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# **A study to assess knowledge on oral cancer and the prevalence of tobacco habits among adolescents of age 13 to 16 years in selected government schools of Nalbari district, Assam**

### **Linakshi Talukdar**

#### **Abstract**

**Introduction:** The reason for high prevalence of oral cancer in India is primarily because tobacco is consumed in the form of gutka, quid, snuff or misri. Rising tobacco use in India, where 40 per cent of the world's smokers live has contributed to this trend. In comparison, in US oral cancer represents approximately 13 percent of all cancers thereby translating into 30,000 new cases every year. Facts about oral cancer in India

**Problem statement:** A study to assess knowledge on oral cancer and the prevalence of tobacco habits among adolescents of age 13 to 16 years in selected government schools of Nalbari district, Assam.

**Materials and Methods:** Research Approach: descriptive research approach was used this study.

#### **Research Design was used descriptive survey design**

The setting for this study was the selected hospitals in government schools of Nalbari district, Assam. Proportionate number sample was selected from four schools with simple random to select 200 subjects based on predetermined criteria. Results. The finding of the study revealed that out of 200 respondents Majority (56.5%) of respondents were found in the age group between 14-15 years. Majority (60%) of respondents were male. Majority (53.5%) of respondents were from class X. Majority (76%) of respondents were Hinduism. Maximum number (72.5%) belongs to nuclear family. Majority (28%) of the respondent father's had class X pass. Majority (23.5%) of respondent mother's had class X pass. Majority (43%) of respondent father's were cultivator. Majority (89%) of respondent mother's were housewife. Majority (31.5%) of respondents had monthly income below 3,000. Highest percentage (51.5%) got information from print media. Maximum number (52%) 104 of respondents had moderately adequate knowledge on oral cancer. Area wise highest knowledge scores regarding risk factors aspect was 40.98 percent. Maximum number (46.5%) 93 had moderate prevalence of tobacco habits.

**Keywords:** Knowledge, habits, adolescents, oral cancer

#### **Introduction**

Cancer has overtaken heart disease as the world's top killer in 2011. Diagnoses of Cancer around the world have steadily been rising and are expected to hit 12 million this year. Global cancer deaths are expected to reach 7.9 million, according to the new report by the WHO. That means new cancer cases will likely mushroom to 27 million annually by 2030, with deaths hitting 17 million<sup>[1]</sup>.

Cancer of the oral cavity, which may occur in any part of the mouth or throat. Is curable if discovered early<sup>[2]</sup>. Oral cancer may occur on the lips or anywhere within mouth, like Tongue, Floor of the mouth, buccal mucosa, hard and soft palate, Pharyngeal walls and tonsils<sup>[3]</sup>. The most common type of oral cancer is squamous cell carcinoma, 60 percent of oral cancer are well advanced by the time they are detected.<sup>[4]</sup> In smokeless tobacco users of dip, snuff, or chewing tobacco products are 50 times more likely to develop cancers of the cheek, gums and lining of the lips. In excessive consumption of alcohol, oral cancers are about 6 times more common in drinkers than in nondrinkers. The most common symptoms of oral cancer include swelling, lumps, rough spots on the lips, gums, or other areas inside the mouth, unexplained bleeding in the mouth, persistent sores on the face, neck and mouth, difficulty chewing, speaking or moving the jaw or tongue, ear pain, dramatic weight loss.

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Annually, over 300.000 new cases of oral cancer are diagnosed all over the world where the majorities are diagnosed in the advanced stages III or IV. Such data make the oral cancer an important public health matter which is responsible for 3 percent to 10 percent of cancer mortality worldwide. Ethnology, socio-economic factors, lifestyle like dietary and bad habits, are considered as important predictor factors for the oral cancer incidence. Oral cancer is the most common cancer in India; as 4 in 10 of all cancers are oral cancers. Annually 130,000 people succumb to oral cancer in India which translates into approximately 14 deaths per hour. The reason for high prevalence of oral cancer in India is primarily because tobacco is consumed in the form of gutka, quid, snuff or misri. Rising tobacco use in India, where 40 percent of the world's smokers live has contributed to this trend. In comparison, in US oral cancer represents approximately 13 percent of all cancers thereby translating into 30,000 new cases every year.

