

The Extent of Influence of Factors on Cigarette Smoking Among Teenagers in Baguio City: A Cross-Sectional Study

Joan cheruiyot^{1*}, Marjorie Retuta², Geoffrey Arasa³, Sabella J. Kiprono⁴, Scholastica Korir⁵, Simon Macharia Kamau⁶

1. School of Medicine, Department of Nursing Sciences, Maseno University
2. School of Nursing, Saint Louis University, Baguio City, 2600, Philippines
3. School of Medicine, Department of Medical Microbiology, Maseno University
4. Department of Medical Laboratory Science, Masinde Muliro University of science and Technology, P.O Box 190-50100, Kakamega
5. School of Medicine, Department of Medical Microbiology, Maseno University
6. School of Health Sciences, Department of Nursing, University of Kabianga

* E-mail of the corresponding author: jochebby@gmail.com

Abstract

Introduction: Although there are several studies conducted on teenage smoking, the causes to become smokers in adolescence remain unclear. Several factors were identified but the extent of its influence still obscure. Therefore, the purpose of this study is to investigate the significant difference in the extent of influence of these identified factors when teens are group according to gender and age group of 13 to 16 years old versus 17-19 years of age.

Objective: A quantitative study was conducted to determine the extent of influence of factors on cigarette smoking among teenagers in City high school and St. Louis high school.

Methods: A total of 100 respondents were investigated using a structured questionnaire. The study sought to explore the factors that influenced cigarette smoking among teenagers and to what extent they can influence. A questionnaire, in the form of a checklist was the primary tool used in the data gathering relevant to the study. The questionnaire explored the extent of influence of factors affecting smoking among teenagers in Baguio City. The design used for this study was the quantitative research design. The subjects were 100 students (Male and female) studying in Baguio City, Philippines. The age bracket for subjects was 13-19 years for males and females. The sample for this quantitative study was constructed by purposive sampling students in Baguio City who were asked to voluntarily answer the questionnaire. Descriptive statistics which included frequency, % distribution, average and weighted mean was used. Average mean was used to determine the extent of influence of factors on smoking among teenagers of Baguio City. Standard deviation and *t-test* were used to determine the extent of influence when the teenagers were grouped according to age and gender.

Results: The study found out that there was a significant difference in the extent of influence of factors when the teenagers were grouped according to gender, the females smoked more than the males. However, when grouped according to age (13-16 & 17-19), there was no significant difference in their extent of influence. The teenagers were very much aware of the effects of cigarette smoking on the biological, physical and social implications. Despite this awareness, the drive to perform the behavior is strong.

Conclusion: Finding solutions to modify the belief on the identified potent factor will alter the attitude in the performance of smoking behavior. Successful cessation often requires multiple strategies since continuous smoking is associated with several factors. The researchers would recommend the formulation programs and campaigns on anti-smoking. The researchers are also optimistically looking for the possibility of this study to help assess the need to strictly or creatively implement enacted laws stated in Republic Act 2011. The researchers believe an epidemic of tobacco use is imminent if drastic action is not taken, and recommend that anti-smoking campaigns with an emphasis on the religious aspect should start as early as in elementary school. Intervention programs to encourage behavior modification of adolescents are also recommended.

Keywords: *Gender, Age group, Adolescents and Tobacco use.*

INTRODUCTION

The youth of today is the hope of the future. What future holds for a nation depends on how its citizens conduct their affairs. Good health is essential in preparing the fated young generation in the Philippines. It becomes increasingly alarming that what was imagined to be the role models and leaders of the future will have a short life expectancy due to smoking habits. Cigarette smoking is the single most preventable cause of morbidity and mortality (National Environmental Health Association, 2008). Despite the known hazards of

smoking, almost 3,000 adolescents became new smokers everyday (Thakur, et.al.,2003). Smoking decision process starts very early for many children and appears only to be narrow time for a period of two to three months where teenagers can be converted to regular smokers (Albaum,2002). Young people who cannot rule out the possibility of smoking are significantly more likely to start (Hebert, 2007).

