

Prevalence, Patterns and Socio-Demographic Correlates of Tobacco use Among Adolescents in Bihar, India

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ABSTRACT

Background: Tobacco addiction is the single largest preventable cause of death and disability worldwide. Tobacco users who start taking tobacco in adolescence are more likely to continue the use into adulthood. It may contribute to premature deaths. The present study was done to estimate the prevalence, identify the patterns and assess socio-demographic correlates of tobacco use in rural and urban areas of Bhagalpur. **Methods:** This was a community based, cross sectional study of adolescents of rural and urban areas of Bhagalpur, Bihar. Interviews were conducted using a structured, pre-tested questionnaire by house to house visit. **Results:** Over all 'ever use' prevalence of tobacco use was 15.5%, higher in males of rural area. Prevalence was directly related to age but inversely related to socio-economic status. Smokeless tobacco was mostly preferred by adolescents of rural area. An overall 'quit rate' was 11%. **Conclusion:** Tobacco use is common in adolescents and influenced by socio-demographic factors. Addressing these factors and following strict laws against use of tobacco should be included as key strategies in control of this menace.

Keywords: Tobacco use, Prevalence, Smoking, Bhagalpur

INTRODUCTION

Tobacco use in any form is reaching pandemic levels among children and adolescents. The World Bank has reported that nearly 82,000-99,000 children and adolescents all over the world begin smoking every day.^[1] About half of them would continue to smoke to adulthood and half of the adult smokers are expected to die prematurely due to smoking related diseases. If current smoking trends continue, tobacco will kill nearly 250 million of today's children.^[2]

India is the second most populous country in the world. India is the third largest producer and consumer of tobacco in the world. The country has a long history of tobacco use. Tobacco is used in a variety of ways in India; its use has unfortunately been well recognized among the adolescents. Tobacco addiction of a large number of adults has been initiated during the adolescence. Considering the enormous health complications associated with tobacco use, it is of utmost importance to understand the factors leading to its use.^[3]

Hence the present study was taken up to provide

necessary inputs of tobacco use from this region of Bihar as very few researches have been done on this topic. Objectives of present study were to estimate the prevalence, identify the patterns and assess socio-demographic correlates of tobacco use in rural and urban areas of Bhagalpur.

MATERIALS AND METHODS

A cross sectional study was conducted in field practice areas of department of community medicine, Jawaharlal Nehru Medical College & Hospital, Bhagalpur, Bihar. The period of study was from February 2019 to October 2019. The study was approved from institutional ethics committee. The inclusion criteria were adolescents aged 10 to 19 years who were residents of Bhagalpur. Any adolescent visitors who were above 10 years of age but not native of Bhagalpur were excluded from the study. Written informed consent was taken before study. Sample size was calculated using a study done by Grover S et al from Global Adult Tobacco Survey-2 (2016-2017).^[4] A sample of 170 was calculated using a formula, based on 95% confidence interval, margin of error of 5%, average prevalence of tobacco consumption in young population (12%), and eligible population of field practice area (250000). 5% more was added for sampling error. For simplicity, final representative sample size was 180, 90 from urban area and 90 from rural area. Sampling method adopted was multistage

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sampling; probability proportional to size was used to collect data. The participants of the study were informed about the study purpose. Participants were interviewed separately using a structured, pre-tested proforma. The proforma contained different parts. First part collected information regarding socio-demographic profile. The second part collected information regarding patterns of tobacco use.

A modified BG Prasad classification was utilized to classify the socio-economic class of participants.^[5] Standard WHO definitions were used to classify different types of “tobacco users”: never user, ever user, current user and quitter.^[6] Ever user was one who has taken tobacco at least once in his/ her lifetime. Current user was a person with history of consuming any tobacco product within 30 days preceding the survey. Quitter had used tobacco and abstained from it for at least 1 year before the survey started. “Quit rate” was calculated by calculating the percentage of quitters from ever users. “non-user” category included never users and quitters. Those participants who were current users were asked about daily use or occasional use (≤ 3 days in a week), age of onset, frequency of consumption (mild being 1-9, moderate 10-20 and heavy being 20+), duration of regular use in years, attempts to quit tobacco before (attempted/non-attempted).

Statistical analysis of the study was conducted by using Microsoft excel and SPSS version 16.0. Appropriate statistical tests were applied to find significance. Prevalence percentage is compared using ‘Z’ test for proportions. Chi-square was applied where appropriate. For all the tests, a p value of <0.05 was considered statistically significant.