**Research Approach:** Descriptive research approach was used this study.

**Research Design:** To fulfill the objectives of the study, the descriptive survey design was used for collection and analysis of data

### Variables under study

**Dependent variable:** In this study dependent variable is knowledge of oral cancer and the prevalence of tobacco habits.

**Independent variable:** In this study independent variable is socio-demographic variables like age, sex, education status, religion, type of family, father's education, mother's education, father's occupation, mother's occupation, family income and source of information

**Research Setting:** The setting for this study was the selected hospitals in

**Population:** The population of the present study conducted in selected at four rural government schools namely Janakalyan High School Kendukuchi, Natun Dehar Mouza Milan H.S.S. Khukhundi, Janata High School Burinagar and Gohain Kamal H.S. Kathalbari of Nalbari District, Assam, As all selected schools were under same block i.e Madhupur Block.

In this study, population comprised of 304 adolescents of both class IX and class X standard within the age of 13 to 16 years from four government schools of Nalbari District, Assam

### Sample

#### Sample Selection criteria

##### Inclusion criteria

1. Adolescents who are studying in class IX and X standard of government schools.
2. Adolescents willing to participate.
3. Adolescents who were present at the time of data collection.

**Sample Size:** In this study, the total sample size consisted of 200 adolescent's boys and girls of the age group of 13 to 16 years who are in class IX and class X.

### Sampling technique

The investigator next collects the list of numbers students in selected four schools from the principals of respective schools. As all the schools had varied number of students, a proportionate number of students were randomly selected from list through lottery system to obtained predetermined sample of 200 adolescents

### Development of tool

#### Description of the tool

##### It includes three sections

**Section I:** This section was prepared to collect socio-demographic variables of the respondents which include age, sex, education status, and religion, type of family, father's education, mother's education, father's occupation, mother's occupation, family income and source of information.

**Section II:** This section was prepared to assess the levels of knowledge of the respondents regarding oral cancer. It consists of total 15 multiple choice questions on risk factors, clinical sign and symptoms, complication, early detection and preventive measures. One mark is given for each response of the respective question and zero mark is given for no comment/ response. The total score of knowledge section is 20. The obtained minimum knowledge score is 3 and maximum score is 16. Out of which knowledge scores was statistically categorized as adequate (above 12), moderately adequate (9-12) and inadequate (below 9) by using the formula, as follows-

Adequate knowledge:  $> \text{Mean} + \text{SD}$

Moderately adequate knowledge: Between  $\text{Mean} + \text{SD}$  &  $\text{Mean} - \text{SD}$

Inadequate knowledge:  $< \text{Mean} - \text{SD}$

**Section III:** This section was prepared to find out the prevalence of tobacco habits among respondents. It consists of total 24 multiple choice questions on the tobacco habits. One mark is given for each response of the respective question and zero mark is given for no comment/ response. The total score of the tobacco habits section is 54. The obtained minimum tobacco habits score is 0 and maximum score is 27. Out of which the tobacco habits scores was statistically categorized as high prevalence (above 20), moderate prevalence (5-20) and low prevalence (below 5) by using the formula, as follows-

High prevalence:  $> \text{Mean} + \text{SD}$

Moderate prevalence: Between  $\text{Mean} + \text{SD}$  &  $\text{Mean} - \text{SD}$

Low prevalence:  $< \text{Mean} - \text{SD}$

**Validity:** To ensure the content validity of the structured self-administered questionnaire, objectives of the study, questionnaire along with its blueprint and scoring key and a criteria checklist for validation were submitted to five experts – two experts from the field of Medical surgical nursing, two experts from the field of head and neck oncology and one expert from the field of preventive oncology (Appendix-J). They were requested to evaluate and validate the prepared item for their relevancy, adequacy and appropriateness. Minor modifications are made on the basis of recommendations, suggestion of expert with consultation of guide and statistician, and then final draft was prepared.

### Ethical consideration

- Researcher had taken formal permission from the concerned authorities.
- Only the samples who had signed the consent form are included in the study
- The subjects were assured of confidentiality of the data obtained.
- Anonymity of the respondents was maintained by using a coded no instead of their name.

