



AWARENESS OF SMOKING-ASSOCIATED HEALTH RISKS AMONG MALE'S HIGH SCHOOLS STUDENTS IN WEST GAZA CITY

Ahmed Altayyan¹, Mohammedbaher Skaik², Mustafa Alabbasi³, Mohammed Matar⁴, Nour Ismail⁵ and Fawzy Sharaf^{*6}

^{1,2,3,4,5} Internship Student, Islamic University of Gaza - Faculty of Medicine, Gaza Strip.

⁶ Professor of Family Medicine, Islamic University of Gaza - Faculty of Medicine, Gaza Strip.

*Corresponding Author: Dr. Fawzy Sharaf

Professor of Family Medicine, Islamic University of Gaza - Faculty of Medicine, Gaza Strip.

Article Received on 11/02/2019

Article Revised on 03/03/2019

Article Accepted on 25/03/2019

ABSTRACT

Background: Cigarette smoking is one of the main causes of preventable global death. More than 7 million people died as a result smoking and exposure to smokers. Smoking causes many serious cardiovascular and respiratory diseases and also badly affects other systems and organs of the human body. These diseases can be prevented if people know and understand these complications and risks that could face them if they smoke. This knowledge and awareness has spread in the developed countries as the number of smokers has been decreasing in the last few decades, but apparently still deficient in the developing countries especially in adolescent, as studies confirmed that onset of smoking in 80-90% were in adolescence. In Palestine, the highest rate of smoking, as the prevalence of smoking among persons aged 15-29 in 2010 was 15% with a higher prevalence among males. In addition, the proportion of smoking among school students is increasing rapidly, in 2005 it was 9.7, in four years only rose to 36.1 in 2009, and in 2014 the average age of smoking was 17 years. **Methods:** We did a descriptive analysis via a structured questionnaire among high school male students -who mostly lie in the age group of adolescence of the West Gaza City. We took a simple random sample of 200 out of 6818 male students in the schools of West Gaza, and the questionnaires were expected with attendance of 3 of our teammates and explanation of unclear questions to students. We used 2 Chi-squares to compare results of values between smokers and nonsmokers, and between literary and scientific sections. **Results:** The participants were between the ages of 16 and 20 years with a mean age of 16.99 ± 0.723 years. Out of the 200 participants included in the study, 117 were in the scientific section and 83 were in the literary section. 17.5% participants were smokers, 66% in the literary section and 34% in the scientific section ($p = 0.001$). Most of the results were statistically significant in comparing between smokers and non-smokers aware of smoking adverse effects, whereas most of them were not significantly different between scientific and literary sections students. The non-smokers were more acknowledged about the risks of smoking than smokers were, and this leads us to the importance of knowledge in preventing smoking. **Conclusion:** The prevalence of smoking among adolescents in Gaza is high and it may be also underestimated because some boys might have been ashamed to mention the truth, but the good point is higher education means higher awareness about health risks of smoking, and the higher knowledge the lower risk to smoke.

KEYWORDS: Smoking, Adolescent, Males, Schools, Gaza Strip.

INTRODUCTION

Cigarette smoking is part of the main causes of preventable global death. More than 7 million people and hundreds of billions of dollars are lost due to smoking. More than 6 million of these deaths result from the direct effects of tobacco on the smokers and the rest is due to the indirect exposure of non-smokers to smokers.^[1,2,3] Several diseases result from smoking including serious Cardiovascular and Respiratory diseases, including coronary heart disease and lung cancer.^[Error! Bookmark not defined.] In pregnant women, it increases the risk of low

birth weight & SIDS whether from direct or second hand smoking.^[4]

In the last few decades, the number of smokers in developed countries has been decreasing because of the public's awareness of the scientifically proven health complications caused by smoking. This is not the situation in developing countries, where the proportion of smokers particularly among adolescents has been raised. Studies have confirmed that the onset of smoking in 80-90% of smokers was in adolescence, i.e., before the age of 18.^[5,6] This also means that quitting smoking is

more difficult for people who have started at an early age and therefore are more likely to get sick over the years. This has led some to ask for cigarette smoking to be considered as a pediatric disease.^[7]

In Palestine, the situation is analogous. The rate of smoking in the Palestinian Territory is among the highest in the world. The prevalence of smoking among persons aged 15-29 in 2010 was 15% with a higher prevalence among males.^[8] In addition, the proportion of smoking among school students is increasing rapidly, in 2005 it was 9.7, in four years only rose to 36.1 in 2009, and in 2014 the average age of smoking was 17 years.^[9]

Adolescence is an important period of the life, in which personality, interests and behavior within the community are formed and smoking is one of these behaviors.^[10] So, if we want to reduce the spread of smoking and associated health risks, we should direct our efforts to this age group and dive in detail to discover the motives of smoking among school students and work to find solutions based on the results.

