Impact of Prevalence and Knowledge of Complication of Electronic Cigarette Use among Health Care Providers in the Primary Health Care in Makkah AL-Mokarramah Saudi Arabia, 2022

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Abstract
Background

The popularity of e-cigarettes is increasing rapidly worldwide especially between health care providers in the Health Care sector and advertisements for such products are becoming ubiquitous in the media. Health concerns and smoking cessation are the most commonly reported reasons for traditional tobacco smokers to shift to e-cigarettes. As a result, the global market for e-cigarettes is on the rise. However, they are still a potential cause for many diseases and complication. E-cigarettes are battery-operated devices that heat a liquid and deliver an aerosolized product to the user. Pulmonary illnesses related to e-cigarette use have been reported, but no large series has been described, the Department of Health Services and the Department of Different Public Health received reports of lung injury associated with the use of e-cigarettes (also called vaping) and launched a coordinated public health investigation.

Aim of the study: To Impact of Prevalence and Knowledge of complication of Electronic Cigarette Use among health care providers in the Primary Health Care in Makkah AL-Mokarramah Saudi Arabia, 2022.

Methods: Cross-sectional study was carried out, including a random representative sample of health care providers in the Primary Health Care in Makkah. A self-administered validated questionnaire was adopted and modified. The Sample size of health care provider's practitioners . Our total participants were (400)

Results :

that most of the participants (33.0%) were in the age group (35-45) years follow by the age <25 were (31.0%) followed by 25-35 years were (29.0%), the majority of them female was higher compared to male(51.0% and 49.0%) , regarding the nationality the majority of participant are Saudi were(67.0%) while non-Saudi were(33.0%), regarding the marital status most of participants married were(81.0%) while not married were(19.0%), regarding income the majority of participant from >15000 were(31.0%) while from 5000-10000 were(30.0%) but 10000-15000 were (29.0%), regarding Specialty the majority of participant medicine were (38.0%) while Nursing practitioner were(33.0%), but the applied medical sciences were (20.0%).

Conclusion: Most health care providers are aware of e-cigarettes, but the information is scarce regarding the complication of Electronic Cigarette and magnitude of this newly emerged habit in Saudi Arabia, since introduction in the early 2000s, e-cigarette use has rapidly increased in among healthcare providers worldwide. However, little is known about e-cigarette uptake among healthcare providers in Saudi Arabia .

Key Words: E-cigarette, prevalence, health care providers, PHC, Makkah, Saudi Arabia.

Introduction

Electronic cigarette (E-cigarette) is an electronic nicotine delivery device that has been advocated as a safe alternative for cigarette smokers. Since the introduction of E-cigarette internationally and in the Kingdom of Saudi Arabia (KSA), it gained popularity, particularly among the health care providers and young adults.[1] Moreover, many nonsmoker (nicotine-naïve) health care providers started to use E-cigarette as a new social habit. Recent researches have casted shadows on the E-cigarette safety profile. [2]Electronic cigarette (E-cigarette) is an E-cigarettes have gained popularity among health care providers due to the increased awareness of the conventional cigarettes hazards, health authorities' legislation, and restrictions on conventional cigarettes smoking in public.[3] Electronic cigarettes (EC) use can result in acute lung injury with varying severity of the hypoxic respiratory failure. Spontaneous resolution can result with the cessation of EC use, although some patients with severe disease have required mechanical ventilation[4].

There has been a huge increase in electronic cigarette (e-cigarette) consumption worldwide. In the Kingdom of Saudi Arabia, for example, there was a more fold increase in the number of people who reported ever using e-cigarettes (past and/or present) and the number of current users more than doubled in those years.[5] In Saudi Arabia, among the population aged 15 or more, approximately 37.6% of males and 6% of females are current smokers.[6] The social, health and economic burden of tobacco use in Saudi Arabia is estimated to be five billion Riyals per year (1.3 billion US$).[7] The utilization of electronic cigarettes (e-