### Reliability

The reliability of the knowledge section and the tobacco habits section (section II and section III) were calculated separately by using split half method, which measures the coefficient of internal consistency, Cronbach formula was used to find out the reliability of full test. The reliability coefficient of the tool was found to be  $r = 0.992$  and  $r = 1$  which were considered to be reliable.

### Plan for data collection

- Ethical committee clearance
- Permission from the authorities of the school.
- Consent from student
- The investigator approached the parents of selected samples, informed them regarding the objectives of the study and obtained their informed consent after assuring the confidentiality of the data.
- The duration of the data collection for each sample was 10 to 15 minutes.

### Data analysis and interpretation

- Items related to the background variables were analyzed in terms of frequency and percentages.
- Scores was graded in 3 categories i.e. High prevalence, Moderate prevalence ,Low prevalence
- Frequency distribution were plotted to represent the final score.
- Mean, standard deviation of the test was computed.
- The findings were documented in tables, graphs and diagrams.

**Pilot study:** After doing pilot study investigator found that it is feasible to carry out actual study. In these study data was done among selected samples of student. The majority of the sample (73%) had moderately adequate knowledge and only 27 percent had inadequate knowledge. The

majority (63%) had moderate prevalence of tobacco habits followed by 30 percent had low prevalence and only 7 percent had high prevalence of tobacco habits. The chi-square test at 5 percent (.05) level of significance shows there is no relationship between knowledge on oral cancer and the prevalence of tobacco habits. Also chi-square test at 5 percent (.05) level of significance shows there is no relationship between knowledge on oral cancer with some selected socio-demographic variables and between the prevalence of tobacco habits with some selected socio-demographic variables except Age which was found significant.

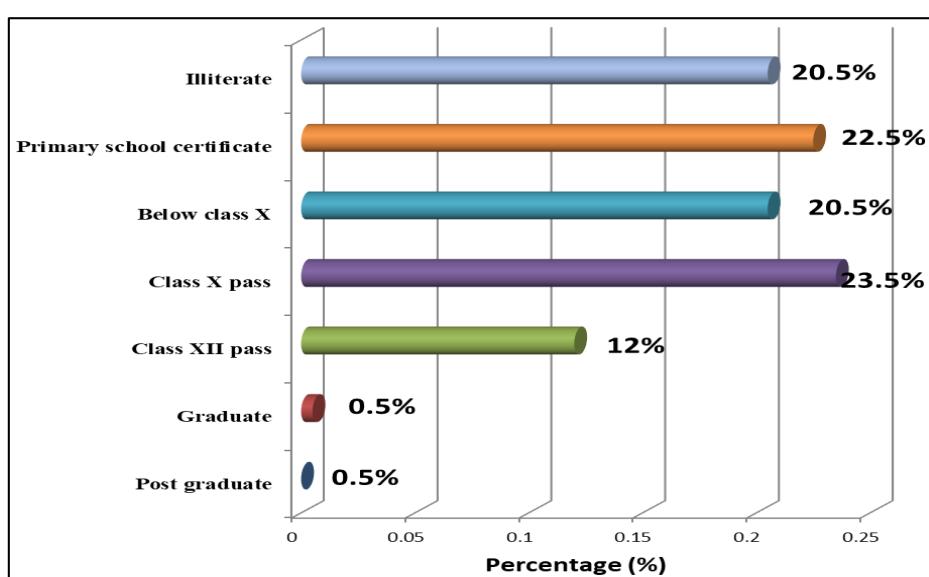
### Result

The major findings of the study were based on the objective of the study

- To assess the knowledge on oral cancer among adolescents.
- To assess the prevalence of tobacco habits among adolescents.
- To determine the relationship between knowledge on oral cancer and their tobacco habits.
- To determine the relationship between knowledge on oral cancer with some selected socio-demographic variables.
- To determine the relationship between the prevalence of tobacco habits with some selected socio-demographic variables.

