Adult Survey
Technical Report

Arnold H. Levinson, Ph.D.
Principal Investigator
Acknowledgements

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1. BACKGROUND

The Colorado Tobacco Attitudes and Behaviors Survey (TABS) is an ongoing surveillance study providing detailed information regarding adult and adolescent tobacco use and changes in use over time. The baseline surveys in 2001 were funded by the Colorado Tobacco Research Program of the University of Colorado, using funds from a legal settlement between the state and the tobacco industry. The adult 2005 wave was supported with tobacco tax revenues provided by the State Tobacco Education and Prevention Partnership (STEPP) of the Colorado Department of Public Health and Environment (CDPHE). The purposes of TABS are to guide the State's tobacco-use prevention and reduction programs, and to assist policy makers in addressing the issue of tobacco use in Colorado.

The adult survey collects information from people 18 years of age and older who speak English or Spanish and reside in households with telephones.* Constructed weights are used to generate estimates representing the Colorado population. Analysis of unweighted data is not recommended for inference to populations outside the sample itself.

2. DESIGN

A. Questionnaire

The TABS adult questionnaire was based on the California Tobacco Survey and tobacco-related questions of the Behavioral Risk Factor Surveillance System (BRFSS), which is conducted by the Centers for Disease Control and Prevention (CDC). Some questions are added or deleted each year to ensure that interviews address all major topics of interest. The questionnaire is offered to respondents in English or Spanish.

The adult questionnaire begins with a household screening section that lists each household member and obtains information for adult members on smoking status, ethnicity, and education. After the screener, the content sections address smoking status, smoking and cessation history, other tobacco use, home and workplace smoking policies, health care, attitudes and opinions regarding tobacco-related policies, media exposure, and demographics. The questionnaire is in Appendix A.

* An estimated 95% of Colorado households had land-line telephones in 2001 and 2005. [Source: American Community Survey.]
B. Sample

The 2005 sample was stratified by county with an independent random-digit-dialing sample drawn from each stratum. The design consisted of 65 strata in total, with Denver County divided into two strata: one comprising 27 telephone exchanges with the highest estimated percent African-American population (Denver High AA stratum), and the other comprising all remaining telephone exchanges serving Denver County (Denver Low AA stratum).

A list-assisted random-digit-dialing sampling procedure was used for each stratum. The Genesys sampling system was used for sample selection. Each Colorado telephone exchange (area code + central office code combinations) was assigned to a county.∗ Sample telephone numbers were drawn from telephone number “banks” or groups of 100 contiguous numbers defined by the first 8 digits (for example, 303-555-11xx) in each stratum. The TABS sample frame used banks that include at least one directory-listed residential telephone listing (1+ banks). The sample for each stratum was divided into replicates to allow for controlled release of the sample.

The sample of telephone numbers was processed through the Genesys-CSS procedure, which identifies many of the out-of-scope numbers in the sample (nonworking numbers, business numbers, fax-modem numbers, and cellular numbers). The sample was also matched against a commercial database of telephone numbers with residential addresses for the purpose of mailing advance letters to the sample telephone numbers with an address available.

In the Denver High AA stratum, African-American households were always selected to continue on to the detailed interview. For non African-American households in this stratum, a random 5% subsample was selected to continue on to the detailed interview. Midway during the field period, the protocol was modified to include Hispanic households in the group always selected to continue on to the detailed interview.

Within a household selected for the detailed interview, one adult was randomly selected for an interview. If the household also included one or more unselected adult smokers, one of these adults was randomly selected for a second household interview.

∗ Telephone exchanges can serve more than one county. During the interview, the county of residence was asked. This variable (CNTY) should be used when analyzing the data by county or county groups.
3. DATA COLLECTION

A. Programming the Instrument

The TABS Follow-Up survey was conducted in Computer-assisted telephone interviewing (CATI) using Bellview CATI software. Abt Associates programmed and tested the CATI instrument to ensure that it is ready for live interviewing. Testing ensures that data are recorded properly; skip patterns followed, range checks are operative, and all the specifications in the CATI specifications are reflected in the interview itself.

B. Advance Notification by Mail

A letter was developed to convey the study's importance and legitimacy, and assurance of confidentiality. In advance of initial survey contact, the letter was mailed to household for which the randomly selected telephone number could be matched to an address using a commercial database.

C. Interviews

Interviewer training by Abt Associates included:

- background of the Colorado TABS project, and overview and goals for data collection;
- round-robin interviewer reading of the instrument, with the trainer reinforcing question intent by reading from specifications;
- standards for probing and adherence to script;
- the enumeration/screening section and the detailed interview;
- skip patterns;
- the CATI display and Bellview software navigation;
- standard responses to frequently asked questions;
- disposition codes;
- practice sessions using mock interviews and handouts with different household compositions to simulate various skip patterns.