cigarette) has been developing and became a significant public concern.[8] E-cigarettes claim to be less harmful than cigarette smoking and use a valid alternative or aid to quit cigarette smoking by nicotine delivery, without the toxic effect of tobacco use.[9] Of particular concern is use by young people, which has increased sharply, the most of health care providers from young people. The main reason for the popularity of e-cigarettes is the availability of appealing flavors.[10] However, the American Lung Association, American Medical Association, and American Heart Association have investigated the use of e-cigarettes and concluded that they are not a healthy or safe alternative strategy to traditional smoking.[11] As a result, new regulations prohibiting the purchase of e-cigarettes have been introduced in the U.S. and other countries.[12] while can health care providers nonsmoking can play an important role in health care providers' smoking-cessation efforts when interacting e-cigarette users. However, limited data are available regarding health care providers' role in educating about complication about e-cigarettes[13] .continues focused marketing campaigns by the manufacturers and popular perception of E-cigarettes as a healthier alternative than conventional cigarette. The prevalence of conventional cigarette smoking among health care providers in Saudi Arabia has been reported in previous studies. It has been shown that around 13%[14] of the male and 2.4%[15] of the female smoke a conventional cigarette. These percentages vary between the different geographic regions of the country. For instance, in the western region, it reaches 24.8% among males and 9.1% among females.[16] For other health care providers, the prevalence of smoking is estimated to be 7.9%, 13.4%, and 29% for dental, pharmacy, and medical science , respectively.[17] Less known about the E-cigarettes prevalence and pattern of use among health care providers in Saudi Arabia as it has been recently introduced to the country. Experts have concerns that E-cigarettes are potentially addictive as they contain nicotine which has been proven to cause addiction.[18] In addition, the risks of long-term exposure to E-cigarettes vapors' chemicals which include potentially toxic substances such as formaldehyde have not been determined. The impact of E-cigarettes on the human health is under intense investigations as there are no prolonged studies addressing this issue.[19]

Rational:

Most common reasons to smoke e-cigarettes were similar taste to conventional cigarettes, adequate nicotine, helping in control of smoking behavior, perceived less harmful effects than conventional cigarettes, and low cost. The E-cigarettes vaping is more prevalent than conventional cigarette smoking among health care providers in Saudi Arabia. E-cigarettes are used as a tool to help smoking cessation in less than half of the user. E-cigarettes help some smokers to quit smoking. However, it seems as addictive to the users as conventional cigarette smoking health care providers lacked Knowledge of complication about e-cigarettes. Therefore, more studies are needed to raise awareness about e-cigarettes, especially since the habit of using e-cigarettes is invading our society.

Literature Review

Studies by Kawakami et al (2021) that have shown that e-cigarette has no immediate effect on the cardiac and pulmonary function as measured by echocardiogram and lung functions tests. However, it causes an increase in respiratory flow resistance and respiratory impedance .

In addition, it decreases fractional exhaled nitric oxide to the similar extent of conventional smoking [20].

In 2020 a meta-analysis found that relative to placebo, e-cigarettes helped tobacco cigarette smokers quit smoking.[21]

Moreover, the study also concluded that health care providers are much more likely than adults to use an e-cigarette.[22]

Conversely, studies suggest that use of e-cigarettes by nonsmokers encourages the use of other tobacco products. This could have an adverse impact on health because tobacco smoking is responsible for most lung cancer cases worldwide, including Saudi Arabia.[23]

One the contrary, a study was conducted in found that frequent e-cigarette users on daily bases did not show a cessation advantage over comparable no-e-cigarette users, and use of e-cigarettes in that attempt compared to the FDA approved cessation aids or no products, showed similar abstinence rates in the next 2 years.[24]

National Center for Health Statistics (US), reported that in 2018, 3.63 million middle and high school students were current users, and the prevalence was between 11.7% and 20.8% for high school students (a 78% increase2019) and between 3.3 and 4.9% for middle school students (a 48% increase2020) [25]

Recent study more concern has been raised after a shows that E-cigarette alters the profile of innate defense proteins in the airway uniquely and similar to cigarette smoking.[26]

