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**Research Article**

# Tobacco and areca nut use among children of primary and secondary boarding schools of Gandhinagar district: a cross sectional study

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## ABSTRACT

**Background:** Tobacco and Areca nut use among school children is becoming a serious problem in developing countries. Objectives of current study were to determine the prevalence and pattern of smokeless tobacco and areca nut use among residential school children and to know the reason behind sending them in boarding school.
**Methods:** The study was a cross sectional study. After taking the permission of principal of resident schools and consent of the parents of children, 867 children from 8 boarding schools were interviewed during February-March 2011. A self-administered questionnaire was used for data collection.
**Results:** Age of the study children (total 867) ranged from 5-19 years. (Mean age = 13.80 ± 1.96 years). Out of 867, 434 (49.9%) were boys and 433 (50.1%) were girls. Out of 867 children 311 (35.9%) children [Females: 99 (22.8%); Males: 212 (48.8%)] had addiction. 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%. Out of 212 male children who had addiction majority of children {149 (70.3%)} consume tobacco in the form of gutkha and out of 149, 127 (85.2%) male children consume tobacco since 1 to 3 years and 22 (14.8%) children since 4 to 9 years. 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 (87.9%)} consume areca nut and out of 87, 74 (85.1%) female children consume areca nut since 1 to 3 years and 13 (14.9%) children since 4 to 9 years. The mean age group of children who consume tobacco and areca nut was 14.34 ± 1.83 years and 14.03 ± 1.41 years. 63.6% children were in residential school were due to economical reason.
**Conclusion:** High prevalence of tobacco and betel nut in children indicate that more emphasis should be given to increase their awareness regarding hazards of these substances through health education campaign with active involvement of teachers and parents.

**Keywords:** Age at initiation, Prevalence, Residential school children, Tobacco, Areca nut

## INTRODUCTION

A school is a key location for educating children about health, hygiene and nutrition, and for putting in place interventions to promote the health of children. At the same time, poor health, poor nutrition and disability can be barriers to attending school and to learning.[1] Schools are sacred because they provide an environment, for learning skills, and for development of intelligence that can be utilized by students to achieve their goals in life. It is also observed that "to learn effectively, children need good health". Health is key factor in school entry, as well as continued participation and attainment in school.

The school is also potentially a location for contracting infections or diseases. Finally, childhood health behavior habits such as diet, substance addiction and physical activity are influenced by the school setting and often

track into adulthood.[1] 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.[2]

Some parents think it is simply impossible to allow the child to stay away from home from an early age, while there are others who believe that boarding schools instill a sense of responsibility and discipline in children, which is a great benefit for their overall development. There are positive as well as negative effects of boarding school on children.[3] Among negative effects substance abuse is a very serious problem. 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. This study is a humble effort to determine the prevalence and pattern of smokeless tobacco and areca nut use among residential school children.

***Objectives***

1. To determine the prevalence and pattern of smokeless tobacco and areca nut use among residential school children.

2. To know the reason behind sending them in boarding school.

## METHODS

The study was a cross sectional study. 8 residential schools were selected by purposive sampling. After taking the permission of principal of resident schools and informed written consent of the parents of children, 867 children from 8 boarding schools were interviewed during February-March 2011. A self-administered questionnaire was used for data collection.

***Statistics***

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. They included Chi-square test, Z- test and unpaired t test.

## RESULTS

Age of the study children ranges from 5-19 years. Mean age of the study children was 13.80 ± 1.96 years. Maximum numbers of the children were in the age group of 10-14 years (58%). Mean age of female and male children was 13.78 ± 1.89 years and 13.82 ± 2.02 years respectively. Out of total (867), 48 (5.5%) children were in 5-9 years (primary school) age group, whereas 819 (94.5%) belonged to 10-19 years (adolescent) age group (Table 1).

**Table 1: Gender wise distribution of children according age groups.**

| Age groups | Female | Male | Total |
|---|---|---|---|
| 5-9 | 23 (2.7) | 25 (2.8) | 48 (5.5) |
| 10-14 | 271 (31.3) | 232 (26.7) | 503 (58.0) |
| 15-19 | 139 (16.1) | 177 (20.4) | 316 (36.5) |
| **Total** | 433 (49.9) | 434 (50.1) | 867 (100) |

Figures given in parentheses are percentages

288 (33.2%) children had been in boarding school for the 1 year followed by 222 (25.6%) and 235 (27.1 %) for the last 2 and 3 years respectively. Only 122 (14.1%) children had been in boarding school for the last 4 and more than 4 years.

Many families had more than one reasons for sending their children to boarding school but the predominant reason is considered shown in Table 2. 63.6% children were in residential school were due to economical reason as these boarding schools were government granted boarding schools.

**Table 2: Distribution of children according to parents' reasons for sending them to boarding school.**

| Reason | Number of children | Percentage |
|---|---|---|
| Economical | 551 | 63.6 |
| For better education | 227 | 26.2 |
| School far away | 86 | 9.9 |
| School not available | 3 | 0.3 |
| **Total** | 867 | 100 |

**Table 3: Gender wise distribution of children according to their type of addiction.**

| Addiction type | Gender | | Total |
|---|---|---|---|
| | Female | Male | |
| Tobacco | 12 (1.4) | 149 (17.2) | 161 (18.6) |
| Betel nut | 87 (10.0) | 63 (7.3) | 150 (17.3) |
| **Total** | 99 (11.4) | 212 (24.5) | 311 (35.9) |

Figures given in parentheses are percentages of total 867 children. Chi-square: 89.17, Degrees of freedom: 1, P <0.0001

Out of 867 children 311 (35.9%) children had addiction (Table 3). 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%. Table 2 shows that male students easily succumb to peer pressure leading to addiction. Type of addiction and its association with gender was highly significant.

