2013 NATIONAL SURVEY ON DRUG USE AND HEALTH

METHODOLOGICAL RESOURCE BOOK SECTION 11: PERSON-LEVEL SAMPLING WEIGHT CALIBRATION

Substance Abuse and Mental Health Services Administration
Center for Behavioral Health Statistics and Quality
Rockville, Maryland

February 2015

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2013 NATIONAL SURVEY ON DRUG USE AND HEALTH: PERSON-LEVEL SAMPLING WEIGHT CALIBRATION

Prepared for the 2013 Methodological Resource Book (Section 11)

Contract No. HHSS283201000003C
RTI Project No. 0212800.001.207.004
Phase II, Deliverable No. 41

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February 2015

Recommended Citation: Center for Behavioral Health Statistics and Quality. (2015). *2013 National Survey on Drug Use and Health: Methodological Resource Book (Section 11, Person-Level Sampling Weight Calibration)*. Substance Abuse and Mental Health Services Administration, Rockville, MD.

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Preface and Acknowledgments

This report contains a brief review of the sampling weight calibration methodology used for the 2013 National Survey on Drug Use and Health (NSDUH), which was known as the National Household Survey on Drug Abuse (NHSDA) prior to 2002. This report also lists detailed documentation on the implementation steps and evaluation results from the weight calibration application. The constrained exponential modeling (CEM) method used in the surveys prior to 1999 (referred to in this report as the generalized exponential model [GEM]) was modified to provide more flexibility in dealing internally with the extreme weights and for setting bounds directly on the weight adjustment factors so they can become suitable for nonresponse (nr) and poststratification (ps) adjustments. The highlights of the method are summarized below.

- The inherent two-phase nature of the NSDUH design (viewing the large screener sample as the first phase and the actual questionnaire sample as the second phase) allows for the additional step of poststratifying the selected people to estimated controls from the large first-phase sample of people. This additional step results in stable controls for the later step of nonresponse adjustment at the respondent-person level. These two steps had been combined as one step in surveys prior to 1999, but they have been kept separate from 1999 onward.
- A poststratification step at the respondent-household level in the first phase of the screening interview reduced coverage bias resulting from the first-phase sampling and produced controls for use in poststratification at the selected-person level, respondent person-pair level, and respondent-household level in the second phase of the drug use interview. This step again takes advantage of the inherent two-phase design of the study.
- The built-in control on extreme weights in GEM can be supplemented by a separate step of extreme value adjustment after the final poststratification whenever the extreme weight percentage in the initial unadjusted weights is considered to be too large. This can be accomplished by using GEM so that the sample demographic distribution is preserved. This method represents an improvement over the trimming method implemented before the nonresponse adjustment in surveys prior to 1999 and the extreme value adjustment before the nonresponse adjustment used for the 1999 NHSDA. For the 2013 NSDUH, this final extreme value adjustment was judged to be unnecessary.

The GEM calibration method provides a unified approach to handling problems of extreme weights, nonresponse, and poststratification, and it uses current state-of-the-art technology.

Several chapters in this report describe the implementation and evaluation of GEM, and the appendices contain mainly tables. In the interest of reducing the size of the report, detailed domain-specific evaluation results are presented in the supplement to this report, which is available upon request.

This report was prepared for the Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, by RTI International (a registered trademark and a trade name of Research Triangle Institute). Contributors to this report at RTI include Claudia Clark, Debbie Bond, Valerie Garner, and Margaret Smith.

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List of Terms and Abbreviations

C	Center point.
CAI	Computer-assisted interviewing.
DU	Dwelling unit.
ev	Extreme weight adjustment. See Section 4.1 for more detail.
FI	Field interviewer.
GEM	Generalized exponential model. See Chapter 2 for more detail.
half-step	This refers to halving the increment in the Newton-Raphson iterative process for fitting GEM.
IQR	Interquartile range.
L	Lower bound on adjustment factor.
MPMN	Multivariate predictive mean neighbor.
nr	Nonresponse adjustment.
Outwinsor	Signifies the percentages of weights trimmed after extreme weight adjustment via winsorization.
PMN	Predictive mean neighborhood.
ps	Poststratification adjustment.
res.sdu.nr	Respondent screener dwelling unit nonresponse adjustment step. See Section 5.1.2 for more detail.
res.sdu.ps	Respondent screener dwelling unit poststratification adjustment step. See Section 5.1.3 for more detail.
res.sdu.ev	Respondent screener dwelling unit extreme weight adjustment step. See Section 5.1.4 for more detail.
sel.per.ps	Selected person-level poststratification adjustment step. See Section 5.2.2 for more detail.
res.per.nr	Respondent person-level nonresponse adjustment step. See Section 5.2.3 for more detail.
res.per.ps	Respondent person-level poststratification adjustment step. See Section 5.2.4 for more detail.
res.per.ev	Respondent person-level extreme weight adjustment step. See Section 5.2.5 for more detail.
SAE	Small area estimate.
SDU	Screener dwelling unit.
SE	Standard error.
SES	Socioeconomic status indicator. See Exhibit 3.1 for more detail.
SS	State sampling.
U	Upper bound on adjustment factor.
UPMN	Univariate predictive mean neighbor.
UWE	Unequal weighting effect. It refers to the contribution in the design effect due to unequal selection probability and is defined as $1 + [(n-1)/n]*CV^2$ where CV = coefficient of variation of weights, and n is the sample size.
VESTR	Variance estimation stratum.
VEREP	Variance estimation replicates.
Winsorization	A method of extreme weight adjustment that replaces extreme weights with the critical values used for defining low and high extreme weights.

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1. Introduction

The target population for the 2013 National Survey on Drug Use and Health (NSDUH) was the civilian, noninstitutionalized population aged 12 years or older residing within the United States. A coordinated sample design was developed for the 2005 through 2009 NSDUHs. The 2010 through 2011 and 2012 through 2013 samples are two extensions of the 5-year sample. Although there is no planned overlap with the 1999 to 2004 samples, the coordinated design for 2005 through 2009 facilitated 50 percent overlap in second-stage units (area segments) within each successive 2-year period from 2005 through 2009. This design was intended to increase the precision of estimates in year-to-year trend analyses, using the expected positive correlation resulting from the overlapping sample between successive NSDUH years. The 2013 NSDUH main sample continues the 50 percent overlap by retaining half of the second-stage units from the 2012 survey.

The 2013 design provides for estimates by State in all 50 States plus the District of Columbia. States may therefore be viewed as the first level of stratification as well as a reporting variable. Eight States (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas), referred to as the "large" States, had a sample designed to yield 3,600 respondents per State, while the remaining 43 "small" States (which include the District of Columbia) had a sample designed to yield 900 respondents per State. The sample in these 43 States supports reliable State estimates based on small area estimation (SAE) or direct estimation methodology when several years of data are combined. The target national sample size for the 2013 NSDUH was 67,500 people, and the achieved sample for the 2013 NSDUH was 67,838 people—corresponding to 48,896 responding dwelling units [DUs] selected at the second phase out of 160,312[1] DUs screened at the first phase, in which the first phase is screening and the second phase is interview. The achieved sample has a low of 852 for Georgia to a high of 953 for New Hampshire among small States, and a low of 3,503 for Illinois to a high of 3,729 for California among large States.

In the 2013 NSDUH design, States served as the primary strata; within each State, State sampling (SS) regions were formed and served as the secondary strata. Based on a composite size measure, States were geographically partitioned into roughly equal-sized regions according to population. The smaller States were partitioned into 12 SS regions, whereas the 8 large States were divided into 48 SS regions. Therefore, the partitioning of the United States resulted in the formation of a total of 900 SS regions.

Unlike previous NSDUHs, the first stage of selection for the 2005 through 2013 NSDUHs was census tracts selected from SS regions. This stage was included to contain sample segments within a single census tract to the extent possible. Prior to the 2005 NSDUH, segments that crossed census tract boundaries made merging to external data sources difficult.

The first stage of selection began with the construction of an area sample frame that contained one record for each census tract in the United States. If necessary, census tracts were

[1] The number of DUs that completed the first-phase screening was 160,325, but some DUs did not have eligible people, so they were removed from DU poststratification and person-level calibration steps. The number of DUs that had eligible people in them was 160,312.

aggregated within SS regions until each tract had, at a minimum, 150 DUs in urban areas and 100 DUs in rural areas. There were 48 census tracts per SS region selected with probabilities proportionate to a composite size measure and with minimum replacement (Chromy, 1979).

Because census tracts generally exceed the minimum DU requirement, one smaller geographic region was selected within each sampled census tract. For this second stage of sampling, each selected census tract was partitioned into compact clusters[2] of DUs by aggregating adjacent census blocks. Consistent with the terminology used in previous NSDUHs, these geographic clusters of blocks are referred to as "segments." A sample DU in NSDUH refers to either a housing unit or a group-quarters listing unit, such as a dormitory room or a shelter bed. Similar to census tracts, segments were formed to contain a minimum of 150 DUs in urban areas and 100 DUs in rural areas. This minimum DU requirement will support the overlapping sample design and any special supplemental samples or field tests that the Substance Abuse and Mental Health Services Administration (SAMHSA) may wish to conduct.

One segment was selected within each sampled census tract with probability proportionate to size. The 48 selected segments then were randomly assigned to a survey year and quarter of data collection.

After sample segments for the 2013 NSDUH were selected, specially trained field household listers visited the areas and obtained complete and accurate lists of all eligible DUs within the sample segment boundaries. These lists served as the frames for the third stage of sample selection. Using a random start point and interval-based (systematic) selection, the actual listing units were selected from the segment frame.

After DU selections were made, an interviewer visited each selected DU to obtain a roster of all people residing in the DU. Using the roster information obtained from an eligible member of the selected DU, zero, one, or two people were selected for the survey. Sampling rates were preset by age group and State. Roster information was entered directly into the electronic screening instrument, which automatically implemented this fourth stage of selection based on the State and age group sampling parameters.

As in previous years of the survey,[3] the 2013 NSDUH sample weighting posed challenges because of the sheer magnitude of the number of State-specific predictors used for nonresponse (nr) and poststratification (ps) adjustments. With the 51-State survey, using a single model for each of the adjustments was not practical; however, treating each State separately was not desirable because individual State sample sizes were not large enough to support reliable estimation of a number of parameters. Therefore, the 51 States were grouped into nine model groups corresponding to the nine U.S. Census Bureau divisions. This helped to keep a substantial number of predictor variables in each model and reduced the computing time that would be associated with fitting a larger model.

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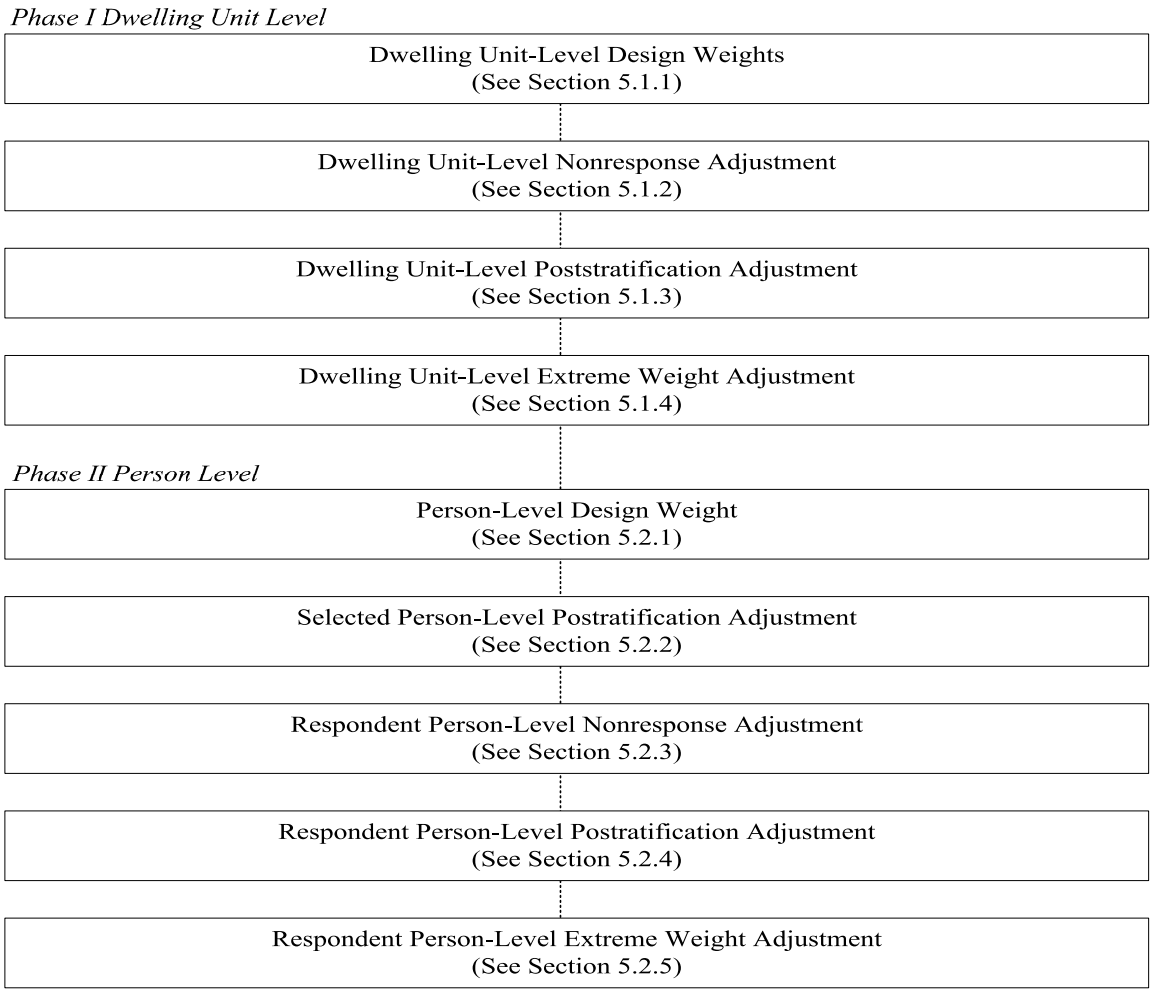
[2] Although the entire cluster is compact, the final sample of DUs represents a noncompact cluster. Noncompact clusters (selection from a list) differ from compact clusters in that not all units within the cluster are included in the sample. Although compact cluster designs are less costly and more stable, a noncompact cluster design was used because it provides for greater heterogeneity of dwellings within the sample. Also, social interaction (contagion) among neighboring dwellings is sometimes introduced with compact clusters (Kish, 1965).

[3] The survey was known as the National Household Survey on Drug Abuse (NHSDA) prior to 2002.

As with each survey after 1999, an important feature of the 2013 NSDUH sample weighting was to capitalize on the inherent two-phase nature of the NSDUH design (although the design was primarily viewed as multistage) by adding a step to poststratify the household weights in the first phase of the screening interview (see Exhibit 1.1). This reduced coverage bias resulting from the first phase of sampling and produced estimated controls for use in poststratification of person-pair weights and household weights in the second phase of the drug use interview. No other suitable source was available for obtaining these controls for poststratification. Note also that screener DU weights were poststratified to population counts by adjusting the DU's weighted contribution of person counts to various demographic domains. The second important feature was to add a step to poststratify selected people (including respondents and nonrespondents) to estimated controls from the large first-phase sample of people for various predictor variables at the segment, DU, and person levels. This provided stable controls for the step involving the nonresponse adjustment of respondent weights. Incorporating this important feature would not have been possible without screener data on the sociodemographics of members of the selected households.

Exhibit 1.1 Sampling Weight Calibration Steps



As in previous NSDUHs, a modification of the earlier methodology of scaled constrained exponential modeling (CEM) (Folsom & Witt, 1994) was used to meet the new demands on the weighting mentioned previously (i.e., the two-phase design and large number of available predictors). The modified methodology, called the generalized exponential model (GEM) (Folsom & Singh, 2000), has several features:

- Like CEM, GEM can use a large number of predictor variables, such as those obtained from the first-phase screener sample for the 50 States plus the District of Columbia, and some of their interactions.
- GEM allows unit-specific bounds for the weights initially identified as extreme, which provide tight controls on the extreme weights. This built-in control is often adequate, in that the frequency of extreme weights, after the nonresponse and poststratification adjustments, is not usually high. However, if this is not the case, GEM can be used for a separate extreme weight adjustment after poststratification. This extra adjustment, which uses tighter bounds, will preserve the demographic population controls used in the poststratification step.
- GEM provides a unified approach to nonresponse, poststratification, and extreme weight adjustments. The differences are only in terms of the bounds and control totals that are used.
- GEM can be implemented efficiently using software developed at RTI.
- GEM is a generalization of the commonly used raking-ratio method in which a distance function is minimized such that (1) the initial weights are perturbed only a little and lie within certain bounds, and (2) control totals are met. It is also a generalization of Deville and Särndal's (1992) logit method in that the bounds on weights are not required to be uniform. Moreover, the lower bound can be set to one, which is desirable for the nonresponse adjustment. Like the previously mentioned methods, fitting GEM requires iterations (such as Newton-Raphson).

The report is organized as follows. In Chapter 2, GEM is reviewed, and a heuristic description outlines how GEM provides a unified approach to all three procedures' adjustments for nonresponse, poststratification, and extreme weight adjustment. In Chapter 3, potential predictor variables for use with nonresponse, poststratification, and extreme weight are discussed, and the strategy for dealing with many predictors via modeling groups of States is reviewed. In Chapter 4, practical steps for implementing GEM for the 2013 NSDUH are presented, and in Chapter 5, details of the weight calibrations, including all weight components corresponding to Phases I and II, are given. Chapter 6 presents the evaluation measures of calibrated weights and a sensitivity analysis of point estimates and standard errors (adjusted for calibration) of selected drug prevalence estimates. The sensitivity analysis compares the estimates and standard errors from final models to those of the baseline models (which consist of only main effects). Nine appendices also are included. Appendix A presents technical details about GEM; Appendix B documents the creation and source of the poststratification control totals; and Appendix C contains information on the imputation methodology. Appendix D summarizes the GEM modeling, and the remaining five appendices contain various tables on weighted response rates, percentages of extreme weights and outwinsors, slippage rates, and weight adjustment summary statistics.

To continue producing current and accurate data, SAMHSA's Center for Behavioral Health Statistics and Quality (CBHSQ) planned to redesign NSDUH for the 2015 survey year. A Questionnaire Field Test (QFT) conducted in 2012 tested revisions to the NSDUH respondent materials, questionnaire, procedures, and equipment associated with the 2015 redesign goals, followed by a Dress Rehearsal (DR) in 2013, which aimed to further test the revisions.

For analyzing DR data, the analysis weights for DR were developed. The design-based weights for the 2013 quarters 3 and 4 DR sample were computed in a manner consistent with standard NSDUH weighting procedures. The three adjustment steps (i.e., DUNR, PRNR, and PRPS) were implemented in a similar fashion as for the 2013 quarters 3 and 4 main study sample weights using GEM. The differences were that fewer variables in GEM were used to develop DR sample weights because of the relatively small DR sample. The final analysis weights for the 2013 quarters 3 and 4 DR sample were the product of various design weights and three adjustment factors. Specific details of the 2013 DR weight calibration can be found in the 2013 Dress Rehearsal Final Report (CBHSQ, 2014a).