There are many previous researchers investigated the reasons for smoking among high school students like peer group influences in which half or more members are smokers significantly increases the possibility of current smoking.^[11] Another reason was the unawareness of smokers towards the negative health effects.

In this study, we will focus on the lack of knowledge about smoking to see the weakest types of information and its resources that policy makers should focus on to reduce the trend towards smoking.

METHODS

This study is descriptive analytical. The sample was simple random with a size of 200 students from 6818

students in western Gaza high schools with a confidence interval of 6.83 and percentage of 50% and a confidence level of 95% using creative research systems website.^[12]

The participants are requested to complete a structured questionnaire to obtain detailed information. The questionnaire includes two sections, the first asks about demographic data, the second divided into 2 branches ask about the consequences of active and passive smoking respectively on human being.^[13]

The inclusion criteria were participants who registered in male high schools. Questionnaires were expected to be completed with attendance of 3 of our teammates and explanation of unclear questions to students. All participants were briefed on the aim of the study and that the Faculty of Medicine at the Islamic University of Gaza is the supporter of this research. Participants were assured about the anonymity and confidentiality of their identity and their responses.

The results were assessed using Statistical Package for the Social Sciences software (SPSS version 23). Descriptive statistics are expressed as frequencies, percentages and as mean \pm standard deviation (SD). We used two Chi-square tests to compare between smokers and non-smokers, and between literary and scientific sections.

RESULTS

The participants were between the ages of 16 and 20 years with a mean age of 16.99 ± 0.723 years. Out of the 200 participants included in the study, 117 (58.5%) were in the scientific section and 83 (41.5%) were in the literary section. 35 participants (17.5%) were smokers, 23(66%) in the literary section and 12 (34%) in the scientific section ($p = 0.001$).

Table 1: Percentage distribution of frequencies of response concerning smoking.

		Smoking				P value
		Smoker		Non-Smoker		
		n	%	n	%	
Does smoking cause bad smell of the mouth?	Yes	27	77.1	144	87.3	0.001
	No	7	20.0	6	3.6	
	Idk	1	2.9	15	9.1	
Does smoking cause tooth decay?	Yes	10	28.6	114	69.1	<0.001
	No	17	48.6	11	6.7	
	Idk	8	22.9	40	24.2	
Do you think smoking causes chronic cough?	Yes	21	60.0	121	73.3	0.007
	No	8	22.9	10	6.1	
	Idk	6	17.1	34	20.6	
Do you think smoking increases asthma attacks and complications in asthmatic patients?	Yes	18	51.4	114	69.1	<0.001
	No	9	25.7	3	1.8	
	Idk	8	22.9	48	29.1	
Do you think smoking causes chronic obstructive pulmonary disease?	Yes	19	54.3	119	72.1	0.001
	No	10	28.6	11	6.7	
	Idk	6	17.1	35	21.2	
Do you think that smoking lead to erectile dysfunction in men?	Yes	10	28.6	68	41.2	<0.001