### Section I Demographic characteristics

Socio-Demographic characteristics Majority (56.5%) of respondents were in age group of 14-15 years, 28 percent belongs to 13-14 years and 15.5 percent were in age group of 15-16 years. Majority (60%) of respondents were male and 40 percent of respondents were female. Majority (53.5%) of respondents were from class X and 46.5 percent from class IX. Majority (76%) of respondents were Hinduism followed by 23.5 percent were Islam and only 0.5 percent were Christian, Majority (72.5%) of the respondents belongs to nuclear family and only 27.5 percent belongs to joint family, Majority (28%) of respondent's father had class X pass, followed by 27 percent class XII pass, 18 percent below class X, 17.5 percent primary school certificate, 6 percent graduate, 2 percent illiterate and 1.5 percent post graduate.



**Fig 1:** Bar diagram showing the percentage distribution of sample by Mother's education

## Section II: level of knowledge on oral cancer among adolescents

The knowledge of respondents on oral cancer was assessed through structured self administered questionnaire in section II consisting of 15 items. It has maximum score 20. The content included was information on oral cancer, risk factors of oral cancer, sign and symptoms of oral cancer,

N (200)			
Characteristics	Category and score range	Frequency	Percentage
Knowledge on Oral Cancer	Adequate knowledge >12	58	29
	Moderately adequate knowledge 9-12	104	52
	Inadequate knowledge <9	38	19

## Section III: prevalence of tobacco habits among adolescents

Majority 46.5 percent (93) had moderate prevalence followed by 32.5 percent (65) had low prevalence and only 21 percent (42) had high prevalence.

prevention, early detection and complication of oral cancer. Data presented in the table 12 and figure 16, shows that, majority 52 percent (104) had moderately adequate knowledge followed by 29 percent (58) had adequate knowledge and only 19 percent (38) had inadequate knowledge

N(200)				
Calculated Chi-square value	Tabulated Chi-square value	df	P-value	Remark
4.048	9.49	4	0.40	NS

Significance level <0.05 NS –Non significance

## Section V: Relationship between knowledge on oral cancer with selected socio-demographic selected variables:

The data presented in the table shows that the relationship of knowledge on oral cancer with Age [ $\chi^2 (4) = 7.71$ ] P<0.05, Sex [ $\chi^2 (2) = 2.68$ ] P<0.05 , Education status [ $\chi^2 (2) = 4.27$ ] P<0.05 , Religion[ $\chi^2 (4) = 2.87$ ] P<0.05, Type of family [ $\chi^2 (2) = 0.38$ ] P<0.05 , Father's education [ $\chi^2 (12) = 7.50$ ] P<0.05 , Mother's education [ $\chi^2 (12) = 17.12$ ] P<0.05 , Father's occupation [ $\chi^2 (10) = 5.82$ ] P<0.05, Mother's occupation [ $\chi^2 (8) = 7.01$ ] P<0.05 , Family income per month [ $\chi^2 (8) = 1.66$ ] P<0.05 and Source of information [ $\chi^2 (6) = 9.89$ ] P<0.05 were found not significant. The investigator accepted the null hypotheses. Hence it is interpreted that the knowledge on oral cancer were independent of selected socio-demographic variables

## Section VI: relationship between the prevalence of tobacco habits with selected socio-demographic variables

The data presented in the table shows that the relationship of prevalence of tobacco habits with Age [ $\chi^2 (4) = 6.48$ ] P<0.05, Sex [ $\chi^2 (2) = 40.45$ ] P>0.05 , Education status [ $\chi^2 (2) = 0.73$ ] P<0.05 , Religion[ $\chi^2 (4) = 8.14$ ] P<0.05, Type of family [ $\chi^2 (2) = 2.91$ ] P<0.05 , Father's education [ $\chi^2 (12) = 11.99$ ] P<0.05 , Mother's education [ $\chi^2 (12) = 15.06$ ] P<0.05 , Father's occupation [ $\chi^2 (10) = 16.05$ ] P<0.05, Mother's occupation [ $\chi^2 (8) = 4.50$ ] P<0.05 , Family income per month [ $\chi^2 (8) = 8.40$ ] P<0.05 and Source of information [ $\chi^2 (6) = 9.13$ ] P<0.05 were found not significant except sex of the respondents. The investigator accepted the null hypothesis excluding sex. Hence it is interpreted that the prevalence of tobacco habits were independent of the selected socio-demographic variables except sex which was found significant. Thus, null hypothesis is rejected in case of sex of the respondents thereby research hypothesis is accepted in case of sex.