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2. Generalized Exponential Model for Weight Calibration

In survey practice, design weights are typically adjusted in three steps via the following methods: (1) weighting class adjustments for nonresponse, (2) raking-ratio adjustments for poststratification, and (3) winsorization for extreme weights. The bias introduced by winsorization is alleviated to some extent through poststratification. The nonresponse (nr) adjustment is a correction for bias that is introduced when estimates are based only on responding units; poststratification is an adjustment for coverage (typically undercoverage) bias, as well as for variance reduction (which is possibly due to correlation between the study and control, usually demographic, variables). If weights are not treated for extreme weight adjustment, the resulting estimates, although unbiased, will tend to have low precision.

There are limitations in the existing methods of weight adjustment for nonresponse, poststratification, and extreme weight. For the nonresponse step, there are general raking-type methods, such as the scaled constrained exponential model developed by Folsom and Witt (1994), where the lower and upper bounds can be suitably chosen by using a separate scaling factor. The factor is set as the inverse of the overall response propensity. It would be beneficial to have a model for the nonresponse adjustment factor that incorporates the desired lower and upper bounds on the factor as part of the model. Note that the lower bound on the nonresponse adjustment factor should be 1 because it is interpreted as the inverse of the probability of response for a particular unit. For the poststratification step, the general calibration methods of Deville and Särndal (1992), such as the logit method, allow for built-in lower (L) and upper (U) bounds (for poststratification, typically $L < 1 < U$). However, it would be useful to have nonuniform bounds (L_k, U_k) depending on the unit k, such that the final adjusted weights, w_k, could be controlled within certain limits. An important application of this feature would be weight adjustments to allow the user to have some control over the final adjustment of weights initially identified as extreme weights. It would be advantageous to adjust for bias introduced in the extreme weight adjustment step (such as when extreme weights are treated via winsorization) so that the sample distribution for various demographic characteristics is preserved.

A modification of the earlier method of the scaled constrained exponential model of Folsom and Witt (1994), termed the generalized exponential model (GEM) and proposed by Folsom and Singh (2000), provides a unified approach to the three weight adjustments for nonresponse, poststratification, and extreme weight, and it has the valuable features mentioned previously. The functional form of the GEM adjustment factor is given in Appendix A. It generalizes the logit model of Deville and Särndal (1992), typically used for poststratification, such that the bounds (L, U) may depend on k. Thus, it provides a built-in control on extreme weights, during both nonresponse adjustments and poststratification. In addition, the bounds are internal to the model and can be set to chosen values (e.g., $L_k = 1$ in the nonresponse step). If the frequency of extreme weights is low after the final poststratification, a separate extreme weight adjustment step may not be necessary.

Note that in view of the nonresponse adjustment factor being defined as the inverse of response propensity, GEM requires it to be greater than 1. However, the built-in extreme weight

control feature of GEM essentially defines adjustment factors with regard to the critical value under winsorization. Therefore, although the adjustment factor with regard to the cutoff point is always greater than 1, with regard to the original weight, it can be less than 1.

In fitting GEM to a particular problem, choosing a large number of predictor variables along with tight bounds will have an impact on the resulting unequal weighting effect (UWE) and the percentage of extreme weights. In practice, this leads to somewhat subjective evaluations of trade-offs between the target set of bounds for a given set of factor effects, the target UWE, and the target proportions of extreme weights. The percentage of "outwinsors" (a term coined to signify the extent of residual weights after extreme weight adjustment via winsorization) is probably a more realistic benchmark in determining the robustness of estimates in the presence of extreme weights. Chapter 4 provides details about the GEM process and some practical guidelines about fitting such a model. In particular, an adaptive method based on realized minimum and maximum bounds after setting loose initial bounds is recommended for choosing bounds more objectively.

A large increase in the number of predictor variables in GEM typically would result in a higher UWE, indicating a possible loss in precision. By looking at the change in variance calculated for a model run with the minimal number of predictor variables versus the final model we reached during the weighting process, a more precise measure of loss (or gain) in precision can be obtained for variance of selected study variables. The results are presented in Chapter 6.

3. Predictor Variables in GEM for the 2013 NSDUH

For the 2013 National Survey on Drug Use and Health (NSDUH), the initial set of predictor variables was identical to the set used for the 2012 NSDUH. Exhibit 3.1 shows the definitions and levels of these predictor variables. Typical predictors used for the screener dwelling unit (DU) nonresponse adjustment were State, Quarter, Group-Quarters Indicator, Population Density, Percentage Hispanic or Latino in Segment, Percentage Black or African American in Segment, Percentage Owner-Occupied DUs in Segment, and Segment-Combined Median Rent and Housing Value, which is also called the Socioeconomic Status (SES) indicator. The SES indicator was a composite measure based on (standardized) median rent, median housing value, and the percentage of dwellings that are owner occupied. Typical predictors for the person-level nonresponse adjustments were, in addition to those stated previously, Age, Gender, Race, Hispanicity, and Relation to Householder (i.e., the head of the household). For poststratification, predictors typically used were State, Age, Race, Gender, Hispanicity, and Quarter. In all cases, the model consisted of main effects and some interactions of these predictors. For a separate extreme weight adjustment with the generalized exponential model (GEM) after poststratification, the predictors were the same as those used in the poststratification (ps) adjustment.

Generally, it is desirable to include, whenever possible, poststratification predictors (correlated with the outcome variable) as part of nonresponse predictors (correlated with the response variable) because of the potential variance reduction; this works to offset the variance inflation, which is due to the random controls used in the nonresponse (nr) adjustment. In general, this is not possible because demographic information (often used for poststratification) is not available for nonrespondents. However, with a two-phase design, such as NSDUH's, this problem does not exist because the screener data contain the necessary information. There is, of course, the cost in time and effort required to edit and impute the screener-based predictors in advance of this nonresponse adjustment. Many times, the need to edit, impute, or both edit and impute nonresponse predictors for the full sample, which consists of respondents and nonrespondents, is eliminated because the poststratification and nonresponse adjustments are combined into a single poststratification step. However, the processes leading to nonresponse and coverage errors are likely to be different enough to benefit from separate modeling. The nonresponse-adjustment models also can benefit from bias reduction when segment-level variables, such as the percentage of owner-occupied DUs, are included in the model. Population totals for these segment-level variables have not been developed for use as poststratification controls.

Exhibit 3.1 Definition of Levels for Variables

Age (years)
1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50+[1,4]

Gender
1: Male, 2: Female[1]

Group Quarters Indicator
1: College Dorm, 2: Other Group Quarter, 3: Non-Group Quarter[1]

Hispanicity
1: Hispanic or Latino, 2: Non-Hispanic or Latino[1]

Percent of Owner-Occupied Dwelling Units in Segment (% Owner-Occupied)
1: 50-100%,[1] 2: 10-<50%, 3:0-<10%

Percent of Segments That Are Black or African American
1: 50-100%, 2: 10-<50%, 3: 0-<10%[1]

Percent of Segments That Are Hispanic or Latino
1: 50-100%, 2: 10-<50%, 3: 0-<10%[1]

Population Density
1: MSA 1,000,000 or More, 2: MSA Less than 1,000,000, 3: Non-MSA Urban, 4: Non-MSA Rural[1]

Quarter
1: Quarter 1, 2: Quarter 2, 3: Quarter 3, 4: Quarter 4[1]

Race (3 levels)
1: White,[1] 2: Black or African American, 3: Other

Race (5 levels)
1: White,[1] 2: Black or African American, 3: American Indian or Alaska Native, 4: Asian, 5: Two or More Races

Relation to Householder
1: Householder or Spouse,[1] 2: Child, 3: Other Relative, 4: Nonrelative

Segment-Combined Median Rent and Housing Value (Rent/Housing)[2]
1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile[1]

States[3]

Model Group 1:	1: Connecticut, 2: Maine, 3: New Hampshire, 4: Rhode Island, 5: Vermont, 6: Massachusetts[1]
Model Group 2:	1: New Jersey,[1] 2: New York, 3: Pennsylvania
Model Group 3:	1: Illinois, 2: Indiana,[1] 3: Michigan, 4: Wisconsin, 5: Ohio
Model Group 4:	1: Iowa, 2: Kansas, 3: Minnesota, 4: Missouri,[1] 5: Nebraska, 6: South Dakota, 7: North Dakota
Model Group 5:	1: Delaware, 2: District of Columbia, 3: Georgia,[1] 4: Maryland, 5: North Carolina, 6: South Carolina, 7: Virginia, 8: West Virginia, 9: Florida
Model Group 6:	1: Alabama, 2: Kentucky, 3: Mississippi, 4: Tennessee[1]
Model Group 7:	1: Arkansas,[1] 2: Louisiana, 3: Oklahoma, 4: Texas
Model Group 8:	1: Colorado, 2: Idaho, 3: Montana, 4: Nevada, 5: New Mexico, 6: Utah, 7: Wyoming, 8: Arizona[1]
Model Group 9:	1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,[1] 5: California

MSA = metropolitan statistical area.

[1] The reference level for this variable. This is the level against which effects of other factor levels are measured.

[2] Segment-Combined Median Rent and Housing Value (also known as the Socioeconomic Status [SES] indicator) is a composite measure based on rent, housing value, and percent owner occupied.

[3] The States assigned to a particular model are based on census divisions.

[4] The age group 50+ was further broken down into 50-64 and 65+ for Person-Level Poststratification Adjustment and Person-Level Extreme Weight Adjustment, for which 65+ was used as the reference level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Heuristically, the suitable number of State-specific controls should depend on the size of the realized sample in each State; because of this, the nature of the problem of too many controls in nonresponse- and poststratification-adjustment models is State specific. Therefore, for the 2013 NSDUH, the strategy proposed by Singh, Penne, and Gordek (1999) was followed and is discussed in the following paragraphs. Also using Singh et al. (1999), some general guidelines were used to choose an initial set of State-specific controls, and the initial set was modified iteratively as problems in maintaining them arose. The process began with the baseline model of one-factor effects and then proceeded with the addition of second- and third-order effects; collapsing was performed as necessary, depending on the individual State sample sizes. To obtain more precise State-level estimates, every effort was made to include as many important State-specific covariates as possible in models for nonresponse and poststratification weight adjustments. These covariates typically were defined by sociodemographic domains. However, keeping a multitude of State-specific covariates, especially higher order interactions, was not possible because individual State sample sizes were not large enough to support stable estimation of an adequate number of model parameters. Therefore, a hierarchical order was used for including covariates in the model; the order started with covariates at the national level, followed by covariates at the census division level within the Nation, then covariates at the combined State level within the census division, and finally, whenever possible, covariates at the State level within the combined States.

When adding certain covariates to the model resulted in parameters that could not be estimated or were unstable, the hierarchy strategy mentioned previously was used to combine States within a census division so that covariates at the combined level could be included. However, this problem typically arose with State-specific higher order interactions, and States were collapsed only when combining levels of covariates within a State was not a reasonable alternative. This was thought to be beneficial in obtaining more reliable State-level estimates using small area estimation (SAE) techniques. The eight large States were not combined with other smaller States, to the extent possible, so that direct State-level estimates could be obtained without relying on SAE.

As an objective check for the suitability of the number of factors, once a satisfactory convergent model was obtained (see Section 6.5 for details), the relative efficiency of a more complex model (with many effects) versus a simpler model (with fewer effects) was measured. In addition to the relative efficiency, the increase in the unequal weighting effect (UWE) was checked.

For the 2013 NSDUH data, as for the previous years' data, it became apparent that the number of controls could be very high (in excess of 1,000). This many controls would be computationally prohibitive because the implementation of GEM involves iterative steps, and a matrix (whose dimension corresponds to the number of controls) must be inverted in each of these iterations. A solution would be to use separate models within groups of States rather than a single overall model. It can be shown that, if effects (two-factor or higher order) are always collapsed within a group of States, then fitting an overall model of GEM is equivalent to fitting separate models for each group. In this way, the computational problems associated with too many controls could be reduced. Therefore, in the 2013 NSDUH, as in the 1999 through 2012 surveys, nine model groups corresponding to the nine census divisions were used.

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4. Practical Aspects of Implementing GEM for the NSDUH

As explained in Chapter 2, the generalized exponential model (GEM) can be used for nonresponse (nr) adjustment, poststratification (ps), and extreme weight adjustment (see Exhibit 4.1 for a schematic presentation of the steps). These steps were implemented using the GEM macro developed at RTI. A detailed discussion can be found in Chen, Penne, and Singh (2000).

4.1 Definition of Extreme Weights of Sampling Weights

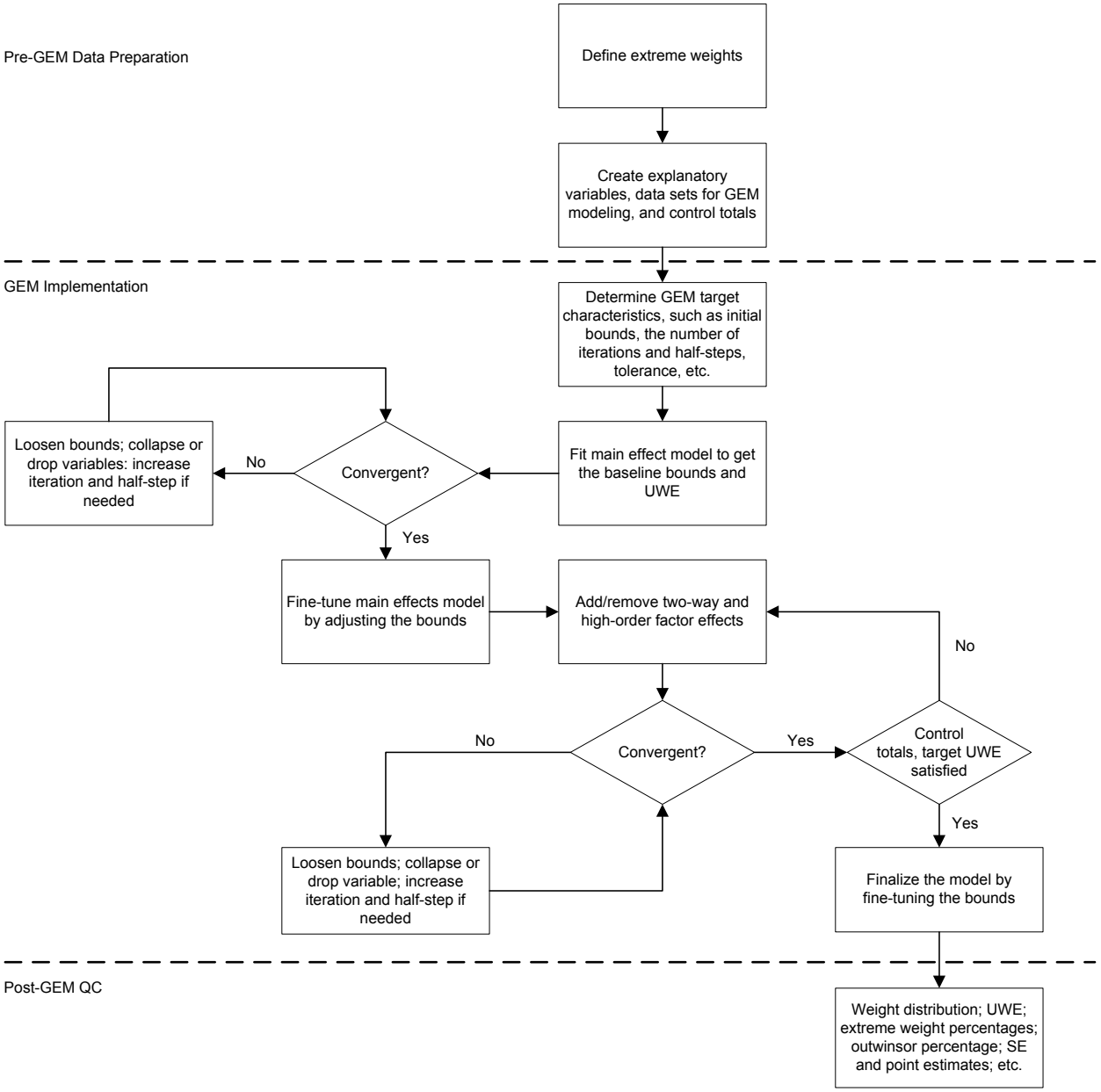
An important aspect of GEM is the built-in provision of extreme weight adjustment. Sampling weights for the survey generally were classified as extreme (high or low) if they fell outside the commonly used interval defined by the median $\pm 3 \times$ interquartile range (IQR) for some prespecified domains; these domains were usually defined by design strata, taking into account deep stratification. For example, the dwelling unit (DU)-level weight for the 2013 National Survey on Drug Use and Health (NSDUH) used the State sampling (SS) region as the domain. The person-level weight adjustments used a hierarchy of four domains: (1) SS region × Age group, (2) State × Age group, (3) SS region, and (4) State. A minimum of 30 observations was required for defining the boundaries, or critical values, for extreme weights. If this minimum was not met at the lower level, the next level up in the hierarchy was used.

Although the SS region × Age group domain corresponded to a deep stratum, it could be unsuitable for defining extreme weights because of insufficient sample sizes. So, collapsing SS regions within a State gave rise to such domains as State × Age group. Even at this level, sample sizes could be insufficient, so SS regions and, later, States themselves could be used as domains to define extreme weights. The critical values for low and high extreme weights are denoted by $b_{k(l)}$ and $b_{k(u)}$, respectively. The critical points for extreme weights within GEM modeling were defined as the median $\pm 2.5 \times$ IQR, which was conservative when compared with the commonly used standard of the median $\pm 3 \times$ IQR. This is because, to better prevent the adjusted weights from crossing the standard boundary and those at or beyond the boundary, weights near but below it (which have the most potential to become extreme) were treated as extreme by GEM.

4.2 Definition of Lower and Upper Bounds for Weight Adjustment Factors

For implementing extreme weight control via GEM, the variable m_k was defined as $b_{k(u)} / w_k$ for high extreme weights, and $b_{k(l)} / w_k$ for low extreme weights, where w_k represents the sampling weight before adjustment, and $b_{k(u)}, b_{k(l)}$ denote the critical values for the extreme weights. (Note that under this definition, nonextreme weights has a value of 1 for m_k; for high extreme weights, the more extreme the weight is, the smaller m_k will be; conversely for low extreme weights, the more extreme the weight is, the bigger m_k will be.)

Exhibit 4.1 Generalized Exponential Model Steps



GEM = generalized exponential model; SE = standard error; UWE = unequal weighting effect.

The upper and lower bounds for the adjustment factors were defined, respectively, as the product of m_k and the upper and lower boundary parameters specified in the modeling of GEM.

GEM allows inputs of three different upper (U) and lower (L) boundary parameters (L_1, and U_1, L_2, and U_2, L_3, and U_3, respectively) for high, non-, and low extreme weights. By applying a small upper boundary parameter for high extreme weights and a large lower boundary parameter for low extreme weights, the extreme weights could be controlled in the modeling.

GEM also requires specification of centers (C), such that L < C < U. For nonresponse adjustment, it was constructive to require all adjustments to be greater than 1 because the adjustments represented the inverse of response propensities. The value of C in this case was chosen as the inverse of the overall response propensity. For poststratification, centers were set to 1 so the adjusted weights would not be too far away from the original design weights. Here, lower bounds were chosen to be less than 1 and upper bounds were greater than 1 because the control totals could be larger or smaller than the estimated totals based on the design weights. The extreme weight adjustment is analogous to the poststratification adjustment (see Appendix A) in that it is a repeated poststratification with tighter bounds for extreme weights identified after the poststratification step. Section 4.7 gives guidelines for the choice of lower, center, and upper parameters.

