IMPACT OF EDUCATIONAL INTERVENTION ON SMOKING KNOWLEDGE, ATTITUDE AND BEHAVIOR OF ADOLESCENTS IN SCHOOLS OF DEVELOPING COUNTRY [RAWALPINDI PAKISTAN].

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Article Info: Received 10 January 2019; Accepted 26 February. 2019

Cite this article as: Khan, Prof. Dr. I., Shams, Dr. G., Khan, S. F., Ahmed, S. I., & Khan, J. I. (2019). IMPACT OF EDUCATIONAL INTERVENTION ON SMOKING KNOWLEDGE, ATTITUDE AND BEHAVIOR OF ADOLESCENTS IN SCHOOLS OF DEVELOPING COUNTRY [RAWALPINDI PAKISTAN]. *International Journal of Medical and Biomedical Studies*, 3(3).

DOI: <https://doi.org/10.32553/ijmbs.v3i3.142>

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Conflict of interest: No conflict of interest.

Abstract

Background: Smoking is one of the leading preventable causes of mortality and morbidity, Adolescent are more prone to develop smoking habit and continues it into adult life. Early smokers are associated with increased number of cigarettes uptake in adulthood and decreased quit rates. It is stated that adult smokers usually initiate smoking in their early years and there are less chances that they cease smoking in their adulthood.

Objectives: The study aims to evaluate the impact of educational intervention on knowledge, attitude and behavior of adolescent aged 14-19 years.

Materials and Methods: A cross sectional study followed by an education intervention was conducted from June 2017 to August 2018. 650 adolescents who were found to be current smokers were included in this study. Data was analyzed using SPSS. Chi square test was applied at p value of 0.05.

Results: Before intervention 90.7% adolescent considered smoking as a bad habit which significantly increases to 96.9% after educational intervention. Significant improvement in attitude of respondents was seen after intervention. Proportion of adolescent who intend to quit smoking increases from 35.2% to 72.2% after educational intervention. As a result of an educational intervention proportion of adolescent who uses complete stick at one time decreases from 83.5% to 65%.

Conclusion: Health education on smoking is effective in motivating adolescents to quit smoking. In order to reduce smoking rates among adolescent's education intervention strategies should be adopted at large scale. It is recommended that health education program on smoking should be organized by schools and colleges which will lead to overall low smoking prevalence.

Keywords: Adolescents, Smoking, Knowledge, Health education

Introduction:

Cigarette smoking among adolescent is one of the major public health problem and one of the leading cause of cancer, cardiovascular mortality and respiratory diseases [1]. According to WHO, worldwide mortality that is associated with smoking is higher than combination of all infectious diseases [2]. Mortality will increase by 2.5 fold by 2030 and 70% of mortality will be from developing countries [3]. Smoking is a complex behavior and psychosocial complication, behavior and environmental factors are some of the identified contributory factors [4]. According to the Global Youth Survey 17.3% of the children aged 13-15 years use tobacco products. Adolescent are more prone to develop smoking habit. Early smokers are associated with increased number of cigarettes uptake in adulthood and decreased quit rates. It is stated that adult smokers usually initiate smoking in their early years and there are less chances that they cease smoking in their adulthood [5]. In developing countries like Pakistan, Bangladesh, India and Nepal tobacco smoking is highly prevalent among adolescent. [6-8]. According to WHO adolescent age ranges from 10-19 years that corresponds to the pubertal age and the development of secondary sexual characteristics. During this time individual undergoes emotional, physical, psychological and social development [9]. Cigarettes that are sold in developing countries are usually of low quality and with high tar content which make them even more injurious to health. Smoking decrease immunity and due to this smokers are usually more susceptible to opportunistic infections [10].

By 2030 it is estimated that deaths due to smoking will rise from 5.4 million to 8.3 million. It is estimated that in 2015 tobacco use caused 50% more deaths than HIV AIDs [11]. Worldwide there are 1.2 billion smokers and 150 million in Asia are young smokers [12]. In Pakistan 15% of the college students are indulged in smoking with an estimation of 1200 adolescent started smoking everyday [13]. Schools are considered as an important setting for the prevention of

smoking [14]. This study is conducted with the aim to evaluate the effectiveness of education intervention on smoking behavior, level of knowledge and attitude of adolescents aged between 15-19 years.

