Smoking as an Issue of Concern among School Students in an Egyptian Rural Area

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Abstract:

Background: Smoking is a public health problem with a rising prevalence. A large percentage of smokers start smoking during adolescence, affecting their school achievement. Objectives: The current study is aiming to 1. Assess prevalence of smoking among school students in an Egyptian rural area.2. Identify different types of smoking among them. 3. Identify the causes of being smoking an issue of concern. **Methods:** the study was a cross sectional study in which sample size was calculated and three hundred students (in the academic year 2016\2017) were randomly selected from Monshaat Sultan preparatory and secondary school students and proportionally allocated. A predesigned questionnaire was used to determine socioeconomic status of them, pattern and condition of smoking among them. Children's scores were revised in school records. Results: Prevalence of smoking among adolescent students was 14%, about 52% of them were secondary school students, and 44.2 % of them were incorporated in work. Smoking substances among smokers were cigarettes (86%) followed by hashish (4.7%) & St-El hosn (4.7%). Mean scholastic achievement among smoking students was (2.11±0.87) compared to (3.37±0.49) among nonsmokers and lastly the frequency of smoking among working children was high as bout (78%) of daily smokers were working. Conclusion: This study concluded that smoking among adolescents is an issue of concern due to its prevalence, which was 14% in an Egyptian rural area also due to its drawbacks on scholastic achievements of smoking children who were incorporated in child work to get money for buying cigarettes.

Keywords: Adolescents, cigarettes, prevalence, smokers.

Introduction: Tobacco smoking epidemic is one of the biggest public health threats that world has ever faced. It is the killer of nearly six million peoples yearly and accounts for one in 10 adult deaths worldwide. (1) Most adult smokers begin smoking during adolescence, so adolescent smoking is an issue of concern. (2) Total tobacco consumption in Africa increased by 3.6 % from 1990 to 1997. Egypt has the highest rate of tobacco consumption in the Arab world. (3) For the period 1999–2008, World Health Organization (WHO)/Centers for Disease Control global youth tobacco survey has shown that smoking starts as early as 13–15 years. (4)

Estimates of current cigarette smoking at this age in Eastern Mediterranean Region (EMR) nations range from 2% among girls to 7% among boys. (4) Mean prevalence of tobacco use in 2015 was 13.6%. (5) Smoking in adolescence has consistently been associated with increased nicotine dependence and decreased ability of smoking cessation later in life. (6) More than 80% of all smokers live in low-income and middle-income countries. Therefore, tobacco use continues to be a major public

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estimated to constitute 21% of Egypt's population and by 2025, their population is projected to reach almost 18 million. (8)

Several risk factors predispose to adolescent smoking such as: social media which can normalize attitudes toward smoking, and even represent smoking as a behavioral option, parental smoking, living with a smoker or secondhand smoke exposure at home also increase risk of smoking, peers in preadolescents accounts for early smoking. Genetic factors may make quitting smoking more difficult for young people. Smoking rates are even higher among individuals with multiple lifetime psychiatric diagnoses (schizophrenia, and other severe mental illnesses). Mental illness is associated with high levels of nicotine dependence, increasing the intensity of smoking, and smoking severity and with less success in quitting.

Smoking is related to many chronic diseases including coronary heart disease, stroke, chronic obstructive pulmonary disease (COPD), asthma, rheumatoid arthritis and osteoporosis. Exposure to secondhand tobacco smoke has been shown to damage the health of children and adults.⁽¹⁴⁾ Smoking promotes cancers in numerous organs, especially mouth, pharynx, pancreas and esophagus; male smokers were at higher risk for death from prostate cancer and female smokers were at higher risk for death from breast cancer.⁽¹⁵⁾ The current study is aiming to 1.Assess prevalence of smoking among school students in an Egyptian rural area.2. Identify different types of smoking among them. 3.Identify the causes of being smoking an issue of concern.

Methods: This study was approved by Ethical Committee of Faculty of Medicine, Menoufia University; an official permission letter was obtained and directed to general director of education in Menouf district, Menoufia governorate. A verbal consent was obtained from all participants after simple and clear explanation of the research objectives. Written consents were obtained from the students` parents and the school principals. The study was a cross sectional study that was conducted on preparatory and secondary school students (during the academic year 2016\2017) in Monshaat Sultan village, Menouf district, and Menoufia governorate.