4.3 Definition of Control Totals

GEM modeling for nonresponse adjustment, poststratification, and extreme weight adjustment involved estimation of parameters of the adjustment factor model, such that specified control totals were satisfied. There were two types of control totals. For nonresponse adjustment, the control totals were from the full sample (i.e., respondents and nonrespondents), while for poststratification, control totals were obtained from external sources, such as the Census Bureau or a large first-phase screener sample. Specifically, for the 2013 NSDUH, the control totals for various domains for the selected person-level poststratification adjustment (sel.per.ps, see Section 5.2.2) were obtained from the first-phase sample containing roster information, and the control totals for the respondent person-level poststratification (res.per.ps, see Section 5.2.4) were obtained from the Census Bureau's Postcensal Population Estimates for various demographic domains. Controls used for extreme weight adjustment were the same as those for poststratification because they were based on the poststratified weight. (See Appendix B for more information.)

4.4 Efficient Computation Using Grouped Data

Because adjustment factors remained the same for units (DUs or people) having common values for all explanatory variables used in the model, the size of the sample data was reduced by grouping units having common values of these variables. Also, within the groupings, the units with extreme weights were further grouped such that, in addition to the common values of the explanatory variables, they also had common values of m_k. This significantly saved computation time, especially because the original sample size was large. Modeling GEM with grouped data was implemented by treating each group as a single record, with the associated weight defined as the sum of the individual weights in the group. Note that when using GEM with grouped data, the unequal weighting effect (UWE) and *t*-test statistics normally produced in the output would

be misleading because the weights in grouped data are sums of the weights for the individual units within each group. Also, the definition of variance estimation stratum (VESTR) and replicates (VEREP) required for variance calculation would not be correct. To avoid these misleading results from using the grouped data, the final model was rerun with the full (ungrouped) data.

4.5 Steps in GEM Fitting

Exhibit 4.1 depicts the GEM steps. After specifying the GEM parameters, such as the initial upper and lower bounds, the number of the Newton-Raphson iterations and half-steps, and the type of weight adjustment (nonresponse adjustment, poststratification, or extreme weight adjustment), a forward selection method for modeling was used. A model with only main effects and loose bounds was first fit to obtain a set of realized baseline upper and lower bounds for extreme and nonextreme weights and to calculate a baseline UWE. Next, using the realized bounds, as many higher order interactions as possible were added to the model to help reduce bias, without unduly increasing the UWE and the extreme weight percentages. Convergence problems were addressed by loosening lower bounds and upper bounds and collapsing or dropping variables. In GEM, *t* tests and *p* values for significance of various effects could be computed for a previously converged model, which would be helpful in deciding about the collapsing of effects when convergence problems arose with realized bounds.

For this application, "collapsing" implies combining the "levels" of variables with other levels explicitly present in the model, while "dropping" implies combining with the reference levels, which are not explicitly represented in the model. Collapsing or dropping lower order interactions had a direct impact on the inclusion of the number of higher order interactions. For the 2013 NSDUH, when adding higher order terms, all previously selected explanatory variables were retained in the model. Possible reasons for nonconvergence included explanatory variables corresponding to domains with small sample sizes, or domains with large discrepancies between estimated totals based on the initial weights and the target control totals. The variables causing problems with convergence were identified by the high magnitude of the estimated model parameters. Once the explanatory variables were finalized, finer adjustments of upper bounds and lower bounds could optimize the model by reducing UWE and the extreme weight percentages.

4.6 Quality Control Checks

The distributions of the weights before and after each adjustment were compared to uncover any unusual impact of the weight adjustment on the initial weights. In addition to the weight distributions, the ratios of the maximum weight to the mean weight and the UWEs were compared across various domains both before and after each adjustment. The percentages of extreme weights were checked after each adjustment to see how effective the modeling was in controlling extreme weights. Coverage bias analysis based on the slippage (the distance between the total sample weighted count and the target population count) rates also was conducted to check the impact of poststratification on various noncontrolled domains (i.e., those factors that were dropped or collapsed in the model).

4.7 Practical Guidelines in Using GEM

1. Collapsing checks for domains with small sample sizes. The number of observations in various domains defined by levels of the factor effects was examined. If the domain sample size was 0 and the control total corresponding to this domain also was 0, the factor generally was dropped. This automatically collapsed the factor level with the reference level; however, if the control total was not 0, the factor could not be dropped because collapsing the domains together for the sample also would collapse the population domains together. The result would be that control totals could not be met for the reference levels involved. In these cases, the factor level corresponding to a 0 domain sample size should be collapsed with another level for which we are willing to compromise on satisfying the control total.

In general, domains with small sample sizes may cause problems during GEM modeling and prevent the model from converging. For the 2013 NSDUH, if the model did not converge because a domain sample size was small, the corresponding factor effect was collapsed with another effect based on substantive considerations. For example, if State was involved, then it was better, in general, to collapse within States; collapsing of geographically adjacent States was done only when there was no other reasonable alternative (see Section 4.8 for more details). The necessity of collapsing was checked at each stage of model enlargement in the forward selection of factors. If variables were collapsed at a previous stage, the corresponding factor levels were also collapsed using the hierarchy principle at succeeding stages involving higher order factor effects.

2. Singularity checks. As in the case of collapsing checks, singularity checks (i.e., linear dependence checks of realized value columns of the predictors) were performed for the baseline model; in addition, they were performed at each stage of model enlargement because singularities depended on what other predictors were in the model. (Note that, although all variables were linearly independent of each other, it was possible for the columns of their realized values to have been linearly dependent.) For nonresponse adjustment, any variable that was a linear combination of other variables was either dropped from the model or collapsed with other variables. To decide whether to drop or to collapse, a singularity check was performed for both respondents only and the full sample. If both samples showed the same set of variables causing singularity, then these singularity variables could be dropped; if not, collapsing needed to be performed. For poststratification adjustment, any variable that was a linear combination of other variables had to be collapsed with other variables because the variables corresponding to poststratification controls typically were linearly independent.

3. Finding the initial factor set. After the collapsing and singularity checks, the remaining factor effects at a given stage of model enlargement formed the initial factor set.

4. Baseline model. Starting with the model consisting of all one-factor effects from the initial factor set, a convergent version was found (after any required collapsing) under no restrictions on the bounds. The model was optimized by trying to reduce the UWE and tighten the bounds. If necessary (to obtain convergence), factors corresponding to large parameter estimates were collapsed. As an option, *p* values could have been used to determine which factors to collapse.

5. Baseline plus two-factor effects. All two-factor interactions from the initial factor set were added to the baseline model. A convergent version under no bound restrictions then was found, and the model was optimized using criteria described in Guideline 4. The non-State two-factor effects were added first, and then, in a separate step, the State two-factor effects were added.

6. Baseline with two and higher order factor effects. Starting with the optimized model from Guideline 5, the higher order factor effects were added—first the non-State three-factor effects, then, in a separate step, the State three-factor effects. Again, criteria from Guideline 4 were followed to obtain an optimal model.

7. Optimizing a model with respect to the target model characteristics. These are summarized in the following points:

- For each step of model enlargement, the UWE for the initial weights was computed. It was allowed to increase up to 20 percent, or the maximum allowable UWE (generally under six), whichever was lower.
- The following guidelines, based on empirical considerations, were used for setting the bounds. In the case of poststratification and separate extreme weight adjustments, the center was set as $C_1 = C_2 = C_3 = 1$. Instead of tightening the bounds to as close to 1 as possible, as was done for surveys prior to 2002, we used an adaptive approach to choose the bounds starting from the 2003 NSDUH; that is, starting with loose bounds of (0.1, 10), we performed GEM iteratively four times, each with the realized bounds from the previous iteration. The final bounds for nonextreme weights were desired to be around (0.2, 5). The iterations based on the adaptive approach generally met this desired criterion. If this was not the case, then collapsing of some model variables was allowed to meet this criterion. Finally, the bounds U_1 and L_3 were further tightened to be as close to 1 as possible to better control high and low extreme weights, while maintaining $L_3 \geq L_2$ and $U_1 \leq U_2$.
- In the case of nonresponse, the centers were set equal to the common value of the overall inverse response propensity, and all the three lower bounds (L_1, L_2, and L_3) were set to 1. Next, starting with the loose bounds of (1, 10), the bounds were chosen iteratively as mentioned above using the realized bounds from the previous GEM iteration. The bounds U_1 and L_3 were further tightened to as close to center as possible, while maintaining $L_3 \geq L_2$ and $U_1 \leq U_2$.
- Targets for the maximum acceptable percentages of extreme weights and outwinsors within GEM for nonresponse and poststratification were as follows: 3 percent for the unweighted extreme weights, 15 percent for weighted extreme weights, and 5 percent for outwinsors. These percentages are liberal and serve as guidelines only. In practice, reducing them by half is preferable. If these guidelines were not met after all stages of calibration, a separate GEM for adjustment of extreme weights was implemented after poststratification.

8. Evaluation measures. After each stage of model enlargement, various characteristics were examined for large values. These included the UWE, the ratio of the maximum to the mean

for adjusted weight, the percentage of extreme weights and outwinsors, the distance between the total sample weighted count and the target population count (i.e., slippage rates for different domains), and other characteristics, such as weight summary statistics. In addition, the distributions of adjustment factors were checked for highly asymmetric tails. With the set of realized bounds for the final model, the baseline model was rerun, and then point estimates and SEs for selected outcome variables for the two models were compared. Generally, the two estimates were likely to be close, but not the SEs. The SEs for the final model were expected to be smaller but, at times, could be larger. Larger SEs were identified and examined because they could be an indication of instability of the model parameter estimates because of possible overfitting or insufficient sample sizes. In such situations, the final model was revised to get a more parsimonious model.

4.8 Variable Collapsing Guide

As discussed in Section 4.5, convergence problems in GEM were solved by either loosening bounds or collapsing model variables. Grouping proposed levels into a smaller number of categories could be done in several ways, but care was taken so that they remained meaningful. When constructing the model and attempting to obtain convergence, maintenance of logical groupings was a top priority. The following are some general guidelines that were followed when collapsing variables.

- *Ordinal variables*. Most of the proposed explanatory variables were ordinal. Thus, collapsing was done in a meaningful way, following the order. For example, the combined Rent/Housing quintile had five levels (i.e., 1st, 2nd, 3rd, 4th, and 5th quintile) with the 5th quintile set for the reference. If the 4th quintile needed to be collapsed, it would be collapsed with either the 3rd or 5th quintile.
- *Age groups*. Age Group had five levels: 12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older (50 or older was further broken down into 50 to 64 and 65 or older for the person-level poststratification adjustment and the person-level extreme weight adjustment to increase the accuracy of estimates for these age groups). For the main effects, the age covariate with five or six levels was easy to incorporate in the model. For the interactions, every effort was made to maintain the age group, and, therefore, collapsing was performed within age groups first. Collapsing across age groups occurred only if the age groups could not be maintained separately.
- *Large and adjacent States*. In the main effects, fitting States separately in the model was not a problem. For the State-specific interactions, collapsing was done within the State first, collapsing with other adjacent States was done only if needed. For the eight States with large sample sizes (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, Texas), every effort was made to preserve all factor levels within States so that direct estimates could be made for the large States.
- *Race*. In the main effects and State-specific two-factor interactions, Race had five levels (white, black or African American, American Indian or Alaska Native, Asian, and two or more races), while in non-State-specific two- and three-factor effects, Race had three levels (white, black or African American, and other). If maintaining all five levels was difficult in the main effects or State × Race interactions, the following guidelines were followed: (1) collapse American Indian or Alaska Native

and Asian if either of them caused a convergence problem; (2) collapse black or African American with two or more races if black or African American caused a convergence problem; (3) collapse two or more races with American Indian or Alaska Native or Asian, whichever had a smaller sample size, if two or more races caused a convergence problem; and (4) collapse American Indian or Alaska Native, Asian, and two or more races, or collapse all nonwhite Race groups if necessary. In the State × Race interactions, collapsing Race was done within State. If the three-level Race could not be maintained, the levels were collapsed to white and nonwhite.

5. Weight Calibration at Phase I Dwelling Unit and Phase II Person Levels

The 2013 National Survey on Drug Use and Health (NSDUH) was based on probability sampling so that valid inferences could be made from survey findings to the target population. Probability sampling refers to sampling in which every unit on the frame is given a known, nonzero probability of inclusion in the survey. This is required for unbiased estimation of the population total. The assumption of nonzero inclusion probability for every pair of units in the frame also is required for unbiased variance estimation. The basic sampling plan involved four stages of selection across two phases of design (see Exhibit 5.1). The first phase of the design was the dwelling unit (DU) level, and the second phase was the person level. The four stages of selection were as follows: within Phase I, (1) the selection of census tracts within the State sampling (SS) region; (2) the selection of segments within each sampled census tract; (3) the selection of DUs within these segments; and within Phase II, (4) the selection of eligible individuals within DUs (Table 5.1). Specific details of the sample design and sample selection procedures can be found in the 2013 sample design report in the *NSDUH Methodological Resource Book* (Center for Behavioral Health Statistics and Quality, 2014b).

As part of the postsurvey data-processing activities, analysis weights were calculated for the 2013 NSDUH respondents that reflected the selection probabilities from various stages of the sample design. These sample weights were adjusted at both the DU level (screening sample) and person level (drug questionnaire sample) to account for bias due to extreme weights, nonresponse, and coverage.

The final Phase I DU-level and Phase II person-level sample weights for the 2013 NSDUH sample are products of several factors (see Exhibit 5.1), each representing either a probability of selection at some particular stage or some form of extreme weight, nonresponse, or poststratification adjustment. In the following sections, these components are described in greater detail. In summary, the first 10 factors are defined for all screener-complete DUs and reflect the fully adjusted DU-level weight. The latter five components reflect the person-level selection within each screened DU, as well as any additional adjustments for person-level extreme weight, nonresponse, and poststratification error. Note that the unconditional, final person-level weights for the 2013 NSDUH sample are the product of all 15 weight components, as illustrated in Exhibit 5.1.

Exhibit 5.2 shows the U.S. Census Bureau divisions and model groups used in the 2013 NSDUH person-level weight calibration.

Exhibit 5.1 Summary of 2013 NSDUH Sample Weight Components

Phase I Dwelling Unit Level

Design Weight Components	
#1	Inverse Probability of Selecting Census Tract
#2	Inverse Probability of Selecting Segment
#3	Quarter Segment Weight Adjustment
#4	Subsegmentation Inflation Adjustment
#5	Inverse Probability of Selecting Dwelling Unit
#6	Inverse Probability of Added/Subsampled Dwelling Unit
#7	Dwelling Unit Release Adjustment

Weight Adjustment Components	
#8	Dwelling Unit Nonresponse Adjustment ***(res.sdu.nr)****
#9	Dwelling Unit Poststratification Adjustment ***(res.sdu.ps)****
#10	Dwelling Unit Extreme Weight Adjustment ***(res.sdu.ev)****

Phase II Person Level

Design Weight Components	
#11	Inverse Probability of Selecting a Person within a Dwelling Unit

Weight Adjustment Components	
#12	Selected Person-Level Poststratification Adjustment to Screener Data Controls ***(sel.per.ps)****
#13	Person-Level Nonresponse Adjustment ***(res.per.nr)****
#14	Person-Level Poststratification Adjustment ***res.per.ps)****
#15	Person-Level Extreme Weight Adjustment ***per***

* These adjustments use the generalized exponential model (GEM), which also involves pre- and postprocessing in addition to running the GEM macro. See Exhibit 4.1. For computational feasibility, all weight adjustments were done using the nine model groups based on U.S. Census divisions defined in Exhibit 5.2.

Exhibit 5.2 U.S. Census Bureau Divisions/Model Groups

Model Group	Census Division
1	**New England (6 States)** Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
2	**Middle Atlantic (3 States)** New Jersey, New York, Pennsylvania
3	**East North Central (5 States)** Illinois, Indiana, Michigan, Ohio, Wisconsin
4	**West North Central (7 States)** Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
5	**South Atlantic (8 States and the District of Columbia)** Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia
6	**East South Central (4 States)** Alabama, Kentucky, Mississippi, Tennessee
7	**West South Central (4 States)** Arkansas, Louisiana, Oklahoma, Texas
8	**Mountain (8 States)** Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
9	**Pacific (5 States)** Alaska, California, Hawaii, Oregon, Washington

Table 5.1 Sample Size, by Model Group for Each Stage of Sampling

Model Group	Eligible DUs	Completed DUs	Eligible People	Selected People	Completed People
1	16,352	14,050	29,305	7,088	5,448
2	27,256	20,737	44,428	11,246	8,213
3	35,068	29,030	61,104	16,695	12,468
4	16,838	15,350	30,889	8,147	6,354
5	33,212	27,772	57,522	13,887	10,801
6	9,528	8,463	17,275	4,525	3,616
7	14,723	13,053	27,730	8,346	6,365
8	18,224	16,290	34,226	9,314	7,296
9	18,866	15,580	35,789	9,494	7,277
Total	190,067	160,325	338,268	88,742	67,838

DU = dwelling unit.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

In the 2013 NSDUH, as in the 2000 through 2012 surveys, the order of the extreme weight adjustment step at both the DU and person level was different from the order used in the 1999 National Household Survey on Drug Abuse (NHSDA) computer-assisted interviewing (CAI). In the 1999 NHSDA CAI, the extreme weight adjustment step was introduced before nonresponse and poststratification, which was analogous to the traditional trimming step before nonresponse and poststratification. In the 1999 NHSDA, the initially identified extreme weights were held fixed at their winsorized values, and the nonextreme weights were adjusted so that the original sample distribution of the weights for various domains was preserved. As a better alternative for the surveys after 1999, the generalized exponential model (GEM) first was allowed to control the extreme weights during the nonresponse and poststratification steps, and then a separate extreme weight adjustment step was performed after poststratification, if necessary. This step would be like a repeated poststratification, except that the extreme weights identified after poststratification would have tighter bounds, thus preserving the sample distributions in various domains (equivalent to satisfying the poststratification controls). For the 2013 NSDUH, the extreme weight adjustment step was not necessary either at the DU level or at the person level.

5.1 Phase I Household-Level Weight Components

5.1.1 Weight Components #1 to #7: Selection of a Dwelling Unit

The first seven components in the Phase I sample weights reflect the probability of selecting the DUs. These components were derived from (1) the probability of selecting the census tract within each State SS region, (2) the probability of selecting the segment within each census tract, (3) a quarter segment weight adjustment, (4) a subsegmentation inflation factor, (5) the probability of selecting a DU from within each counted and listed sampled segment, (6) the probability of inclusion of added DUs, and (7) DU percent release adjustment.

