



Studies on the Behavioral Changes Among Adolescent Smokers and Their Nutritional Status

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Abstract

A cross sectional study was carried out among the 400 adolescent smokers selected randomly from four areas of the Dhaka city to observe the behavioral pattern changes of the adolescent's smokers and their nutritional status. The age of adolescent smokers was 16.1 ± 1.1 years. Several factors were involved in the addiction of smoking such as refusal of love and emotion (42%), friend incitements (29%), self curiosity (13%) and problems of the family (11%) and at the extended family members were the highest risk groups for smoking. Different types of behavioral changes occur due to smoking such as annoyed with others (33%), disobedient parents (23%) and dishonor to respectable people (21%). The rate of cigarette smoking was increased during gossiping time (37%) and after meal (26%). About forty percent (39%) of the respondents received physical or mental dependency due to smoking and 30% of them were fatigued. Again, 48% of adolescents' smokers were always feeling lonely and 38% of them fell alone at times. Smoking affects the study, 24% were of the opinion it affects very much, 36% were moderate harmfully and only 11% of them responded it was harmless for their study. Adolescents' smokers took their food irregularly, only 22% of the respondents took three meals regular per day. The moderate to severe malnutrition rate of adolescent's smokers were found 37, 22 and 10% of underweight, stunting and wasting respectively.

Key Words: Adolescent, Cigarette smoking, Behavioral Changes and Addiction factors

Introduction

Smoking is one of the familiar types of addiction. It has been observed in many studies that smoking cigarettes is both a mental and physical addiction (Quit smoking, 2007). Just someone has to fight the addiction of nicotine when quitting, it is just as important as fighting the other habits of addiction. These are different mental and physical effects that cigarettes offer if smokers quit smoking, they don't know what they will do with their hands instead.

Many people think they simply cannot live without smoking, as if cigarettes are a necessity to living. Usually tobacco contains nicotine, a drug that is addictive. The nicotine, therefore, makes it very difficult (although not impossible) to quit. Although smoking is an addiction, people can quit smoking. Secondhand smoking also has a passive harmful effect. It is harmful to the health of children, family members, and co-workers. There is a strong correlation between smoking and lung cancer, heart disease, stroke and respiratory disease has been observed in many research works. So quitting smoking cuts the risk of lung cancer, heart disease, stroke, and respiratory diseases (Fulton *et al.*, 1988). The steps in quitting, each of which requires special attention and efforts by the smoker, are getting ready to quit, quitting, and staying quit.

The signs of addiction to cigarettes include: Smoking more than seven cigarettes per day and inhaling deeply and frequently (Health touch, 2007). Cigarette smoking is also found to be associated with various cancers, such as, cancer of larynx, oral cavity, bladder, stomach, pancreas, etc. in both men and women (US Department of Health and Human Services, 1982). It has also been reported to be the major cause of chronic obstructive lung disease (cold), that is, chronic bronchitis and emphysema (Holbrook, 1987). Depending upon the extent of smoke exposure, male cigarette smokers experience from 4 to 25 times higher mortality secondary to chronic obstructive lung disease compared with non-smokers. Cigarette smoking is also found to be associated with an increased incidence of respiratory infection and deaths from pneumonia and influenza (Holbrook, 1987).

Cigarettes are filled with poison that goes into the lungs when it is inhaled. Coughing, dizziness, and burning of the eyes, nose, and throat are early signs of smoking. Smoking increases health risks if somebody has diabetes, high blood pressure, or high blood cholesterol. The long-term problems of smoking cigarettes are the following: There are no physical reasons to start smoking. The body doesn't need tobacco the way it needs food, water, sleep, and exercise. In fact, many of the chemicals in cigarettes,

like nicotine and cyanide, are actually poisons that can even kill a person in very high doses (Larissa, 2007). Smoking can also cause fertility problems and can impact sexual health in both men and women.

Large number of epidemiological studies has shown strong association between cigarette smoking and several diseases (Libow and Schlant, 1982; Shaper *et al.*, 1985; Holbrook, 1987). A strong positive association have been observed between cigarette smoking and the risk of cardiovascular disease morbidity and mortality in men and women under 65 years of age (Pearl, 1938; Libow and Schlant, 1982). Shaper *et al.*, (1985) found male smokers at three times the risk of heart disease compared with non-smokers. Cigarette smoking is now considered to be the most important modifiable coronary heart disease (CHD) risk factor, acting both independently of and synergistically with other CHD risk factor (Holbrook, 1987). Further, cigarette smoking is the most powerful risk factor for atherosclerosis (Strong & Richards, 1976). One possible mechanism for a long term effect of smoking on cardiovascular disease is the atherogenic impact of tobacco smoke on plasma lipid and lipoproteins (Hill and Wynder, 1974; Toping, 1977).