In a preliminary study at Danderyd University Hospital, Sweden there was a significant increase in heart rate and blood pressure in healthy volunteers who were exposed to E-cigarettes containing nicotine.[27]

Materials and Methods
Study design:
A cross-sectional descriptive study was done among health care providers at the primary health care in Makkah City at Saudi Arabia,2022

Study Area
The study has be carried out in the city of Makkah Al-Mokarramah Makkah is the holiest spot on Earth. It is the birthplace of the Prophet Mohammad and the principal place of the pilgrims to perform Umrah and Hajj. It is located in the western area in Kingdom of Saudi Arabia and called the Holy Capital. Contains a population around 2.578 million. This study was conducted in Makkah primary health–care centers at Saudi Arabia, and it reflects a diversified demographic profile with a considerable portion of the health care providers comes from different countries and nationalities. This difference translates into biological, socioeconomic and lifestyle differences in the Makkah health care providers.

Study Population
The study has be conducted among health care providers regarding the Electronic Cigarettes in primary health-care in Makkah the sample was selected to include primary

health-care medical practitioners who aged from <25years - > 55 years and their total number was 400

The sample size

The sample size has been calculated by applying Raosoft sample size calculator based on (The margin of error: 5%, Confidence level: 95%, and the response distribution was considered to be 20%) accordingly to sample size from medical practitioners by the required sample size; (400). (Male and female) and adding 10 more to decrease margin of error. After adding 5% oversampling, the minimum calculated sample has been 400. Computer generated simple random sampling technique was used to select the study participants. Data collection was done by the researcher during the July to September, 2022.

Sampling technique:

Systematic random sampling technique is adopted. After that, by using random number generator, then simple random sampling technique was applied to select the health care providers. Also, convenience sampling technique will be utilized to select the participants in the study. By using systematic sampling random as dividing the total health care providers by the required sample size; (400).

Data collection tools of the study:

The self-administered questionnaire was adopted and modified from WHO Youth Tobacco Survey 2011 Questionnaire. The questionnaire consists of two main parts, socio-demographic and personal characteristics including age, gender, nationality, grade and associated determinants. The questionnaire was then translated from English to Arabic. Then it was independently retranslated into English to ensure the linguistic quality. The final questionnaire was validated by three consultants .

The study was approved by the local research committee, and permitted by the Joint Program of Family Medicine in Makkah. Permission to conduct the study in the PHC was also obtained from the Ministry of health. Written consent was obtained from each participant. All collected data from the health care providers are kept confidential, accessed only for scientific research. The study is self-funded by the

Data entry and analysis:

The Statistical Package for Social Sciences (SPSS) software version 24.0 has be used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic statistics using Chi-Square tests ($\chi2$) to test for the association and the difference between two categorical variables were applied. A p-value $\leq$ 0.05 will be considered statistically significant.

Pilot study

A pilot study has be conducted in primary health care health care providers the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study, the questionnaire has be clear and no defect has be detected in the methodology

Ethical considerations

Permission from the Makkah joint program Family Medicine program has be obtained. Permission from the Directorate of health , verbal consents from all participants in the questionnaire were obtained. All information was kept confidential, and results have be submitted to the department as feedback .

Data entry and analysis:

Data was entered using SPSS version 24 (IBM Corp., Armony, NY). Frequency and percentage were used to describe data. Chi-square and Fischer exact tests were used for testing the association between e-cigarette usage from their potential associated factors from the other side, with a significance of P-value <0.05 and CI 95%.

Budget: Self-funded

Results

Table 1. Distribution of the Socio-demographic characteristics about Electronic Cigarettes in the participants . (n=400)

Categories	N	%
Age		
<25	124	31
25-35	116	29
35-45	132	33
>45	28	7
Gender		
Male	196	49
Female	204	51
Nationality		
Saudi	268	67
Non- Saudi	132	33
status Marital	0	
Not married	76	19
Married	324	81
income		
<5000	40	10
5000-10000	120	30
10000-15000	116	29
>15000	124	31
Specialty		
Medicine	152	38
Applied medical sciences	80	20
Nursing	132	33
Pharmacy	36	9