Segments were selected with probabilities representing a full year's sample; therefore, Weight Component #3 was set to 1 in the 12-month analysis and was set to 2 in the 6-month analysis (because only half of the segments were used in the analysis). Also, when the field staff, who were responsible for counting and listing, traveled to a specified segment, occasionally they may have found the number of potential DUs to be much greater than what the sample frame (constructed from 2000 U.S. Census Bureau data adjusted for 2005 Claritas projections) indicated. This happened either because of errors in the frame or, more commonly, because of rapid growth in a particular geographic area. When this occurred, the original segment was partitioned and a subsegment was randomly selected. There was an occasional second subsegmentation step when the initial partitioning of segments was insufficient due to out-of-date census counts or the segment was still too large to list after the original subsegmentation. Weight Component #4 (i.e., subsegmentation inflation factor) is an adjustment that accounts for this selection process.

As noted in the 2013 and earlier sample design reports, a lengthy process of determining the optimal DU sample was used during the design of the survey. Weight Component #5 is a result of this process and is equal to the inverse of the DU sample size divided by the total number of DUs counted and listed within a selected segment.

Furthermore, the list of DUs, which includes housing units and group quarters, was constructed by the counting and listing staff during the summer and fall of 2010. Because the listing was done a short time before the 2013 screening and interviewing activities began, no major discrepancies were expected. However, such factors as new construction, demolition, and inaccurate listing were present in some cases. More commonly, DUs may have been "hidden" and, therefore, overlooked by the counter and lister. For all DUs to be given a chance of being selected, the NSDUH has a procedure for locating and adding missed DUs. The current procedure requires field interviewers (FIs) to look both on the property of selected DUs and between each DU and the next listed DU (half-open interval [HOI] rule). In order to make the HOI rule easier to implement in the field, starting from the 2000 survey, the rule was modified such that the HOI would be closed on each map page. Therefore, if the selected DU was the last on a page, the "next listed DU" would be the first one listed on the same page. If the number of added DUs linked to any particular DU did not exceed 5, or if the number for the entire segment was less than or equal to 10, the FI was instructed to consider these DUs as part of his or her assignment. However, if either of these limits was exceeded, the FI would contact RTI for subsampling to be considered. Weight Component #6 accounts for any subsampling that occurred because of added DUs.

To account for corrections, modifications, or both that occurred during the process of design optimization, an additional sample was included throughout all four quarters. Weight Component #7 is the adjustment for the percentage of the DU sample released to FIs in these quarters.

For more detailed information on Weight Components #1 through #7, refer to the 2013 sample design report (Center for Behavioral Health Statistics and Quality, 2014b).

5.1.2 Weight Component #8: Dwelling Unit–Level Nonresponse Adjustment

After DUs were selected, an FI was sent to the DU to screen the residence. Failure to obtain the screening interview from eligible DUs represented the first type of nonresponse encountered in the survey. To account for this nonresponse, as in previous surveys, the (unconditional) sample weights up to this point (equal to the product of Weight Components #1 through #7) were adjusted using a multiplicative adjustment factor derived from modeling response propensity via GEM.

5.1.3 Weight Component #9: Dwelling Unit–Level Poststratification Adjustment

The screener data provided a large sample with information on some demographic variables for the households; therefore, as in two-phase sampling, the screener dwelling unit (SDU) weights first were adjusted for nonresponse and poststratification. Later, estimates for household variables (which were based on screener data) were used as control totals for weight adjustments at the second phase and for person pair-level weights. This was useful because, unlike census controls that were available for individual people, no controls were available for person pairs. Note that for SDU poststratification, census controls still could be used because each SDU's contribution was computed as the number of people in the SDU who had certain demographic characteristics multiplied by the SDU weight. It follows that, although explanatory variables used for modeling the weight adjustment were counts instead of binary (0/1), as is often the case, person-level census controls still could be used. For example, age group had five

categories (12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older); in SDU poststratification, category 12 to 17 was the number of the people in this age category within a DU, and so on. The intercept was the total number of people in the DU, which varied by SDU because SDU size was not constant. Note that when defining interaction control variables for count variables, the corresponding count variables were not simply multiplied, as was done for the binary case; instead, the counts for the category defined by the interaction term (say, Age × Gender) were used.

In addition, the screening process only required the reporting of age for each person rostered; as a result, some fields of demographic information (e.g., race, Hispanic or Latino origin, gender, and two or more races) were missing. Missing data for race and Hispanic or Latino origin were imputed using the predictive mean neighborhood (PMN) methodology (see Appendix C). The probability of observing race (white, black or African American, American Indian or Alaska Native, Asian, and two or more races) was modeled using PROC MULTILOG in SUDAAN®, and the probability of observing Hispanic or Latino origin was modeled using PROC LOGISTIC in SAS. Those probabilities were used in computing predictive means and delta neighborhoods. The "hot deck" method then was used to randomly pick a donor from the neighborhood to impute a missing value for each case. Missing data for gender were imputed using an unweighted hot-deck methodology (see Appendix C). The data file was sorted by auxiliary variables that were considered relevant to the variable being imputed. The sort order of these auxiliary variables was chosen to reflect the degree of importance of the auxiliary variables in relation to the variable being imputed. Exhibit 5.3 displays the order in which demographic variables were imputed, along with explanatory variables used in the model or in hot-deck sorting.

Exhibit 5.3 Imputed Demographic Variables and Corresponding Explanatory or Auxiliary Sort Variables

Imputed Variable	Methodology	Explanatory or Auxiliary Sort Variables
Race	Multivariate predictive mean neighborhood (MPMN)	Census region, household type (white, black or African American, Hispanic or Latino), percentage of segments that are black or African American, percentage of segments that are Hispanic or Latino, percentage of owner-occupied dwelling units in segment, segment-combined median rent and housing value, age group
Hispanic or Latino Origin	Univariate predictive mean neighborhood (UPMN)	Census region, imputed race, household type (white, black or African American, Hispanic or Latino), percentage of segments that are black or African American, percentage of segments that are Hispanic or Latino, percentage of owner-occupied dwelling units in segment, segment-combined median rent and housing value, age group
Gender	Hot deck	Census division, imputation-revised Hispanic or Latino origin, imputation-revised race and a random sort number

5.1.4 Weight Component #10: Dwelling Unit–Level Extreme Weight Adjustment

The product of Weight Components #1 through #9 was checked to see if the extreme weight adjustment step was needed. Using the SS region as the domain for the extreme weight definition, weights were defined as extreme if they were outside the range defined by the median

±3 × interquartile range (IQR). Because the unweighted, weighted, and winsorized extreme weight percentages were not high, the extreme weight adjustment was not necessary (see results in Appendix F). Therefore, Weight Component #10 was set to 1 for every DU for which roster information was collected (i.e., every DU with a completed screener).

After this adjustment was completed, the final DU weight was calculated as the product of Weight Components #1 through #10 described previously. This adjusted weight was used to compute household-level estimates from the screener data. It also was used to compute person-level estimates derived from the full roster sample. In addition, these 10 weight components became the first 10 components of the final interview respondent sample weight. The remaining five weight components discussed in the next section account for the person probability of selection for those people for which a NSDUH interview was sought; they also account for person-level nonresponse, extreme weights, and coverage errors resulting from the last stages of the sample design.

Details on the final models used for DU nonresponse (nr) and poststratification (ps) adjustment for each respective model group can be found in Appendix D.

Table 5.2 presents the weight distribution for design-based weight and unequal weighting effect (UWE) before the implementation of any weight adjustment and after the DU-level nonresponse adjustment and poststratification.

Table 5.2 Weight Distribution for Design-Based Weight and Weight after DU-Level Adjustments

	Minimum	25% Percentile	Median	75% Percentile	Maximum	Mean	*n*	UWE
Design-Based Weight	32	347	492	760	7,453	575	190,067	1.45
Weight after DU-Level Adjustments	11	392	620	1,002	9,709	750	160,312	1.54

DU = dwelling unit; UWE = unequal weighting effect.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

5.2 Phase II Person-Level Weight Components

5.2.1 Weight Component #11: Selection of a Person within a Dwelling Unit

The rate at which people were selected within each DU depended on the age group and was determined during the design of the 2013 study; this also was done for the probabilities of selecting DUs (i.e., Weight Component #5). Note that, similar to the previous surveys, all possible pairs of eligible rostered people were given some nonzero probability of selection to facilitate unbiased variance estimation. With the use of the Apple Newton handheld computer used by FIs, selection probabilities were adjusted to reflect the total household composition. The survey design restricted the number of interviews to two per DU. With this restriction, a modified Brewer's selection method was used to select either zero, one, or two people from the DU. (Three ghost units were defined for each DU to allow for the selection of no people and to avoid division by 0 in Brewer's algorithm.) In short, if the sum of the selection probabilities for all eligible DU members was greater than 2, then the probabilities were ratio-adjusted to sum to 2; sums less than 2 were unadjusted. These adjusted rates then were retained as the final selection probabilities. An additional design change was made in 2002 and continued through

2013. A new pair-sampling strategy was implemented that increased the number of person pairs selected in DUs with older people on the roster (Chromy & Penne, 2002). Weight Component #11 represents the inverse of this probability of selection.

5.2.2 Weight Component #12: Selected Person-Level Poststratification Adjustment

The selected person-level poststratification step was started during the 1999 NHSDA. In NHSDAs prior to 1999, a combined step of person-level nonresponse and poststratification to estimated totals from the screener person data was used as a compromise to this step. As was done for the previous surveys, the combined step was divided into two separate steps; the first step was poststratification of the selected people (i.e., respondents and nonrespondents) to estimated control totals from the screener person data; the second step was respondent person-level nonresponse adjustment (see Component #13) to reproduce control totals from the selected person data (i.e., the full sample). Using two separate steps takes advantage of the inherent two-phase nature of the survey design (although the design is viewed primarily as multistage). With this step, more stable controls for the nonresponse adjustment were obtained (as compared with the traditional nonresponse adjustment) because of the additional selected-person poststratification. Note that this would not have been possible in the absence of screener data on the member demographics of the selected DUs. See Appendix D for details on the final models.

5.2.3 Weight Component #13: Respondent Person-Level Nonresponse Adjustment

The next step was to adjust the sample weights of the interview respondents to the weighted distributions over various demographic domains based on the full sample.

Demographic information for the drug questionnaire respondents was available from two sources—screener data and questionnaire data—while only screener data were available for the large first-phase sample of rostered individuals of all the screened DUs. However, to be consistent with respect to the data source, screener data for both respondents and nonrespondents were used for the person-level nonresponse adjustment. It may be noted that during screening, the only required demographic was the age of each person who was rostered. Thus, such demographics as race/ethnicity and gender of all the rostered eligible people were not required, and imputation procedures were needed to replace missing data for race/ethnicity and gender. For race/ethnicity, imputations were created using PMN methodology, and for gender, imputations were created using hot-deck methodology. It should be noted that answers from the questionnaire respondents potentially could cause discrepancies between screener values of demographics and their final imputation-revised values. Details on the final models used for the person nonresponse adjustment for each model group can be found in Appendix D.

5.2.4 Weight Component #14: Respondent Person-Level Poststratification Adjustment

This adjustment was to calibrate the weighted respondent-sample data for various demographic domains to the specified control totals obtained from the Census Bureau's estimates of the civilian, noninstitutionalized population aged 12 or older for the year 2013 based on the 2010 census. See Appendix B for details on the derivation of control totals.

After computing the various control totals that were needed, appropriate poststratification factors were applied to the sample weights using GEM to (1) control the resulting UWE and thereby reduce the potential variance inflation that could result from this weight adjustment, and

(2) control for a larger number of main effect and lower order interaction control variables. Details on the final models used for the person-level poststratification adjustment for each model group can be found in Appendix D.

5.2.5 Weight Component #15: Respondent Person-Level Extreme Weight Adjustment

The weights for the product of Weight Components #1 through #14 were checked to see if the extreme weight adjustment step was needed, with extreme weights defined as described in Section 4.1. As in the case of Weight Component #10, unweighted, weighted, and winsorized extreme weight percentages were acceptably low. Therefore, it was decided that the extreme weight adjustment was not required at this stage either. See Appendix G for results. Therefore, Weight Component #15 was set to 1 for each responding person.

Table 5.3 presents the weight distribution and UWE before the implementation of any person-level weight adjustment and after selected person-level poststratification and person-level nonresponse adjustment and poststratification.

Table 5.3 Weight Distribution for Weight before Any Person-Level Adjustment and after Person-Level Adjustments

	Minimum	25% Percentile	Median	75% Percentile	Maximum	Mean	*n*	UWE
Weight before Any Person-Level Adjustment	11	665	1,321	3,470	87,768	2,928	88,742	2.87
Weight after Person-Level Adjustments	1	739	1,553	4,181	181,411	3,868	67,838	3.68

UWE = unequal weighting effect.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

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6. Evaluation of Calibration Weights

During the weight calibration process, several criteria for quality control were implemented to assess model adequacy. This chapter describes the individual procedures and presents a summary of their results. All tables referred to in this chapter can be found in Appendices E, F, G, H, and I. More details can be found in the supplement to the appendices.

6.1 Response Rates

Table E.1 in Appendix E displays the final sample sizes for the categories "selected," "eligible," and "completed" at the dwelling unit (DU) level, and for "selected" and "respondents" at the person level from the 2013 National Survey on Drug Use and Health (NSDUH), for both the national and State levels. This table also shows the weighted eligibility rates and weighted response rates for DU screeners and person-level interviews. Table E.1, at the national level, indicates an overall eligibility rate of 84.04 percent as compared with 83.43 percent for 2012. This similarity in overall rates held in nearly all States, with a few notable exceptions: the eligibility rate decreased from 86.31 to 83.13 percent for Georgia and increased from 73.39 to 78.26 percent for New Mexico. The screening rate at the national level decreased from 86.07 percent for 2012 to 83.93 percent for 2013. The national interview response rate was 71.67 percent, a decrease of 1.25 percentage points compared with 72.92 percent for 2012, with the biggest decrease for Arizona (from 77.23 percent for 2012 to 67.84 percent for 2013) and the biggest increase for Vermont (from 73.76 percent for 2012 to 76.36 percent for 2013). Table 6.1 presents summary statistics of overall response rates across individual States.

Table 6.1 Summary Statistics of Overall Weighted Response Rates across Individual States

Domain	National Level	Minimum	Median	Maximum
Dwelling Unit Level				
Eligibility Rate	84.04%	73.24% (Maine)	83.20% (Nevada)	90.09% (Connecticut)
Screener Response Rate	83.93%	71.27% (New York)	87.12% (Texas)	95.05% (Utah)
Person Level				
Interview Response Rate	71.67%	64.11% (New York)	73.30% (Tennessee)	79.07% (Mississippi)

6.2 Percentages of Extreme Weights and Outwinsors

During the stages of modeling adjustments (i.e., nonresponse and poststratification), a major factor in deciding the adequacy of a particular model was the extent of resulting extreme weights among the weights. As explained in Section 4.1, the percentages of extreme weights for the input weight were calculated for some domains of interest prior to adjustment. These values then were compared with the resulting percentages of extreme weights using the product of weight components that included the new adjustment.

Table F.1 in Appendix F and Tables G.1 and G.2 in Appendix G present percentages of extreme weights at both the DU level for the Nation and the person level for the individual States. Unweighted percentages are based on the actual counts of units and are defined as the ratio of extreme weights relative to the total sample size. Weighted percentages reflect the percentage of total extreme value weights relative to the total sample weight, while outwinsor percentages represent the total amount of residual weight (given that the weights are trimmed to the critical values that were used for extreme weight definition) relative to the total sample weight. For evaluation purposes, the outwinsor percentage is considered the most important of the three percentages. This assessment stems from the fact that its value reflects only the actual amount of weight that would be affected if trimming were implemented.

For the 2013 NSDUH sample, domains for extreme weight definitions were defined as follows for various weight adjustments via the generalized exponential model (GEM) (see Section 4.1):

- DU nonresponse by State sampling (SS) region;
- DU poststratification by SS region;
- selected person-level poststratification by SS region and age group,[4] State and age group, SS region, and State;
- person-level nonresponse by SS region and age group, State and age group, SS region, and State; and
- person-level poststratification by SS region and age group, State and age group, SS region, and State.

Before any weight adjustment was implemented, the percentage of unweighted extreme weights was 3.18 percent and the outwinsor was 0.61 percent for the product of design weight components weight 1 to weight 7. After DU-level nonresponse adjustment and poststratification, the percentage of unweighted extreme weights decreased to 1.75 percent and the outwinsor increased to 0.90 percent. When the design weight component weight 11 (inverse probability of selecting a person within a dwelling unit) was introduced, the percentage of unweighted extreme weights increased to 3.04 percent and the outwinsor increased to 1.60 percent. The person-level adjustments, which consisted of selected person-level poststratification, person-level nonresponse adjustment, and person-level poststratification, were able to bring down the percentage of unweighted extreme weights to 1.22 percent and the outwinsor to 0.70 percent.

6.3 Slippage Rates

The slippage rate for a given domain is defined as the percentage difference between the design-based domain population estimate and the census control total, relative to the census control, both before and after poststratification. The tables in Appendix H display national and State-level, domain-specific weight sums for both before and after poststratification. They also present the control totals to be met through poststratification and the relative percentage difference (or the amount of adjustment necessary [positive or negative] to meet the given totals). The first relative difference was used explicitly during the poststratification modeling

[4] Age group categories are 12 to 17, 18 to 25, 26 to 34, 35 to 49, and 50 or older.

procedure to identify potential problems for convergence; this was done because large differences in domains with relatively small sample sizes indicate potentially large adjustment factors, which may cause problems in convergence. The reason is that adjustments required for one domain may have an adverse effect for another domain when a unit belongs to both domains.

Consider Table H.11 for Florida, which indicates a sample size of 2,615 for race domain "white"; an initial total, also known as the design-based weight, of 12,801,778; a census total of 13,233,490; and an initial slippage rate of -3.26 percent. The ratio of the census total to the initial total gives the value of the weight adjustment: 1.03. Similar to this example, but in the opposite direction, is Table H.38 for Oklahoma. The domain "Hispanic or Latino" contains a sample size of 118 and an initial slippage rate of 3.35 percent. The initial total of 267,150 and the census total of 258,498 indicate an adjustment of 0.97 would be required.

6.4 Weight Adjustment Summary Statistics

Tables I.1 to I.3 in Appendix I display summary statistics on the product of weight components for before and after all stages of adjustment, for both the DU and person levels. Note that these tables have before and after categories for all adjustments except for the DU poststratification (res.du.ps); this is because the before and after statistics are the same and are, therefore, displayed only as the category after. Note also that there could be changes, although minimal, in person-level specific demographic distributions from screener data to questionnaire data, so the respondent sample unequal weighting effect (UWE) prior to poststratification based on the questionnaire data (e.g., see Table I.3, under the heading "After res.per.nr") would be only slightly different from what would be obtained after the nonresponse adjustment (e.g., see Table I.3, under the heading "Before res.per.ps"). The sample size (n) for the demographic domains from res.per.nr tables also could be different from the res.per.ps tables.

6.5 Sensitivity Analysis of Drug Use Estimates to Baseline Models

In general, there is a trade-off between bias reduction and variance reduction. For instance, with GEM (for nonresponse or poststratification), enlarging a simple model (such as the one with only main effects) has the potential of further reducing the bias. At the same time, this enlargement may be associated with a corresponding increase in the variance of the estimate of the population total. The increased variability comes from estimating the additional parameters included in the model. To check for possible overfitting of the GEM model, a sensitivity analysis was conducted for the poststratification step, where a simple baseline model was fitted with the same bounds and maximum number of iterations as that used for the final, more complex model. Then, point estimates and standard errors (SEs) were examined for substantial changes. If the SE increased only slightly under the complex model or, even better, if it decreased (which is possible because of the correlation between the study and predictor variables), then we would feel comfortable fitting the more complex model.