Most adult smokers begin sometime between ages 13 to 17 years old and are addicted before the age of 20 (Hanson, 1999; Wang, 1997). This is strengthened by the findings of American Lung Association that about 80% of adult smokers started as teenagers. Teens are unlikely to become smokers when they reach adulthood, if they do not start before the age of 19 (Malat, 1998). Smoking by adolescent, including experimental smoking, dramatically increases the risk of an adolescent becoming an adult smoker (Wang, 1997). To date, there are no proven programs to help teens quit smoking (Grimshaw, 2006). The Philippines having a population around 92 million is the 15th biggest consumer of cigarettes in the world (Mallari, 2002) and the largest consumer among the Association of Southeast Asian Nations (Mackay, 2002). In 1999, the government's white paper on smoking calculated that two Filipinos die every hour from tobacco use (Philippine Senate Committee on Health Demography,1999).

Along with the many harmful effects of smoking such as cancer, chronic obstructive pulmonary disease, dental problems, ulcer and many more smoking related problems including the social implications such as second hand smoke which is the third leading preventable cause of death in the US (National Environmental Health Association, 2008), is the effect of nicotine considered as a number one entrance to other substance abuse problems and is common with psychiatric and substance use disorder (Herbert, 2007). Since nicotine is addictive, psychological and physical dependence follows and the optimism to quit becomes narrow on the account of relapses occurring within 12 months.

Align with the health threats imposed on this adolescents, such behavior could also be credited on the account of their physiologic responses. A study using functional magnetic resonance imaging (fMRI) to assess eye movements in adolescents has found a link between brain functioning and risk for developing Substance use disorder. (McNamee, 2008). Analysis from a 12 years research by Meg Gerrard presented two ways humans process information to make decisions, a more reasoned path that leads to intention to engage in a behavior; or a more intuitive path that leads to an openness or willingness to engage in a behavior. .

Although there were several studies conducted on teenage smoking, the causes to become smokers in adolescence remain unclear (Becklate, 2005). Several factors were identified but the extent of its influence still obscure. Therefore, the purpose of this study is to find out the factors that influence cigarette smoking among teenagers and to what extent this can influence. The researchers also investigated whether there was a significant difference in the extent of influence of these identified factors when teens were grouped according to gender and age group of 13 to 16 years old versus 17-19 years of age. Furthermore, also try to understand the level of awareness with respect to the effect of smoking.

METHODS AND PROCEDURES

The design used for this study was the quantitative research design. The subjects were 100 students (Male and female) studying in Baguio City, Philippines. The age bracket for subjects was 13-19 years for males and females. The sample for this quantitative study was constructed by purposive sampling students in Baguio City who were asked to voluntarily answer the questionnaire. The sampling which was used in determining the number of respondents who were included in the study was by convenience sampling. Excluded are those who already stopped smoking at the time of study. A questionnaire, in the form of a checklist was the primary tool used in the data gathering relevant to the study.

Descriptive statistics which included frequency, % distribution, average and weighted mean were used. Average mean was used to determine the extent of influence of factors on smoking among teenagers of Baguio City. Standard deviation and *t-test* was used to determine the extent of influence when the teenagers were grouped according to age and gender.

RESULTS AND DISCUSSION

In table 1, among the identified thirteen factors that can influence smoking findings were there is '*high influence were*,' *Accessibility to vendors*' with a mean of 2.95, '*relieves stress*', a mean of 2.85., and '*claim for independence*', a mean of 2.71. Peer factors such as '*friends forced me to do it*' a mean of 2.70 and '*satisfy feeling of belongingness*' having a mean of 2.69 also play an important role among the influences identified. Parental factors such as '*Following the examples of parents*' and '*To go against the will of parents*' were not significantly influential to the smoking behavior of the adolescents garnering means of 2.14 and 2.16 respectively which has *low influence*.

The percentage of adolescents in comparison with the population of adults and children was noticeably found out that the younger generation has the highest number in most of the nations particularly in the Philippines. With this finding alone, a lot of the teenagers are more exposed to the environment which becomes inevitable to the budding adolescent to seek and to discover self-identity in his relationship with others.