Menoufia governorate consisted of 9 districts from them Menouf district was selected by multistage stratified sampling technique then Monshaat Sultan village was selected by simple random sampling to be the site of study.

The sample size was calculated using EPI-INFO program version (7) depending on total number of male and female students registered in preparatory and secondary

schools in academic years (2016/2017) in Monshaat Sultan during period of the study (1542 students).

The calculated sample size was 260. It was raised to 300 students to avoid drop out. Two schools were chosen randomly out of three schools; one of them was preparatory and the other one was secondary school, then a number of 112 male students (out of 300) were selected from Monshaat Sultan secondary school for boys and 188 male students (out of 742) were selected from Monshaat sultan preparatory mixed school. A number of the participants were proportionally allocated according to total number of students in each stage. Female students were excluded due to social stigma.

All students who participated in the study were evaluated using a predesigned questionnaire through direct interview with them. The questionnaire included questions about sociodemographic data like age, sex, family size...etc for assessment of socioeconomic status according to Fahmy et al, 2015. [16] It also included questions about smoking status of the students, causes of smoking, number of cigarettes they bought...etc.

The questionnaire was revised by two expertises. A Pilot study was done with a convenient sample, which was excluded from the study (40 students) to measure the feasibility of the study setting, content and validity of the questionnaire.

The scholastic achievement was detected through revision of their school records of the first and last semesters. It was described as follows from school records ⁽¹⁷⁾ as follow:- 1-Fair: 50-60(score =1) 2-Good: 60-75(score =2) 3-V.good:75-85(score =3). 4- Excellent:> 85(score =4).

Data Mangement: The data were tabulated and analyzed by Statistical Package of Social Science (SPSS) version 22(using IBM personal computer). Quantitative data were expressed as mean and standard deviations and analyzed by applying student t-test.Qualitative data were expressed and analyzed by applying Chi-square test. P-value (less than 0.05) was considered a statistically significant, P-value less than 0.001) was considered a highly statistically significant while P value (more than 0.05) was considered statistically non-significant.

Results: Mean age of the studied group was (14.77±1.47 years). 33% of their mothers had literate certificate and 41.3% of their fathers had high educational level, 80% of

participants` mothers were housewives, 49% of the studied group used computer sometimes and 77% of them had enough income. Three –fourth of the studied group had middle socioeconomic status (Table 1). This figure shows that prevalence of smoking was 14% among students within the studied group (Figure 1). Cigarette smoking was constituted 86% followed by hashish and St-Elhoson, which were constituted 4.7% for each among the smoking participants (Figure 2).

There was a statistically significant difference between smoking students and non-smoking ones regarding presence of smokers among their family members (p-value 0.045) as about 58% of smoking students had smokers among their family members compared to 44% in case of non-smokers also there was a statistically significant difference between smoking children regarding household member who was smoking (p value 0.001) as the smoking father was more among smoking students compared to non-smoking ones (Table 2). This figure illustrates that 60% of smokers in the studied group smoked daily (Figure 3).

This table shows that there was a statistically significant differences between smokers and non-smokers regarding level of education as about 52% of the smokers were in secondary schools while there were highly statistically significant differences between smokers and non-smokers regarding child work & school achievement score (P-value<0.001) as 53.5% of smokers were workers also the mean scholastic achievement among smokers was (2.11 ± 0.87) which was lower than that of non-smokers (3.37 ± 0.49) (Table 3). It was noticed that there was a highly statistically significant difference between daily smokers and non-daily smokers regarding child work (p value < 0.001) as about (78%) of daily smokers were incorporated in child work (Table 4).

Discussion: This study showed that prevalence of smoking among preparatory and secondary school students was 14%, this result was in agreement with Trapl, 2015⁽¹⁷⁾ who found that prevalence of smoking among youth in United States of America (USA) was 14.3%. Also, Al-Zalabani and Kasim,2015 ⁽¹⁸⁾ in Saudi Arabia who concluded that prevalence of adolescents smoking was 15.17%. While this result was in controversy with the study which was conducted in Australia by Town et al,2017⁽²⁾ who reported that 3.4% of those in age group from (12-17) were daily smokers. This great difference in the prevalence of smoking may be due to strict antismoking measures in Australia.

