

Pattern of Tobacco Smoking Among Adolescents in a Selected Community of Comilla District, Bangladesh

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ABSTRACT

Background: Tobacco smoking is a major preventable cause of morbidity and mortality worldwide, with increasing prevalence among adolescents in developing countries. Early initiation of smoking increases the risk of long-term nicotine dependence and chronic diseases.

Objective: To assess the pattern of tobacco smoking and its associated sociodemographic, behavioral, knowledge, attitude, and IEC-related factors among adolescents in a selected community of Comilla district, Bangladesh.

Materials and Methods: A descriptive cross-sectional study was conducted from October 2023 to January 2024 among 201 adolescents aged 14–19 years. Data were collected using a pretested semi-structured questionnaire through face-to-face interviews. Data were analyzed using SPSS version 25.0. Descriptive statistics were presented as frequency and percentage. Associations were tested using Pearson's chi-square test, with $p < 0.05$ considered statistically significant.

Results: The mean age of respondents was 16.34 ± 1.674 years, with 93.1% males and 6.9% females. Most (64.5%) had primary education, 64.5% were Muslim, and 54.2% lived in nuclear families. Monthly family income averaged BDT $13,906.40 \pm 3,063.052$. Overall, 54.2% were current smokers and 45.8% chronic smokers, consuming 4-6 cigarettes/day (51.2%). Initiation was primarily self-desire (54.7%) or curiosity (37.9%). Knowledge of health hazards was high (89.7%), with loss of memory (58.2%) most cited, followed by cardiovascular disease (51.1%) and asthma (46.7%). Positive intention to quit was reported by 89.2%, though 56.2% were neutral on cessation. Significant associations were found between education level and smoking status ($p = 0.004$) and attitude toward quitting and smoking status ($p = 0.023$).

Conclusion: Tobacco smoking is highly prevalent among adolescents despite high awareness of health hazards. Strengthening education, family involvement, and targeted IEC interventions is essential to reduce adolescent smoking.

KEYWORDS: Tobacco smoking, Adolescents, Bangladesh, Cross-sectional study, Smoking patterns, Public health.

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INTRODUCTION

Tobacco smoking is one of the leading preventable causes of morbidity and mortality worldwide and remains a major public health challenge, particularly in low- and middle-income countries. According to the World Health Organization, tobacco use is responsible for more than eight million deaths annually, including over one million deaths due to exposure to second-hand smoke [1]. Despite global tobacco control efforts, smoking prevalence among

adolescents continues to increase, posing serious long-term health and socioeconomic consequences.

Adolescence is a critical developmental period characterized by increased vulnerability to risk-taking behaviors, including tobacco use. Early initiation of smoking significantly increases the likelihood of nicotine dependence, sustained tobacco use in adulthood, and the development of chronic non-communicable diseases such as cardiovascular disease, chronic obstructive pulmonary disease, and various cancers [2,3]. In addition to physical health consequences, adolescent

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smoking is associated with poor academic performance, mental health problems, and increased engagement in other substance-use behaviors [4].

In Bangladesh, tobacco use remains widespread despite the implementation of national tobacco control policies. Previous studies have reported a concerning prevalence of smoking among adolescents, particularly among males and those from lower socioeconomic and educational backgrounds [5,6]. Social and environmental factors such as parental smoking, peer influence, easy accessibility of tobacco products, and exposure to tobacco promotion play a significant role in shaping smoking behavior among adolescents [7,8]. Moreover, inadequate enforcement of age-restriction laws further contributes to early initiation of smoking.

Although awareness of the harmful effects of smoking has increased over time, evidence suggests that knowledge alone is often insufficient to prevent tobacco use among adolescents. Attitudes toward smoking, perceived social acceptance, and exposure to information, education, and communication (IEC) interventions significantly influence smoking behavior and cessation intentions [9,10]. Understanding these multidimensional factors is essential for developing effective adolescent-focused tobacco control strategies.

Therefore, this study aimed to assess the pattern of tobacco smoking among adolescents in a selected community of Comilla district, Bangladesh, and to examine associated sociodemographic, behavioral, knowledge-related, attitude-related, and IEC-related factors. The findings of this study are expected to provide evidence to support targeted public health interventions for reducing tobacco use among adolescents.

