

Original Research Article

Tobacco and betel nut use among school going adolescents of South Gujarat region, India: a cross sectional study

Bharatkumar Balkrishna Pandya¹, Upendrakumar Rameshbhai Chaudhari^{2*},
Avirat A. Bhatt³, Nilesh Thakor⁴

¹Department of Paediatrics, GMERS Medical College, Gotri-Vadodara, Gujarat, India

²Department of Paediatrics, Government Medical College, Surat, Gujarat, India

³Consultant for Children with Severe Acute Malnutrition, CDN Section, UNICEF, Gujarat, India

⁴Department of Community Medicine, GMERS Medical College, Vadnagar, Gujarat, India

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*Correspondence:

Dr. Upendrakumar Rameshbhai Chaudhari,

E-mail: chaudhariupendra@ymail.com

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ABSTRACT

Background: Adolescence period is very crucial in the life of an individual, when major physical, psychological and behavioral changes take place. Tobacco and Areca nut use among school going adolescent is becoming a major public health problem. Objective of this study was to determine the prevalence and pattern of smokeless tobacco and betel nut use among school going adolescents.

Methods: The study was a cross sectional study. After taking the permission of principal of Government high schools of Vadodara and Surat city of Gujarat and consent of the parents of adolescents, 1107 adolescents were interviewed during March-April 2017. A self-administered questionnaire was used for data collection. Thus collected data was analyzed using SPSS 17 (Trial Version).

Results: Age of the study students (total 1107) ranged from 10-19 years. (Mean age=14.61±2.85 years). Out of 1107 children 389 (35.1%) children had addiction. Prevalence of any type of addiction in girls and boys was 14.3% and 20.7% respectively. Tobacco prevalence was 13.4% and betel nut prevalence was 21.6%. Type of addiction and its association with gender was highly significant. All children addicted to tobacco using chewing form (gutkha) of tobacco. The mean age group of children who consume tobacco and betel nut was 16.13±1.32 years and 16.01±1.21 years respectively. Most common reasons among adolescents for starting addiction of tobacco and betel nut was to look mature (93.8%) followed by to look good (63.2%) and to refresh breathe (48.6%).

Conclusions: High prevalence of tobacco and betel nut use among adolescents needs attention of parents, teachers and health officials.

Keywords: Adolescent, Age at initiation, Betel nut, Prevalence, Tobacco, Substance abuse

INTRODUCTION

Adolescence more broadly refers to the phase of human development which encompasses the transition from childhood to adulthood. This period is very crucial, since these are the formative years in the life of an individual, when major physical, psychological and behavioral changes take place.¹ Many adult health problems e.g.

hypertension, diabetes have their early origins in early adulthood, because this is the time when lifestyles are formed.²

In primordial prevention, efforts are directed towards encouraging adults to adopt healthy lifestyles. The main intervention in primordial prevention is through individual and mass education.³

During adolescent period, people become increasingly independent. Adolescent health behavior habits are influenced by the school setting and often track into adulthood. They have their own choices in areas such as diet, substance use, sexuality, physical activity and use of health care services.

Health of the adolescents should be promoted in a school, as school is a key location for educating them about health, hygiene and nutrition, and for putting in place interventions.⁴ The fact is that the most of these conditions are preventable or avoidable and curable especially in early stages by promotion of hygienic practices among school children through proper health education by teachers, who are the first contacts.⁵

Tobacco and areca nut use among school children is becoming a serious problem in developing countries. The early age of initiation underscores the urgent need to intervene and protect this vulnerable group from falling prey to this addiction.⁶ With this background in mind, the present study was undertaken to determine the prevalence and pattern of smokeless tobacco and betel nut use among adolescent students of Government High school.

METHODS

The study was a cross sectional study. Government high schools of Vadodara and Surat cities of Gujarat were selected by purposive sampling. The permission of principals of schools was taken and informed written consent of the parents of adolescents was taken. Total population was 1115 adolescent students.

Inclusion criteria

- Adolescents whose parents gave consent were included in the study.