## Section IV: relationship between knowledge on oral cancer and the prevalence of tobacco habits

Chi-square ( $\chi^2$ ) was computed in order to determine the significant relationship between the knowledge on Oral Cancer and the prevalence of tobacco habits at 0.05 levels and the results are depicted in table 16

## Conclusion

The findings clearly suggest that majority of the respondents had moderately adequate knowledge on oral cancer and moderate prevalence of tobacco habits. There was no significant relationship between knowledge on oral cancer and the prevalence of tobacco habits. Also there was no significant relationship between knowledge on oral cancer and the prevalence of tobacco habits with some selected socio-demographic variables like age, sex, education status, religion, type of family, father's education, mother's education, father's occupation, mother's occupation family income and source of information

## Discussion

Ravishankar TL, Nagarajappa R. (2009) conducted a study on "Factors attributing to initiation of tobacco use in adolescent students of Moradabad, (UP) India". Two-stage sampling was used to identify 590 adolescents (boys 454 and girls 136 in number) aged 12-15 years from four senior secondary schools. The response towards tobacco, and its use, was assessed through structured questionnaires. The result showed about 88 (19.4%) of the boys and 14 (10.4%) of the girls have tried to use tobacco once or more before this study i.e. experimental tobacco use. The commonest age group was 14-15 years during which the subjects first tried to use tobacco. Out of 14 girls, 10 (71.4%) and among 88 boys, 50 (65.9%) tried smokeless forms of tobacco like gutka, paan masala, Khaini etc. Four (26.6%) girls and 30 (44.1%) boys had tried smoking which included cigarette/beedi or pipes.

## Limitations

The limitations of the present study were:

- The study was limited to only 200 samples.
- The study was conducted to only the selected institutions of Nalbari district, Assam.

## Recommendations

Following study can be undertaken in relation to present study.

- A replication of the present study can be conducted with large subjects.
- The similar study can be conducted in different setting.
- A comparative study can be done between urban and rural settings.
- Similar study can be conducted by taking the teachers as sample.
- A study can be replicated on a larger sample to validate the findings of present study.

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## References

1. Jaypee "A text book of Oncology Nursing", published by Ram Sharan Mehta, 63.
2. Lewis "A text book of Medical and Surgical Nursing" 6<sup>th</sup> edition, published by Mosby in the year 2004, 1008-9.
3. Gupta MC. "A text book of Preventive and Social medicine" 3<sup>rd</sup> edition, published by Jaypee Brothers in the year 2003, 624-5.
4. Bulletin of World Health Organization, 2005; 83:9
5. Barai-Jaitly T, Sen S. Time to stop the Clock. Editorial. Health for the Millions 2003; (2, 3):2.
6. 19<sup>th</sup> April' 2012, Assam tribune, 5
7. Gupta PC, Warnakulasuriya S. Global epidemiology of areca nut usage. Addict Biol. 2002; 7(1):77-83,
8. Nair U, Bartsch H, Nair J. Alert for an epidemic of oral cancer due to use of betel quid substitutes gutka and pan masala: a review of agents and causative mechanisms. Mutagenesis, 2004; 19(4):251-62,
9. Phukan RK, Ali MS, Chetia CK, Mahanta J. Betel nut and tobacco chewing;potential risk factors of cancer of esophagus in Assam, India. Br J Cancer, 2001; 85(5):661-7,
10. Sinor PN, Gupta PC, Murti PR. A case control study of oral submucous fibrosis with special reference to the etiologic role of areca nut. J oral patho Med, 1990; 19(2):94-8,
11. Shiu MN, Chen TH, Chang SH. Risk factors for leukoplakia and malignant transformation to oral carcinoma: a leukoplakia cohort in Taiwan. Br J Cancer, 82(11):1871-4, 2
12. <http://www.insipub.com/ajbas/2011/984-989.pdf> Australian Journal of Basic and Applied Sciences, 5(5):984-989, 2011 ISSN 1991-8178
13. Polit DF, Beck CT. Nursing Research. 8<sup>th</sup> ed. New Delhi: Lippincott William and Wilkins; 2008, 141.
14. Basavanhappa BT. Nursing research.2<sup>nd</sup> ed. New Delhi: Jaypee Brothers Medical publisher (P) Ltd; 2007, 92.
15. [http://www.aimjournal.ir/pdffiles/7\\_0016.pdfArchives of Iranian Medicine, November 2010; 13\(6\):543-48](http://www.aimjournal.ir/pdffiles/7_0016.pdfArchives of Iranian Medicine, November 2010; 13(6):543-48)
16. <http://www.insipub.com/ajbas/2011/984-989.pdf> Australian Journal of Basic and Applied Sciences, 2009; 5(5):984-989, 2011 ISSN 1991-8178
17. Alessandro V, Aimee R Kreimer, Massimo Pase, Antonella polimeni, Domenico Ciccui, Laura Strohmenger, *et al.* Journal of cancer education 2011; 3(26):505-509  
<http://www.springerlink.com/content/qj363v7rm4277741/> published 2011
18. [http://onlinelibrary.wiley.com/doi/10.1922/IDJ\\_2365Croucher04/abstract](http://onlinelibrary.wiley.com/doi/10.1922/IDJ_2365Croucher04/abstract)