The SE, a ratio-adjusted estimator denoted by SE1, computed under the DESCRIPT procedure in SUDAAN®, treats the calibration adjustment factors as nonrandom. A more complete method of estimation would take into account the variability present in the weight adjustment. The sandwich formula for the Taylor linearization (see Vaish et al., 2000) is designed to provide an estimate of the variance that adjusts for the random calibration factors to sampling weights via GEM. This "sandwich variance," adjusting for the poststratification

variability, is denoted by SE2. Both SE1 and SE2 were calculated, as well as point estimates for a few important drug recency variables (past year marijuana, alcohol, and cigarette use), across four age groups (12 to 17, 18 to 25, 26 to 34, and 35 or older), for the eight States with large sample sizes.

When referring to the standard SUDAAN variance estimator for a survey weighted prevalence estimator, we call it the "naïve Taylor Series" standard error. The sandwich variance, also referred to as the variance estimate from a bias corrected estimating function (BCEF) (Singh & Folsom, 2000), is the "correct" Taylor Series linearization for the survey weighted prevalence estimate when the weights have been calibrated for nonresponse or poststratification. The sandwich variance estimates account for the variance contribution from the weight calibration. It was found in a preliminary study that the naïve Taylor linearization variance is somewhat conservative in comparison with the sandwich variance. The variance estimates of selected outcomes in Tables 6.2 to 6.7 show that, in general, sandwich variances (SE2) are smaller than the naïve Taylor linearization variances (SE1), with a few exceptions. These results confirm the conjecture that BCEF variances, or sandwich variances, are smaller despite the possibility of inflating variance due to adding the weight adjustment variation.

As noted previously, to check for overfitting, the variances of the baseline and final models were compared. In Tables 6.2 to 6.7, there are cases where the SE from the final model is slightly larger than the SE from the baseline model, indicating possible overfitting. However, the variance estimates for the two models (baseline and final) are generally similar to each other. Note that smaller variance estimates for the final model would indicate that the complex model for the poststratification adjustment resulted in better variance reduction (because of correlation between study and predictor variables) and bias reduction (because of meeting control totals corresponding to a number of factor effects). Therefore, the evidence does not favor the view that fitting a large number of parameters in GEM creates instability in estimates.

Table 6.2 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2013 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Lifetime											
Total	Point Estimates	62.02	61.79	54.34	54.04	58.76	58.63	64.44	64.27	66.72	66.78
	SE1	0.36	0.37	1.38	1.42	1.30	1.36	1.31	1.38	1.28	1.28
	SE2	0.33	0.31	1.28	1.23	1.28	1.16	1.28	1.18	1.28	1.25
12-17	Point Estimates	15.79	15.68	12.11	12.05	14.80	14.86	14.07	13.99	17.16	17.11
	SE1	0.32	0.33	0.99	1.02	1.20	1.24	1.14	1.19	1.28	1.29
	SE2	0.32	0.35	0.99	1.01	1.21	1.40	1.12	1.22	1.28	1.52
18-25	Point Estimates	57.93	57.90	54.11	54.17	53.37	53.44	58.20	58.31	58.98	59.15
	SE1	0.48	0.49	1.99	1.99	1.76	1.73	1.65	1.69	1.97	2.00
	SE2	0.48	0.45	1.95	1.77	1.74	1.71	1.67	1.65	1.98	1.98
26-34	Point Estimates	70.17	70.05	63.64	63.28	62.65	61.59	75.05	75.09	76.22	76.15
	SE1	0.81	0.83	3.12	3.15	3.02	3.06	2.75	2.82	2.83	2.81
	SE2	0.79	0.77	3.08	2.86	3.01	3.35	2.75	2.81	2.83	2.55
35+	Point Estimates	68.00	67.69	58.86	58.41	64.45	64.44	71.07	70.76	73.98	73.94
	SE1	0.50	0.52	1.88	1.94	1.76	1.85	1.87	1.95	1.75	1.73
	SE2	0.48	0.45	1.83	1.74	1.75	1.61	1.86	1.78	1.75	1.72
Alcohol Lifetime											
Total	Point Estimates	81.67	81.48	78.04	77.52	82.28	82.63	84.98	84.97	84.76	85.01
	SE1	0.29	0.30	1.15	1.20	0.95	0.96	0.95	0.97	0.87	0.84
	SE2	0.26	0.25	1.04	0.97	0.89	0.84	0.89	0.78	0.87	0.79
12-17	Point Estimates	31.02	30.81	28.03	27.62	33.08	33.02	30.80	30.94	31.89	32.16
	SE1	0.43	0.44	1.45	1.47	1.57	1.54	1.52	1.59	1.51	1.52
	SE2	0.43	0.45	1.43	1.46	1.57	1.56	1.50	1.54	1.51	1.76
18-25	Point Estimates	83.86	83.79	80.66	80.81	84.23	84.37	85.82	86.02	86.52	86.60
	SE1	0.39	0.39	1.48	1.48	1.32	1.29	1.25	1.24	1.18	1.16
	SE2	0.38	0.42	1.46	1.37	1.32	1.22	1.25	1.27	1.18	1.15
26-34	Point Estimates	90.30	90.24	88.10	87.75	88.68	88.03	92.35	92.95	91.97	91.91
	SE1	0.53	0.56	1.91	1.96	2.26	2.46	1.60	1.55	1.83	1.84
	SE2	0.52	0.53	1.92	1.92	2.25	2.57	1.61	1.59	1.83	1.73
35+	Point Estimates	86.88	86.64	82.96	82.18	86.83	87.49	91.48	91.25	90.98	91.21
	SE1	0.39	0.41	1.54	1.64	1.18	1.20	1.16	1.21	1.13	1.07
	SE2	0.36	0.35	1.45	1.35	1.13	1.11	1.14	1.13	1.12	1.04

(continued)

Table 6.2 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Licit Drug Estimates, Cigarettes and Alcohol: 2013 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Lifetime									
Total	Point Estimates	59.74	59.44	67.23	67.23	64.33	64.35	58.16	57.22
	SE1	1.33	1.39	1.30	1.34	1.24	1.30	1.37	1.39
	SE2	1.27	1.18	1.29	1.14	1.24	1.30	1.24	1.15
12-17	Point Estimates	12.92	12.90	18.03	18.20	18.12	17.90	12.75	12.43
	SE1	1.12	1.11	1.17	1.20	1.22	1.22	1.08	1.06
	SE2	1.13	1.14	1.17	1.22	1.22	1.21	1.07	1.04
18-25	Point Estimates	51.98	51.55	60.77	60.49	62.26	62.20	55.87	55.57
	SE1	1.78	1.80	1.75	1.81	1.49	1.50	1.65	1.66
	SE2	1.77	1.72	1.76	1.75	1.50	1.49	1.60	1.54
26-34	Point Estimates	67.88	68.51	75.03	75.27	70.06	70.31	70.43	69.15
	SE1	3.21	3.26	2.84	2.73	2.50	2.45	2.66	2.69
	SE2	3.19	2.99	2.83	2.59	2.51	2.39	2.54	2.36
35+	Point Estimates	65.89	65.43	74.16	74.19	69.86	69.80	63.79	62.67
	SE1	1.91	2.02	1.77	1.86	1.78	1.87	1.99	2.04
	SE2	1.85	1.72	1.76	1.64	1.78	1.92	1.90	1.76
Alcohol Lifetime									
Total	Point Estimates	82.78	82.43	83.57	83.92	86.18	85.96	78.32	78.08
	SE1	1.12	1.21	0.93	0.88	0.79	0.83	1.09	1.10
	SE2	1.01	0.91	0.92	0.95	0.78	0.77	1.00	0.96
12-17	Point Estimates	31.76	31.19	29.67	29.91	33.17	32.90	30.51	29.97
	SE1	1.69	1.68	1.60	1.61	1.52	1.52	1.59	1.61
	SE2	1.70	1.67	1.59	1.65	1.53	1.54	1.57	1.59
18-25	Point Estimates	85.06	84.77	85.15	85.30	87.32	86.97	82.74	82.59
	SE1	1.31	1.29	1.15	1.17	1.09	1.13	1.35	1.37
	SE2	1.32	1.25	1.16	1.14	1.09	1.14	1.36	1.28
26-34	Point Estimates	86.97	87.19	94.45	94.67	93.68	93.76	87.46	87.23
	SE1	2.90	3.05	1.37	1.33	1.38	1.32	1.81	1.84
	SE2	2.82	2.59	1.39	1.53	1.38	1.27	1.78	1.62
35+	Point Estimates	88.29	87.89	88.99	89.46	91.63	91.31	83.63	83.43
	SE1	1.43	1.62	1.32	1.21	1.03	1.12	1.60	1.61
	SE2	1.35	1.24	1.31	1.29	1.03	1.08	1.54	1.48

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table 6.3 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2013 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Lifetime											
Total	Point Estimates	43.76	43.72	45.01	44.42	41.28	42.17	42.42	41.94	49.68	50.78
	SE1	0.39	0.39	1.40	1.41	1.40	1.45	1.31	1.33	1.52	1.48
	SE2	0.34	0.32	1.25	1.12	1.36	1.24	1.29	1.15	1.47	1.25
12-17	Point Estimates	16.46	16.44	16.64	16.42	18.00	18.05	14.99	15.01	19.84	20.01
	SE1	0.33	0.34	1.21	1.23	1.33	1.38	1.08	1.17	1.32	1.34
	SE2	0.33	0.35	1.21	1.21	1.34	1.43	1.07	1.13	1.31	1.41
18-25	Point Estimates	51.97	51.89	53.69	53.73	51.61	52.14	51.63	52.04	56.19	56.35
	SE1	0.48	0.49	1.86	1.92	1.62	1.65	1.78	1.80	1.84	1.83
	SE2	0.48	0.48	1.83	1.78	1.63	1.71	1.79	1.76	1.85	1.83
26-34	Point Estimates	57.08	56.93	49.99	49.94	55.18	55.13	62.72	62.89	68.48	68.23
	SE1	0.90	0.93	3.29	3.30	3.18	3.26	3.46	3.50	2.97	2.98
	SE2	0.88	0.83	3.23	2.98	3.19	3.42	3.46	3.50	2.96	2.85
35+	Point Estimates	43.13	43.12	46.32	45.36	39.66	40.93	39.89	39.07	49.28	50.83
	SE1	0.54	0.56	1.93	1.93	1.87	1.98	1.73	1.75	2.13	2.07
	SE2	0.49	0.46	1.78	1.52	1.81	1.74	1.72	1.60	2.05	1.68
Cocaine Lifetime											
Total	Point Estimates	14.36	14.34	17.32	17.10	14.66	15.19	11.17	10.82	14.88	15.55
	SE1	0.26	0.27	1.04	1.03	1.03	1.09	0.90	0.87	1.03	1.08
	SE2	0.25	0.24	0.96	0.90	0.99	0.94	0.90	0.87	1.00	0.91
12-17	Point Estimates	0.95	0.87	0.93	0.76	2.09	2.07	0.60	0.60	0.29	0.28
	SE1	0.08	0.08	0.28	0.24	0.43	0.42	0.23	0.23	0.14	0.14
	SE2	0.08	0.08	0.28	0.23	0.43	0.44	0.23	0.23	0.14	0.14
18-25	Point Estimates	11.70	11.62	13.23	13.27	11.38	11.94	10.78	10.79	8.36	8.43
	SE1	0.31	0.31	1.11	1.15	1.13	1.19	1.25	1.22	0.99	1.00
	SE2	0.30	0.29	1.09	1.08	1.14	1.22	1.25	1.20	0.99	0.97
26-34	Point Estimates	19.16	18.89	21.45	20.59	20.46	20.20	16.62	16.23	20.78	20.95
	SE1	0.69	0.70	2.71	2.67	2.84	2.86	2.44	2.46	2.58	2.57
	SE2	0.68	0.64	2.70	2.42	2.83	2.77	2.44	2.43	2.59	2.53
35+	Point Estimates	15.85	15.92	19.86	19.73	15.68	16.44	11.60	11.14	17.32	18.25
	SE1	0.38	0.39	1.54	1.55	1.39	1.50	1.23	1.19	1.41	1.49
	SE2	0.35	0.34	1.44	1.35	1.34	1.27	1.23	1.19	1.37	1.24

(continued)

Table 6.3 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2013 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Lifetime									
Total	Point Estimates	44.40	43.96	44.90	46.14	41.44	40.96	36.86	36.25
	SE1	1.57	1.56	1.46	1.46	1.33	1.34	1.32	1.32
	SE2	1.48	1.32	1.40	1.51	1.30	1.15	1.19	1.11
12-17	Point Estimates	18.22	18.33	14.49	15.00	17.40	17.24	12.89	12.74
	SE1	1.27	1.32	1.15	1.20	1.26	1.24	0.97	0.98
	SE2	1.28	1.31	1.16	1.19	1.26	1.23	0.95	0.95
18-25	Point Estimates	49.92	49.94	51.48	51.46	54.73	54.53	45.16	45.01
	SE1	1.97	1.94	1.60	1.67	1.85	1.85	1.54	1.55
	SE2	1.94	1.81	1.61	1.66	1.85	1.84	1.54	1.52
26-34	Point Estimates	56.02	55.95	61.84	62.17	55.78	56.10	52.47	50.93
	SE1	3.70	3.80	2.78	2.82	2.74	2.72	3.13	3.30
	SE2	3.63	3.18	2.77	4.33	2.74	2.58	3.03	2.76
35+	Point Estimates	44.14	43.39	44.65	46.42	39.11	38.45	35.13	34.62
	SE1	2.26	2.27	2.06	2.08	1.80	1.82	1.87	1.86
	SE2	2.19	2.01	1.97	1.82	1.77	1.59	1.76	1.65
Cocaine Lifetime									
Total	Point Estimates	14.29	14.09	13.11	13.46	13.22	13.12	13.48	13.17
	SE1	0.96	0.95	0.95	1.00	0.98	0.98	0.88	0.87
	SE2	0.93	0.85	0.94	0.95	0.96	0.94	0.83	0.82
12-17	Point Estimates	0.54	0.56	0.34	0.26	0.65	0.56	0.97	0.90
	SE1	0.22	0.22	0.21	0.18	0.25	0.22	0.29	0.28
	SE2	0.22	0.22	0.21	0.18	0.25	0.22	0.29	0.27
18-25	Point Estimates	12.14	11.80	9.67	9.62	11.30	11.10	12.52	12.46
	SE1	1.34	1.27	1.01	1.05	1.10	1.06	0.96	0.96
	SE2	1.34	1.21	1.02	1.06	1.10	1.03	0.97	0.99
26-34	Point Estimates	16.89	16.98	20.78	20.33	17.79	17.89	21.02	20.07
	SE1	2.31	2.34	2.45	2.48	2.17	2.14	2.31	2.33
	SE2	2.29	2.26	2.44	2.39	2.17	2.03	2.27	2.12
35+	Point Estimates	16.02	15.77	14.11	14.78	14.37	14.25	14.00	13.77
	SE1	1.41	1.39	1.37	1.47	1.35	1.35	1.26	1.26
	SE2	1.36	1.24	1.35	1.38	1.32	1.30	1.22	1.21

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table 6.4 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2013 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Year											
Total	Point Estimates	25.41	25.25	19.70	19.55	24.31	24.39	27.67	27.28	28.95	29.48
	SE1	0.32	0.32	1.01	1.00	1.23	1.30	1.20	1.21	1.35	1.33
	SE2	0.29	0.29	0.96	0.92	1.20	1.23	1.16	1.04	1.32	1.12
12-17	Point Estimates	10.40	10.29	7.48	7.34	9.32	9.36	9.89	9.70	11.33	11.28
	SE1	0.27	0.27	0.86	0.87	0.95	0.99	0.91	0.95	1.10	1.11
	SE2	0.27	0.26	0.86	0.87	0.96	1.09	0.90	0.93	1.09	1.11
18-25	Point Estimates	39.68	39.53	35.32	35.22	36.05	36.25	41.06	41.24	41.67	41.98
	SE1	0.47	0.48	1.78	1.80	1.52	1.47	1.72	1.74	1.86	1.88
	SE2	0.47	0.45	1.76	1.63	1.51	1.46	1.73	1.71	1.86	1.87
26-34	Point Estimates	39.89	39.52	31.48	31.07	38.80	38.17	48.42	48.71	51.37	51.26
	SE1	0.86	0.87	3.27	3.30	3.15	3.13	2.87	2.92	3.05	3.04
	SE2	0.85	0.83	3.25	3.18	3.15	3.27	2.86	2.89	3.05	2.84
35+	Point Estimates	21.40	21.28	15.08	14.97	21.29	21.52	22.66	22.05	24.75	25.39
	SE1	0.42	0.43	1.31	1.29	1.53	1.65	1.60	1.61	1.68	1.66
	SE2	0.41	0.40	1.27	1.23	1.50	1.65	1.58	1.54	1.66	1.50
Alcohol Past Year											
Total	Point Estimates	66.52	66.30	63.51	63.27	66.87	66.98	71.18	71.15	67.45	68.01
	SE1	0.38	0.39	1.37	1.39	1.33	1.39	1.29	1.33	1.29	1.26
	SE2	0.35	0.34	1.29	1.26	1.27	1.26	1.26	1.20	1.29	1.29
12-17	Point Estimates	24.85	24.64	22.37	21.94	24.96	25.09	25.59	25.68	25.34	25.69
	SE1	0.40	0.40	1.30	1.30	1.40	1.38	1.45	1.51	1.48	1.48
	SE2	0.39	0.40	1.29	1.30	1.39	1.42	1.43	1.48	1.47	1.47
18-25	Point Estimates	76.90	76.78	72.53	72.46	75.45	75.57	79.05	79.36	81.40	81.59
	SE1	0.45	0.45	1.62	1.63	1.54	1.55	1.51	1.50	1.35	1.32
	SE2	0.43	0.46	1.60	1.52	1.53	1.54	1.51	1.53	1.35	1.29
26-34	Point Estimates	80.74	80.50	78.59	78.40	82.11	81.51	85.42	85.96	80.98	80.78
	SE1	0.70	0.74	2.44	2.47	2.62	2.79	2.15	2.19	2.75	2.77
	SE2	0.68	0.73	2.40	2.35	2.62	2.85	2.16	2.21	2.74	2.64
35+	Point Estimates	67.39	67.16	64.26	63.95	67.63	67.90	73.22	73.01	68.33	69.03
	SE1	0.54	0.55	1.98	2.01	1.84	1.92	1.84	1.91	1.86	1.80
	SE2	0.50	0.47	1.90	1.87	1.77	1.77	1.83	1.82	1.85	1.84

(continued)