	No	15	42.9	22	13.3	
	Idk	10	28.6	75	45.5	
Do you think that smoking is one of the factors that increase the chances of developing diabetes?	Yes	8	22.9	59	35.8	0.013
	No	16	45.7	36	21.8	
	Idk	11	31.4	70	42.4	
Do you think smoking leads to a heart attack?	Yes	14	40.0	121	73.3	0<0.001
	No	12	34.3	16	9.7	
	Idk	9	25.7	28	17.0	
Do you think that smoking leads to osteoporosis?	Yes	10	28.6	90	54.5	0.012
	No	15	42.9	37	22.4	
	Idk	10	28.6	38	23.0	
Do you think that smoking leads to stroke?	Yes	13	37.1	96	58.2	0.075
	No	10	28.6	30	18.2	
	Idk	12	34.3	39	23.6	
Do you think that people look to the smoker as a moral person?	Yes	14	40.0	32	19.4	<0.001
	No	13	37.1	121	73.3	
	Idk	8	22.9	12	7.3	
Do you think spending on smoking lead to a low standard of living for the family?	Yes	27	77.1	151	91.5	0.027
	No	6	17.1	8	4.8	
	Idk	2	5.7	6	3.6	
Do you think that parents smoking in front of their children may encourage them to smoke in the future?	Yes	27	77.1	135	81.8	0.138
	No	7	20.0	16	9.7	
	Idk	1	2.9	14	8.5	
Do you think smoking is addictive habit?	Yes	26	74.3	144	87.3	0.001
	No	8	22.9	8	4.8	
	Idk	1	2.9	13	7.9	
Do you think that smoking lead to cancers of the respiratory system?	Yes	16	45.7	141	85.5	<0.001
	No	8	22.9	6	3.6	
	Idk	11	31.4	18	10.9	
Do you think that smoking lead to cancers of the gastrointestinal system?	Yes	10	28.6	92	55.8	0.007
	No	11	31.4	24	14.5	
	Idk	14	40.0	49	29.7	
Do you think that smoking lead to cancers of the other systems?	Yes	19	54.3	119	72.1	0.063
	No	7	20.0	14	8.5	
	Idk	9	25.7	32	19.4	
Do you think the passive smoking in children increases the incidence of respiratory system infections?	Yes	29	82.9	144	87.3	0.667
	No	3	8.6	8	4.8	
	Idk	3	8.6	13	7.9	
Do you think the passive smoking increases the incidence of heart diseases?	Yes	14	40.0	105	63.6	<0.001
	No	15	42.9	18	10.9	
	Idk	6	17.1	42	25.5	
Do you think the passive smoking increases the incidence of strokes?	Yes	11	31.4	84	50.9	0.067
	No	12	34.3	32	19.4	
	Idk	12	34.3	49	29.7	
Do you think the passive smoking increases the incidence of lung cancers?	Yes	22	62.9	127	77.0	0.039
	No	7	20.0	11	6.7	
	Idk	6	17.1	27	16.4	

A Chi-squared test (X^2) is used to measure the difference between smokers and non-smokers regarding each item of the table.

Table (1): Respondents cited; smoking causes bad mouth smell; $p = 0.001$, tooth decay; $p = 0. <0.001$, chronic cough; $p = 0.007$, increasing asthmatic complications; $p = 0. <0.001$, COPD; $p = 0.001$, erectile dysfunction; $p = 0. <0.001$, DM; $p = 0.013$, heart attack; $p = 0.00$, osteoporosis; $p = 0.012$, stroke; $p = 0.075$, smokers look

as a good person; $p = 0. <0.001$, have low standard of living; $p = 0.027$, encourage their children to smoke; $p = 0.138$, smoking is addictive; $p = 0.001$, leads to cancers of the respiratory system; $p = 0. <0.001$, gastrointestinal system; $p = 0.007$, other systems; $p = 0.063$, passive smoking increase children respiratory infections; $p = 0.667$, heart diseases; $p = 0. <0.001$, strokes; $p = 0.067$, lung cancer; $p = 0.039$.

Table 2: Percentage distribution of frequencies of response concerning section.

		Section				P value
		Literary		Scientific		
		n	%	n	%	
Does smoking cause bad smell of the mouth?	Yes	62	74.7	109	93.2	0.001
	No	9	10.8	4	3.4	
	Idk	12	14.5	4	3.4	
Does smoking cause tooth decay?	Yes	45	54.2	79	67.5	0.057
	No	17	20.5	11	9.4	
	Idk	21	25.3	27	23.1	
Do you think smoking causes chronic cough?	Yes	57	68.7	85	72.6	0.719
	No	9	10.8	9	7.7	
	Idk	17	20.5	23	19.7	
Do you think smoking increases asthma attacks and complications in asthmatic patients?	Yes	46	55.4	86	73.5	0.002
	No	10	12.0	2	1.7	
	Idk	27	32.5	29	24.8	
Do you think smoking causes chronic obstructive pulmonary disease?	Yes	51	61.4	87	74.4	0.075
	No	13	15.7	8	6.8	
	Idk	19	22.9	22	18.8	
Do you think that smoking lead to erectile dysfunction in men?	Yes	27	32.5	51	43.6	0.210
	No	15	18.1	22	18.8	
	Idk	41	49.4	44	37.6	
Do you think that smoking is one of the factors that increase the chances of developing diabetes?	Yes	27	32.5	40	34.2	0.727
	No	24	28.9	28	23.9	
	Idk	32	38.6	49	41.9	
Do you think smoking leads to heart attack?	Yes	50	60.2	85	72.6	0.121
	No	16	19.3	12	10.3	
	Idk	17	20.5	20	17.1	
Do you think that smoking lead to osteoporosis?	Yes	34	41.0	66	56.4	0.096
	No	26	31.3	26	22.2	
	Idk	23	27.7	25	21.4	
Do you think that smoking lead to stroke?	Yes	38	45.8	71	60.7	0.099
	No	21	25.3	19	16.2	
	Idk	24	28.9	27	23.1	
Do you think that people look to the smoker as a good person?	Yes	23	27.7	23	19.7	0.231
	No	50	60.2	84	71.8	
	Idk	10	12.0	10	8.5	
Do you think spending on smoking leads to a low standard of living for the family?	Yes	69	83.1	109	93.2	0.059
	No	8	9.6	6	5.1	
	Idk	6	7.2	2	1.7	
Do you think that parents smoking in front of their children may encourage them to smoke in the future?	Yes	65	78.3	97	82.9	0.598
	No	10	12.0	13	11.1	
	Idk	8	9.6	7	6.0	
Do you think smoking is addictive habit?	Yes	64	77.1	106	90.6	0.031
	No	10	12.0	6	5.1	
	Idk	9	10.8	5	4.3	
Do you think that smoking leads to cancers of the respiratory system?	Yes	53	63.9	104	88.9	0.00
	No	9	10.8	5	4.3	
	Idk	21	25.3	8	6.8	
Do you think that smoking leads to cancers of the gastrointestinal system?	Yes	31	37.3	71	60.7	0.005
	No	18	21.7	17	14.5	
	Idk	34	41.0	29	24.8	
Do you think that smoking leads to cancers of the other systems?	Yes	51	61.4	87	74.4	0.123
	No	12	14.5	9	7.7	
	Idk	20	24.1	21	17.9	
Do you think the passive smoking in children increases the incidence of respiratory system infections?	Yes	66	79.5	107	91.5	0.039
	No	6	7.2	5	4.3	
	Idk	11	13.3	5	4.3	