The availability or easy access to the product has brought increasing recognition and readiness of the product to the target consumers. This is justified by the presence of escalating numbers of sidewalk and ambulant vendors. These methods of trading sell by 'tingi' or by the stick which makes it affordable to the teenagers who have limited source of money or merely depending on allowances. More so peddlers cater to solve distance problems in the selling of cigarettes.

Analysis of the data importantly indicates that cigarette smoking is utilized as a coping mechanism in relieving stress. This therefore suggests that the younger generation is into stressful activities and the easiest solution in responding to it is by using the vice which could later become a habit. Employing the same model stated above, the stimuli in their environment pushes the adolescent to activities that become stressful to them and the accessibility of the found solution is readily available in which becomes his adaptive mode.

These high influential factors to smoking behavior amongst teenagers such as, '*accessibility to vendors*', '*relieves stress*' and '*claim for independence*' are all modifiable factors with the aggressive involvement of society in the implementation of laws and programs in addressing the needs of the teenagers. Since '*accessibility to vendors*' claims the highest result, the government must closely look on the enforcement of 100 meters away from any point of the perimeter of the school as part of RA 2011. The result also tells shows that teenagers have poor management of stress or they lack skills in dealing with stress. *Claim for independence* on the other hand is demand innate to the natural make-up of the teenagers. Both factors will need programs or solutions to divert focus on cigarette smoking as an alternative but rather provide options which will address independence and stress management.

The table II shows that the female have several factors of *high influence* compared to the males. However, both genders have '*accessibility to vendors*' as a factor that has the highest mean among all the factors identified that have *high influence*. Other identified factors for the females that have great influence to the behavior were '*relieves stress*' and '*friends forced me do it*' while the factor *following the examples of parents*' has the lowest mean. Other identified factors for the males were '*relieves stress*' and '*claim for independence*' while the lowest mean points to '*responding to advertisements*'. The top three items that have significant difference between responses were '*to follow smoke habits of friends*', '*responding to advertisements*' and '*to go against the will of my parents*' in which in all cases had the females to be more influenced by it.

Basing from the t-test done, result showed that there was a significant difference on the extent of influential factors on cigarette smoking when participants were grouped into gender. Females indicated a 2.64 average mean which is a high influence to smoking while males had 2.25 average mean, which is a low influence to smoking. Computed value indicated a 1.98 which is lesser than the tabular value is 2.6, hence rejecting the hypothesis.

The table III is about finding the significant difference on the extent of factors influencing the age group of 13-16 years old and 17-19 years old. Of all the factors, '*Accessibility to vendors*', '*Relieves stress*' and '*Claim for independence*' are high influence factors for both age group. Parental factors are not very significant and not even considered as a factor for the higher age group. Item in connection to peers and their relationship with them signifies high influences to the younger age group.

In comparison between the two age group, it appears that discrepancies on the three most significant items. '*Following examples of parent*' which is an influence to the younger age group and not even a factor to the older group. Another item was '*Responding to advertisements*' and '*To establish macho/sexy/sosyal identity*' although both interpretation are of *Low Influence*, the differences on the statistical data present significant analysis.

The study was to identify if there was a significant mean difference in the extent of influence of factors on cigarette smoking when teenager were group according to age. The result of the statistical treatment indicate a computed value of 1.985 which greater than the tabular value of 1.7 leading to the acceptance of the hypothesis that there is no significant difference of factors influencing cigarette smoking between the two population.

It becomes more significant '*following the examples of parent*' as an influential factor to the younger age group than the older age group. Parents still perform a critical role to the younger group since the attachment to a figure head or authority is essential as one enters the world of teenage life. It is very crucial for all support system to understand the very nature of these young people. Guidance and counseling is substantial in their journey to adulthood. Today, teenagers are faced with many countless negative distractions both in the media and friends at school which can increase depression among this generation. Created programs for youth must focus on establishing self confidence and meaningful goals in life.

Table IV presents the awareness on the effects of cigarette smoking on the biological, physical and social aspect. Majority of the data gathered indicates that the 100 respondents are aware of its effects particularly on the biological and physical aspect of man. Significant discrepancies established by the findings were '*Cigarette smoking associated with lung cancer*' and '*cigarette smoking associated with heart diseases and high blood pressure*' which were interpreted as *very aware*. Two sub-items under the provision of Republic Act 9211 have vague familiarity to the teenagers revealing a 'partially aware' result on the table.