Exclusion criteria

- Students whose parents did not give the consent and those who were absent on the day of examination were excluded from the study.

Study population was 1107 adolescent students. Total 1107 Adolescent students of 10-19 years age groups were interviewed. Study duration was March to April 2017.

A self-administered questionnaire was used for data collection. Questionnaire was converted in vernacular language for assessment. Before conducting the study, approval was obtained from institutional ethical committee for human research.

Data safety and confidentiality was also given due consideration. The file containing identity related details was kept password protected and the filled Performa were kept in lock with key accessible only to researcher.

Statistical analysis

Data were analysed using SPSS version 17 (trial version). Parameters such as rate, ratio and percentages were calculated. In order to have valid interpretation of rates, 95% confidence intervals (CI) were calculated. To test the significance of the difference among the statistical parameters in different subsets of population, suitable statistical tests were applied.

RESULTS

Age of the study children ranges from 10-19 years. Mean age of the study children was 14.61±2.85 years. Maximum numbers of the children were in the age group of 15-19 years (52.4%). Mean age of female and male children was 14.81±2.21 years and 14.91±2.01 years respectively (Table 1).

Table 1: Gender wise distribution of adolescents according age groups.

Age groups	Female	Male	Total
10-14	291 (26.2)	236 (21.3)	527 (47.6)
15-19	284 (25.6)	296 (26.7)	580 (52.4)
Total	575 (51.9)	532 (48.1)	1107 (100)

(Figures given in parentheses are percentages of total 1107 children)

Out of 1107 children 389 (35.1%) children had addiction. Prevalence of any type of addiction in girls and boys was 14.4% and 20.8% respectively. Tobacco prevalence was 13.4% and betel nut prevalence was 21.6%. Type of addiction and its association with gender was highly significant. Out of 389 adolescents who had addiction, 230 (59.1%) were males and 159 (40.9%) were females. All adolescents addicted to tobacco using chewing form (gutkha) of tobacco. The mean age group of children who consume tobacco and betel nut was 16.13±1.32 years and 16.01±1.21 years respectively (Table 2).

Table 2: Gender wise distribution of adolescents according to their type of addiction.

Addiction type	Gender		Total (n=1107)
	Female (n=575)	Male (n=532)	
Tobacco	17(1.5)	132(11.9)	149 (13.4)
Betel nut	142(12.9)	98(8.9)	240 (21.6)
Total	159(14.4)	230 (20.8)	389 (35.1)

(Figures given in parentheses are percentages of total 1107 children)

Chi-square: 86.7 Degrees of freedom: 1 p< 0.0001

Out of 230 male adolescents who had addiction, majority of adolescents (57.3%) consume tobacco in the form of gutkha and 56.1% male adolescents had addiction since 4 to 9 years. Among the tobacco users, the mean age at the start of any tobacco use was 10.4 years with an SD of

1.51 years. Out of 159 female adolescents who had addiction majority of adolescents (89.3%) consume betel nut and 53.5 % female adolescents had addiction since 4 to 9 years (Table 3).

Table 3: Gender wise distribution of adolescents according to duration of their addiction.

Duration of addiction	Gender		Total (n=1107)
	Female (n=575)	Male (n=532)	
1 to 3 years	74(46.5)	101(43.9)	175(44.9)
4 to 9 years	85(53.5)	129(56.1)	214(55.1)
Total	159(100)	230(100)	389(100)

(Figures given in parentheses are percentages)

Most common reasons among adolescents for starting addiction of tobacco and betel nut was to look mature (93.8%) followed by to look good (63.2%) and to refresh breathe (48.6%) (Table 4).

Table 4: Distribution of children according to reasons for starting tobacco and betel nut use.