Material and Methods

It is a cross sectional study that was carried out from June 2017 to August 2018 among adolescents aged between 14-19 years. The schools were divided into two strata's on the basis of socioeconomic status (high and middle). High socioeconomic group was defined as those schools whose monthly school fee was between 6000 to 12000. And middle socioeconomic school structure was defined as school having school fee between 2000-6000. For each stratum the schools were selected on a convenience basis and then students were selected through random sampling. A total of 650 students were selected.

Questionnaire

Information regarding smoking among adolescent in different countries was collected. Different questionnaire which were used in previous studies around the world were examined and questionnaire was designed as multiple choice questions. Pilot testing was done and validity of the questionnaire was calculated by Cronbach's alpha which comes out to be 0.68. The questionnaire were mostly close ended including information such as current age, current smoking status, age of initiation of smoking, awareness regarding health hazards related to cigarette smoking, frequency of cigarette smoking. Post intervention was conducted using the questionnaire containing same questions as in pre intervention and developed according to the US Surgeon General report that was published in collaboration with center of disease control (CDC).

Ethical approval

Approval was taken from the schools to participate in the study. Teachers and students were explained about the study logistics and

informed consent form was signed. A written informed consent was taken from the school which agreed to participate in the study and also from the students who agreed to participate.

Exclusion and inclusion criteria

- The adolescent which were included in the study were considered eligible if:
- Their age ranged from 14-18 years, smoked a total of 15 or more cigarette during the last 30 days reported that cigarette was only tobacco product used.
- Who were willing to complete the intervention session.
- **Exclusion Criterion.**
- Adolescent who reported to use alcohol and other drugs , had receive recently the treatment for drug problem, age greater than 19 years,
- Adolescent having any psychotropic disorder, not willing to participate were excluded.

Educational intervention

Educational intervention consisted of 6 sessions of 90 minutes each. Video clips, lectures and brain storming sessions were used. Power point presentation highlighting the health hazards associated with smoking, factors which influence initiation of cigarette smoking and strategies to quit smoking. Video clips of patients on ventilator, paralyzed due to stroke suffering from

mouth cancer and several other related videos were shown. The pictures and videos were obtained from websites such as YouTube and Google. Following topics were covered: Knowledge about the cigarette content; Management of stress; Awareness about the smoking risk; Strategies to quit smoking; Building of nonsmoking community and Methods to handle social pressure.

Data analysis

- Data was entered in to SPSS version 16 through a special coding system. The coded data were systematically verified and checked for errors.
- Descriptive and inferential statistics were applied for data analysis. Arithmetic Mean (Average) was calculated for quantitative variables, while for qualitative variables, frequencies and percentages were measured.
- Data was analyzed using Chi square test. P value of <0.05 was considered a significant.

Results

Demographic characteristics of respondents

The mean age of respondents was 15.3 +2.2 years. (Age range between 14-19 years).The grades in which students were studying ranged from grade 7 to 10 (30% in grade 7, 19% in grade8, 36% in grade 9 and 20% in grade10) (Table 1).

Table 1: Demographic characteristics of Respondents.

Questions		Number	Percentage
Mean Age of respondents		15.3+2.2	
School grade	7	195	30%
	8	91	14%
	9	234	36%
	10	130	20%

Knowledge of students regarding health consequence of smoking before and after educational intervention

Majority of the respondents (90.7%) in the study group knew that cigarette smoking is a bad habit and cause lung disease. Proportion increased to (96.9%) after educational intervention ($p=0.000$). About 84.6% students think that cigarette smoking is associated with heart diseases after

intervention proportion increase to 94% ($p=0.000$). Among respondents 84.9% stated that smoking because cancer and proportion rose to 96.2% after educational intervention. No significant difference was seen on the knowledge that smoking cause poor quality life before (70.3%) and after interventions (74.6%). Only (34.6%) stated that smoking is associated with increased mortality which after intervention rose to (71.5%) ($p=0.000$) (Table2).

Table 2: Knowledge of respondents regarding smoking related diseases.