It was found in the current study that the prevalence of smoking increased with age, as it was 41.8% among preparatory school students while it increased to reach 51.8% among secondary school students. A study was conducted by El-Gilany et al, $2008^{(19)}$ on university students concluded that the prevalence of any type of tobacco was 18.5% which is higher than the prevalence in the current study (14%)and this is an indicator that smoking is increasing among adolescents.

Current study revealed that there was no statistically significant difference between smokers and non-smokers of participants regarding socioeconomic standard and this was not in agreement with an epidemiological surveillance which had reported higher rates of smoking among adults of lower socioeconomic status according to Hiscock etal,2012⁽²⁰⁾. Also a study was conducted in Saudi Arabia by Al-Zalabani and Kasim,2015⁽¹⁸⁾ found that there was a positive association between adolescent smoking and school status, and pocket money.

On the other hand, an another study was conducted by Wellman ,2016⁽²¹⁾ illustrated that an increased risk of smoking onset in USA was associated with lower Socioeconomic status. Also Chen and Jacobson, 2012 ⁽²²⁾ found that low socioeconomic status had been associated with early cigarette use. According to the study that was conducted in Australia by Towns et al, 2017 ⁽²⁾ the pattern of tobacco use amongst adolescents from low socioeconomic status groups was consistently higher. The difference between current study and the previously mentioned studies may be attributed to difference in communities where the studies were conducted.

The present study showed that parental smoking greatly affected smoking status of the adolescent and this was in agreement with the study which was conducted by Liao e et al,2013⁽²³⁾ where it was found that parents influence adolescent smoking and drug use through modeling their own use as well as having substances available in the home. According to the study conducted by Pentz&Rigg, 2013⁽²⁴⁾ both parents and peers have been shown to influence early adolescent cigarette use, as well as alcohol use. An increased risk of smoking onset was consistently (i.e., in four or more studies associated with family members'smoking, according to Wellman, 2016.⁽²¹⁾ According to the study that was conducted in Saudi Arabia by Al-Zalabani&Kasim, 2015 ⁽¹⁸⁾ smoking among parents and friends were the most powerful predictors of adolescents smoking.

The current study showed that 60% of the smoking participants were daily smokers while 40% of them didn't smoke daily depending on the money available for

buying the smoked substance and this was in controversy with the study which was conducted by Towns et al, 2017⁽²⁾ who found that 3.4% of adolescents were daily smokers while 1.1% were weekly smokers due to strict antismoking measures.

It was noticed that the frequency of smoking was higher among smokers who work as about (78%) of daily smokers were incorporated in child work. On the contrary, a study was conducted by lee et al, $2017^{(25)}$ concluded that prevalence of ever conventional cigarette smokers was 17.1%, and 3.7% of participants were current daily conventional cigarette smokers.

A relationship between smoking status and child work was revealed in the current study as there was a statistically significant difference between smokers and non-smokers regarding working status and as 53.5% of smokers were workers and this is in agreement with the study of Dall'Agnol et al,2011⁽²⁶⁾in Brazil that found higher smoking prevalence rate among working children. Also this study showed that smoking status affects scholastic achievement of the students as there was a highly statistically significant difference between smokers and non-smokers regarding school achievement score , this result also agreed with the results of Dall'Agnol et al,2011⁽²⁶⁾where child and adolescent smoking was directly associated with age , inadequate school performance.

The current study found a relationship between the frequency of smoking and the child's working status as the frequency of smoking was higher among working students who smoked as about 78% of daily smokers were incorporated in child work. These results casted the light on the fact that those smokers continued to work to provide money to buy the smoked substances and this work affected their scholastic achievement.

Limitations of the study: There were some limitation in the current study including:1-Refusal of the students (especially smokers) to participate due to fear of disclosure of research results.2- Some teachers in the school weren't ready to save time for the research as they thought it was of no value.3. When the researcher tried to conduct the study on females, it was considered as social stigma. The above mentioned limitations were overcome by: 1-Ensuring the confidentiality of the research study.2-Persuading the teachers with the importance of the study by explaining the burden of the smoking problem on the community.3-Exclusion of female from the study.

