**PREVALENCE AND DETERMINANTS OF TOBACCO USE AMONG PRE-UNIVERSITY COLLEGE STUDENTS, BANGALORE, INDIA**

**Aim:** To assess the prevalence and determinants of tobacco use among the Pre-University College (PUC) students of Bangalore.

**Material & Methods:** A cross sectional study was carried out among 1450 Government PUC students of Marathahalli, Bangalore. A self administered questionnaire modified from Global Youth Tobacco Survey2007 (GYTS) was used to collect data. The Data was analysed using SPSS version 17. Descriptive statistics that included mean and percentages were calculated for each of the categories.

**Results:** 1443 students (99.5%) had heard about tobacco.124 students (8.6%) used tobacco in one or other form. Cigarette was the most common form known to the students. About40% admitted that they were influenced by their friends to use tobacco. About 86% of the students admitted that they were willing to quit tobacco if assistance was provided.

**Conclusion:** Prevalence of tobacco use among Government PU colleges was 8.6%. There is the need for effective awareness and intervention programs to prevent and control tobacco use among college students.

**Key Words:** Prevalence, Pre- University students, Tobacco Use,

**Background:** Oral health has been defined as a standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well being. There are many factors that can impair the oral health, of which the highly projected factor is the tobacco use. Tobacco smoking and chewing is the main cause of lung cancer and oral cancer. 1

 Tobacco use is now recognised as a major public health problem faced by both developing and developed countries. It has been estimated globally that out of 1.3 billion smokers, 80% live in developing countries and expecting an increase from 5.4 million deaths per year to more than 8 million deaths a year by the year 2030. It was found that 70% of the people who die due to smoking belong to low and middle income nations. 2

 The tobacco situation in India is unique because of a vast spectrum of tobacco products available for smoking as well as smokeless use. 3 Smoking of cigarette particularly beedis and chewing tobacco (smokeless use) is an age-old practice in India. It is estimated that tobacco use cause 800,000 deaths annually in India. The deaths attributable to tobacco, in India, are expected to rise from 1.4% of all deaths in 1990 to 13.3% in 2020. 4 It is estimated that 5500 adolescents start using tobacco every day in India, joining the 4 million young people under the age of 15 who already are regularly using tobacco. 4

 Karnataka, formerly called Mysore, lies in the south-western part of India. It is to the south of Maharashtra and Goa. Other neighbouring states are Andhra Pradesh, Tamil Nadu and Kerala. Karnataka with its share of about 25% is the second largest tobacco cultivated state in the country. The Flue Cured Virginia Tobacco (FCV) is a major produce from the state. Mysore (HD Kote, Hunsur, Periyapatna, Ramanathapura) and Shivamoga are the predominant tobacco cultivating districts. 5

 Tobacco use usually begins in adolescents; at the time of their observation, understanding, struggling and facing challenges and psychological development.6 Children and teens are easily influenced by the tobacco industry. They're also influenced by their friends, TV, movies, advertisements in different Medias. They don't realize what a struggle it can be to quit. And having cancer, emphysema, blindness, or impotence may not seem like real concerns. Children and teens don't think much about future health outcomes. 7

 College life is an important transition period during which young adults begin to explore tobacco use. 3 Many studies have reported that tobacco smoking is rising in young adult between the ages of 18-24 years as they are legal targets of tobacco industry marketing and increased the prevalence of smoking among college students. 3 Studies showed several factors like smoking habits of parents and friends, age, sex, socio-economic status, living with or without family members, father's occupation, faculty (medical and other subjects) etc attributed to cigarette smoking among the college students.3

 There is an urgent need to curb tobacco use among students. Hence, this study was conducted to estimate the prevalence of tobacco use among the pre university students of the Government colleges in and near Marathahalli and to find the reason for use of tobacco products.

**Methodology**: This descriptive cross sectional study was conducted to assess the prevalence and determinants of tobacco use and to create awareness about hazards of tobacco use among government Pre University College students of marathahalli, Bangalore city. A list of govt aided & unaided pre university colleges was obtained from the department of pre university education Bangalore (DPUE). All the Govt. Colleges in the marathahalli area were included in the study. Ethical clearance was obtained from institutional ethical committee board. Prior permission was obtained from the Principals of respective colleges to conduct the present study. The colleges which gave permission and students who were present at the time of the study and gave informed consent were included in the study. Our total sample size of 1450 students who were present on the day of survey.