19. Asian pacific journal of cancer prevention 2012; 13(1):165-168  
[http://www.apjcpcontrol.org/page/apjcp\\_issues\\_view.php?pno=2723&gubun=p&s\\_search=&s\\_paper\\_vol=&s\\_number33=](http://www.apjcpcontrol.org/page/apjcp_issues_view.php?pno=2723&gubun=p&s_search=&s_paper_vol=&s_number33=)
20. Archives of Iranian Medicine November 2010; 13(6):543-548.  
<http://www.sid.ir/en/ViewPaper.asp?ID=183644&varSt=r=14;PAKFETRAT%20A.,FALAKI%20FARNAZ,ESMAILI%20H.A.,SHABESTARI%20S.;ARCHIVES%20OF%20IRANIAN%20MEDICINE;>
21. Journal of crano-maxillofacial surgery available online 1 oct 2011  
<http://www.sciencedirect.com/science/article/pii/S1010518211002125>
22. Oncology Nursing forum 2004; 31(4):785 91  
<http://ons.metapress.com/content/n104l865xu471w4n/>
23. Patton LL, Agnas R, Elter JR, Southerland JH, Strauss RP, Kalsbeek WD. Oral cancer knowledge and examination experiences among North Carolina adults. *J Public Health Dent* 2004; 64(3):173- 80.  
<http://www.ncbi.nlm.nih.gov/pubmed/15341141>
24. Monson AL, Beaulieu JA. Smokeless tobacco use and knowledge among university student. *The Internet Journal of Allied Health sciences and practices*. Jan 2011; 9(1). Available from: <http://ijahsp.nova.edu>
25. [http://www.emro.who.int/emhj/1506/15\\_6\\_2009\\_1489\\_1495.pdf](http://www.emro.who.int/emhj/1506/15_6_2009_1489_1495.pdf) Eastern Mediterranean Health Journal, 2009; 15(6):1489-1495
26. [http://www.apocp.org/cancer\\_download/Volume11\\_No6/c%2020160913%2010.29%20Arishka%20Devadiga.pdf](http://www.apocp.org/cancer_download/Volume11_No6/c%2020160913%2010.29%20Arishka%20Devadiga.pdf) Asian Pacific Journal of Cancer Prevention, 2010; 11:1609-13
27. [http://www.podj.com.pk/Dec\\_2011/39-Podj.pdf](http://www.podj.com.pk/Dec_2011/39-Podj.pdf) Pakistan Oral & Dental Journal, 2011; 31(2):392-95
28. Khawaja MR, Mazahir S, Majeed A, Malik F, Merchant KA, Maqsood M et al. Chewing of betel, areca and tobacco: perceptions and knowledge regarding their role in head and neck cancers in an urban squatter settlement in Pakistan. *Asian Pac J Cancer Prev*. 2006; 7(1):95-100. Available from URL:  
<http://www.ncbi.nlm.nih.gov/pubmed/16629524>
29. Jayakrishnan R, Geetha S, Binukumar B, Sreekumar, Lekshmi K. Self-reported tobacco use, knowledge on tobacco legislation and tobacco hazards among adolescents in rural Kerala State. *Indian J Dent Res [serial online]* 2011 cited 2012; 22:195-9. Available from: <http://www.ijdr.in/text.asp?2011/22/2/195/84280>
30. Jayant K, Notani PN, Gulati SS. Tobacco usage in school children in Mumbai, India, a study of knowledge, attitude and practice, *Indian Journal of Cancer*. 1991; 128:137-139
31. Rooban T, Elizabeth J, Umadevi KR, Ranganathan K. The prevalence, socio-economic and demographic correlates of chewable smokeless tobacco consumption among males in India: A preliminary report of analysis of national family health survey, 2005-2006, *Indian J Cancer*.