Table 6.4 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Licit Drug Estimates, Cigarettes and Alcohol: 2013 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Year									
Total	Point Estimates	23.61	23.43	30.56	30.93	26.40	26.41	25.10	24.45
	SE1	1.20	1.21	1.31	1.32	1.09	1.13	1.11	1.09
	SE2	1.16	1.06	1.29	1.30	1.09	1.09	1.00	0.95
12-17	Point Estimates	7.62	7.86	11.70	11.81	12.86	12.70	8.76	8.55
	SE1	0.83	0.86	0.99	1.02	1.01	1.00	0.97	0.96
	SE2	0.83	0.85	1.00	1.03	1.02	1.01	0.95	0.91
18-25	Point Estimates	34.68	34.27	43.12	42.97	43.57	43.46	37.69	37.58
	SE1	1.75	1.78	1.86	1.88	1.60	1.61	1.66	1.67
	SE2	1.77	1.73	1.85	1.85	1.60	1.61	1.60	1.56
26-34	Point Estimates	35.31	34.59	47.22	47.57	40.17	40.20	45.01	43.61
	SE1	3.27	3.34	2.87	2.91	2.85	2.85	2.99	2.95
	SE2	3.25	3.04	2.87	2.71	2.85	2.71	2.96	2.72
35+	Point Estimates	20.76	20.63	27.49	27.98	21.99	22.15	19.80	19.19
	SE1	1.64	1.64	1.76	1.79	1.47	1.54	1.51	1.46
	SE2	1.61	1.48	1.74	1.89	1.47	1.50	1.48	1.40
Alcohol Past Year									
Total	Point Estimates	70.85	70.49	68.71	69.18	72.55	72.39	63.17	62.87
	SE1	1.31	1.34	1.26	1.23	1.15	1.19	1.28	1.29
	SE2	1.23	1.15	1.25	1.25	1.14	1.12	1.15	1.13
12-17	Point Estimates	26.93	26.62	23.44	23.61	27.27	27.13	24.08	23.99
	SE1	1.61	1.58	1.53	1.53	1.37	1.38	1.44	1.44
	SE2	1.62	1.56	1.53	1.56	1.39	1.39	1.41	1.42
18-25	Point Estimates	80.36	79.71	79.73	79.75	82.35	82.01	75.51	75.37
	SE1	1.51	1.49	1.35	1.35	1.37	1.38	1.50	1.52
	SE2	1.52	1.42	1.36	1.32	1.36	1.33	1.45	1.41
26-34	Point Estimates	80.28	79.97	84.79	85.28	84.30	84.58	78.81	78.76
	SE1	3.29	3.48	2.18	2.13	2.07	2.05	2.21	2.25
	SE2	3.21	2.95	2.19	2.22	2.09	2.02	2.16	2.13
35+	Point Estimates	72.66	72.34	69.95	70.55	74.35	74.13	63.26	62.84
	SE1	1.83	1.92	1.85	1.81	1.66	1.72	1.98	1.97
	SE2	1.77	1.70	1.83	1.82	1.65	1.64	1.82	1.72

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table 6.5 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2013 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Year											
Total	Point Estimates	12.61	12.56	14.39	14.34	11.42	11.62	12.05	11.91	16.19	16.51
	SE1	0.22	0.22	0.87	0.88	0.74	0.77	0.89	0.86	0.97	0.97
	SE2	0.20	0.19	0.83	0.79	0.72	0.66	0.86	0.72	0.94	0.87
12-17	Point Estimates	13.47	13.44	13.59	13.36	13.96	14.27	13.24	13.30	16.67	16.80
	SE1	0.31	0.31	1.23	1.25	1.21	1.28	1.06	1.14	1.18	1.21
	SE2	0.30	0.31	1.23	1.22	1.22	1.28	1.05	1.11	1.18	1.19
18-25	Point Estimates	31.78	31.62	35.38	35.58	34.45	34.72	31.36	31.44	35.46	35.80
	SE1	0.46	0.46	1.74	1.77	1.69	1.71	1.80	1.81	1.64	1.64
	SE2	0.46	0.44	1.72	1.68	1.69	1.75	1.80	1.80	1.65	1.67
26-34	Point Estimates	21.20	20.98	21.62	21.31	20.71	21.27	24.13	24.36	28.51	28.18
	SE1	0.72	0.73	2.50	2.48	2.56	2.73	2.99	3.01	2.91	2.88
	SE2	0.71	0.69	2.48	2.31	2.55	2.61	2.98	2.91	2.91	2.88
35+	Point Estimates	6.50	6.51	7.85	7.81	5.23	5.34	4.91	4.69	9.81	10.22
	SE1	0.24	0.25	0.99	0.99	0.78	0.81	0.75	0.71	1.07	1.11
	SE2	0.24	0.23	0.97	0.94	0.77	0.75	0.75	0.69	1.06	1.03
Cocaine Past Year											
Total	Point Estimates	1.63	1.59	2.14	2.08	1.73	1.77	2.01	1.94	0.96	0.99
	SE1	0.08	0.08	0.30	0.30	0.29	0.30	0.33	0.31	0.24	0.25
	SE2	0.07	0.07	0.30	0.29	0.29	0.29	0.32	0.30	0.23	0.23
12-17	Point Estimates	0.58	0.53	0.64	0.53	1.04	1.03	0.24	0.23	0.20	0.20
	SE1	0.07	0.06	0.23	0.20	0.31	0.32	0.14	0.14	0.11	0.11
	SE2	0.07	0.06	0.23	0.19	0.31	0.32	0.14	0.14	0.11	0.11
18-25	Point Estimates	4.57	4.44	6.66	6.65	4.12	4.32	4.29	4.21	2.54	2.60
	SE1	0.21	0.20	0.87	0.91	0.65	0.69	0.72	0.70	0.49	0.50
	SE2	0.20	0.20	0.86	0.89	0.66	0.71	0.72	0.70	0.49	0.51
26-34	Point Estimates	3.43	3.41	4.77	4.50	4.69	4.70	4.96	4.88	1.16	1.13
	SE1	0.32	0.33	1.23	1.18	1.35	1.35	1.42	1.43	0.69	0.67
	SE2	0.32	0.31	1.22	1.14	1.35	1.36	1.42	1.40	0.69	0.68
35+	Point Estimates	0.77	0.75	0.68	0.66	0.82	0.84	1.10	1.04	0.71	0.74
	SE1	0.08	0.08	0.31	0.30	0.27	0.28	0.34	0.32	0.32	0.34
	SE2	0.08	0.08	0.31	0.30	0.27	0.28	0.34	0.32	0.32	0.31

(continued)

Table 6.5 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2013 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Year									
Total	Point Estimates	13.79	13.89	12.14	12.34	11.02	10.87	9.18	8.89
	SE1	0.80	0.81	0.77	0.82	0.71	0.69	0.58	0.57
	SE2	0.77	0.75	0.76	0.85	0.71	0.68	0.53	0.47
12-17	Point Estimates	15.17	15.40	11.47	11.90	13.66	13.48	9.87	9.80
	SE1	1.16	1.18	1.03	1.07	1.14	1.13	0.82	0.86
	SE2	1.17	1.17	1.03	1.05	1.14	1.13	0.81	0.82
18-25	Point Estimates	31.27	30.98	30.30	30.18	32.05	32.10	25.06	24.96
	SE1	1.89	1.84	1.71	1.74	1.78	1.76	1.33	1.33
	SE2	1.88	1.76	1.73	1.76	1.78	1.74	1.32	1.30
26-34	Point Estimates	27.54	27.97	22.65	22.99	17.20	17.28	16.55	15.23
	SE1	3.02	3.15	2.49	2.66	2.19	2.18	2.13	2.06
	SE2	2.99	2.84	2.49	4.31	2.19	2.13	2.12	1.87
35+	Point Estimates	6.74	6.69	6.54	6.69	5.21	5.06	3.31	3.24
	SE1	1.00	0.99	0.82	0.88	0.86	0.85	0.64	0.61
	SE2	0.99	0.97	0.81	0.84	0.86	0.86	0.63	0.60
Cocaine Past Year									
Total	Point Estimates	2.00	1.94	1.58	1.65	1.75	1.74	1.27	1.24
	SE1	0.27	0.27	0.28	0.33	0.30	0.30	0.24	0.24
	SE2	0.27	0.26	0.28	0.32	0.30	0.30	0.23	0.22
12-17	Point Estimates	0.31	0.33	0.17	0.16	0.28	0.19	0.45	0.42
	SE1	0.15	0.17	0.12	0.11	0.17	0.12	0.18	0.18
	SE2	0.15	0.17	0.12	0.11	0.17	0.13	0.18	0.18
18-25	Point Estimates	5.75	5.57	4.79	4.77	4.04	4.05	3.59	3.59
	SE1	0.75	0.72	0.70	0.73	0.65	0.67	0.61	0.61
	SE2	0.75	0.68	0.70	0.73	0.65	0.64	0.61	0.62
26-34	Point Estimates	4.68	4.62	2.92	2.80	3.29	3.34	1.71	1.61
	SE1	1.41	1.39	0.92	0.89	0.87	0.87	0.75	0.72
	SE2	1.41	1.39	0.92	0.87	0.87	0.87	0.74	0.69
35+	Point Estimates	0.82	0.75	0.89	1.01	1.18	1.17	0.75	0.73
	SE1	0.27	0.24	0.37	0.45	0.42	0.43	0.28	0.28
	SE2	0.27	0.23	0.36	0.43	0.42	0.42	0.28	0.27

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table 6.6 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2013 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Month											
Total	Point Estimates	21.43	21.26	15.69	15.50	20.65	20.75	22.68	22.29	25.14	25.68
	SE1	0.31	0.31	0.95	0.93	1.16	1.25	1.09	1.10	1.23	1.21
	SE2	0.29	0.28	0.91	0.88	1.14	1.15	1.06	0.98	1.20	1.03
12-17	Point Estimates	5.71	5.61	3.44	3.52	4.38	4.35	5.73	5.59	5.95	5.91
	SE1	0.20	0.20	0.63	0.65	0.68	0.69	0.71	0.72	0.69	0.70
	SE2	0.20	0.20	0.63	0.64	0.68	0.72	0.70	0.73	0.69	0.71
18-25	Point Estimates	30.78	30.64	26.45	26.24	27.88	28.27	33.74	33.72	34.07	34.36
	SE1	0.45	0.46	1.69	1.72	1.52	1.50	1.67	1.65	1.71	1.72
	SE2	0.45	0.43	1.67	1.57	1.52	1.51	1.68	1.65	1.71	1.72
26-34	Point Estimates	33.38	32.97	22.57	21.91	34.39	33.94	36.99	37.00	44.15	44.16
	SE1	0.82	0.82	2.75	2.72	2.90	2.90	3.00	3.06	3.11	3.10
	SE2	0.80	0.77	2.74	2.56	2.89	2.93	2.97	3.01	3.11	2.89
35+	Point Estimates	19.13	19.00	13.44	13.31	18.74	18.94	19.56	19.02	22.60	23.25
	SE1	0.41	0.42	1.30	1.27	1.47	1.60	1.44	1.44	1.57	1.55
	SE2	0.40	0.39	1.26	1.22	1.44	1.53	1.42	1.39	1.54	1.39
Alcohol Past Month											
Total	Point Estimates	52.25	52.16	49.72	49.49	51.01	51.40	56.06	55.98	54.03	54.57
	SE1	0.40	0.41	1.42	1.43	1.45	1.48	1.50	1.53	1.36	1.35
	SE2	0.37	0.36	1.31	1.29	1.40	1.38	1.47	1.41	1.36	1.39
12-17	Point Estimates	11.66	11.56	11.21	11.10	13.26	13.34	12.02	12.10	11.55	11.76
	SE1	0.29	0.30	0.96	0.99	1.22	1.21	1.03	1.06	1.02	1.02
	SE2	0.29	0.29	0.96	0.98	1.21	1.20	1.03	1.06	1.02	1.03
18-25	Point Estimates	59.85	59.62	56.72	56.17	56.70	56.99	63.11	63.61	65.63	65.68
	SE1	0.51	0.51	1.69	1.71	1.66	1.61	1.94	1.93	1.74	1.72
	SE2	0.50	0.49	1.67	1.59	1.66	1.64	1.94	1.99	1.74	1.66
26-34	Point Estimates	66.48	66.10	61.19	61.25	62.48	61.79	73.47	74.37	66.52	66.26
	SE1	0.83	0.86	3.00	3.00	3.10	3.18	2.81	2.81	3.09	3.11
	SE2	0.82	0.86	2.94	2.83	3.11	3.25	2.80	2.75	3.08	2.97
35+	Point Estimates	53.55	53.56	51.42	51.13	52.50	53.17	57.28	56.87	55.66	56.39
	SE1	0.57	0.58	2.08	2.11	2.05	2.12	2.05	2.09	1.97	1.94
	SE2	0.54	0.51	1.99	1.94	1.98	1.96	2.03	2.01	1.96	2.01

(continued)

Table 6.6 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Licit Drug Estimates, Cigarettes and Alcohol: 2013 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Month									
Total	Point Estimates	20.09	19.83	26.20	26.58	22.48	22.47	20.25	19.65
	SE1	1.12	1.13	1.24	1.26	1.03	1.07	1.00	0.98
	SE2	1.09	1.01	1.22	1.23	1.03	1.03	0.93	0.90
12-17	Point Estimates	4.35	4.45	6.00	6.02	7.93	7.76	4.62	4.45
	SE1	0.64	0.66	0.67	0.67	0.89	0.87	0.66	0.64
	SE2	0.64	0.65	0.67	0.68	0.89	0.89	0.64	0.61
18-25	Point Estimates	26.86	26.16	32.46	32.47	34.94	34.80	28.39	28.21
	SE1	1.66	1.67	1.92	1.97	1.46	1.45	1.51	1.53
	SE2	1.66	1.60	1.92	2.01	1.47	1.43	1.48	1.48
26-34	Point Estimates	30.16	29.43	40.87	41.47	35.21	35.17	38.90	37.72
	SE1	3.07	3.10	2.78	2.86	2.77	2.79	2.99	2.97
	SE2	3.06	2.90	2.78	4.34	2.76	2.58	2.99	2.82
35+	Point Estimates	18.48	18.33	24.98	25.42	19.36	19.48	16.20	15.65
	SE1	1.55	1.56	1.66	1.70	1.41	1.48	1.35	1.30
	SE2	1.52	1.40	1.64	1.83	1.41	1.43	1.33	1.26
Alcohol Past Month									
Total	Point Estimates	57.36	57.04	54.02	54.34	57.45	57.56	46.47	46.23
	SE1	1.37	1.39	1.38	1.37	1.36	1.38	1.29	1.28
	SE2	1.29	1.20	1.38	1.43	1.34	1.27	1.17	1.11
12-17	Point Estimates	13.62	13.48	10.05	10.30	13.13	13.09	10.68	10.53
	SE1	1.09	1.10	0.95	0.95	1.12	1.13	0.99	0.98
	SE2	1.09	1.09	0.94	0.97	1.12	1.13	0.97	0.94
18-25	Point Estimates	63.77	62.95	60.34	60.70	65.13	64.96	55.99	55.73
	SE1	1.99	1.98	1.63	1.64	1.47	1.50	1.86	1.85
	SE2	1.98	1.86	1.64	1.66	1.47	1.48	1.82	1.77
26-34	Point Estimates	69.06	68.14	69.14	69.24	68.94	69.65	65.07	64.51
	SE1	3.67	3.92	2.48	2.47	2.54	2.52	2.66	2.74
	SE2	3.61	3.30	2.49	2.46	2.55	2.45	2.60	2.67
35+	Point Estimates	59.28	59.18	56.19	56.56	59.60	59.65	45.84	45.70
	SE1	1.94	2.00	2.02	2.04	1.89	1.93	1.91	1.90
	SE2	1.88	1.79	2.01	2.11	1.87	1.80	1.79	1.70

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table 6.7 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2013 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Month											
Total	Point Estimates	7.59	7.55	8.88	8.78	7.23	7.32	7.16	7.14	10.59	10.80
	SE1	0.17	0.17	0.71	0.71	0.60	0.62	0.67	0.65	0.75	0.77
	SE2	0.16	0.15	0.67	0.63	0.59	0.56	0.65	0.57	0.74	0.72
12-17	Point Estimates	7.17	7.08	7.83	7.49	7.74	7.76	6.87	6.88	8.98	9.02
	SE1	0.22	0.22	0.87	0.86	0.86	0.86	0.78	0.79	0.90	0.90
	SE2	0.22	0.22	0.88	0.84	0.86	0.90	0.77	0.77	0.90	0.91
18-25	Point Estimates	19.09	19.08	22.31	22.50	19.46	19.59	19.89	20.15	21.41	21.62
	SE1	0.38	0.39	1.45	1.48	1.53	1.53	1.51	1.50	1.39	1.40
	SE2	0.38	0.37	1.44	1.43	1.54	1.57	1.51	1.52	1.39	1.38
26-34	Point Estimates	12.94	12.64	14.60	13.86	13.39	13.48	13.56	13.78	19.25	18.96
	SE1	0.62	0.61	2.35	2.27	2.12	2.17	2.14	2.21	2.39	2.35
	SE2	0.61	0.57	2.34	2.08	2.11	2.11	2.14	2.14	2.39	2.34
35+	Point Estimates	4.03	4.05	4.50	4.53	3.81	3.91	2.99	2.91	6.96	7.25
	SE1	0.19	0.20	0.80	0.82	0.68	0.71	0.59	0.58	0.90	0.95
	SE2	0.19	0.18	0.78	0.76	0.67	0.68	0.58	0.55	0.90	0.91
Cocaine Past Month											
Total	Point Estimates	0.59	0.59	0.81	0.79	0.73	0.77	0.62	0.60	0.26	0.27
	SE1	0.05	0.05	0.21	0.21	0.18	0.19	0.18	0.17	0.13	0.14
	SE2	0.05	0.05	0.21	0.21	0.18	0.18	0.18	0.16	0.13	0.13
12-17	Point Estimates	0.20	0.17	0.40	0.32	0.40	0.36	0.08	0.08	0.02	0.01
	SE1	0.04	0.04	0.20	0.16	0.19	0.18	0.08	0.08	0.02	0.01
	SE2	0.04	0.04	0.20	0.16	0.19	0.19	0.08	0.08	0.02	0.01
18-25	Point Estimates	1.15	1.14	1.68	1.62	1.02	1.15	1.09	1.16	0.56	0.56
	SE1	0.10	0.10	0.42	0.42	0.30	0.34	0.29	0.31	0.22	0.22
	SE2	0.09	0.09	0.42	0.42	0.30	0.34	0.29	0.32	0.22	0.22
26-34	Point Estimates	1.23	1.29	1.86	1.87	1.56	1.60	1.80	1.72	0.55	0.54
	SE1	0.21	0.23	0.77	0.78	0.74	0.75	0.88	0.83	0.39	0.38
	SE2	0.21	0.22	0.76	0.75	0.74	0.76	0.88	0.81	0.39	0.39
35+	Point Estimates	0.39	0.38	0.41	0.41	0.56	0.59	0.33	0.31	0.18	0.19
	SE1	0.06	0.06	0.27	0.27	0.22	0.23	0.16	0.15	0.18	0.19
	SE2	0.06	0.06	0.27	0.26	0.21	0.22	0.16	0.15	0.18	0.18

(continued)