Table 1 shows that most of the participants (33.0%) were in the age group (35-45) years follow by the age <25 were (31.0%) followed by 25-35 years were (29.0%), the majority of them female was higher compared to male(51.0% and 49.0%) , regarding the nationality the majority of participant are Saudi were(67.0%) while non-Saudi were(33.0%), regarding the marital status most of participants married were(81.0%) while not married were(19.0%), regarding income the majority of participant from >15000 were(31.0%) while from 5000-10000 were(30.0%) but 10000-15000 were (29.0%), regarding Specialty the majority of participant medicine were (38.0%) while Nursing practitioner were(33.0%), but the applied medical sciences were (20.0%)

Table 2. Distribution of the Participant's Opinion about electronic cigarette

Categories	N	%
Smoker		
All smoker	40	10
Conventional cigarette	108	27
Female cigarette smoker	36	9
Male cigarette smoker	40	10
Electronic cigarette	120	30
Mixed smoker/vaper	56	14
Smoking pattern		
Occasional	76	19
Regular (daily smoker)	324	81
Vaping pattern		
Occasional	124	31
Regular (daily vaping(	276	69
Reason behind smoking		
Peer effect	192	48
Sadness and depression	264	66
Anxiety and stress relieve	296	74
Entertainment	72	18
Reason behind vaping		
Peer effect	148	37
Sadness and depression	180	45
Anxiety and stress relieve	132	33
Entertainment	168	42
To quite conventional cigarette	140	35

The study showed that the majority of the participant smoker electronic cigarette were (30.0%) while conventional cigarette were (27.0%) but mixed smoker/vaper were (14.0%) followed by (all smoker and male cigarette smoker) respectively were (10.0%). regarding smoking pattern the majority of participant regular (daily smoker) were (81.0%), but Occasional were (19.0%), regarding Vaping pattern the majority of participant regular (daily vaping) were (69.0%), but Occasional were (31.0%), regarding reason behind smoking the majority of participant anxiety and stress relieve were (74.0%) followed by sadness and depression were (66.0%), but Peer effect were (48.0%) while entertainment were (18.0%), regarding reason behind vaping the majority of participant sadness and depression were (45.0%), but entertainment were (42.0%) followed by peer effect were (37.0%) while to quite conventional cigarette were (35.0%) but anxiety and stress relieve were (33.0%)

Table (3): Distribution of main reasons for electronic cigarette use among ever trying health care providers

	N	%
Main reasons for electronic cigarette		
I feel that e-cigarette is safer than tobacco cigarette	244	61
I feel that smoking an e-cigarette is the same as smoking tobacco cigarette	60	15
I feel that e-cigarette can help me to quit smoking	280	70
I like the taste and smell of the e-cigarette	200	50
I want to experiment with the cigarette	300	75
Offered by friends	140	35
Offered by family members	88	22
I follow idol trend (fashion)	72	18
E-cigarette is more economical than tobacco cigarette	176	44

Table 3 shows the main reasons for e-cigarette use among health care providers the most reported reasons were the electronic cigarette use among ever trying health care providers were (75.0%) followed by feeling that e-cigarette can help them to quit smoking (70.0%) while feeling that e-cigarette is safer than tobacco cigarette (61,0%) but like the taste and smell of the e-cigarette were (50.0%) while E-cigarette is more economical than tobacco cigarette were (44.0%) but offered by friends were (35.0%) while offered by family members were (22.0%) while follow idol trend (fashion) were (18.0%) but the feel that smoking an e-cigarette is the same as smoking tobacco cigarette were (15.0%).