The smoking prevalence in Bangladesh as of 2004 is 41% among men aged 15 years and over (50.1% among men aged 30 years and over). In women it is 1.8% among those aged 15 years and over (3.1% among women aged 30 years and above). In addition, 14.8% men 15 years and above (22.4% of men 30 years and above), and 24.4% of women 15 years and above (39% of women 30 years and above). Altogether 62% of men and 41% of women (52% sex combined) aged 30 years and above were found to either smoke or chew tobacco at the time of survey.

The prevalence of eight tobacco-related diseases (ischemic heart disease, lung cancer, stroke, oral cancer, cancer of the larynx, chronic obstructive pulmonary disease, pulmonary tuberculosis, and Buerger's disease) among the people aged 30 and above was found to be 9% and 41% of them are attributable to tobacco (WHO, 2007). Tobacco-related illness accounted for 16% of death in Bangladesh among people aged 30 years and above. More than half of this death toll could be attributed to tobacco usage. It was estimated that those who die from these illness lose 17 years of life average, some of which are working years. In 2007, WHO estimated tobacco-related illness impose a cost of 110 billion taka on the economy, of which 50.9 billion taka can be attributed directly to tobacco usage (considering that only 25% of potential patients are admitted to hospital).

Keeping all the views in mind the present work was undertaken to report the behavioral pattern changes of the adolescent smokers and their nutritional status.

Methodology

A cross sectional study was conducted among the 400 adolescent smokers of different selected areas in Dhaka city during January 2008 to October 2008. Two stage purposive random sampling were applied.

Stage 1. Selection of areas in Dhaka city: At first 4 study areas (Thana) were randomly selected namely Tejgaon, Mohammadpur, Dhanmondi and Mirpur from out of 28 Thanas of Dhaka city.

Stage 2. Selection of individual sample: A purposive random sampling method including 100 individuals in each thana were used the selection of total 400 individuals.

Selection criteria: Subjects who had been smoking four or more cigarettes per day on a regular basis for the last year and the exclusion criteria were the individual not willing to participate in the study and second are take other addiction materials along with cigarette.

Consent: The purpose and nature of the study was explained to each participant and after getting the verbal consent, they were included in the study.

Development of the questionnaire: A standard questionnaire was developed before pre-test to obtain the relevant information regarding the general information, socio-economic information, general health information and smoking habit of the participants. Food intake pattern and anthropometric measurement of the adolescents were also included in the questionnaire. The purpose of the pre-test was to test the content, wording, and expression, the topical sequence of questions and duration of the interview and the reliability of some items. After pre-test, the questionnaires (individual questionnaire) which were related for quantitative data collection were improved and reformed to ensure content coverage, the reliability and validity of the study.

Measuring weight and height: Weight was recorded in kilograms by using standard weighing machine. During measuring the weight of the each subject, it asked to bare footed and to use light and minimum cloths. For measurement of height, subjects were positioned to stand on the platform, bare footed with



their head upright, looking straight forward by using standard height measurement scale. Height was measured to the nearest 0.1 cm.

Data verification and analysis: Questionnaires were checked each day after interviewing and again these were carefully checked after completion of all data collection and coded before entering into the computer. To minimize the errors, after entering the data set into the computer, these are checked and resolved by correction.

All the statistical analysis and all other data processing were done by using SPSS 12.0 windows program. Descriptive statistics was mainly used. Data were analyzed in terms of frequency distribution, percentage means and standard deviation. For tabular and graphical representation Microsoft word and Microsoft excel were used.

Results and Discussion

Smoking is a very common and popular bad habit which is generally inhaled in a public place all segment of population throughout the world. Consequences of smoking are serious and can include

various forms of behavioral changes. As a result health and nutritional status also deviated. The findings of this study is discussed in the following tables and figures.

Table 1: Distribution of the age of the respondents

Age (year)	Frequency	Percentage
14	20	5.0
15	36	9.0
16	48	12.0
17	296	74.0
Total	400	100.0
Mean ± SD	16.1 (± 1.1)	

Table 1 shows the distribution of the age of the respondents and indicates that about three quarters of them were aged 17 years and the mean (± standard deviation) age of smokers were 16.1 (± 1.1) Year. In the figure 1 depicts the educational level of the respondents and markedly indicates that 76% of the respondents have completed read in higher secondary level.