32. Phukan RK, Ali MS, Chetia CK, Mahanta J, the precancerous lesion of oral cavity and association with areca nut and pan masala, WHO arecanut project, Dr. B. Baruah Cancer Institute, Guwahati, Assam, 2007. 1-25
33. Glover DE. Smokeless Tobacco use among American College Students, *Journal of American college Health*; 1989; 38(2):81-85.
34. Paudel D. Tobacco use among Adolescent students in secondary schools of Pokhara metropolitan city of Nepal. Unpublished dissertation, 2003.
35. Shah SM, Merchant AT, Luby SP, Chotani RA. Addicted school children's: prevalence and characteristics of areca nut chewers among primary school children's in Karachi, Pakistan. *J pediatric Child Health*. 2002; 38(5):507-10
36. Eswar N. Oral health status among the tobacco and betel nut chewers in the Kishan gang district of Bangladesh. A statistical study, *Indian journal of dental research* 2003; (3, 4):167-171.
37. Summer RM, William SA, Curzon ME. The use of Tobacco and betel quid (pan) among Bangladeshi Women in West Yorkshire. *Community Dent Health*, 1994; 11(1):12-6
38. Gunaseelan R, Sankaralingam S, Ramesh S, Datta M. Areca nut use among rural residents of Sriperambudur Taluk: a qualitative study. *Indian J Dent Res*. 2007; 18(1):11-4. Available from URL:  
<http://www.ncbi.nlm.nih.gov/pubmed/17347538>
39. Kumar S, Pandey U, Bala N, Tiwar V, Oanh KT. Tobacco habits in Northern India. *J. Indian Med association*; 2006; 104(1):19-22,24
40. Sinha DN, Gupta PC. Tobacco use among school personal in Orissa; *Indian J Public Health*, 2004; 48(3):123-7
41. Kotwal A, Thakur R, Seth T. Correlates of tobacco-use pattern amongst adolescents in two schools of New Delhi, India. *Indian J Med Sci [serial online]* 2005 [cited 2012; 59:243-52. Available from:  
<http://www.indianjmedsci.org/text.asp?2005/59/6/243/16299>
42. Chaturvedi HK, Mahanta J. Sociocultural diversity and substance use pattern in Arunachal Pradesh, India. *Drug Alcohol Depend*. 2004; 74(1):97-104. Available from URL: <http://www.ncbi.nlm.nih.gov/pubmed/15072813>
43. Sinha DN, Gupta PC, Pednekar M, Tobacco use among students in Bihar (India). *GYTS Bihar India Report*. Available from URL:  
[http://www.searo.who.int/LinkFiles/GYTS\\_Rep\\_Bihar.pdf](http://www.searo.who.int/LinkFiles/GYTS_Rep_Bihar.pdf)
44. Singh V, Pal RH, Mehta M, Kapil U. Tobacco consumption and awareness of their health hazards amongst lower income groups school children in National Capital of Territory of Delhi. *Indian pediatrics*; 2007; 44:293-94. Available from: [umeshkapil@yahoo.com](mailto:umeshkapil@yahoo.com)
45. Dongre AR, Deshmukh PR, Murali N, Garg BS. Tobacco consumption among adolescent in rural Wardha, *Indian Journal of Cancer*, 2008; 85(3):100-106.
46. Medhi GK, Hazarika NC, Mahanta J. Tobacco and alcohol use among the youth of the agricultural tea industry in Assam, India. *Southeast Asian J Trop Med PublicHealth*. 2006; 37(3):581-6. Available from URL: <http://www.ncbi.nlm.nih.gov/pubmed/17120984>
47. Muttappallymyalil J, Sreedharan J, Divakaran B. Smokeless tobacco consumption among school children. *Indian J Cancer* 2010; 47:19-23. Available from:

- <http://www.indiancancer.com/text.asp?2010/47/5/19/63872>
48. Hazarika NC, Biswas D, Mahanta J. Prevalence and pattern of substance abuse at Bandardewa, a border area of Assam and Arunachal Pradesh; Indian Journal of Psychiatric. 2000; 42(3):262-6
  49. Sarah S, Simon A. Tobacco and other substance use among Alaska native youth in western Alaska. American Journal of Health Behaviour. 2007; 31(3):249
  50. Chatterjee T, Halder D, Mallik S, Sarkar GN, Das S, Lahiri SK. A study on habits of tobacco use among medical and non medical students of Kolkata. India 2011; 28:5-10
  51. Parwal AB, Mukherjee S. Gutkha and Tobacco consumption, awareness of their health hazards among school and college students in Gujarat, Indian Journal of Community Medicine, 2004; 14(3):134
  52. Makwana RN, Shah RV, Yadav S. A study on prevalence of smoking and tobacco chewing among adolescents in rural areas of Jamnagar District, Gujarat : 2007; 48:1-4. Available from <http://jmsr.org/>
  53. Gupta C Prakash. Fact Sheet Youth Tobacco Use and Exposure a global problem, 1999. Available from: [www.fah.factsoflifevol152006](http://www.fah.factsoflifevol152006)
  54. Surekha K, Garg BS, Khursheed M. Tobacco Addiction amongst Adolescents in Rural Areas of District Wardha. 2007; 9(2) April-June Available from URL: <http://www.jkscience.org/archive/volume92/Tobacco%20Addiction.pdf>
  55. Kapoor SK, Anand K, Kumar G. Prevalence of tobacco use among schools and colleges going adolescents of Haryana, Indian J of Pediatrics. 1995; 62:462-466
  56. Ravishankar TL, Nagarajappa R. Factors attributing to initiation of tobacco use in adolescent students of Moradabad, (UP) India. Indian J Dent Res [serial online] 2009 [cited 2012 Mar 12]. Available from: <http://www.ijdr.in/text.asp?2009/20/3/346/57382>
  57. Burns Nancy. Arome Subah K. The practice of nursing research methods, approval and utilization. 1<sup>st</sup> ed. Tokyo: W. B. Sounder's company, 1997
  58. Best JW. Research in education. 7<sup>th</sup> ed. New Delhi; Prentice hall of India Pvt. Ltd, 2000.
  59. Denise F Polit, Bernadette P Hungler. Nursing Research principles and methods. 6<sup>th</sup> ed J.B Lippincott. 2002, 256-258.
  60. Sharma Suresh K. Nursing Research & Statistics. Elsevier. 2011, 145
  61. Trece EW, Trece JW. Element of research in nursing. London: C.V. Mosby Company, 1982
  62. George Julia B. Nursing Theories the base for Professional Nursing Practices Application and Large Narwalk. 60, 5-9.
  63. Park K. Textbook of Preventive and Social Medicine. 20<sup>th</sup> ed. New Delhi: Banarsidas Bhanot; 2009, 222.
  64. Kozier B. Erb. G. Snyder. SJ. Berman A. Fundamentals of Nursing.8<sup>th</sup> ed.Dorling Kindersley (India) Pvt. Ltd; 2009, 303
  65. Nieswiadomy RM. Foundation of nursing research.5<sup>th</sup> ed. New Delhi: Drolling Kindersley, 2009.
  66. Dr. Kumar Sunil. Smokeless tobacco. ENVIS-NIOH. Newsletter; National Institute of occupational Science: 2009; 4(2). Available at: [www.envision.org](http://www.envision.org).