

Methods

The 2002 UP-GYTS is a school-based cross sectional survey which employed a two-stage cluster sample design to produce represent able sample of students in grades eight to ten in all government and private schools having grade 8-10.

Data about schools (number of students by section/ class and range of ages) were obtained from the Department of Education Department and District education officers' office.

The first stage sample frame consisted of all schools containing any of the grades eight to ten. The data extracted from the Education department documents was forwarded to OSH, CDC to draw the study sample. For each group of schools, a tow- cluster sample design was used to produce a representative sample of students. Schools were selected with probability proportional to school enrollment size. A total of fifty schools were selected. Within each school, a computer generated list of random numbers of classes was produced to randomly select the classes, grades 8-10, to participate in the survey. The second sampling stage consisted of systematic equal probability sampling with a random start of classes from each school that participated in the survey. All classes in the selected schools were included in the sampling frame. All students in the selected classes were eligible to participate in the survey. The total number of eligible classes accounted for 75 strata with an average of 60 students per class. 5245 students and fifty one schools were eligible to participate in the survey. All schools responded. The final sample included 4542 students. The overall response rate was 86.6%.

The questionnaire consisted of a “core” Component and an “option” component. The core questions allow for regional as well as international comparisons of the survey results, while the optional questions concentrate on specific issues pertaining to individual countries.

For India the core questionnaire of the GYTS was suitably expanded to include tobacco use in the form of bidi smoking and smokeless tobacco use. All questions required answering (i.e. there was no skipping or branching pattern). The questionnaire was self administered with no identification information required (name of student, class or school), maintaining complete anonymity. Responses were recorded on optically readable answer sheets.

A weight has been associated with each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of no response.

The weight used for estimation is given by: $W = W1 * W2 * F1 * F2 * F3 * F4$

W1= the inverse of the probability of selecting the school.

W2= the inverse of probability of selecting the classroom within the school.

F1= a school-level non response adjustment factor calculated by school size category (small, medium, Large).

F2 = a class adjustment factor calculated by school.

F3= a student-level non response adjustment factor calculated by class.

F4 = a post stratification adjustment factor calculated gender and grade.

Survey procedures were designed to protect the student's privacy by allowing for anonymous and voluntary participation. The self-administered questionnaire was administered in the classroom. Students recorded their responses on an answer sheet.

We used EpiInfo2000, a software package that accounted for the complex sampling design and weighing factors in the data set, to calculate standard errors and prevalence estimates. Statistical differences included in this report were determined by comparing the range of the 95% confidence intervals (95%CI) for the estimates. If the ranges for the 95%CI did not overlap then the differences were statistically significant.

The Ministry of Education (MOE), UP (India) provided assistance in terms of schools registry for sample selection, issuing necessary letter of support to the randomly selected schools. One training workshops was conducted in March 2002 and were attended by 10 survey administrators. The participants were assigned to schools and were responsible for the delivery and collection of all survey documentation forms answer sheets and questionnaires.

Tobacco use was classified as ever use (the use of tobacco even once) and current use (use of tobacco within 30-day preceding the survey).

In India tobacco is used for smoking as well as smokeless use. In Uttar Pradesh tobacco is smoked in the form of cigarette, *bidi* (tobacco rolled in tendu leaf) etc

Definition of smokeless tobacco use such as betel quid, *gutka* (industrially manufactured tobacco product, containing areca nut, tobacco and other ingredients), *khaini* (tobacco leaf and lime mixture and also with arecanut), snuff, *gul* (pyrolysed tobacco with some other ingredients, used as dentifrice), *gudaku* (commercially available paste of tobacco

and molasses) tobacco toothpaste and *lal dantamanjan* (red tooth powder). Most of these habits are also common in other parts of India and have been described elsewhere.⁸ Most of these products (betel quid, *gutka*, *khaini* etc.) are chewed whereas some (*gul*, snuff, tobacco tooth paste, red tooth powder etc.) are applied in the oral cavity. The two types of usages were distinguished as chewing and applying.

Attitude towards tobacco use was assessed by the question whether boys who smoke/chew looks more attractive; have more friends (both questions repeated for girls).

Results

A total of 4542 students completed the survey, representing a 86.6% overall response rate, and 73.3% of them were males.

Table: 1. Ever use of tobacco and susceptibility by sex, , Uttar Pradesh (India), GYTS-2002.

Category	Ever User Any Tobacco	Ever Smoker	Susceptible Never smoker
Total	37.2(± 7.0)	13.6(±7.2)	12.0 (±3.1)
Male	39.2(±6.5)	14.8(±7.6)	13.8 (±3.7)
Female	31.9(±10.3)	10.2(±8.5)	7.3 (± 3.2)

Over one third students had ever used tobacco (Table1) and one in ten had ever smoked. One in five (21.3%) of students who ever smoked cigarettes first tried smoking at less than ten years of age. Among never smokers over one in ten (12.0%) indicated that they were likely to initiate smoking during the next year.