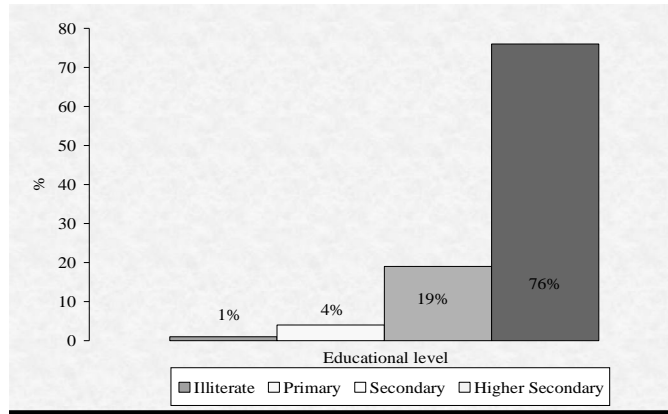


Figure 1. Distribution of the respondent's level of education

Table 2: Distribution of the income of the respondents

Have income	Frequency	Percentage
Yes	120	30.0
No	280	70.0
Total	400	100.0

Table-2 shows that 30% of the respondents were earned income and table-3 shows among them a large proportion of adolescents' smokers earn more than Tk 5,000 per month only.

Table 3: Distribution of the respondent's monthly income

Respondent's income (Monthly Tk.)	Frequency	Percentage
<2500	24	20.0
2500-5000	44	36.7
>5000	52	43.3
Total	120	100.0



Table 4: Relationship between the family size and reasons for smoking (%)

Reasons for smoking	Family size			Total
	2-4	5-6	≥7	
Refuse of love	1	5	36	42
Problems of family	0	4	7	11
Friends incitement	1	7	21	29
Self curiosity	1	2	10	13
Others	0	1	4	5
Total	3	19	78	100

Several factors were involved in the addiction of smoking such as refusal of love and emotion, friend incitements, self curiosity and problems of the family etc. Majority of the respondents were addicted to smoking due to refusal of love and emotion (42%) and a greater percentage (29%) were also addicted with the friend's incitements (Table 4). It also showed that extended family members were more smoking habit compare to smaller family size such as 78% of the adolescents were more addicted in the family size of ≥7 members and they are mainly addicted due to refuse of love and friends incitements. Table 5 shows the different types of behavioral changes of the respondents due to smoking and indicated that about one third (33%) of the respondents were annoyed with others and 23% of them were disobedient parents. Again 21% of the respondents were dishonor to respectable people. For this reason, these negative attitudes hamper their life as well as society. The rate of cigarette smoking was increased during gossiping time (37%) and after meal (26%). Failure any work or due to worry about somehow was also influenced this system.

Table 5: Behavioral changes of the respondents due to smoking

Highly addicted time	Frequency	Percentage
Annoyed with other	92	23.0
Disobedient parents	132	33.0
Dishonor respectable people	104	26.0
Aggressive behavior	44	11.0
Others	28	7.0
Total	400	100.0

It was also shows the relationship between the age of the respondents and the highly addicted times and observed that at the age of 17 years they smoke more times during gossiping and after meal, but at the age of fifteen the adolescence were more addicted due to their worried (Table 6).

Table 6: Relationship between respondent's highly addicted time by their age

Highly Addicted time	Age (Years)				Total
	14	15	16	17	
During gossip	3	3	2	29	37
After meal	1	2	2	21	26
Due to worried	1	4	2	7	14
Failure any work	0	0	2	4	6
Others	0	0	1	3	4
All reasons	0	0	3	10	13
Total	5	9	12	74	100

Figure 2 shows the distribution of the respondents by their physical changes due to smoking and indicated that about forty percent (39%) of the respondents received physical or mental dependency due to

smoking and 30% of them were fatigue. Table 7 also shows the halves (48%) of adolescents' smokers were always feeling lonely and 38% of them fell alone at times.