Do you think the passive smoking increases the incidence of heart diseases?	Yes	49	59.0	70	59.8	0.865
	No	15	18.1	18	15.4	
	Idk	19	22.9	29	24.8	
Do you think the passive smoking increases the incidence of strokes?	Yes	31	37.3	64	54.7	0.047
	No	23	27.7	21	17.9	
	Idk	29	34.9	32	27.4	
Do you think the passive smoking increases the incidence of lung cancers?	Yes	54	65.1	95	81.2	0.009
	No	13	15.7	5	4.3	
	Idk	16	19.3	17	14.5	

Chi-squared test (X²) is used to measure the difference between literary section students and scientific section students regarding each item of the table.

Table (2): Respondents cited; smoking causes bad mouth smell; $p = 0.001$, tooth decay; $p = 0.057$, chronic cough; $p = 0.719$, increasing asthmatic complications; $p = 0.002$, COPD; $p = 0.075$, erectile dysfunction; $p = 0.210$, DM; $p = 0.727$, heart attack; $p = 0.121$, osteoporosis; $p = 0.096$, stroke; $p = 0.099$, smokers look as a good person; $p = 0.231$, have low standard of living; $p = 0.059$, encourage their children to smoke; $p = 0.598$, smoking is addictive; $p = 0.031$, leads to cancers of respiratory system; $p = 0. <0.001$, gastrointestinal system; $p = 0.005$, other systems; $p = 0.123$, passive smoking increase children respiratory infections; $p = 0.039$, heart diseases; $p = 0.865$, strokes; $p = 0.047$, lung cancer; $p = 0.009$.

DISCUSSION

In the age group of our study 17.5% were smoking which is higher than other studies in the same group of turkey (14.8%), but lower than it in Saudi Arabia (31.26%). It is higher than another age group (13-15) in Gaza strip (9.7%).^[Error! Bookmark not defined.,14,15]

When asking about the direct effects of smoking on the organic health, the knowledge of the non-smokers was higher than smokers about some facts such that smoking cause bad smell of the mouth, tooth decay, chronic cough, increasing of asthma attacks and complications, COPD, heart attack osteoporosis, addiction, and cancers which is consistent with other studies in Turkey & Saudi Arabia.^[Error! Bookmark not defined.,14] These results weren't the same when asked about erectile dysfunction and DM which haven't been known by both smokers and non-smokers, this can let us to think there is a deficiency in the knowledge about the effects of smoking on endocrine and male reproductive systems.

About the social effects, the smoker think that people look at them as a moral person in comparison to non-smoker, thus this could be one of the factors that encourage adolescent to smoke as the further studies in Saudi Arabia described.^[Error! Bookmark not defined.] But both smokers and non-smokers think that smoking lead to a low standard of living for the family with less percentage for smokers that may be due to deny.

About the passive smoking, smokers don't know the effects on heart diseases but there is a good knowledge about the consequences on children and lung.