Table (4): Distribution the Prevalence and Knowledge of complication of Electronic Cigarette Use among health care providers

	Yes		Not Sure		No		Chi-square	
	N	%	N	%	N	%	X^2	P-value
Complication								
Eye irritation	48	12	108	27	244	61	151.280	<0.001*

Blurry vision	88	22	124	31	188	47	38.480	<0.001*
Wound burns	124	31	156	39	120	30	5.840	0.054
Respiratory symptom								
Mouth airways irritation	148	37	120	30	132	33	2.960	0.228
Coughing	84	21	196	49	120	30	49.040	<0.001*
Shortness of breath	72	18	172	43	156	39	43.280	<0.001*
Hemoptysis	116	29	156	39	128	32	6.320	0.042*
Chest pain	92	23	124	31	184	46	32.720	<0.001*
Blood pressure	76	19	116	29	208	52	68.720	<0.001*
Heart rate	120	30	148	37	132	33	2.960	0.228
Gastrointestinal symptom								
Vomiting	76	19	88	22	236	59	119.120	<0.001*
Nausea	148	37	156	39	96	24	15.920	<0.001*
Stomachache	176	44	148	37	76	19	39.920	<0.001*
Dehydration	156	39	144	36	100	25	13.040	0.001*
Constitutional symptom								
Mood or anxiety disorder	40	10	152	38	208	52	109.760	<0.001*
Sore throat	152	38	116	29	132	33	4.880	0.087
Dry throat	96	24	124	31	180	45	27.440	<0.001*
Dry nose	156	39	108	27	136	34	8.720	0.013*
Headache	288	72	72	18	40	10	272.960	<0.001*
Asthma	264	66	116	29	20	5	226.640	<0.001*
Cancer	196	49	112	28	92	23	45.680	<0.001*
Vital signs at presentation								
Temperature ≥38°C	32	8	148	37	220	55	134.960	<0.001*
Heart rate >100 beats/min	76	19	136	34	188	47	47.120	<0.001*
Respiratory rate< 20 breaths/min	84	21	176	44	140	35	32.240	<0.001*
General complication								
Insomnia	148	37	204	51	48	12	93.680	<0.001*
Sweat	40	10	148	37	212	53	113.360	<0.001*
Ringing ears	52	13	172	43	176	44	74.480	<0.001*
Impaired attention cognition	32	8	156	39	212	53	127.280	<0.001*
Taste alteration	192	48	176	44	32	8	116.480	<0.001*
Maternal exposure	144	36	184	46	72	18	48.320	<0.001*
Ringing ears	28	7	204	51	168	42	129.680	<0.001*
Mood disorder	152	38	136	34	112	28	6.080	<0.001*

Table 4 show regarding prevalence and knowledge of complication of electronic cigarette use regarding eye irritation a statistical significant relation while P=value 0.001 and X^2 151.280 and the majority of participant answer No were (61.0%) followed by not sure were

(27.05) but answer Yes were (12.0%), regarding the blurry vision a statistical significant relation while P=value 0.001 and X^2 38.480 and the majority of participant answer No were (47.0%) followed by not sure were (31.0%) but answer Yes were (22.0%), regarding the wound burns no statistical significant relation while P=value 0.054 and X^2 5.840 and the majority of participant answer not sure were (39.0%) followed by Yes were (31.0%) but answer No were (30.0%)

Regarding the respiratory symptom show

Regarding the mouth airways irritation no statistical significant relation while P=value 0.228 and X^2 2.960 and the majority of participant answer Yes were (37.0%) followed by No were (33.0%) but answer not sure were (30.0%), regarding the Coughing a statistical significant relation while P=value 0.001 and X^2 49.040 and the majority of participant answer not sure were (49.0%) followed by No were (30.0%) but answer Yes were (21.0%), regarding the Shortness of breath a statistical significant relation while P=value 0.001 and X^2 43.280 and the majority of participant answer not sure were (43.0%) followed by No were (39.0%) but answer Yes were (18.0%), regarding the hemoptysis no statistical significant relation while P=value 0.042 and X^2 6.320 and the majority of participant answer not sure were (39.0%) followed by No were (32.0%) but answer Yes were (29.0%), regarding the chest pain a statistical significant relation while P=value 0.001 and X^2 32.720 and the majority of participant No were (46.0%) followed by answer not sure were (31.0%) but answer Yes were (23.0%), regarding the blood pressure a statistical significant relation while P=value 0.001 and X^2 68.720 and the majority of participant answer No were (52.0%) followed by not sure were (29.0%) but answer Yes were (19.0%), regarding the heart rate no statistical significant relation while P=value 0.228 and X^2 2.960 and the majority of participant answer not sure were (37.0%) followed by No were (33.0%) but answer Yes were (30.0%)