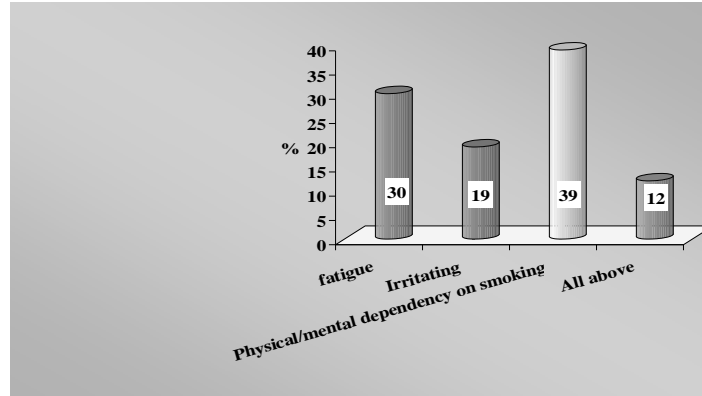


Figure 2: Physical and mental changes due to smoking

Table 7: Distribution of the number of the respondents feeling lonely

Feeling lonely	Frequency	Percentage
Yes	192	48.0
No	56	14.0
Sometimes	152	38.0
Total	400	100

Table 8: Distribution of the respondents by their effects of study

Effect of Study	Frequency	Percentage
Very much harmful	24	24.0
Moderate harmful	36	36.0
Less harmful	29	29.0
Harmless	11	11.0
Total	100	100

Table 8 implies that smoking had a bad effect on study (24% were affected very much, 36% were affected moderate harmfully). Only 11% of the

respondents were responded it was harmless for their study. Adolescents' smokers took their food irregularly and in this study indicate that more than halves of the respondents (62%) took only two meals regular per day and only 22% of the respondents took three meals regular per day (Table 9).

Table 9: Number of meal taken per day by the respondents

Food intake per day	Frequency	Percentage
2	248	62.0
3	88	22.0
4	44	11.0
5	20	5.0
Total	400	100

Table 10 shows that 63 % were normal and 37.0% were underweight. In terms of stunting 78.0% were normal and 22.0% were stunted and it also shows the rate of moderate to severe wasted only 10.0% and 90.0% were normal in the selected study population.

Table-10: Percentage of underweight, stunting, and wasting

Indicators (n=100)	Severe (Z score<-3.00)	Moderate (Z score -3.00 to -2.01)	Total (Z-score <- 2.00)	Normal (Z-score>=2.00)
Underweight	5.0	32.0	37.0	63.0
Stunting	3.0	19.0	22.0	78.0
Wasting	2.0	8.0	10.0	90.0



Conclusion

Smoking is a very dangerous tendency especially for adolescents and impinges on their family and society. Although Bangladesh is designed a law against open place smoking the smokers is seen available in bus, train, school, college, market, park and other public places and sometimes their behavior looks irritating. To prevent the bad effects on smoking, guardian should take extra care about their children at the time of adolescence, talk friendly and shared with their problems.

References

- Fulton, M.; Thompson, M.; Elton, R.A.; Brown, S.; Wood, D.A. and Oliver, M. F. 1988. Cigarette smoking, social class and nutrient intake: relevance to coronary heart disease. *Eur. J. Clin. Nutr.*, **42**: 797-803.
- Hill, P. and Wynder, E.L. 1974. Smoking and cardiovascular disease: Effect of nicotine on the serum epinephrine and corticoids. *Am. Heart J.*, **87**: 491-496.
- Holbrook, J. H. 1987. Tobacco. In: Harrison's Principles of Internal Medicine 1 (Braunwald et al.). 11th edn, pp.855-859. Mc. Graw-Hill Book Company, New York.
- Libow, M. and Schlant, R.C. 1982. Smoking and heart disease. In: Progress in Cardiology. (Yu PN, and Goodwin, J.F. eds.). *Lea and Febiger, Philadelphia*, **11**:131-161.
- Pearl, R. 1938. Knowledge of the shorter life expectancy of smokers stems back to the 1930s. *Science*, **87**: 216-220.
- Shaper, A. G; Pocock, S. J; Walker, M.; Phillips, A. N., Whitehead, T. P. and MacFarlane, P. W. 1985. Risk factors for ischaemic heart disease: the prospective phase of the British Regional Heart Study. *J. Epidemiol. Community Health*, **39**: 197-209.
- Strong, J. P. and Richards, M. L. 1976. Cigarette smoking and atherosclerosis in autopsied men. *Atherosclerosis*, **23**: 451-476.
- Topping, D. L. 1977. Metabolic effects of carbon monoxide in relation to atherogenesis. *Atherosclerosis*, **26**: 129-137.
- US Department of Health and Human Services. 1982. The Health Consequences of Smoking, Cancer. A report of the Surgeon General DHHS (PHS) Publication No. 82-50179.
- World Health Organization. 2007. Impact of tobacco-related illness in Bangladesh, Regional office of the South East Asia, New Delhi.