Lung Cancer and diseases of the heart are the two most visible physical effects that teenagers could easily associate to smoking. They are more exposed to the idea because these were the emphasis of health campaigns were given into. From childhood to adulthood, adolescent is the stage of life that learning and acquiring knowledge with the use of advance technology is most used. Children begin to get involve with it but indulge more on building friends and playmates. Adulthood is at the brink of technology shy. However teenagers are technology enthusiast. With this attribute awareness on the desired subject is arouse well enough. However, despite of the knowledge acquired with regards to cigarette smoking and its known effects, teenagers still involved themselves in the use of the vice. Adolescents' are into risk-taking decisions and are reactive to "risk-conductive" circumstances that usually involve friends and peers (Gerrad, 2007).

Of course this could entail a huge budget for a society as small as the Philippines. However, if the youth is taken as the future hopes of a nation then budget will no longer be an issue. Just as illegal drugs is being viewed as a menace to the environment, teenage smoking must also be taken as destructive since studies proved that this is the initial step to entering into harmful substances

The table V represents comparison on the awareness of the effects of cigarette smoking between the male and female teenagers. The males have a total mean of 2.83 and the females have a mean of 3.09 both having 'aware' as the interpretation. Although the results for the females present higher awareness than the males, in general both population still have items about the policies on cigarette smoking unclear to them resulting to 'partially aware' outcome.

The result of the finding only confirms the general assumption that females were more attentive to details compared to males viewing issues in general concepts. Males may understand smoking as harmful while the females comprehend it as addictive and involvement of particular campaigns. Although findings presented a discrepancy in the statistical data it was not significantly different. In general, this is to show that teenagers are informed well enough to understand the effects of smoking. This creates a scenario that despite the knowledge obtained, teenagers still submit to the invitation to puff tobacco.

The table VI below displays the awareness on the effects of cigarette smoking between age group. Both groups of 13-16 years old and 17-19 years have an '*aware*' result with 2.80 mean and 2.95 mean respectively. Both groups are also '*very aware*' that cigarette smoking can cause lung cancer. However statistical data impose differences on items '*Cigarette smoking is associated with decreased oxygen in the blood*', '*RA 9211 is a law enacted to regulate the use of tobacco*' and '*Every time I puff a cigarette, I know I can harm other non-smoker close to me*' which made the 17-19 year old age group more acquainted. Some of the items on the implementing laws are still unfamiliar to most of the respondents particularly on the penalties imposed and the promotion styles in which both groups resulted to 'partially aware'.

Conclusion

The study therefore concludes that there were several factors that could influence teenagers to the smoking behavior. Proximity of vendors to the consumers was a very obvious result as to the extent of its influence and cigarette smoking in response to stress was another factor identified. These two influential factors were true to all teenager wither they were group into gender and age group. Extent of influence varies with teenagers when they were grouped according to gender and age group. Females were more magnetized to the vice than the males. Younger groups are more influenced by parents and peer compared with the older age group. Despite the awareness of the effects of cigarette smoking, adolescents still submit to the behavior of tobacco use. Awareness alone does not therefore motivate the tobacco users to change or modify the behavior.

Recommendation

The researchers would like to recommend that an extensive implementation of Republic Act 9211 be done particularly on the aspect of merchandising of the product which is one hundred meters from any point of the perimeter of the school. Stress problems of the adolescent need to be addressed by providing stress management classes for students which could also be part of a curriculum. For out of school youth, stress management programs be conducted by the Department of Social Welfare and Development. This will re-direct attention on solutions on how to handle fatigue and stressful events in the life of an adolescent. It is also highly recommended that media promotions and campaigns must be lessened if not remove young girls as a medium for

a young, sexy and vibrant image in the use of tobacco.

Since teenagers are technology enthusiasts, the researchers wish to recommend a continual advocacy on the effects of smoking and awareness of the implementing law through the use of technology where most teenagers could easily access. Involvement of other government agencies in the massive campaign for anti-tobacco be employed for the improvement of the youth's lifestyle. Further studies to be done on finding solutions on how to motivate the adolescent to change the habit of smoking.