Regarding the gastrointestinal symptom show

regarding vomiting a statistical significant relation while P=value 0.001 and X^2 119.120 and the majority of participant answer No were (59.0%) followed by not sure were (22.0) but answer Yes were (19.0%), regarding Nausea a statistical significant relation while P=value 0.001 and X^2 15.920 and the majority of participant answer not sure were (39.0%) followed by Yes were (37.0%) but answer No were (24.0%), regarding the Stomachache a statistical significant relation while P=value 0.001 and X^2 39.920 and the majority of participant answer Yes were (44.0%) followed by not sure were (37.0%) but answer No were (19.0%), regarding the dehydration a statistical significant relation while P=value 0.001 and X^2 13.040 and the majority of participant answer Yes were (39.0%) followed by not sure were (36.0%) but answer No were (25.0%),

Regarding Constitutional symptom show

Regarding the Mood or anxiety disorder a statistical significant relation while P=value 0.001 and X^2 109.760 and the majority of participant answer No were (52.0%) followed by not sure were (38.0%) but answer Yes were (10.0%), regarding the Sore throat no statistical significant relation while P=value 0.087 and X^2 4.880 and the majority of participant answer No were (33.0%) followed by not sure were (29.0%) but answer Yes were (38.0%),

regarding the Dry throat a statistical significant relation while P=value 0.001 and X^2 27.440 and the majority of participant answer No were (45.0%) followed by not sure were (31.0%) but answer Yes were (24.0%), regarding the Dry nose a statistical significant relation while P=value 0.013 and X^2 8.720 and the majority of participant answer No were (34.0%) followed by Yes were (39.0%) but answer not sure were (27.0%), regarding the Headache a statistical significant relation while P=value 0.001 and X^2 272.960 and the majority of participant Yes were (72.0%) followed by answer not sure were (18.0%) but answer No were (10.0%), regarding the Asthma a statistical significant relation while P=value 0.001 and X^2 226.640 and the majority of participant answer Yes were (66.0%) followed by not sure were (29.0%) but answer No were (5.0%), regarding the Cancer a statistical significant relation while P=value 0.001 and X^2 45.680 and the majority of participant answer yes were (49.0%) followed by not sure No were (28.0%) but answer No were (23.0%)

Regarding vital signs at presentation show
regarding Temperature ≥38°C a statistical significant relation while P=value 0.001 and X^2 134.960 and the majority of participant answer No were (55.0%) followed by not sure were (37.0) but answer Yes were (9.0%), regarding Heart rate >100 beats/min a statistical significant relation while P=value 0.001 and X^2 47.120 and the majority of participant answer No were (47.0%) followed by not sure were (34.0%) but answer Yes were (19.0%), regarding the Respiratory rate< 20 breaths/min a statistical significant relation while P=value 0.001 and X^2 32.240 and the majority of participant answer not sure were (44.0%) followed by No were (35.0%) but answer Yes were (21.0%)

Regarding General complication show
Regarding the Insomnia a statistical significant relation while P=value 0.001 and X^2 93.680 and the majority of participant answer not sure were (51.0%) followed by Yes were (37.0%) but answer No were (12.0%), regarding the Sweat a statistical significant relation while P=value 0.087 and X^2 113.360 and the majority of participant answer No were (53.0%) followed by not sure were (37.0%) but answer Yes were (10.0%), regarding the Ringing ears a statistical significant relation while P=value 0.001 and X^2 74.480 and the majority of participant answer No were (53.0%) followed by not sure were (37.0%) but answer Yes were (13.0%), regarding the Impaired attention cognition a statistical significant relation while P=value 0.001 and X^2 127.280and the majority of participant answer No were (53.0%) followed by not sure were (39.0%) but answer Yes were (8.0%), regarding the Taste alteration a statistical significant relation while P=value 0.001 and X^2 116.480 and the majority of participant Yes were (48.0%) followed by answer not sure were (44.0%) but answer No were (8.0%), regarding the Maternal exposure a statistical significant relation while P=value 0.001 and X^2 48.320 and the majority of participant answer not sure were (46.0%) followed by Yes were (36.0%) but answer No were (18.0%), regarding the Ringing ears a statistical significant relation while P=value 0.001 and X^2 129.680 and the majority of participant answer not sure were (51.0%) followed by No were (42.0%) but answer Yes were (7.0%), regarding the Mood disorder a statistical significant relation while P=value 0.001 and X^2 6.080 and the majority of participant answer not sure were (34.0%) followed by Yes were (38.0%) but answer No were (28.0%)