A self administered questionnaire modified from Global Youth Tobacco Survey 2007 (GYTS) 5 was used to collect data. The questionnaire was prepared in the local language Kannada. The questionnaire was a mix of open- and close-ended questions. Pre Testing of the questionnaire was done in one of the colleges which were not included in the final study, accordingly necessary modifications were done. All the five colleges were visited personally. After explaining the purpose of the survey, instructions were given on how to fill the questionnaire. The voluntary and anonymous nature of participation in the survey was also explained. The questionnaires were distributed among all the 1st and 2nd year pre university students present on the day of the study and requested to complete the questionnaire individually. The collected data was subjected for statistical analysis using SPSS software and analysed Descriptive statistics, Chi-square test for differences between groups. p value 0.05 or less was considered statistically significant.

**Results:** The study population consists of 1450 students of 1st and 2nd year pre university colleges. Among them 47.3% (n=686) were males and 52.7% (n= 764) females. Majority of students (99.4%) had heard about tobacco. Graph 1 shows study population according to family members using tobacco.

Graph 1: Distribution of study population according to family members using tobacco.

81.6% (n=1184) knew Cigarette was the most known form followed by bidis 62% (n=896), 12% (n=170) students knew about smokeless tobacco and 16% (n=232) knew majority types of tobacco. Students (n= 1032, 71%) got tobacco related information and its ill effects through the lectures, awareness programmes within the college itself.

1.4% students (n=21) started the tobacco use by getting influence from friends and 18% (n=268) students feel that smoking makes them more attractive. Table 1 shows distribution of study population according to reasons for starting smoking. Majority of the students (n=1184 (82%)) very well knew that tobacco use is harmful to health and (n=1018) knew that passive smoking was injurious to health.

**Table 1:** **Distribution of study population response on factors responsible for tobacco use**

|  |  |  |
| --- | --- | --- |
| **Determinants of tobacco use** | **Male** | **Female** |
| **(n=124)** | **(Percentage)** | **(n=0)** | **(Percentage)** |
| Influence of friendsPersonal set back Family atmosphereMedia Stress  No response | 5019105634 | 40%15%8%4%5%28% | 000000 | 0 00000 |

8.6% (n=124) students who were males admitted that they had tried tobacco in the form of smoking cigarettes and chewing form (star, gutaka etc) at least once and 91.4% (n=1326) had never tried. Table 2 shows the factors responsible for their tobacco use.

59% (n= 73/124) revealed that they got their tobacco products from a store, shop or from a street vendor (Graph 2). 19% (n=23/124) use tobacco in public places (e.g. parks, shops, street corners) (Graph 3). 38% (n=47/124) students said that they were not able to buy tobacco because of their age while 21% (n=26/124) had no problem in buying tobacco products.

**Graph 2: Distribution of Study Population (Tobacco users) according to their sources of Tobacco**

**Graph 3: Distribution of Study Population (Tobacco Users) According to Place of Tobacco Use**

Table 2 and 3 shows distribution of study population according to tobacco use for the first time, number of cigarettes smoked used per day.

**Table 2: Distribution of study population according to the age for starting tobacco use**

|  |  |  |
| --- | --- | --- |
| **Age for starting tobacco use**  | **Male** | **Female**  |
| **(n=124)** | **(Percentage)** | **(n=0)** | **(%)** |
| 7yrs8 – 9yrs14- 15yrs≥16ys | 30123249 | 24%9%26%40% | 0000 | 0000 |

**Table 3: Distribution of study population according to tobacco use per day**

|  |  |
| --- | --- |
| **Tobacco Use**  | **Male** |
| **(n=124)** | **(Percentage)** |
| < 1/day1/day2-5/day 6 – 10/day>20/dayNo response | 19242313540 | 15%19%18%10%4%33% |

Out of 124 students, 62 (50%) answered it won’t be difficult to quit, 34(27%) told it will be difficult to quit, and 28(23%) students didn’t respond, whereas 107(86.2%) were willing to stop tobacco use if assistance was provided, 6(5%) are not ready to quit tobacco use, 10(8.8%) didn’t respond. 90% (n=1300) were favouring and supporting the government policies like banning smoking in public place.

**Discussion:** Tobacco is a major public health problem. Unfortunately, tobacco use is on the rise in several developing countries including India. The burden of tobacco associated diseases such as the chronic obstructive pulmonary disease (COPD) in India is as, or even more serious than in several other countries. 8 The significance of prevalence data on tobacco use in the youth is important both to assess tobacco as a risk factor and to institute control measures for prevention of those diseases.