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.

In present study out of 867 children 311 (35.9%) children had addiction. Out of 311 children 212 (68.2%) children were male and 99 (31.8%) children were female. Prevalence of any type of addiction girls and boys was 22.8% and 48.8% respectively. All children addicted to tobacco using chewing form (gutkha) of tobacco. Tobacco and betel nut prevalence in present study was 18.6% and 17.3% respectively. 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.

**Table 4: Gender wise distribution of children according to their type of addiction and duration.**

| Duration of addiction | Gender | |
|---|---|---|
| | Male (Tobacco consumption) | Female (Betel nut consumption) |
| 1 to 3 years | 127 (85.2) | 74 (85.1) |
| 4 to 9 years | 22 (14.8) | 13 (14.1) |
| **Total** | 149 (100) | 87 (100) |

Figures given in parentheses are percentages

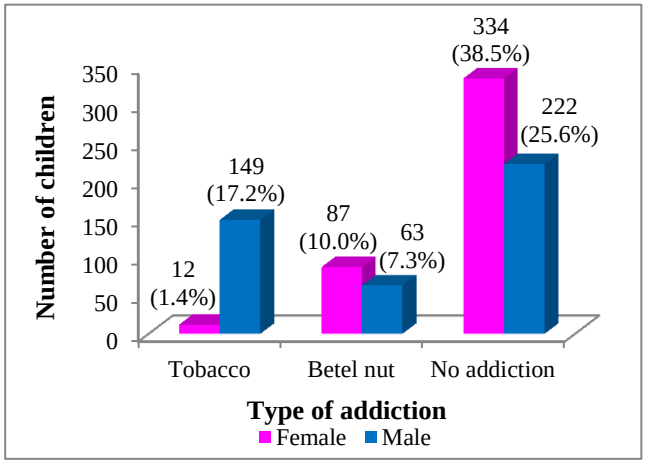


**Figure 1: Distribution of 867 children according to their type of addiction and sex.**

Table 4 and Figure 1: Out of 212 male children who had addiction majority of children {149 (70.3%)} consume tobacco in the form of gutkha and out of 149, 127 (85.2%) male children consume tobacco since 1 to 3 years and 22 (14.8%) children since 4 to 9 years. 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 (87.9%)} consume areca nut and out of 87, 74 (85.1%) female children consume areca nut since 1 to 3 years and 13 (14.9%) children since 4 to 9 years.

## DISCUSSION

In Narain Raj et al. tobacco prevalence was 11.2% in 11-19 years age group.[4] The global youth tobacco survey, 2006 indicates that 14.1% children in the age group 13-15 years are consuming tobacco in some form and that the age of initiation into tobacco use has also declined.[5] 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.[6] In Muttapppallymyalil 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.[7] 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.[8] In Majara JP 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.[9] 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.[10] 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%). 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%).[11]

## CONCLUSION

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 kilometres 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.

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## REFERENCES

1. Baru Rama. Introduction. In: Baru Rama, eds. School Health Services in India. 1st ed. New Delhi: Sage Publications; 2008: 6-7.
2. K. Raghva Prasad. School health. Indian J Community Med. 2005 Oct-Dec;30(4):109-10.

3. Uttara Manohar. Boarding school: effect on Children, 2008. Available at: http://www.buzzle.com/articles/boarding-school-effect-on-children.html. Accessed 28 June 2011.
4. Narain Raj, Sardana Sarita, Gupta Sanjay, Sehgal Asok. Age at initiation & prevalence of tobacco use among school children in Noida, India: a cross-sectional questionnaire based study. Indian J Med Res. 2011 Mar;133:300-7.
5. Park K. The global youth tobacco survey, 2006. In: Park K, eds. Park's Textbook of Preventive and Social Medicine. 21st ed. Jabalpur: Banarasidas Bhanot; 2010: 14-23.
6. Nitin J, Nagaraj K, Shashidhar Kotian M. Areca nut and tobacco use among school children in a village in South India: a cross-sectional study. Austr Med J. 2010;3(5):299-303.
7. Muttapppallymyalil J, Sreedharan J, Divakaran B. Smokeless tobacco consumption among school children. Indian J Cancer. 2010;47:19-23.
8. Pal R, Tsering D. Tobacco use in Indian high-school students. Int J Green Pharm. 2009;3:319-23.
9. 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. Indian J Community Med. 2008;33:124-6.
10. Singh Vinita, Pal Hem Raj, Mehta Manju, Umesh Kapil. Tobacco consumption and awareness of their health hazards amongst lower income group school children in national capital territory of Delhi. Indian Paediatrics. 2007 Apr;44:293-5.
11. Makwana Naresh, Shah Viral, Yadav Sudha. A study on prevalence of smoking and tobacco chewing among adolescent in rural areas of Jamnagar district, Gujarat state. J Med Sci Res. 2007 Sep;1(1):47-50.

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