Supervisor training included:

- protocols for scoring interviewers during monitoring of interviews;
- tracking the percent of labor hours monitored;
- interviewer-level reports and protocols for handling falsification or poor performance.
Quality assurance staff monitored 10 to 15 percent of all TABS interview calls. Interviews were conducted seven days a week from October 4, 2005, through April 12, 2006.

D. Data Processing

During the field period, data were periodically reviewed by Abt Associates staff to ensure that skip patterns functioned properly, and to address issues that interviewers identified on problem-sheets. Open-ended ("verbatim") responses were reviewed by Abt Associates staff in consultation with TABS research staff, and responses were grouped and recoded possible.

E. Response Rates

A response rate is a measure of completed interviews as a percentage of eligible households or people. The rates for TABS were calculated using the definitions recommended by the Council of American Survey Research Organizations (CASRO). The household response rate was 38 percent. Among adults selected for an interview, the response rate was 89.7%.

4. DATA PROCESSING

A. Cleaning

During data collection, data were periodically reviewed by Abt Associates staff to ensure that skip patterns functioned properly, and to address issues that interviewers identified on trouble-sheets. In addition, responses were grouped and recoded where respondents could answer in their own words rather than choosing a pre-written response. Abt Associates staff recoded these responses in consultation with TABS research staff. Variables were excluded from the data set if they could be used to identify respondents (e.g., name and telephone number) or if they were purely technical fields generated by the CATI software.

Several variables were created to produce weights (field names end with WT), to impute missing values for demographic characteristics (field names start with IMP), or to combine data into convenient categories of ethnicity, marital status, income, age group, education, or number of children of certain ages.

B. Imputation

To enable proper weighting, Abt imputed values for the following variables: SMOKER, AGE,
EDUCATION, RACEETH, and SEX. The missing values arose from refusals to answer a question, “Don’t know” answers, or answers recorded as “other (specify)” with no information specified. For all of these variables except SMOKER, we used random imputation; that is, each missing value was replaced with a value selected at random from the distribution of the non-missing values. Missing SMOKER values were imputed to the non-smoker code. SMOKER had a total of 61 missing values. AGE had 4 missing values. EDUCATION had 18 missing values. RACEETH had 51 missing values. SEX had 5 missing values.

C. Weighting

The chance of being selected for an interview varied among individuals in the TABS sample, and the distributions of some characteristics in the sample did not match the Colorado 2005 population (for example, the sample contains a smaller proportion of men). Unequal chances of selection require the use of weights for the sample to represent the population.* The base selection-probability weights were adjusted for non-response and “post-stratified” so key characteristics are matched between the sample and the population. The FINALWT field in the TABS data file incorporates these adjustments, and the sum of FINALWT approximates the projected Colorado population of adults ages 18 and older in 2005. The formula for FINALWT is adapted from the BRFSS; where a weight factor does not apply to a case, it is set to one:

\[
\text{FINALWT} = \text{GEOWT} \times \text{DENUPWT} \times \frac{1}{NPH} \times \text{SELWT} \times \text{POSTSTRAT}
\]

FINALWT is the final weight assigned to each record.

GEOWT accounts for the unequal probability of selection across TABS regions, using telephone prefixes that closely (but not exactly) match the regions. GEOWT equals the reciprocal of the fraction of telephone numbers sampled in each region.

DENUPWT compensates for under-sampling some residents in an area of Denver where African American and Latino households were over-sampled.

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1/NPH is the reciprocal of the number of residential telephone numbers in the household.

SELWT compensates for the unequal selection probabilities for nonsmokers and smokers (adults who were regular smokers at the time of the survey or within the previous three years). The values of SELWT are based on two variables: ADLTCNT (the number of adults in the household) and ASMKCNT (the number of adult smokers in the household). If the individual respondent is a nonsmoker, then SELWT = ADLTCNT. If the person is a smoker and ADLTCNT = 1, then SELWT = 1.0. If the person is a smoker and ADLTCNT > 1, then

\[ SELWT = \frac{ADLTCNT \times ASMKCNT}{ADLTCNT + ASMKCNT}. \]

POSTSTRAT adjusts for non-coverage and non-response and adjusts the sum of weighted frequencies to equal the population estimate. Weights were raked to match two sets of state-level population control totals. One set of control totals (a two-variable margin) has 12 categories for age (in years) by gender: 18-24, 25-34, 35-44, 45-54, 55-64, and 65+ by male/female. The other set of control totals (also a two-variable margin) has six categories for race/ethnicity by gender: Hispanic, non-Hispanic black, and non-Hispanic all other races by male/female. The population control totals come from Census estimates for July 1, 2004.

D. Variance Estimation

The TABS data form a complex sample that is subject to design effects from stratification, clustering (up to two respondents per household), and unequal selection probabilities and non-response. The uncertainty or variance of estimated means, population totals, regression coefficients and other statistics is properly computed using first-order Taylor Series linearization or replication methods such as jackknife. The stratum variable in the TABS data file is STRATA, the cluster (household) variable is ABTID, and the weight variable is FINALWT.