 The present study assessed prevalence and determinants of tobacco use among government Pre -University colleges in Marathahalli, Bangalore. This study showed that students were aware of the dangers of tobacco use which is consistent with the studies done by Jindal et al and Al Haqwi et al. 8

 Present study shows a prevalence of 8.6% for tobacco use. Smoking appeared to be the predominant form of tobacco use. Among tobacco users all were smokers in which; 96.7% were cigarette smokers and 3.3% use beedi and no one reported smokeless tobacco use.

 The prevalence of current tobacco use is slightly more than state-level estimates for boys in Karnataka (8%) and less than the regional estimates for southern India (9.2%), as reported by the GYTS. 5 The prevalence of current tobacco use in this study was lower than the national estimate of 17.2% reported by the GYTS for boys. 11 Similarly, the study from Chennai reported a higher use of tobacco (41.6% ever users and 46.3% current users) among boys than our study. 10

 When comparing the findings from Bangalore with those from north Indian cities, the prevalence of current tobacco use was found to be much lower than that reported by the GYTS for boys in Ahmadabad (23.7%) 11, but higher to those reported from Mumbai (5.9%) 11 and Delhi (4.6%6 and 5.5%). 19 Jaipur 20 was the only city in north India for which a lower prevalence (2.1%) of current tobacco use was found. 11

` A possible discrepancy in results compared with that of other studies could be because of the improved implementation of tobacco-related laws on access to tobacco products by minors, which could account for the relatively low prevalence of tobacco use in current study. With regard to the tobacco consumption pattern (notwithstanding the GYTS for Ahmadabad and the study of children in Karnataka that found a higher prevalence of smokeless tobacco use compared with smoking [the proportions being 8.6% and 6.3%, respectively], 11 studies from Chennai, 10 Jaipur 20 and Delhi 19 corroborated present finding of a higher prevalence of smoking compared with smokeless tobacco use. The observations of Nichter et al 12 of college students in urban areas of Karnataka also confirmed a higher use of smoking (46%) compared with smokeless tobacco (29.7%). Moreover, they found that school culture might be an important factor in influencing the pattern of tobacco use, with students from professional educational institutes (i.e. medicine, law and engineering) being more likely to smoke cigarettes compared with students from government, kannada medium schools who were more likely to use smokeless tobacco products and vice versa. The GYTS sampling technique allows a mix of government and private schools and uses a younger sample than that used in current study. These factors can explain, in part, the variations in the pattern of tobacco use found by the GYTS and current study.

 Age at onset of smoking in our study was consistent with that observed in developed countries. The studies conducted among U.S. youths for ‘smoking by race and ethnicity’ and in Jerusalem school children also found the mean age at initiation to be around 12 yr. 13, 14 A little higher age of initiation was found among Chinese Americans (boys: 12.8, girls: 13.1 yr), Non-Hispanic white minors (boys: 12.5, girls: 13.0 yr) and South African students (males: 15.16 and females: 14.98 yr).15 Among the Indian studies, the mean age of initiation of tobacco use has been found to vary from 8 to 15 yr.9 Majority of the tobacco users worldwide have reportedly first tried tobacco prior to age 18,16 some starting as young as 10 yr.17 Present survey reflects a recent downward shift in age at uptake of tobacco habit among children. In a study from Kerala the mean age at initiation was 10.7 yr for boys. 18

 This study showed that influence from friends was the most common factor in initiating tobacco use, which is similar to observations from studies in Delhi (38%) and Mumbai (46%).11, 19 Also, tobacco users in present study said that ‘friends’ were the most common reason for starting tobacco use.

 Akin to my findings, a study from the urban areas of Dakshina Kannada district of Karnataka found that encouragement from friends (40%), and appearing ‘in style’ (18%) were reasons given frequently to start smoking.12 Similarly, a study from Delhi reported ‘enjoyment’ and ‘curiosity’ as major factors that influence adolescents to start using tobacco. 19 Most (82%) of the students in this study were aware of the harmful effects of tobacco use; other studies in urban India have reported comparable or higher levels of such awareness. The GYTS for Karnataka reported that 78.7% and 82% of boys were aware of the harmful effects of smoking and smokeless tobacco use, respectively. Studies from Jaipur. 20 and Delhi 19 have shown that 80% and 99.2% of students respectively were aware of the harmful effects of tobacco use on health. This study has amply demonstrated that it is the harmful effects of tobacco use that is the commonest reason for never users to abstain from tobacco use. Appropriate interventions are needed to reduce tobacco use among students in India. Such interventions should raise awareness of the social and economic implications of tobacco use and equip students to overcome peer influence, while at the same time providing help to quit tobacco use.