RESEARCH METHODOLOGY

Study Design: A descriptive cross-sectional study was conducted to assess the pattern of tobacco smoking and its associated factors among adolescents. This design was selected as it is appropriate for estimating prevalence and identifying relationships between variables at a single point in time.

Study Area and Period: The study was carried out in a selected community of Comilla district, Bangladesh, over a period of four months, from October 2023 to January 2024.

Study Population: The study population comprised adolescents aged 14–19 years residing in the selected community during the study period. Adolescents who were permanent residents and provided informed consent were included in the study, while those who were seriously ill or unwilling to participate were excluded.

Sample Size and Sampling Technique: A total of 201 adolescents were included in the study. Due to time and resource constraints, a non-probability purposive sampling technique was employed to select the respondents. This approach is commonly used in community-based adolescent health studies where random sampling is not feasible.

Data Collection Tool: Data were collected using a pretested semi-structured interviewer-administered questionnaire, developed after reviewing relevant literature. The questionnaire consisted of the following sections:

- Sociodemographic characteristics
- Behavior-related factors (smoking status, frequency, influencing factors)
- Knowledge-related factors regarding health hazards of smoking
- Attitude-related factors toward smoking cessation
- IEC (Information, Education, and Communication) related factors

The questionnaire was initially prepared in English and then translated into Bengali to ensure clarity and comprehension. A pilot test was conducted among 10% of the sample outside the study area, and necessary modifications were made accordingly.

Data Collection Procedure: Data were collected through face-to-face interviews conducted by the researcher. Each interview lasted approximately 15–20 minutes. Privacy was ensured during interviews to encourage honest responses.

Data Processing and Analysis: Collected data were checked for completeness and consistency, coded, and entered into Statistical Package for Social Sciences (SPSS) version 25.0 for analysis. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize the data.

Associations between selected variables were assessed using Pearson's chi-square test and a p-value <0.05 was considered statistically significant.

Ethical Considerations: Ethical approval was obtained from the Institutional Review Board (IRB) of Northern University Bangladesh. Written informed consent was obtained from all participants prior to data collection. Confidentiality and anonymity were strictly maintained, and participation was entirely voluntary. Respondents were informed of their right to withdraw from the study at any time without any consequences, in accordance with ethical research guidelines.

RESULTS

A total of 201 adolescents participated in the study. The mean age of the respondents was 16.34 ± 1.67 years. The majority of respondents were male (93.1%), had primary-level education (64.5%), and belonged to nuclear families (54.2%) (Table 1).

Regarding smoking behavior, more than half of the respondents (54.2%) were chronic smokers, while 45.8% were current smokers. Over half (51.2%) reported smoking 4–6 cigarettes per day. Family members (52.7%) and friends (35.5%) were the main influencing factors for smoking initiation. Self-desire (54.7%) and curiosity (37.9%) were the most frequently reported reasons for starting smoking (Table 2).

Most respondents (89.7%) reported being aware of the harmful effects of smoking. Loss of memory (58.2%),

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cardiovascular disease (51.1%), and asthma (46.7%) were the most commonly identified health consequences (Table 3).

Assessment of attitude toward smoking cessation showed that 56.2% of respondents had a moderate attitude, while 38.4% demonstrated a good attitude toward quitting smoking (Table 4).

With respect to IEC-related factors, mass media (51.3%) was the most common source of information on smoking hazards. More than two-thirds of respondents (71.4%) reported receiving some form of smoking cessation advice, most commonly from healthcare providers and family members (Table 5).

Statistical analysis revealed a significant association between educational status and smoking status ($p = 0.004$). Attitude toward smoking cessation was also significantly associated with smoking status ($p = 0.023$).

DISCUSSION

This study revealed a high prevalence of tobacco smoking among adolescents in the selected community of Comilla district. More than half of the respondents were identified as chronic smokers, indicating early initiation and sustained smoking behavior during adolescence. This finding is concerning, as early tobacco use is strongly associated with long-term nicotine dependence and an increased risk of chronic non-communicable diseases later in life [1,2].

The predominance of male smokers observed in this study is consistent with findings from previous studies conducted in Bangladesh and other South Asian countries, where smoking is more socially acceptable among males than females [3,4]. Family members and peers were identified as the main influencing factors for smoking initiation, highlighting the significant role of the social environment. Adolescents exposed to smoking within households or peer groups are more likely to adopt smoking behavior due to social modeling and normalization [5].