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Tables

Table I: Extent of Influence of factors on Cigarette Smoking among Teenagers

Items	x	Interpretation
Accessibility to vendors	2.95	HI
Relieves stress	2.85	HI
Claim for Independence	2.71	HI
Friends forced me to do it	2.7	HI
Satisfy feeling of belongingness	2.69	HI
To follow smoke habits of friends	2.58	HI
To substitute for meals/temporary relief from hunger	2.58	HI
Responding to advertisements	2.25	LI
For weight control	2.18	LI
To establish 'macho'/'sexy'/'sosyal' identity	2.18	LI
To against the will of my parents/others	2.16	LI
To gain recognition	2.15	LI
Following the examples of parents	2.14	LI
MEAN	2.47	LI

Table II: Extent of Influence of Factors on cigarette smoking according to gender

Items	Male		Female	
	x	I	x	I
Accessibility to vendors	2.91	HI	3	HI
Relieves stress	2.78	HI	2.93	HI
Claim for Independence	2.63	HI	2.8	HI
Satisfy feeling of belongingness	2.52	HI	2.87	HI
Friends forced me to do it	2.5	LI	2.91	HI
To substitute for meals/temporary relief from hunger	2.5	LI	2.67	HI
To follow smoke habits of friends	2.26	LI	2.91	HI
For weight control	2.06	LI	2.3	LI
Following the examples of parents	2.02	LI	2.26	LI
To establish 'macho'/'sexy'/'sosyal' identity	1.98	LI	2.39	LI
Responding to advertisements	1.96	LI	2.54	HI
To gain recognition	1.96	LI	2.35	LI
To against the will of my parents/others	1.89	LI	2.43	LI
Mean Average	2.25	LI	2.64	HI
T-test	CV= 2.74 TV= 2.06	Decision : CV > TV ; Reject Ho		

Table III: Extent of Influence of factors according to age group

Items	13-16 years old		17-19 years old	
	x	I	x	I
Accessibility to vendors	2.94	HI	2.94	HI
Relieves stress	2.94	HI	2.77	HI
Claim for Independence	2.83	HI	2.57	HI
Friends forced me to do it	2.83	HI	2.51	LI
Satisfy feeling of belongingness	2.79	HI	2.55	HI
To follow smoke habits of friends	2.66	HI	2.43	LI
Following the examples of parents	2.49	LI	1.72	NA
Responding to advertisements	2.49	LI	2.06	LI
To substitute for meals/temporary relief from hunger	2.49	LI	2.64	HI
To establish 'macho'/'sexy'/'sosyal' identity	2.32	LI	1.96	LI
To gain recognition	2.28	LI	1.98	LI
To against the will of my parents/others	2.26	LI	2	LI
For weight control	2.15	LI	2.19	LI
MEAN	2.55	HI	2.3	LI
T-test : TV = 1.985 Decision : CV < TV; Accept Ho CV = 1.7				

Table IV: Awareness on the effects of Cigarette Smoking

Items	X	Interpretation
1. Cigarette smoking is addictive	3.12	VA
2. Cigarette smoking is associated with decreased oxygen in the blood.	2.94	A
3. Cigarette smoking daily for a period of time can cause mouth ulcers.	3.01	A
4. Cigarette smoking is associated with lung cancer.	3.52	VA
5. Cigarette smoking is associated with diseases such as heart disease and high blood pressure.	3.28	VA
6. Cigarettes contain carbon monoxide.	3.02	A
7. There is an existing anti-smoking poster campaign of the DOH.	2.88	A
8. Cigarette smoking of 1 stick shortens life for 7 minutes	2.88	A
9. Every time I puff a cigarette, I know I can harm other non-smoker close to me.	3.18	A
10. RA 9211 is a law enacted to regulate the use of tobacco.	2.58	A
11. The law prohibits;		
a. smoking in public places.	2.96	A
b. minors to sell, buy and smoke	2.87	A
c. the sale or distribution of tobacco products within one hundred (100) meters from any point of the perimeter of a school, public playground or other facility frequented particularly by minors.	2.58	A
d. Advertisements in broadcasting on television, cable television, and radio between seven o'clock in the morning and seven o'clock at night.	2.41	PA
e. logo or other indica of the cigarette brand be displayed so as to be visible to others when worn or used. Clothing items must be in adult sizes only.	2.38	PA
12. Penalties for the violation of the provisions stated in the law ranges from P500.00 to P400,000.00	2.70	A
MEAN	2.89	A