Conclusion: This study concluded that smoking among adolescents is an issue of concern due to its prevalence that was 14% in an Egyptian rural area also due to its drawbacks on scholastic achievements of smoking children who were incorporated in child work to get money for buying cigarettes so daily smoking was higher among working students.

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Conflict of interests: We confirm that there are no known conflicts of interest associated with this publication.

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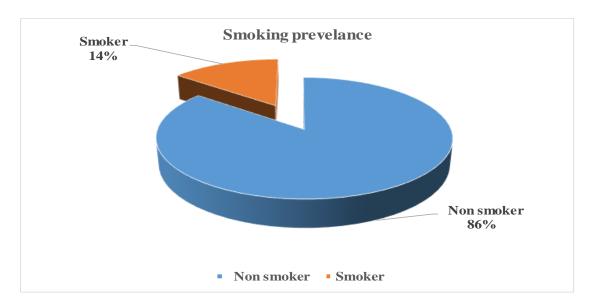
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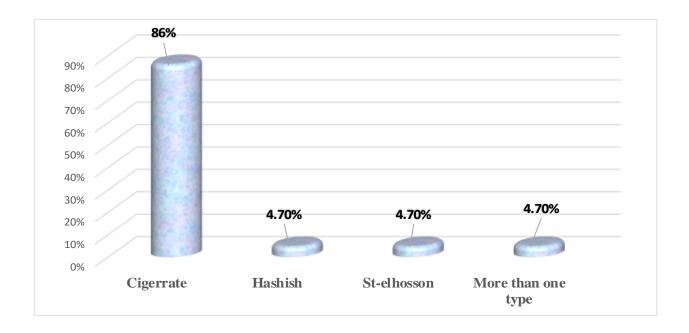
Table (1): Smoking and sociodemographic data of the studied group.

Items	Non smol	Non smokers		Smokers		ıl	Test of significance	P-value
	No 257	% 85.67	No 43	% 14.33	No 300	% 100	\mathbf{x}^2	
Age ■ Mean ± SD	14.79		14.6 1.44		14.7° 1.469		0.685	0.494
Mother's education	1.17	<u>. </u>	1		1.10			
 Literate certificat 	te 83	32.3	16	37.21	99	33	3.129	0.68
Primary	52	20.23	11	25.58	63	21		
Preparatory	44	17.12	7	16.28	51	17		
 Secondary 	52	20.23	5	11.63	57	19		
 High education 	26	10.12	4	9.3	30	10		
Father's education								
Literate certificate	te 52	20.23	14	32.56	66	22	10.816	0.094
Primary	15	5.84	1	2.33	16	5.33		
Preparatory	30	11.67	8	18.6	38	12.67		
 Secondary 	50	19.46	6	13.95	56	18.67		
 High education 	110	42.8	14	32.56	124	41.33		
Mother's work								
No	208	80.93	32	74.42	240	80	0.977	0.214
Yes	49	19.07	11	25.58	60	20		
Father's work								
■ No	17	6.61	3	6.98	20	6.67	0.008	0.568
Yes	240	93.39	40	93.02	280	93.33		
Computer uses								
• Never	40	15.56	2	4.65	42	14	5.349	0.069
 Sometimes 	120	46.69	27	62.79	147	49		
A lot of time	97	37.74	14	32.56	111	37		
Income								
Not enough	62	24.12	7	16.28	69	23	1.28	0.176
Enough	195	75.88	36	83.72	231	77		
Socioeconomic status								
• Low	64	24.9	14	32.56	78	26	1.122	0.19
Middle	193	75.1	29	67.44	222	74		
High	0	0.00	0	0.00	0	0.00		
D volue < 0.05 is			<u> </u>					

P value<0.05 is statistically significant



Figure(1): Prevalence of smoking



Figure(2): Types of smoked substances

Table (2): Smoking among household of the studied group

Items	Non smokers		Smokers		Total		X^2	D malma
	No 257	% 85.67	No 43	% 14.33	No 300	% 100	Λ-	P-value
Smoking among family members: No Yes	145 112	56.42 43.58	18 25	41.86 58.14	163 137	54.33 45.67	3.147	0.045*
Family members who smoke Father Brother	53 20 39	20.62 7.78 15.18	20 4	46.51 9.3 2.33	73 24 40	24.33 8 13.33	16.252	0.001*