Table 6.7 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and Eight Large States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2013 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Month									
Total	Point Estimates	7.67	7.74	7.33	7.58	6.43	6.36	5.47	5.32
	SE1	0.59	0.61	0.57	0.64	0.54	0.53	0.47	0.45
	SE2	0.57	0.56	0.57	0.74	0.53	0.50	0.44	0.39
12-17	Point Estimates	8.75	8.95	6.34	6.49	7.21	7.10	5.24	5.34
	SE1	0.90	0.92	0.72	0.74	0.92	0.90	0.59	0.61
	SE2	0.91	0.91	0.72	0.74	0.92	0.87	0.58	0.58
18-25	Point Estimates	17.93	18.26	17.69	17.70	19.88	19.88	14.24	14.20
	SE1	1.42	1.39	1.61	1.61	1.65	1.66	1.07	1.06
	SE2	1.42	1.35	1.61	1.62	1.65	1.62	1.05	1.05
26-34	Point Estimates	15.60	15.48	13.94	14.55	11.49	11.37	9.34	8.59
	SE1	2.40	2.45	1.74	2.11	1.77	1.72	1.81	1.68
	SE2	2.38	2.27	1.74	3.64	1.77	1.71	1.79	1.47
35+	Point Estimates	3.53	3.49	4.10	4.30	2.60	2.60	2.39	2.34
	SE1	0.59	0.61	0.67	0.74	0.54	0.55	0.53	0.52
	SE2	0.59	0.58	0.67	0.71	0.54	0.54	0.53	0.51
Cocaine Past Month									
Total	Point Estimates	0.60	0.63	0.51	0.51	0.63	0.63	0.39	0.40
	SE1	0.14	0.15	0.13	0.13	0.20	0.21	0.12	0.12
	SE2	0.14	0.15	0.13	0.13	0.20	0.20	0.11	0.11
12-17	Point Estimates	0.08	0.12	0.08	0.07	0.21	0.12	0.12	0.08
	SE1	0.08	0.12	0.08	0.07	0.15	0.09	0.07	0.06
	SE2	0.08	0.11	0.08	0.07	0.15	0.11	0.07	0.06
18-25	Point Estimates	1.66	1.64	1.47	1.46	1.35	1.35	0.82	0.84
	SE1	0.34	0.33	0.33	0.32	0.50	0.51	0.28	0.28
	SE2	0.34	0.33	0.33	0.32	0.50	0.50	0.28	0.29
26-34	Point Estimates	0.95	0.95	1.05	1.07	0.65	0.64	0.58	0.71
	SE1	0.56	0.56	0.53	0.54	0.47	0.47	0.40	0.49
	SE2	0.56	0.56	0.53	0.54	0.47	0.46	0.39	0.45
35+	Point Estimates	0.37	0.40	0.27	0.27	0.54	0.56	0.30	0.27
	SE1	0.15	0.18	0.16	0.16	0.27	0.28	0.16	0.15
	SE2	0.15	0.18	0.16	0.15	0.27	0.28	0.16	0.15

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

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Appendix A: Technical Details about the Generalized Exponential Model

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Appendix A: Technical Details about the Generalized Exponential Model

A.1 Distance Function

Let $\Delta(w,d)$ denote the distance between the initial weights $d = \{d_k : k \in s\}$ and the adjusted weights *w*, with *k* being the k^{th} unit in the sample and *s* being the sample selected. The distance function minimized under the generalized exponential model (GEM), subject to calibration constraints, is given by

$$\Delta(w,d) = \sum_{k\in s} \frac{d_k}{A_k}\left\{(a_k - \ell_k)\log\frac{a_k - \ell_k}{c_k - \ell_k} + (u_k - a_k)\log\frac{u_k - a_k}{u_k - c_k}\right\}, \tag{A.1.1}$$

where $a_k = w_k / d_k, A_k = (u_k - \ell_k)/[(u_k - c_k)(c_k - \ell_k)]$ and ℓ_k, c_k, and u_k are prescribed real numbers. Let T_x denote the *p*-vector of control totals corresponding to predictor variables ($x_1, ..., x_p$). Then, the calibration constraints for the above minimization problem are

$$\sum_{k\in s} x_k d_k a_k = T_x. \tag{A.1.2}$$

The solution for the above minimization problem, if it exists, is given by a GEM with model parameters λ; that is,

$$a_k(\lambda) = \frac{\ell_k(u_k - c_k) + u_k(c_k - \ell_k)\exp\{A_k x_k'\lambda\}}{(u_k - c_k) + (c_k - \ell_k)\exp\{A_k x_k'\lambda\}}. \tag{A.1.3}$$

Note that the number of parameters in the GEM should be $\leq n$, where *n* is the size of the sample *s*. This is also the dimension of vectors *d* and *w*. It follows from equation A.1.3 that

$$\ell_k < a_k < u_k, k = 1,\ldots,n. \tag{A.1.4}$$

The weight adjustment factor achieved by the usual raking ratio algorithm (Singh & Mohl, 1996) can also be derived as a special case of the GEM, noting that for $\ell_k = 0, u_k = \infty, c_k = 1$, and $k = 1,\ldots,n$, we have

$$\Delta(w,d) = \sum_{k\in s} d_k a_k \log a_k - \sum_{k\in s} d_k (a_k - 1) \tag{A.1.5}$$

and $a_k(\lambda) = \exp(x_k'\lambda)$.

The logit model of Deville and Särndal (1992) is also a special case of the GEM, by setting $\ell_k = \ell$, $u_k = u$, and $c_k = 1$ for all k. The new method was introduced by Folsom and Singh (2000).

A.2 GEM Adjustments for Extreme Value Treatment, Nonresponse, and Poststratification

By choosing the user-specified parameters ℓ_k, c_k, and u_k appropriately, the unified GEM formula (A.1.3) can be justified for all three types of adjustment: extreme value treatment, nonresponse, and poststratification. For extreme value treatment via winsorization, denote the winsorized weights by $\{b_k\}$, where $b_k = d_k$ if d_k is not an extreme weight, and $b_k = \text{med}\{d_k\} \pm 3*\text{IQR}$ if d_k is an extreme weight, where IQR denotes the interquartile range, and the median and quartiles for the weights are defined with respect to a suitable design-based stratum.

For the nonresponse adjustment, the sample is first divided into two parts: the nonextreme weight subsample and the extreme weight subsample. For nonextreme weights, the following are set: $\ell_2 = 1$, $c_2 = \rho^{-1}$, $u_2 = u > \rho^{-1}$, where ρ is the overall response propensity. For extreme weights with high weights, $\ell_k = \ell_1 m_k$, $c_k = \rho^{-1} m_k$, and $u_k = u_1 m_k$, where $m_k = b_k / d_k$ and $1 \le \ell_1 < \rho^{-1} = c_1 < u_1$ are prescribed numbers. Similarly, for extreme weights with low weights, $\ell_k = \ell_3 m_k$, $c_k = \rho^{-1} m_k$, $u_k = u_3 m_k$, and $1 \le \ell_3 < \rho^{-1} = c_3 < u_3$.

For the poststratification adjustment, the following weights are set: for nonextreme weights, $\ell_k = \ell_2$, $c_k = c_2 = 1$, and $u_k = u_2$; for high extreme weights, $\ell_k = \ell_1 m_k$, $c_k = m_k$, and $u_k = u_1 m_k$; and similarly, for low extreme weights, $\ell_k = \ell_3 m_k$, $c_k = m_k$, and $u_k = u_3 m_k$. The extreme value adjustment is identical to poststratification, except for tighter bounds on extreme weights resulting from the final poststratification.

Notice that the GEM allows the flexibility of specifying different bounds for different subsamples. In addition, the lower bound (in the case of nonresponse adjustments) can be made to equal one by choosing the center $c_k > 1$.

A.3 Newton-Raphson Steps

Let X denote the $n \times p$ matrix of predictor values, and for the v^{th} iteration,

$$\Gamma_{\phi v} = \text{diag}\left(d_k \phi_k^{(v)}\right), \phi_k^{(o)} = 1,$$

where $\phi_k^{(v)} = \left[\left(u_k - a_k^{(v)}\right)\left(a_k^{(v)} - \ell_k\right)\right] \Big/ \left[\left(u_k - c_k\right)\left(c_k - \ell_k\right)\right]$.

Then, for the Newton-Raphson iteration v, the value of the p-vector λ is adjusted as

$$\lambda^{(v)} = \lambda^{(v-1)} + \left(X'\Gamma_{\phi,v-1}X\right)^{-1}\left(T_x - \hat{T}_x^{(v-1)}\right),$$

where $\lambda^{(0)} = 0$, and $\hat{T}_x$ is calculated by using equation A.1.2, in which a_k is calculated by plugging the current λ into equation A.1.3.

The convergence criterion is based on the Euclidean distance $\left\|T_x - \hat{T}_x^{(v)}\right\|$, which is defined as $\sqrt{\left(T_x - \hat{T}_x^{(v)}\right)'\left(T_x - \hat{T}_x^{(v)}\right)}$. At each iteration, it is checked to determine whether it is decreasing. If it is not, a half step is used in the iteration increment for λ.

A.4 Scaled Constrained Exponential Model

In National Household Surveys on Drug Abuse (NHSDAs)[1] prior to 1999, constrained exponential models (CEMs) were used for poststratification, and scaled CEMs were used for nonresponse adjustments. The CEM refers to the logit model of Deville and Särndal (1992), in which lower and upper bounds do not vary with k; that is, $\ell_k = \ell$, $u_k = u$, and $c_k = c = 1$, such that $\ell < 1 < u$. Thus, the CEM is a special case of the GEM. For the nonresponse adjustment, Folsom and Witt (1994) modified the CEM estimating equations by a scaling factor (ρ^{-1}, the inverse of the overall response propensity), such that $1 < \rho^{-1}a_k < \rho^{-1}u$. This implies that choosing ℓ in the CEM as ρ ensures that the scaled adjustment factor for nonresponse is at least one.

[1] The National Household Survey on Drug Abuse (NHSDA) was renamed the National Survey on Drug Use and Health (NSDUH) in the 2002 survey year.

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Appendix B: Poststratification Control Totals

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Appendix B: Poststratification Control Totals

For poststratification, quarterly State-specific totals for the target population (civilian, noninstitutionalized, aged 12 or older) are required for 120 demographic domains defined by Age, Race, Gender, and Hispanicity (6 × 5 × 2 × 2) (Exhibit B.1). The Population Estimates Branch of the U.S. Bureau of the Census produced, in response to a special request, the necessary population estimates based on monthly State-level estimates of the target population, which were based on the enumerated population from Census. Since the 2011 National Survey on Drug Use and Health (NSDUH), the control totals used for poststratification were based on the 2010 census, whereas the sample (2005 through 2013 NSDUHs) and the source of design variables used as the generalized exponential model predictors were based on the 2000 census.

To arrive at quarterly estimates, approximations at the midpoints of the quarters were needed. To get these approximations, the estimates from the last 2 months in each quarter were averaged. For example, to obtain an approximation for the first quarter of 2013, the U.S. census estimates for February 1 and March 1 were averaged, resulting in a population estimate appropriate for February 15 (i.e., the midpoint of Quarter 1).

Exhibit B.1 Definition of Levels for Variables

Age (years)
1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50-64, 6: 65+

Race
1: White, 2: Black or African American, 3: American Indian or Alaska Native, 4: Asian or Native Hawaiian or Pacific Islander, 5: Two or More Races

Gender
1: Male, 2: Female

Hispanicity
1: Hispanic or Latino, 2: Non-Hispanic or Latino

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Appendix C: Imputation Methodology

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Appendix C: Imputation Methodology

C.1 Unweighted Hot Deck

The adjustments of (1) dwelling unit (DU) poststratification, (2) poststratification of the selected sample to all eligible rostered people, and (3) person-level nonresponse required the use of demographic information obtained from the 2013 National Survey on Drug Use and Health (NSDUH) screener interview. However, at the time of screening, the only required information for an individual was age; thus, some demographic information (i.e., Gender, Hispanic or Latino origin, and race) was missing. Therefore, some form of imputation was required for cases with missing data.[1] This imputation was performed using an unweighted hot-deck methodology. The unweighted hot-deck method of imputing a variable with missing responses (which is called the base variable in this appendix) involved three basic steps.

1. *Forming imputation classes.* When a strong logical association existed between the base variable and certain auxiliary variables, the data set was partitioned by the auxiliary variables, and imputation procedures were implemented independently within classes defined by the cross of the auxiliary variables.
2. *Sorting the file.* Within each imputation class, the file was sorted by auxiliary variables that were relevant to the item being imputed. The sort order of the auxiliary variables was chosen to reflect the degree of importance of the auxiliary variables in relation to the base variable being imputed (i.e., those auxiliary variables that were better predictors for the item being imputed were used as the first sorting variables).

   For the 2013 NSDUH, two types of sorting procedures were used to sort the files prior to imputation:

   (a) Straight Sort. A set of variables was sorted in ascending order by the first variable specified, then, within each level of the first variable, the file was sorted in ascending order by the second variable specified, and so on. For example:

1	1	1
1	1	2
1	2	1
1	2	2
1	3	1
1	3	2
2	1	1
2	1	2
2	2	1
2	2	2
2	3	1
2	3	2

[1] Because the imputation of these demographic variables was not required for the main NSDUH analysis, it is documented here in the weighting report.

(b) Serpentine Sort. A set of variables was sorted so that the direction of the sort (ascending or descending) changed each time the value of a variable changed. For example:

1	1	1
1	1	2
1	2	2
1	2	1
1	3	1
1	3	2
2	3	2
2	3	1
2	2	1
2	2	2
2	1	2
2	1	1

The serpentine sort has the advantage of minimizing the change in the entire set of auxiliary variables whenever any one of the variables changes its value.

3. *Replace missing values.* The file was sorted and then read sequentially. Each time an item respondent was encountered (i.e., the base variable was nonmissing), the base variable response was stored, updating the donor response, and any subsequent nonrespondent encountered received the stored donor response, creating the statistically imputed response. A starting value was needed if an item nonrespondent was the first record on a sorted file. Typically, the response from the first respondent on the sorted file was used as the starting value.

   Note that because the file was sorted by relevant auxiliary variables, the preceding item respondent (donor) closely matched the neighboring item nonrespondent (recipient) with respect to the auxiliary variables.

For more information on the general hot-deck method of item imputation, see Little and Rubin, 1987 (pp. 62-67).

With the unweighted sequential hot-deck imputation procedure, for any particular item being imputed, there was the risk of several nonrespondents appearing next to one another on the sorted file. To detect this problem in NSDUH, for every variable being imputed, a record was kept of the imputation donor. Then, by examining frequencies by imputation donor, if several nonrespondents were lining up next to one another in the sort, the situation could be detected. When this problem occurred, sort variables were added or eliminated, or the order of the sort variables was rearranged.

C.2 Predictive Mean Neighborhood (PMN)

As in 2002, the predictive mean neighborhood (PMN) methodology was used for the 2013 NSDUH weighting process to impute "race" and "Hispanic or Latino origin" for the screener demographic information, as well as the questionnaire data (Singh, Grau, & Folsom,

2002). Because there was not a good set of predictors for PMN modeling, the unweighted sequential hot-deck method was used to impute gender. Unweighted sequential hot deck is simple and quick to implement, but it has a number of disadvantages:

- The first few sorting covariates almost entirely determine what donor will be used for a particular respondent with missing data, regardless of how many sorting covariates are included.
- There is no mechanism derived from the data to weight the sorting covariates based on their relationship to the response variable.
- Weights are not used to determine the most appropriate donor for a respondent with missing data.
- The correlations across multiple outcome variables imputed to the same record are not accounted for when finding a donor.
- The choice of donor, after the sort has been completed, may be deterministic; this may introduce bias in estimating means and totals and, thus, make it difficult to determine the variance of the estimator when taking imputation into account.

To address the deficiencies of the unweighted sequential hot deck, the PMN methodology was developed for NSDUH. It is a combination of two commonly used imputation methods: a nonmodel-based hot deck and the model-based predictive mean matching method of Rubin. It enhances the predictive mean matching method in that it can be applied to both discrete and continuous variables either individually or jointly. It also enhances the nearest neighbor hot-deck method in that the distance function used to find neighbors is no longer ad hoc. It is easily applicable to problems of both univariate (UPMN) and multivariate (MPMN) imputations. Univariate imputation is used for imputing a single continuous or dichotomous discrete variable independently, whereas multivariate imputation arises when values of two or more variables are missing for a single respondent or when a single polytomous variable has missing values. (A polytomous variable is a categorical variable with three or more possible values, such as marital status, which is categorical and has the possible values of married, widowed, divorced, and never married.)

The procedure for implementing univariate and multivariable imputations can be summarized with the following six steps. Steps 2 through 5, and sometimes Step 6, were cycled through each of the variables in the order determined by Step 1. Steps 4 and 5 (Steps 4 through 6, when applicable) could be considered a variant of a random nearest neighbor hot deck.

Step 1: Hierarchy definition. Determine the order in which variables are modeled, so that variables early in the hierarchy may be used for modeling the conditional predictive mean (i.e., variables early in the hierarchy have the potential to be part of the set of covariates for variables later in the hierarchy).

For each variable:

Step 2: Setup for model building and hot-deck assignment. For each model that is fitted, two groups must be created: complete and incomplete data respondents (item respondents and item

nonrespondents). Complete data respondents have complete data across the variables of interest, and incomplete data respondents encompass the remainder of respondents.

Step 3: Sequential hierarchical modeling. The model is built using the complete data for respondents only, with weights adjusted for item nonresponse.

Step 4: Computation of predictive means and delta neighborhoods. The predictive means for item respondents and item nonrespondents are calculated using the model coefficients. Then those item respondents whose predictive means are determined to be "close" (based on a distance function taking values within delta) to the item nonrespondents are considered part of the "delta" neighborhood.

Step 5: Assignment of imputed values using a univariate predictive mean. Using a simple random draw from the neighborhood developed in Step 4, a donor is chosen for each item nonrespondent.

If the variables for which Steps 2 through 5 have been completed are part of a complete multivariate set for which multivariate imputation is to be applied, Step 6 is the next step in the process. If the variables for which Steps 2 through 5 are completed are not part of a complete multivariate set, and other variables are still to be imputed, Step 2 is the next step. Otherwise, the process is finished.

Step 6: Determination of multivariate predictive mean neighborhood and assignment of imputed values. With multivariate imputation, the neighborhood is defined based on a vector of predictive means, rather than from a single predictive mean as in the univariate case.

The PMN methodology addresses all of the shortcomings of the unweighted sequential hot-deck method and was widely used for the imputation of a variety of variables in NSDUH, including both continuous and categorical variables with one or more levels. The models were fit using standard modeling procedures in SAS and SUDAAN®, while SAS macros were used to implement the hot-deck step, including the restrictions on the neighborhoods. Although creating a different neighborhood for each item nonrespondent was computationally intensive, the method was implemented successfully. For more details on PMN, see the 2013 editing and imputation report in the *NSDUH Methodological Resource Book* (Center for Behavioral Health Statistics and Quality, 2015).

Appendix D: Generalized Exponential Model Summary

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Appendix D: Generalized Exponential Model Summary

This appendix summarizes each model group throughout all stages of modeling the weight calibrations. Unlike much of the other information presented in this report, this appendix provides a model-specific overview of weight calibration, as opposed to a State- or domain-specific one.