Table V: Awareness of the effects of cigarette smoking according to gender

Items	Male		Female	
	x	I	x	I
1. Cigarette smoking is addictive	2.98	A	3.26	A
2. Cigarette smoking is associated with decreased oxygen in the blood.	2.93	A	2.96	A
3. Cigarette smoking daily for a period of time can cause mouth ulcers.	2.87	A	3.15	A
4. Cigarette smoking is associated with lung cancer.	3.56	VA	3.48	VA
5. Cigarette smoking is associated with diseases such as heart disease and high blood pressure.	3.31	VA	3.26	A
6. Cigarettes contain carbon monoxide.	3.02	A	3.02	A
7. There is an existing anti-smoking poster campaign of the DOH.	2.83	A	2.93	A
8. Cigarette smoking of 1 stick shortens life for 7 minutes	2.87	A	2.89	A
9. Every time I puff a cigarette, I know I can harm other non-smoker close to me.	3.19	A	3.17	A
10. RA 9211 is a law enacted to regulate the use of tobacco.	2.67	A	2.50	PA
11. The law prohibits;				
a. smoking in public places.	2.85	A	3.07	A
b. minors to sell, buy and smoke	2.98	A	2.76	PA
c. the sale or distribution of tobacco products within one hundred (100) meters from any point of the perimeter of a school, public playground or other facility frequented particularly by minors.	2.46	PA	2.70	PA
d. Advertisements in broadcasting on television, cable television, and radio between seven o'clock in the morning and seven o'clock at night.	2.35	PA	2.48	PA
e. logo or other indica of the cigarette brand be displayed so as to be visible to others when worn or used. Clothing items must be in adult sizes only.	2.31	PA	2.46	PA
12. Penalties for the violation of the provisions stated in the law ranges from P500.00 to P400,000.00	2.15	PA	3.26	A
Mean	2.83	A	3.09	A

Table VI: Awareness of the effects of cigarette smoking according to age

Items	13-16 years old		17-19 years old	
	x	I	x	I
1. Cigarette smoking is addictive	3.04	A	3.30	VA
2. Cigarette smoking is associated with decreased oxygen in the blood.	2.72	A	3.19	A
3. Cigarette smoking daily for a period of time can cause mouth ulcers.	2.81	A	3.00	A
4. Cigarette smoking is associated with lung cancer.	3.45	VA	3.64	VA
5. Cigarette smoking is associated with diseases such as heart disease and high blood pressure.	3.21	A	3.40	VA
6. Cigarettes contain carbon monoxide.	2.92	A	3.13	A
7. There is an existing anti-smoking poster campaign of the DOH.	2.98	A	2.77	A
8. Cigarette smoking of 1 stick shortens life for 7 minutes	2.85	A	2.91	A
9. Every time I puff a cigarette, I know I can harm other non-smoker close to me.	3.02	A	3.38	VA
10. RA 9211 is a law enacted to regulate the use of tobacco.	2.40	PA	2.81	A
11. The law prohibits;				
a. smoking in public places.	2.79	A	2.94	A
b. minors to sell, buy and smoke	2.92	A	3.13	A
c. the sale or distribution of tobacco products within one hundred (100) meters from any point of the perimeter of a school, public playground or other facility frequented particularly by minors.	2.58	A	2.62	A
d. Advertisements in broadcasting on television, cable television, and radio between seven o'clock in the morning and seven o'clock at night.	2.60	A	2.40	PA
e. logo or other indica of the cigarette brand be displayed so as to be visible to others when worn or used. Clothing items must be in adult sizes only.	2.47	PA	2.30	PA
12. Penalties for the violation of the provisions stated in the law ranges from P500.00 to P400,000.00	2.30	PA	2.28	PA
Mean	2.80	A	2.95	A