Reason	Number of children (n=1107)	Percentage
Look mature	365	93.8
Look good	246	63.2
Refresh breathe	189	48.6
When unhappy	168	43.2
postpone hunger	151	38.8
Custom	132	33.9
Aid to concentration	104	26.7
Taste	95	24.4
Boredom	88	22.6
Craving	72	18.5
Snack	66	17.0
Pleasure	62	15.9
No replies	24	6.2

DISCUSSION

Out of 1107 children 389 (35.1%) children had addiction. Prevalence of any type of addiction in girls and boys was 14.4% and 20.8% respectively. Tobacco prevalence was 13.4% and betel nut prevalence was 21.6%. In study done by Prajapati N et al, out of total adolescents 30.4% had addiction.¹ Prevalence of any type of addiction in girls and boys was 13.4% and 17.0% respectively. Tobacco prevalence was 12.3% and betel nut prevalence was 18.1%. In a study done by Thakor N et al, 35.9% children had addiction.⁶ Prevalence of any type of addiction in girls and boys was 22.8% and 48.8% respectively. Tobacco prevalence was 18.6% and areca nut prevalence was 17.3%. In Nitin J et al, the prevalence of betel nut usage among boys and girls was 27.3% and 6.1% while it was 2.4% for tobacco (gutkha) amongst boys in 10-16 years age group.⁷ In Muttappallymyalil J et al, tobacco

prevalence was 8.5% in 13-17 years age group and it was 15.9% among male students in the same age group.⁸ In Narain Raj et al, tobacco prevalence was 11.2% in 11-19 years age group.⁹ In Pal R et al, tobacco prevalence was 18.15% in 11-18 years age group and in 13-15 years age group tobacco prevalence was 14.00% and 6.34% among males and females respectively.¹⁰ Male students were easily succumbed to peer pressure leading to addiction. School age particularly adolescence is a critical time for the health and future development of boys and girls. Experience and behavior during these formative years can influence lifelong health, as well as put current health at risk.

Tobacco use among male adolescents were significantly high than among female adolescents. In study done by Prajapati N et al, tobacco use among male adolescents were also significantly high than among female adolescents.¹ In Majara J P et al, prevalence of tobacco use among males was found to be significantly high (42.1%) than among females (17.0%) in the age group of 13-15 years.¹¹

Out of 230 male adolescents who had addiction, majority of adolescents (57.3%) consume tobacco in the form of gutkha and 56.1% male adolescents had addiction since 4 to 9 years. Among the tobacco users, the mean age at the start of any tobacco use was 10.4 years with an SD of 1.51 years. Out of 159 female adolescents who had addiction majority of adolescents (89.3%) consume betel nut and 53.5 % female adolescents had addiction since 4 to 9 years. In study done by Prajapati N et al, majority of adolescents (63.4%) consume tobacco in the form of gutkha and 76.3% male adolescent had addiction since 1 to 3 years.¹ Among the tobacco users, the mean age at the start of any tobacco use was 11.3 years with an SD of 2.52 years. Out of 73 female adolescents who had addiction majority of adolescents (89%) consume betel nut and 64.3% female adolescents had addiction since 1 to 3 years. In Thakor N et al, 70.3% adolescents consume tobacco in the form of gutkha and 85.2% male children consume tobacco since 1 to 3 years and 14.8% children since 4 to 9 years.⁶ Among the tobacco users, the mean age at the start of any tobacco use was 12.8 years with an SD of 1.1 years. Out of 99 female children who had addiction majority of children (87.9%) consume areca nut and 85.1% female children consume areca nut since 1 to 3 years and 13 (14.9%) children since 4 to 9 years.

In Singh Vinita et al, tobacco prevalence in 10-18 years age group was 5.4% (boys: 4.6%, girls: 0.8%) while 27% and 6% of children were consuming tobacco since last 2 and 5 years.¹² In Makwana Naresh et al, 33.12% of the adolescents were addicted with one or other type of tobacco chewing, majority of addicted adolescents were in the age group of 17-19 years (36.26%).¹³ Tobacco chewing is the most frequent form of using tobacco by adolescents than smoking. Majority of the adolescents were addicted for more than 12 months (57.47%).