P value<0.05 is statistically significant

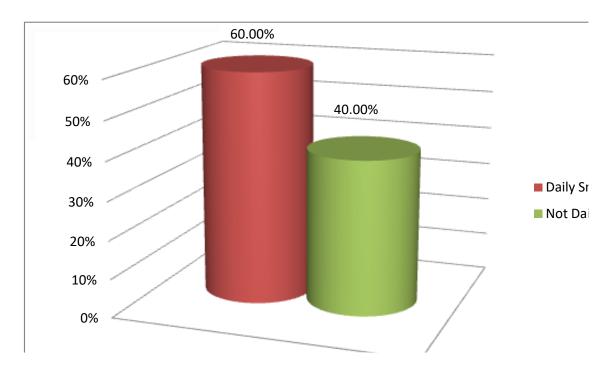


Figure (3): Frequency of smoking among studied smokers

Table(3): Comparison between smokers and non-smokers regarding Educational level & Child work and their Scholastic achievement

Smoking status	Smokers N=43	Non smokers N= 257	X ² test	P value
Educational level preparatory Secondary	18 (41.8%) 25 (51.8%)	170 (66.1%) 87 (33.9)	9.28	0.002*
Child work No Yes	20 (46.5%) 23 (53.5%)	227 (88.3%) 30 (11.7%)	44.28	<0.001**
Scholastic achievement score (Mean ± SD)	2.11±0.87	3.37±0.49	13.5 a	<0.001**

a: t- test

Table 4: Relation between frequency of smoking and child work among smokers

Frequency of smoking	Daily smoking N (23)	Not daily smoking N (20)	\mathbf{X}^2	P value
Child work No Yes	5 (21.7%) 18 (78.2%)	13 (65%) 7 (35%)	58.35	<0.001**

^{**} P value < 0.001 highly statistically significant

^{*}P value < 0.05 statistically significant

^{**} P value < 0.001 highly statistically significant

الملخص العربي

التدخين كمسألة مثيرة للقلق بين طلاب المدارس في منطقة ريفية مصرية تغريد فرحات - هاله شاهين- صفاء القلش- نرمين بيبرس

الخلفية: التدخين مشكلة صحية عامة مع انتشار متزايد. وتبدأ نسبة كبيرة من المدخنين التدخين خلال فترة المراهقة ، مما يؤثر على تحصيلهم الدراسي, وهدفت هذه الدراسه الي_1. تقييم انتشار التدخين بين طلاب المدارس الإعدادية والثانوية في منطقة ريفية مصرية. 2. تحديد أنواع مختلفة من التدخين فيما بينها. 3. تحديد الأسباب التي تجعل من التدخين قضية ذات أهمية. المنهجية و طرق البحث تم حساب حجم العينة وتم اختيار ثلاثمائة طالب بشكل عشوائي من طلاب مدارس منشأة سلطان الإعدادية والثانوية وتم تخصيصهم بشكل نسبي. تم استخدام استبيان محدد مسبقا لتحديد الوضع الاجتماعي الاقتصادي لهم ، نمط وحالة التدخين فيما بينهم. ثم تم تنقيح نتائج الأطفال في السجلات المدرسية. النتائج: بلغت نسبة انتشار التدخين بين المراهقين 14٪ ، وكان حوالي 52٪ منهم من طلاب المدارس الثانوية ، منهم 42.2٪ يعملون. وكانت اعلى نسبة للتدخين بين المدخنين وأخيراً هي للسجائر (86٪) يليها الحشيش (4.7٪) وست الحسن (4.7٪) وأكثر من نوع واحد (4.7٪). بلغ متوسط الإنجاز المدرسي بين الطلاب المدخنين (4.7٪) مقارنة بـ (3.7٪ يومية يعملون. الخلاصة: خلصت التدخين في أوساط الأطفال العاملين حيث وجد ان 78٪ من المدخنين بصورة يومية يعملون. الخلاصة: خلصت هذه الدراسة إلى أن التدخين بين المراهقين هو مصدر قلق بسبب انتشاره والذي كان 14٪ في منطقة ريفية مصرية مسببا تأثير على الإنجازات التعليمية للأطفال المدخنين الذين توجهوا للعمل للحصول على المال لشراء السجائر. كان التدخين اليومي أعلى بين الطلاب العاملين.