Questions	Pre intervention		Post intervention		P value
	Number	Percentage	Number	Percentage	
Smoking is bad habit and cause lung cancer	590	90.7	630	96.9	0.000
Smoking is associated with heart diseases	550	84.6	611	94	0.000
Smoking cause cancer	552	84.9	625	96.2	0.000
Smoking leads to poor quality of life	457	70.3	485	74.6	0.000
Smoking is associated with increased mortality	225	34.6	465	71.5	0.000
Smoking leads to dental problems	385	59.2	462	71.1	0.000

Attitude of respondents regarding smoking

As shown in Table 3 attitude of the respondents significantly changes before and after intervention, most of the students after intervention (82.4%) believe that it should be totally banned by the government as compare to (68.8%) before intervention. Among the

respondents 71.1% before and 79% after intervention believes that strong taxes should be imposed on the sale of cigarettes. Significant difference was seen on the attitude of students regarding the cigarette advertisement before (71%) and after intervention (78%) ($P=0.000$).

Table 3: Attitude of respondents regarding smoking.

		Pre intervention		Post Intervention	
		Number	Percentage	Number	Percentage
Ban on the cigarette smoking	Strongly agreed	339	52.2	397	61.2
	Agreed	108	16.6	198	21.2
	Disagree	143	22	71	11
	Strongly disagree	60	9.2	43	6.6
Tax on sale of cigarettes	Strongly agreed	345	53.1	377	58
	Agreed	117	18	137	21

	Disagree	130	20	111	17
	Strongly disagree	59	9	25	4
Ban on cigarette advertisement	Strongly agreed	338	52	364	56
	Agree	123	19	143	22
	Disagree	130	20	123	19
	Strongly disagree	59	9	20	3
Cigarette should not be sold to children under 18 years of age	Strongly agree	377	58	416	64
	Agree	130	20	98	15
	Disagree	71	11	65	10
	Strongly disagree	71	11	71	11

Smoking behavior of adolescent before and after intervention

Significant difference was seen on the practice of smoking before and after educational intervention. Before intervention 42% respondents smoke 1-2 cigarettes / week which reduces to 30% after intervention ($p=0.000$). The number of students who smoked in past 30 days reduces from 93% to 75% before and after intervention ($p=0.000$). 73% do not intend to smoke in next month and 70% stated that they are not intended to smoke in next year. Among respondents 60% of the respondents attempt to quit smoking.

Figure 1: Adolescent smoking behavior before and after education intervention.

Discussion

Adolescent are a future of this country and if they will indulge themselves in smoking then

who else will save the community. Therefore this study is conducted with the aim to determine the impact of education intervention on knowledge of adolescent regarding different factors such as diseases from smoking, effect on quality of life, attitude towards smoking and smoking behavior before and after was studied. Significant increase in the adolescent knowledge regarding health hazards of smoking was found in this study which is in comparison with the study conducted in other parts of the world where most of the respondents were aware of smoking related health hazards [15-18]. A study conducted by Perry[19] and Vartiainen et al. [20] showed positive effect on smoking behavior of adolescent. Another study was conducted by Botvin [21] in which 56 schools were selected and randomized into 3 groups and significant reduction was seen in smoking among adolescent. Another study conducted in England also showed a significant reduction in smoking after educational intervention[22].

Adolescent attitude towards smoking significantly improved after education intervention. These findings are consistent with previous studies. A study was conducted in Greece showed an improved attitude of students[23]. Another study conducted in Yilan in which significant improvement in attitude of students was shown soon after 1 week of intervention[18]. Our results have shown that health education intervention at short term is

effective in preventing smoking among adolescence and justify that it should be implemented further in schools at a large scale. This is in consistent with the study conducted in Denmark where booster interventions further reinforce the smoking prevention [24]. One of the important finding of this study is that after a short education intervention a significant improvement in behavior of adolescent was seen. This suggest a need of continuous smoking prevention program to prevent smoking at a larger scale

Conclusion and Recommendations

The present study showed a significant improvement in knowledge, attitude and behavior of adolescents after educational interventions. Community based effort is needed to create age appropriate awareness among adolescents regarding smoking which should also involve teachers and parents. Proper measures should be taken at government level to reduce the purchase of tobacco products by adolescents.

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