**Conclusion**: Tobacco use is a leading cause of preventable deaths world over, more so in developing countries. The tobacco situation in India is unique because of a vast spectrum of tobacco products available for smoking as well as smokeless use. The exposure of the habit of tobacco use in adolescence was influenced by various factors like peer pressure, friends, elders, family atmosphere feel great and powerful when smoking and for fun. This study shows prevalence of tobacco smoking in boys only.

 There is need for targeted and focused interventions by adopting a comprehensive approach. Anti-tobacco programmes should make inroads into transitional towns and rural areas. The focus in schools should be to make them tobacco-free. The school authorities should be included in stricter implementation and monitoring of the implementation of legislation. Regular and systematic education programmes catering to teachers, children and also their parents should be undertaken. Enabling teachers to educate the young impressionable minds regarding life style disorders should be a cornerstone activity in preventing the establishment of life style disorders like tobacco and alcohol use within the community

**References:**

1. Adeyeye OO.Cigarette smoking habits among senior secondary school students in lagos, south west Nigeria. Int J Biol Med Res. 2011; 2(4): 1047 – 50
2. Umesh Raj A, Keshab D, Prevalence and Determinants of Cigarette Smoking among the College Students of Kathmandu Valley. Asian Journal of Medical Sciences 2010; 1: 53-8
3. Raj N, Sarita S, Sanjay G. Age at initiation & prevalence of tobacco use among school children in Noida, India: A cross-sectional questionnaire based survey. Indian J Med Res 133, March 2011, pp 300-7
4. Ranabir P, Dechenla T. Tobacco use in Indian high-school students. International Journal of Green Pharmacy 2009; October-December:319-323
5. Global youth tobacco survey in Karnataka. Final project report of Global Youth Tobacco Survey – Karnataka, India (Allotment No: SE ICP TOB 002 XK 02). Accessed from;

Accessed on:

1. Surekha K, Garg BS, Khursheed M. Tobacco Addiction Amongst Adolescents in Rural Areas of District Wardha. JK SCIENCE 2007; 9(2):79-82
2. Child and Teen Tobacco Use. American cancer society. Accessed from;

Accessed on:

1. Jindal SK, Aggarwal AN, Gupta D, Kashyap S, Chaudhary D. Prevalence of Tobacco Use Among School Going Youth in North Indian States. Indian J Chest Dis Allied Sci 2005; 47: 161-166.
2. Bhojani UM, Chander SJ, Devadasan N. Tobacco use and related factors among pre-university students in a college in Bangalore, India. The national medical journal of India. 2009; 22(6): 294-97
3. Madan Kumar PD, Poorni S, Ramachandran S. Tobacco use among school children in Chennai city, India. Indian journal of cancer 2006; 43(3): 127—31.
4. Global youth tobacco survey in India. Final project report of Global Youth Tobacco Survey – India. Accessed from;

Accessed on:

1. Nichter M, Nichter M, Van Sickle D. Popular perceptions of tobacco products and patterns of use among male college students in India. Soc Sci Med 2004; **59:415**–31.
2. Caraballo RS, Yee SL, Gfroerer JC, Ralph S, Pechacek TF, 22. Henson R. Tobacco use among racial and ethnic population subgroups of adolescents in the United States. Prev Chronic Dis 2006; 3: A39.
3. Meijer 23. B, Branski D, Knol K, Kerem E. Cigarette smoking habits among school children. Chest 1996; 110 : 921-6.
4. Swart D, Reddy P, Ruiter RA, de Vries H. Cigarette use among male and female grade 8-10 students of different ethnicity in South African schools. Tob Control 2003; 12 : el.
5. Reddy KS, Arora M. Tobacco use among children in India: A burgeoning epidemic. Indian Pediatr 2005; 42 : 757-61.
6. Ahmed NU, Ahmed NS, Semenya KA, Elzey JD, Larson C, Bennett CR, et al. Prevalence and correlates of initiation of smoking behavior among preteen black and white children. J Natl Med Assoc 2004; 96 : 200-8.
7. Pradeepkumar A. S, Mohan S, Gopalakrishnan P, Sarma PS, Thankappan KR, Nichter M. Tobacco use in Kerala: findings from three recent studies. Natl Med J India 2005; 18: 148-53.
8. 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. Indian Pediatr 2007; 44:293–5.
9. Singh V, Gupta R. Prevalence of tobacco use and awareness of risks among school children in Jaipur. J Assoc Physicians India 2006; 54:609–