Despite a high level of awareness regarding the harmful effects of smoking, a substantial proportion of adolescents continued to smoke. Similar observations have been reported in earlier studies, suggesting that knowledge alone is insufficient to bring about behavioral change [6]. Attitudinal factors, perceived social acceptance, and lack of strong cessation support may contribute to continued smoking among adolescents. The moderate attitude toward smoking cessation observed among most respondents further reflects limited readiness or motivation to quit.

Educational status showed a significant association with smoking behavior, with higher smoking prevalence among adolescents with lower educational attainment. This finding supports existing evidence that education plays a protective role by improving health literacy, critical thinking, and resistance to peer influence [7]. Although IEC-related exposure, particularly through mass media, increased awareness, its influence on actual smoking cessation appeared limited, as also reported in previous studies [8].

Overall, the findings emphasize the need for comprehensive and adolescent-focused tobacco control strategies. Interventions should extend beyond knowledge dissemination and address behavioral change, social influence, family involvement, and supportive cessation services to effectively reduce tobacco use among adolescents.

CONCLUSION

This study demonstrates that tobacco smoking is highly prevalent among adolescents in the selected community of Comilla district, with a substantial proportion engaging in chronic smoking. Despite a high level of awareness regarding the harmful effects of tobacco use, smoking behavior persists, indicating that knowledge alone is insufficient to prevent or reduce tobacco use among adolescents.

Lower educational attainment, family and peer influence, and moderate attitudes toward smoking cessation were identified as key factors associated with continued smoking. The findings highlight the need for comprehensive tobacco control strategies that address not only knowledge but also behavioral, social, and environmental determinants of smoking.

Targeted interventions focusing on adolescents, strengthened family involvement, and effective information, education, and communication strategies are essential to reduce tobacco use and prevent long-term health consequences.

RECOMMENDATIONS

- Implement school- and community-based tobacco prevention programs.
- Strengthen parental and family involvement in smoking prevention.
- Enhance IEC campaigns targeting adolescents.
- Provide adolescent-friendly smoking cessation counseling services.

Conflict of interest: None to declare.

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Tables and Figures:

Table 1: Sociodemographic characteristics of the respondents (n = 201)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	14–15	75	37.3
	16–17	69	34.3
	18–19	57	28.4
Gender	Male	187	93.1
	Female	14	6.9
Educational status	No formal education	50	25.6
	Primary	131	64.5
	Secondary	20	9.9
Family type	Nuclear	109	54.2
	Joint	91	45.3
	Broken	1	0.5
Monthly family income (BDT)	<12,000	80	40.4
	12,000–16,000	83	40.9
	>16,000	38	18.7

Table 2: Behavior-related smoking characteristics of respondents (n = 201)

Variable	Category	Frequency (n)	Percentage (%)
Smoking status	Current smoker	92	45.8
	Chronic smoker	109	54.2
Cigarettes smoked per day	1–3	86	42.4
	4–6	104	51.2
	7–9	11	5.4
Influencing factor	Family members	106	52.7
	Friends	71	35.5
	Advertisement	24	11.8
Reason for initiation	Self-desire	110	54.7
	Curiosity	76	37.9
	Peer pressure	15	7.4

Table 3: Knowledge-related factors regarding smoking (n = 201)

Variable	Response	Frequency (n)	Percentage (%)
Knowledge of health hazards	Yes	180	89.7
	No	21	10.3
Health hazards known*	Loss of memory	117	58.2
	Cardiovascular disease	103	51.1

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Variable	Response	Frequency (n)	Percentage (%)
	Asthma	94	46.7
	Throat cancer	75	37.4
	Lung cancer	69	34.1

Multiple responses allowed*

Table 4: Attitude-related factors toward smoking cessation (n = 201)

Attitude level	Score range	Frequency (n)	Percentage (%)
Poor	<10	11	5.4
Moderate	10–20	113	56.2
Good	>20	77	38.4

Table 5: IEC-related factors among respondents (n = 201)

Variable	Category	Frequency (n)	Percentage (%)
Source of information	Mass media	103	51.3
	Friends & family	61	30.5
	Others	37	18.2
Received cessation advice	Yes	144	71.4
	No	57	28.6
Type of advice received (n = 144)	Doctor	74	51.0
	Friends	42	29.0
	Family members	26	18.0
	Others	2	2.0

Figures

Figure 1: Smoking status of respondents (n = 201)