RESULTS

In the present study, over all ‘ever use’ prevalence of tobacco use was 15.5%. It was higher in males as compared to females (20.4% vs 8.3%, $p < 0.05$). Region wise, prevalence in rural area was more than urban area (21.1% vs 10%, $p < 0.05$). According to age group, those in higher age group of 16-19 years had more habit of taking tobacco as compared to those of younger age group of 12-15 years (25.3% vs 7.9%, $p < 0.05$). The study participants were classified socio-economically by modified BG Prasad classification. For statistical analysis and ease of understanding, class I, II and III were clubbed together as group 1 and class IV and V as group 2. Group 2 had more prevalence of tobacco as compared to Group 1 ($p < 0.05$). This shows that prevalence of tobacco use is more in lower socio-economic classes or weaker section of society. [Table 1]

A Bivariate analysis of patterns of tobacco use was done comparing participants of rural area with urban area. [Table 2] It was seen that smokeless tobacco was mostly preferred by adolescents of rural area. Out of 11 participants who took smokeless tobacco, 10 were from rural area. Among daily users of tobacco, out of

total 24 participants, 17 were from rural area. There was no difference of occasional users in both areas. An overall ‘quit rate’ was 11%. “Quit rate” was calculated by calculating the percentage of quitters from ever users. “Non-user” category included never users and quitters.

Table 1: Prevalence of tobacco use by baseline characteristics (n=180)

Baseline Characteristics	Prevalence	Z test, p value
Region		
Urban (90)	9 (10.0%)	Z=-2.056, p=0.0394*
Rural (90)	19 (21.1%)	
Total (180)	28 (15.5%)	
Gender		
Male (108)	22 (20.4%)	Z=2.18, p=0.029*
Female (72)	6 (8.3%)	
Age Group		
12-15 (101)	8 (7.9%)	Z= -3.19 p= 0.001*
16-19 (79)	20 (25.3%)	
SES class		
Upper class I (23)	2 (8.7%)	Z= -2.185 p= 0.028* I,II & III vs IV and V (Ref.)
Upper middle class II (31)	2 (6.5%)	
Middle class III (38)	5 (13.1%)	
Lower middle class IV (42)	7 (16.7%)	
Lower class V (46)	12 (26.1%)	

*Significant

Table 2: Bivariate analysis of patterns of tobacco use by baseline characteristics (n=180)

Patterns of tobacco use	Urban n (%)	Rural n (%)	p value
Any form			
Yes	9 (10%)	19 (21.1%)	p= 0.049*
No	81 (90%)	71 (78.9%)	
Total	90	90	
Type of tobacco use			
Smoking	4 (44.4%)	3 (15.8%)	p=0.081#
Smokeless	1 (11.2%)	10 (52.6%)	
Mixed (>1 form)	4 (44.4%)	6 (31.6%)	
Total (28)	9	19	
Regularity of use			
Daily users	7 (77.8%)	17 (89.5%)	p=0.574#
Occasional users	2 (22.2%)	2 (10.5%)	

*Significant, #Non-significant

DISCUSSION

The overall prevalence of lifetime tobacco use in this study among adolescents of age group 10-19 years was 15.5 per cent, with 10 per cent in urban area and 21.1 per cent in rural area. The prevalence found in our study was higher than the rates of the nationwide survey conducted in 2009 which reported prevalence of 9.5%.^[7] Although increasing prevalence of smoking among youth as reported in our study is consistent with findings from multiple studies done in India and other countries.^[8-10]

The unique and geographically varying social, economical, cultural characteristics and tobacco policies could account for the wide range of prevalence rates of tobacco use reported in different states/ countries. The high prevalence of tobacco use

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reported in our study may be due to less public health measures adopted in Bihar. Although smoking in public places is banned and there is a ban on the sale of tobacco products around educational institutions following implementation of the Cigarettes and other Tobacco products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production Supply and Distribution) Act, 2003 (COTPA).^[11]

In this study we observed that the prevalence of tobacco use in males was 20.4 per cent while in females, it was 8.3%. Males were more likely to smoke than females in our sample. Most studies from India have reported male predominance suggesting that social norms against female tobacco use, especially smoking, continues to hold its water.^[12] There are few exceptions though in few small states such as Goa and north-east states which reported almost equal prevalence, reflecting the gender distribution seen in western countries.^[13,14]

This study showed high prevalence of tobacco use in rural areas as compared to urban areas. A study done by Gupta V et al showed that self-reported tobacco use was 35% in urban areas while 52% in rural areas. (p value <0.05).^[15] The findings of our study of tobacco pattern very much resembles NFHS-3 data of Government of India.^[16] The relation between socio-economic status and tobacco consumption is similar to that observed in developed countries.^[17] Our study showed a direct relationship of tobacco use with age and inverse relationship with SES. A study done in China showed that residents with combined ever-smoking and low SES deserved more attention in the prevention and control of chronic disease.^[18]

Limitations

The present study had some limitations. All aspects were evaluated by using questionnaires only. The information of the questionnaire was collected anonymously which precluded any individual specific intervention. Many factors which are known to influence adolescent tobacco use including peer pressure and parental tobacco use were not assessed. Also, sample size is not large enough to extrapolate results in whole district of Bhagalpur.

CONCLUSION

It is evident from this study that the tobacco use in different forms is widespread in Bhagalpur. The use is associated with various local socio-demographic factors. Patterns of tobacco use vary widely.

Recommendations

We must discourage adolescents from taking tobacco. IEC (Information, education and communication) and BCC (Behaviour change through communication) activities should be done regularly to make all aware about bad effects of tobacco use. The weaker sections of the community should be given priority as they are more likely to be worst affected by the tobacco use.

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