Between the literary and scientific students, there is no significant difference in the knowledge except the information about cancer, passive smoking, asthma, bad smell of the mouth and addiction which may be due to the higher level of education among the scientific section students and thus the knowledge about smoking consequences and this is the cause that the percentage of smokers in the literary section was higher than the scientific students in our study as mentioned in previous study established in four countries the United States, Canada, the United Kingdom, and Australia in addition to another study in Malaysia.^[16,17]

CONCLUSION

The prevalence of smoking among adolescents in Gaza is high and it may be also underestimated because some boys might have been ashamed to mention the truth, but the good point is higher education means higher awareness about health risks of smoking, and the higher knowledge the lower risk to smoke. We recommend all policy makers, mainly the Ministry of Education and the Ministry of Health to increase the education among adolescent and even pre-adolescent about smoking health risks through curriculum modifications, teachers training & social media.

Limitations of the Study

The study timing was not the most stressful during the targeted academic year to guard against miniaturizing the response rate.

REFERENCES

1. World Health Organization. WHO report on the global tobacco epidemic, 2011: warning about the dangers of tobacco. Geneva: World Health Organization, 2011.
2. Shojaeifar M, Niknami S, Mirbalochzahi A, Khammarnia M, Khorram A. Comparison of the effect of educational methods on students' knowledge, attitude and behavior about hookah smoking. *Electronic physician*, 2017 Feb; 9(2): 3870.
3. Available at: <https://www.who.int/en/news-room/fact-sheets/detail/tobacco>, (2018).
4. Courtney R. The Health Consequences of Smoking—50 Years of Progress: A Report of the

- Surgeon General, 2014 Us Department of Health and Human Services Atlanta, GA: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014 1081 pp. Online (grey literature): [http://www.SurgeonGeneral.Gov/library/reports/50years of progress](http://www.SurgeonGeneral.Gov/library/reports/50years%20of%20progress). Drug and Alcohol Review, 2015 Nov; 34(6): 694-5.
5. Fida, H. R., & Abdelmoneim, I. (2013). Prevalence of smoking among secondary school male students in Jeddah, Saudi Arabia: a survey study. *BMC public health*, 13(1): 1010.
 6. Al-Zalabani, A., Kasim, K., El-Moneim, A., & Amer, S. (2015). Beliefs and attitudes of male and female adolescents and the risk of smoking behavior.
 7. Kessler DA, Witt AM, Barnett PS, Zeller MR, Natanblut SL, Wilkenfeld JP, Lorraine CC, Thompson LJ, Schultz WB. The Food and Drug Administration's regulation of tobacco products. *New England journal of medicine*, 1996 Sep 26; 335(13): 988-94.
 8. Absi, M. Smoking Emerging Epidemic in Palestine.
 9. Abu Shomar, R. T., Lubbad, I. K., El Ansari, W., Khatib, I., & Alharazin, H. J. (2014). Smoking, awareness of smoking-associated health risks, and knowledge of national tobacco legislation in Gaza, Palestine.
 10. Gladwin TE, Figner B, Crone EA, Wiers RW. Addiction, adolescence, and the integration of control and motivation. *Developmental cognitive neuroscience*, 2011 Oct 1; 1(4): 364-76.
 11. Alexander C, Piazza M, Mekos D, Valente T. Peers, schools, and adolescent cigarette smoking. *Journal of adolescent health*, 2001 Jul 1; 29(1): 22-30.
 12. Available at: <https://www.surveysystem.com/sscalc.htm>
 13. Available at: <https://bit.ly/2B8ohNA>
 14. Sucaklı MH, Kahraman H, Çelik M, Keten HS. An Evaluation of Knowledge, Attitudes and Behavior regarding Smoking and Smokeless Tobacco (Maras Powder) Use among High School Children. In 12th National Congress of Turkish Family Medicine, Kusadası, Turkey, on 2013 May; 15-19.
 15. Al Ghobain MO, Al Moamary MS, Al Shehri SN, AL-Hajjaj MS. Prevalence and characteristics of cigarette smoking among 16 to 18 years old boys and girls in Saudi Arabia. *Annals of thoracic medicine*, 2011 Jul; 6(3): 137.
 16. Siahpush M, McNeill A, Hammond D, Fong GT. Socioeconomic and country variations in knowledge of health risks of tobacco smoking and toxic constituents of smoke: results from the 2002 International Tobacco Control (ITC) Four Country Survey. *Tobacco control*, 2006 Jun 1; 15(suppl 3): iii65-70.
 17. Lim HK, Ghazali SM, Kee CC, Lim KK, Chan YY, Teh HC, Yusoff AF, Kaur G, Zain ZM, Mohamad MH, Salleh S. Epidemiology of smoking among Malaysian adult males: prevalence and associated factors. *BMC Public Health*, 2013 Dec; 13(1): 8.