Table 5 Distribution of the relation of participant   Knowledge of Complication of the electronic Cigarette Use among health care providers

Knowledge of Complication			Score	
	N	**%**	**Range**	**Mean±SD**
Weak	236	59		
Average	132	33		
High	32	8	15-37	31.55±7.591
Total	400	100		
X^2	156			
P-value	<0.001*			

Table 5 show distribution the relation of participant Knowledge of Complication of the electronic Cigarette Use among health care providers regarding the knowledge of Complication the most of participants weak knowledge were (59.0%) followed by average were (33.0%) but high were (8.0%) and total were (100.0%) while heave a significant relation were P-value <0.001 and X^2 156, regarding the score Mean+ SD (31.55±7.591), while Range (15-37).

Figure (1) Distribution of the relation of participant   Knowledge of Complication of the electronic Cigarette Use among health care providers
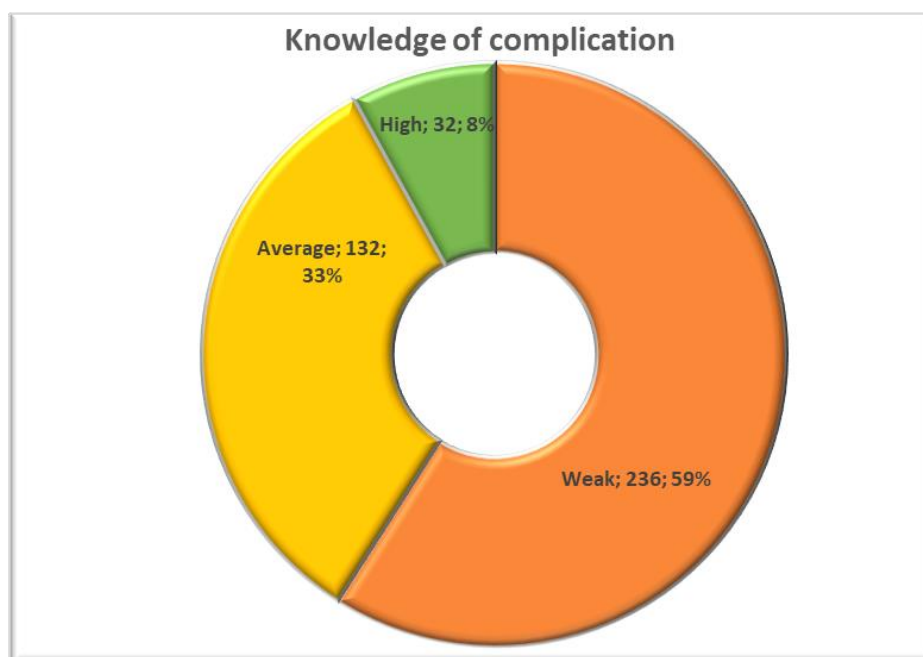
Discussion

In this study, we captured the Impact of Prevalence and Knowledge of complication of Electronic Cigarette Use among health care providers in the Primary Health Care in Makkah Saudi Arabia, that most of the participants (33.0%) were in the age group (35-45) years , majority of them female (51.0%), nationality the majority of participant are Saudi were(67.0%) , income the majority of participant from >15000 were(31.0%) , Specialty the majority of participant medicine were (38.0%) while Nursing practitioner were(33.0%).(See Table 1)