The mean age group of children who consume tobacco and betel nut was 16.13±1.32 years and 16.01±1.21 years respectively. In study done by Prajapati N et al, the mean age group of children who consume tobacco and betel nut was 16.14±1.33 years and 16.13±1.51 years respectively.¹ In Thakor N et al, the mean age group of children who consume tobacco and betel nut was 14.34±1.83 years and 14.03±1.41 years respectively.⁶

High prevalence of tobacco and betel nut in children indicate that more emphasis should be given to increasing their awareness regarding hazards of these substances through health education campaign with active involvement of teachers and parents. There should be strict rules, regulations and punishment regarding tobacco consumption by children of boarding school. There should be no vendors who sell tobacco in any forms within the radius of 5 kilometers of the schools. There should be strict implementation of COTPA Act {Cigarettes and Other tobacco products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003} with the help of District Officials.

However, study done in only one school of Vadodara and Surat cities of South Gujarat limits us to generalize the results. There is definitely a need for well-planned, large-scale studies using standardized methodologies to estimate prevalence of tobacco and betel nut use among adolescents. When planning these studies, it is necessary to ensure that importance is given to representation of the different regions of India. A comprehensive study including anthropometric data, biochemical data, and clinical signs of hazards of tobacco and betel nut use and dietary intake data among the same group of adolescents will give a better insight into the situation.

CONCLUSION

High prevalence of tobacco and betel nut among these adolescents needs awareness regarding hazards of these substances through health education campaign with active involvement of teachers and parents.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Prajapati N, Chaudhari C, Dixit GT, Gadhavi R, Bhatt A, Thakor N. Tobacco and betel nut use among school going adolescents of government high school of Himmatnagar city, Gujarat, India: A cross sectional study. *Int J Contemp Pediatr.* 2017 Mar; 4:306-9.

2. J. Kishore. National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke. In, National Health Programme of India. 8th edition. New Delhi: Century Publications; 2009:480-488.
3. Nayak S, Thakor N, Bhatt AA, Prajapati M. Educational Intervention Regarding Hypertension and Its Preventive Measures among College Students in Gandhinagar City, Gujarat. *Ntl J Community Med.* 2016;7(7):624-6.
4. Prasad KG. School Health. *Ind J Community Med.* October-December 2005;30(4):109-10.
5. Baru Rama. Introduction. In, School Health Services in India. 1st edition. New Delhi: Sage Publications; 2008:6-7.
6. Thakor N, Prajapati D. Tobacco and areca nut use among children of primary and secondary boarding schools of Gandhinagar district: a cross sectional study. *Int J Adv Med* 2014;1:137-40.
7. Joseph N, Nagaraj K, Kotian SM. Areca nut and tobacco use among school children in a village in South India-A cross sectional study. *Australasian Medica J.* 2010 Apr 15(5):299-303.
8. Muttappallymyalil J, Sreedharan J, Divakaran B. Smokeless tobacco consumption among school children. *Indian J Cancer.* 2010;47:19-23.
9. Narain R, Sardana S, Gupta S, Sehgal A. Age at initiation and prevalence of tobacco use among school children in Noida, India: A cross-sectional questionnaire-based survey. *Ind J Medica Res.* 2011 Mar;133(3):300-7.
10. Pal R, Tsering D. Tobacco use in Indian high-school students. *Inter J Green Pharma (IJGP).* 2009;3(4):319-23.
11. Majra JP, Basnet J. Prevalence of tobacco use among the children in the age group of 13-15 years in Sikkim after 5 years of prohibitory legislation. *Ind J Community Med: Official Publication Ind Assoc Preventive Social Medicine.* 2008 Apr;33(2):124-6.
12. Singh V, Pal HR, Mehta M, Kapil U. Tobacco consumption and awareness of their health hazards amongst lower income group school children in National Capital Territory of Delhi. *Ind Pediatr.* 2007 Apr 1;44(4):293-5.
13. Makwana NR, Shah VR, Yadav S. A study on prevalence of smoking and tobacco chewing among adolescents in rural areas of Jamnagar district, Gujarat state. *JMSR.* 2007 Sep 30;1(1):1-3.

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