.⁽²⁰⁾

This study showed significant association between e- cigarette use and awareness of students of medical colleges at Baghdad about safety of it ($P < 0.001$), the highest use rate of e-cigarette smoking was seen among participants who think electronic cigarette are absolutely safe (24.3%) it was agreed with Saudi study ($P = 0.001$)⁽²⁴⁾, this may due to those that using e-cigarettes have high misperceptions about safety profile compare to tobacco smoking and may have lack of knowledge about its components health effects, this may be a possible associated factor to smoking it, this finding is disagreed by Turkey study, it was not significant among who think it is absolutely safe ($P = 0.534$)⁽²⁰⁾, at Thailand (Rangist medical college, 2019), it was significant among who think the using of e-cigarette is less harmful than tobacco ($P = 0.037$)⁽²⁵⁾.

Among present study, the vape smoking was highly associated with awareness of students of medical colleges at Baghdad about its effectiveness method for smoking cessation ($P < 0.001$), the highest use rate of using e-cigarettes was seen among who think that vaping was an effective method for smoking cessation (42.6%), it was similar influence with Saudi ($P < 0.001$)⁽²⁴⁾, Thailand ($P = 0.002$)⁽²⁵⁾ and USA ($P = 0.001$) studies⁽²³⁾, this might due to many of e- cigarette smokers considered this type is an smoking cessation aid and healthier than tobacco as the main global concept.

This study noticed that use of e- cigarette was highly associated with awareness of students of medical colleges at Baghdad about its addiction ($P < 0.001$), the highest prevalence of using e-cigarette was among those who think vaping is addictive but less than tobacco and other traditional smoking (38.3%), might due to most of e- cigarette users are tobacco smokers and switch to e- cigarette thinking that is less addictive, this believe may be a possible

factor for many tobacco smokers going to use e- cigarette, this finding was agreed with Saudi ($P = 0.02$)⁽²⁴⁾, Thailand ($P = 0.02$)⁽²⁵⁾ and USA (0.01) studies⁽²³⁾.

Conclusions:

- 1- Prevalence of current electronic cigarette (vape) use was 13.5% among participants (students of medical colleges at Baghdad).
- 2- Medical students of Baghdad colleges have inadequate awareness toward electronic cigarettes and their effects.
- 3- Use of electronic cigarette smoking was highly associated with gender (among males) and who have family and friends history of vape smoking.
- 4- Use of electronic cigarette was highly associated with who thinking that it was absolutely safe, an effective method for smoking cessation and less addictive than tobacco.

Recommendations:

- 1- Enhance multi sectoral cooperation between ministry of health and higher education for using of health promotion materials within medical colleges and teaching hospitals about the health effect of using electronic cigarettes.
- 2- The educational curricula and lectures suggested to be directed more toward electronic cigarette, its components and its health effects.
- 3- Further studies with large sample size needed to study the prevalence of using of electronic cigarette among medical students in other governorates of Iraq.

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