Worldwide, little is known regarding safety and impacts of e-cigarettes on health.[28] There were few knowledge of complication of Electronic Cigarette Use among health care providers who said that they had tried e-cigarettes. In a comparison, a study on Saudi Arabia health science students in Saudi Arabia reported a much higher of such respondents.[29] Another study on health professional students in the US confirmed that 24.2% of the participants had tried e-cigarettes.[18] in our study the majority of the participant smoker electronic cigarette were (30.0%) while conventional cigarette were (27.0%) but mixed smoker/vaper were (14.0%) followed by (all smoker and male cigarette smoker) respectively were (10.0%). regarding smoking pattern the majority of participant regular (daily smoker(were (81.0%), but Occasional were (19.0%), (See Table 2)

In Wales,(30) 18.5% of doctor studies have tried e-cigarettes and 2.7% were regular users whereas in the USA, the current e-cigarette use among doctor increased from 4.5% in 2013 to 13.4% in 2014, and in 2015, it became 16%.[32] However, in another American study (2013-2014), the prevalence rate was 1.21% . In Poland, about 22% of the health care providers aged between 25 and 50 years were ever tried e-cigarette smoking and 27% used them in the past 30 days. Among students in grades 10-12 in Canada, the prevalence of ever trying e-cigarettes was 27.1% and current smoking in the past 30 days was 8.9%.[32]

In at Qassim, the rate of ever trying e-cigarettes was more than 25% among students aged 15-16 years. Comparison between the findings of the present study and others should be taken with caution due to variations in the time of study conduction, age group, and study designs. The relatively high prevalence observed in the present study indicates that e-cigarettes are easily accessible to adolescents and health care providers although there are restrictions on the sale of tobacco products in KSA. However, they may be available for sale online as there is little control over their marketing in comparison to tobacco products.[33]

E-cigarette has only recently become available in the Kingdome of Saudi Arabia; nevertheless, our study showed that it becomes a popular habit among health care providers .The prevalence user was 61.0% feel that e-cigarette is safer than tobacco cigarette,

which is almost twice as much as conventional cigarette smoker. A similar percentage (25.6%) was reported from King Saud University's students in Riyadh.[34] Higher prevalence of 33.5% has been reported in a general survey conducted by Al Baik et al.[35] We believed that the reason behind this rapidly gaining popularity of the E-cigarette is the use of wide-scale advertising campaign targeting the youth and young adult, in a similar fashion used by conventional cigarette smoker.[22,23] .(See Table 3)

The present study demonstrated Prevalence and Knowledge of complication of Electronic Cigarette Use among health care providers also the relation of participant Knowledge of Complication of the electronic Cigarette Use among health care providers regarding the

knowledge of Complication the most of participants weak knowledge were (59.0%) followed by average were (33.0%) but high were (8.0%) and total were (100.0%) while heave a significant relation were P-value <0.001 and X2 156, regarding the score Mean+ SD (31.55±7.591), while Range (15-37) (See Table 4,5)

Health care providers who had higher pocket money/day had higher rates of both ever trying and using e-cigarettes than their peers. Also, in Canada and Argentina, students living in higher socio-economic areas were more likely to use e-cigarettes. In disagreement with others [31] .

Conclusion

E-cigarette users among health care providers' in Makkah are almost double the cigarette smoker; however, more cigarette smoker does smoke on a regular base. E-cigarette might help smoker, especially occasional, light smoker (who smoke half pack/day or less); however, this study found evidence of a gap in Prevalence and Knowledge of complication of Electronic Cigarette Use among health care providers in the Primary Health Care, regarding e-cigarettes itself is addictive habit. Chronic diseases and non-communicable conditions are common, costly, and debilitating. With effective community and clinical strategies, they can often be prevented, or onset delayed and duration shortened substantially by highlighted on dual cigarette user (electronic and regular) has been highlighted, more efforts are needed to educate healthcare professionals, and the community at large, about the risks associated with e-cigarettes. These efforts may eventually minimize the popularity of e-cigarettes.

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