The modeling for the 2013 National Survey on Drug Use and Health (NSDUH) involved taking nine generalized exponential model (GEM) groups through five adjustment steps: (1) dwelling unit (DU)–level nonresponse adjustment, (2) DU-level poststratification, (3) selected person-level poststratification, (4) person-level nonresponse adjustment, and (5) respondent person-level poststratification. The sampling weights after DU-level poststratification for this year were reasonably distributed and did not require the additional treatment of the extreme weight adjustment step at the DU level. Because the adaptive fitting strategy for choosing bounds introduced this year does not require the bounds to be as tight as possible (see Section 4.5), an extreme weight adjustment step was performed after respondent person-level poststratification to further control the extreme weight. See Table D for a summary of the distributions of each of the weight components at the national level.

Model-specific summary statistics are shown in Tables D.1a and D.1b to D.9a and D.9b. Included in these tables, for each stage of modeling, are the following: the number of effects that were controlled directly; the high, low, and nonextreme weight bounds set to provide the upper and lower limits for GEM; weighted, unweighted, and winsorized weight proportions; the unequal weighting effect (UWE); and weight distributions. The UWE provides an approximate measure of variance and establishes how much impact a particular stage of modeling has on the distribution of the new product of weights. For more details on bounds, see Section 4.2. At each stage in the modeling, these summary statistics were calculated and used to evaluate the model that was constructed and its corresponding product of weights.

Such circumstances as small sample sizes and exact linear combinations (i.e., singularities) in the realized data led to situations where finalizing models with the originally proposed set of covariates was not possible. The text and exhibits in Sections D.1 to D.9 summarize the decisions made regarding final covariates that were included in each model. For a list of the proposed initial covariates considered at each stage of modeling, see Exhibit D1.1, and for the list of realized final model covariates, see Exhibits D1.1 through D9.5. The following sections establish a series of guidelines to assist in the interpretation of the covariates.

Table D Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (United States)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	32	0.41	46	0.09	11	1.01	11	0.06	2	0.31	2	0.04	1
1%	51	1.00	63	0.54	68	1.01	96	0.32	81	1.00	89	0.20	66
5%	85	1.01	94	0.79	103	1.01	195	0.63	182	1.00	212	0.42	188
10%	123	1.04	142	0.89	157	1.01	328	0.75	309	1.02	357	0.79	313
25%	347	1.09	351	0.99	392	1.15	665	0.88	646	1.11	769	0.96	739
Median	492	1.14	582	1.08	620	1.49	1,321	0.99	1,310	1.24	1,552	1.02	1,553
75%	760	1.23	914	1.18	1,002	5.87	3,470	1.11	3,485	1.42	4,195	1.10	4,181
90%	1,139	1.35	1,348	1.33	1,458	10.99	7,619	1.28	7,637	1.66	10,252	1.25	10,159
95%	1,313	1.50	1,568	1.49	1,772	12.10	10,914	1.43	11,010	1.87	15,224	1.41	15,323
99%	1,576	1.96	1,998	2.13	2,479	14.13	18,888	2.00	20,247	2.80	29,513	2.09	30,634
Maximum	7,453	40.25	7,681	5.88	9,709	29.26	87,768	10.43	78,134	13.12	130,534	8.95	181,411
n	190,067	160,325	160,325	160,312	160,312	88,742	88,742	88,742	88,742	67,838	67,838	67,838	67,838
Max/Mean	12.95	-	11.26	-	12.94	-	29.98	-	26.43	-	33.75	-	46.90

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

D.1 Final Model Explanatory Variables

For brevity, numeric abbreviations for variable levels are established in Exhibit D3.1 in Chapter 3 (included here as Exhibit D.1 for easy reference). There, a complete list is provided of all variables and associated levels used at any stage of modeling. In this report, each level of a variable is referred to as a covariate. Note that (1) not all variables or levels are present in all stages of modeling; (2) the initial set of covariates, allowing for differences in States across model groups, is the same for all model groups within a stage of modeling; and (3) the initial set of covariates changes across the stages of modeling. Exhibits D.2 through D.5 provide the initial covariates for the stages of modeling, and Exhibits D1.1 through D9.5 provide lists of both the proposed and the final covariates for the nine model groups. This last group of exhibits is grouped by model groups and contains one exhibit for each stage of weight adjustment. The initial variables are found in the "Proposed" column, and the realized covariates are found in the "Final" column.

Section D.3 explains how to create cross-classification tables, which help to illustrate what covariates are controlled for at each stage of the modeling. The general pattern is as follows: directions to follow, semicolon, reason for the change. Sections D.2 and D.3 explain how to use various exhibits for selected model variables to construct these tables. For greater detail on why variable levels are collapsed or dropped, see Section 4.7.

Exhibit D.1 Definition of Levels for Variables

Age (years)
1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50+[1,4]

Gender
1: Male, 2: Female[1]

Group Quarters Indicator
1: College Dorm, 2: Other Group Quarter, 3: Non-Group Quarter[1]

Hispanicity
1: Hispanic or Latino, 2: Non-Hispanic or Latino[1]

Percentage of Owner-Occupied Dwelling Units in Segment (% Owner-Occupied)
1: 50-100%,[1] 2: 10-<50%, 3: 0-<10%

Percentage of Segments That Are Black or African American
1: 50-100%, 2: 10-<50%, 3: 0-<10%[1]

Percentage of Segments That Are Hispanic or Latino
1: 50-100%, 2: 10-<50%, 3: 0-<10%[1]

Population Density
1: MSA 1,000,000 or More, 2: MSA Less than 1,000,000, 3: Non-MSA Urban, 4: Non-MSA Rural[1]

Quarter
1: Quarter 1, 2: Quarter 2, 3: Quarter 3, 4: Quarter 4[1]

Race (3 levels)
1: White,[1] 2: Black or African American, 3: Other

Race (5 levels)
1: White,[1] 2: Black or African American, 3: American Indian or Alaska Native, 4: Asian, 5: Two or More Races

Relation to Householder
1: Householder or Spouse,[1] 2: Child, 3: Other Relative, 4: Nonrelative

Segment-Combined Median Rent and Housing Value (Rent/Housing)[2]
1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile[1]

States[3]

Model Group 1:	1: Connecticut, 2: Maine, 3: New Hampshire, 4: Rhode Island, 5: Vermont, 6: Massachusetts[1]
Model Group 2:	1: New Jersey,[1] 2: New York, 3: Pennsylvania
Model Group 3:	1: Illinois, 2: Indiana,[1] 3: Michigan, 4: Wisconsin, 5: Ohio
Model Group 4:	1: Iowa, 2: Kansas, 3: Minnesota, 4: Missouri,[1] 5: Nebraska, 6: South Dakota, 7: North Dakota
Model Group 5:	1: Delaware, 2: District of Columbia, 3: Georgia,[1] 4: Maryland, 5: North Carolina, 6: South Carolina, 7: Virginia, 8: West Virginia, 9: Florida
Model Group 6:	1: Alabama, 2: Kentucky, 3: Mississippi, 4: Tennessee[1]
Model Group 7:	1: Arkansas,[1] 2: Louisiana, 3: Oklahoma, 4: Texas
Model Group 8:	1: Colorado, 2: Idaho, 3: Montana, 4: Nevada, 5: New Mexico, 6: Utah, 7: Wyoming, 8: Arizona[1]
Model Group 9:	1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,[1] 5: California

MSA = metropolitan statistical area.

[1] The reference level for this variable. This is the level against which effects of other factor levels are measured.

[2] Segment-Combined Median Rent and Housing Value (also known as the Socioeconomic Status [SES] indicator) is a composite measure based on rent, housing value, and percent owner occupied.

[3] The States or district assigned to a particular model are based on census divisions.

[4] The age group 50+ was further broken down into 50-64 and 65+ for Person-Level Poststratification Adjustment and Person-Level Extreme Weight Adjustment, for which 65+ was used as the reference level.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

D.2 Glossary of Terms Used in the Exhibits and Descriptions of the Variables in the Final Model

This glossary provides a list of general terms. Certain other specific terms are sometimes used within a particular section.

All levels present. All levels of the variable under consideration were included in the final model.

Coll. Collapse (levels). These levels of the factor effect were collapsed together. Levels that have been collapsed together no longer appear in the model as separate variables, but rather manifest themselves jointly in the model.

Conv. If model is not convergent, dropping or collapsing of variables is performed.

Drop all levels. All levels of a factor effect were completely removed from the model, as well as any combinations involving this factor.

Drop *level(s)*. These levels of a factor effect were collapsed into the reference set. The dropped levels manifest themselves jointly with the appropriate reference levels.

Drop *level(s)*; singularity/zero sample. During the modeling process, the levels of factor effect(s) listed were removed from the model because of either singularities or sample sizes of zero.

Drop or collapse using *. The asterisk is used as a wildcard character to indicate all levels of that factor effect.

Factor effects. Another name for covariates, or variables, such as "Age." In addition to one-factor effects, two-, and three-factor effects also are referenced, such as "Age × Race" and "Age × Race × Gender."

Hier. Factor effects collapsed/dropped at lower order and the hierarchical effect carries up. This indicates that one or more levels of factor effects were collapsed/dropped in an earlier stage, and that the same action (collapse/drop) was performed on the corresponding levels in all higher-order factor effects containing the dropped/collapsed levels.

Keep *level(s)*. These levels of the factor effect were kept in the model and the remainder into the reference set.

Reference/reference set. The reference levels of factor effects (see Exhibit D.1) are not explicitly listed in the set of model variables, but are represented implicitly in the model in the intercept term. These include one-, two-, and three-factor effects.

Repeat or **Do the same for *(effects)*.** The previous action was repeated for all effect levels listed.

Sing. Singularity is the linear dependence of columns of realized values of the predictors in the model. Any variable that is a linear combination of other variables is either dropped from the model or collapsed with other variables.

D.3 How to Interpret Collapsing and Dropping of Factor Effects

To help visualize what effects were directly controlled for in the model, a table that reflects the collapsing scheme employed can be constructed. The following is a complex example from the 2004 modeling, which demonstrates how to use the information found in Exhibits D1.1 through D9.5.

1. Consider the following entry for the factor effect of State × Age × Race (3 levels), for Model Group 9, for the Person-Level Nonresponse Adjustment.

Three-Factor Effects	Comments
State × Age × Race (3 Levels)	Coll. (2,1,2) & (2,1,3); hier. Repeat for all age levels in State (2); hier. Coll. (1,4,2) & (1,4,3); conv. Drop (3,4,2); sing. Drop (3,*,*); conv. Coll. (5,1,2) & (5,1,3); conv. Repeat for all age levels in State (5).

2. Determine the initial range of possible levels for the variables by referring to the variable definitions shown in Exhibit D.1:

State (for the model group in question, in this case, Model Group 9)

Model Group 9: 1: Alaska, 2: Hawaii, 3: Oregon, 4: Washington,[1] 5: California

Age (years)

1: 12-17, 2: 18-25, 3: 26-34, 4: 35-49, 5: 50+[1]

Race (3 levels)

1: White,[1] 2: Black or African American, 3: Other

3. Construct the cross-classification table.

For example, Race (5 levels) is defined this way:

Race (5 Levels)	White	Black or African American	Asian	American Indian or Alaska Native	Two or More Races

Shading indicates the reference-level set.

[1] This is the reference level for this variable. This is the level against which effects of other factor levels are measured.

This is the cross-classification table for State × Race (5 levels):

State × Race (5 levels)	White	Black or African American	Asian	American Indian or Alaska Native	Two or More Races
AK					
HI					
OR					
WA					
CA					

Shading indicates the reference-level set.

The cross-classification table of interest [State × Age × Race (3 levels)] is as follows:

State × Age × Race (3 Levels)	White	Black or African American	Other
AK × 12-17			
18-25			
26-34			
35-49			
50+			
HI × 12-17			
18-25			
26-34			
35-49			
50+			
OR × 12-17			
18-25			
26-34			
35-49			
50+			
WA × 12-17			
18-25			
26-34			
35-49			
50+			
CA × 12-17			
18-25			
26-34			
35-49			
50+			

Shading indicates the reference-level set.

The number of respondents in that class at this stage of modeling would appear within each cell of the table. Construction of the other cross-classification tables follows the same logic and is only necessary to the point of providing an understanding of the final table.

4. Use the information under the "Final" column definition to determine the combination of factors controlled.

Hier. This means the factor effect was collapsed at a lower order. Because this note is present, examine the information on lower-order factor effects that are the components of the interaction term, State × Race (3 levels) × Age; that is, look at the one-factor and two-factor effects for State, Race (5 levels), and Age, and their accompanying information:

One-Factor Effects	**Comments**
State	All levels present.
Race (5 Levels)	All levels present.
Age	All levels present.

Two-Factor Effects	**Comments**
State × Age	All levels present.
State × Race (5 Levels)	Coll. (1,3) & (1,4). Do the same for all other States except (2). Coll. (2,2), (2,3), & (2,4).
Age × Race (3 Levels)	All levels present.

Following these directions, the resulting two-factor table is:

State × Race (5 Levels)	**White**	**Black or African American**	**Asian**	**American Indian or Alaska Native**	**Two or More Races**
AK					
HI					
OR					
WA					
CA					

Shading indicates the reference-level set.

Continuing on to the three-factor level for the same example:

Three-Factor Effects	**Comments**
State × Age × Race (3 Levels)	Coll. (2,1,2) & (2,1,3); hier. Repeat for all age levels in State (2); hier. Coll. (1,4,2) & (1,4,3); conv. Drop (3,4,2); sing. Drop (3,*,*); conv. Coll. (5,1,2) & (5,1,3); conv. Repeat for all age levels in State (5).

The reason for the note "Hier." in the three-factor effects is that collapsing was done on the two-factor interaction term State × Race (5 levels). Because collapsing was done on this term, all three-factor crosses involving State × Race must maintain this same collapsing scheme.

After following the directions, the cross-classification table should appear as follows:

State × Age × Race (3 Levels)	White	Black or African American	Other
AK × 12-17			
18-25			
26-34			
35-49			
50+			
HI × 12-17			
18-25			
26-34			
35-49			
50+			
OR × 12-17			
18-25			
26-34			
35-49			
50+			
WA × 12-17			
18-25			
26-34			
35-49			
50+			
CA × 12-17			
18-25			
26-34			
35-49			
50+			

Shading indicates the reference-level set.

The unshaded cells represent the factors directly controlled for by the model (i.e., those factors that were not collapsed or dropped). The shaded cells represent the composite reference set, whose values may be obtained by utilizing the marginal sums, although when changes to the initially proposed set occur, it can make certain reference cell counts indistinguishable.

Exhibit D.2 Covariates for 2013 NSDUH Person Weights (res.sdu.nr)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Population Density	4	3
Group Quarter	3	2
% Black or African American	3	2
% Hispanic or Latino	3	2
% Owner-Occupied	3	2
Rent/Housing	5	4
Two-Factor Effects		
% Owner-Occupied × % Black or African American	3 × 3	4
% Owner-Occupied × % Hispanic or Latino	3 × 3	4
% Owner-Occupied × Rent/Housing	3 × 5	8
Rent/Housing × % Black or African American	3 × 5	8
Rent/Housing × % Hispanic or Latino	3 × 5	8
State × Quarter	Model Specific	
State × Population Density	Model Specific	
State × Group Quarter	Model Specific	
State × % Black or African American	Model Specific	
State × % Hispanic or Latino	Model Specific	
State × % Owner-Occupied	Model Specific	
State × Rent/Housing	Model Specific	
Three-Factor Effects		
State × % Owner-Occupied × % Black or African American	Model Specific	
State × % Owner-Occupied × % Hispanic or Latino	Model Specific	
State × % Owner-Occupied × Rent/Housing	Model Specific	
State × Rent/Housing × % Black or African American	Model Specific	
State × Rent/Housing × % Hispanic or Latino	Model Specific	

Exhibit D.3 Covariates for 2013 NSDUH Person Weights (res.sdu.ps)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	4
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
Two-Factor Effects		
Age × Race (3 levels)	5 × 3	8
Age × Hispanicity	5 × 2	4
Age × Gender	5 × 2	4
Race (3 levels) × Hispanicity	3 × 2	2
Race (3 levels) × Gender	3 × 2	2
Hispanicity × Gender	2 × 2	1
State × Quarter	Model Specific	
State × Age	Model Specific	
State × Race (5 levels)	Model Specific	
State × Hispanicity	Model Specific	
State × Gender	Model Specific	
Three-Factor Effects		
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8
Age × Race (3 levels) × Gender	5 × 3 × 2	8
Age × Hispanicity × Gender	5 × 2 × 2	4
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2
State × Age × Race (3 levels)	Model Specific	
State × Age × Hispanicity	Model Specific	
State × Age × Gender	Model Specific	
State × Race (3 levels) × Hispanicity	Model Specific	
State × Race (3 levels) × Gender	Model Specific	
State × Hispanicity × Gender	Model Specific	

Exhibit D.4 Covariates for 2013 NSDUH Person Weights (sel.per.ps and res.per.nr)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	5	4
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
Relation to Householder	4	3
Population Density	4	3
Group Quarter	3	2
% Black or African American	3	2
% Hispanic or Latino	3	2
% Owner-Occupied	2	2
Rent/Housing	5	4
Two-Factor Effects		
Age × Race (3 levels)	5 × 3	8
Age × Hispanicity	5 × 2	4
Age × Gender	5 × 2	4
Race (3 levels) × Hispanicity	3 × 2	2
Race (3 levels) × Gender	3 × 2	2
Hispanicity × Gender	2 × 2	1
% Owner-Occupied × % Black or African American	3 × 3	4
% Owner-Occupied × % Hispanicity	3 × 3	4
% Owner-Occupied × Rent/Housing	3 × 5	8
Rent/Housing × % Black or African American	3 × 5	8
Rent/Housing × % Hispanic or Latino	3 × 5	8
State × Quarter	Model Specific	
State × Age	Model Specific	
State × Race (5 levels)	Model Specific	
State × Hispanicity	Model Specific	
State × Gender	Model Specific	
State × % Black or African American	Model Specific	
State × % Hispanic or Latino	Model Specific	
State × % Owner-Occupied	Model Specific	
State × Rent/Housing	Model Specific	
Three-Factor Effects		
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8
Age × Race (3 levels) × Gender	5 × 3 × 2	8
Age × Hispanicity × Gender	5 × 2 × 2	4
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2
State × Age × Race (3 levels)	Model Specific	
State × Age × Hispanicity	Model Specific	
State × Age × Gender	Model Specific	
State × Race (3 levels) × Hispanicity	Model Specific	
State × Race (3 levels) × Gender	Model Specific	
State × Hispanicity × Gender	Model Specific	

Exhibit D.5 Covariates for 2013 NSDUH Person Weights (res.per.ps and res.per.ev)

Variables	Levels	Proposed
One-Factor Effects		
Intercept	1	1
State	Model Specific	
Quarter	4	3
Age	6	5
Race (5 levels)	5	4
Gender	2	1
Hispanicity	2	1
Two-Factor Effects		
Age × Race (3 levels)	6 × 3	10
Age × Hispanicity	6 × 2	5
Age × Gender	6 × 2	5
Race (3 levels) × Hispanicity	3 × 2	2
Race (3 levels) × Gender	3 × 2	2
Hispanicity × Gender	2 × 2	1
State × Quarter	Model Specific	
State × Age	Model Specific	
State × Race (5 levels)	Model Specific	
State × Hispanicity	Model Specific	
State × Gender	Model Specific	
Three-Factor Effects		
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10
Age × Race (3 levels) × Gender	6 × 3 × 2	10
Age × Hispanicity × Gender	6 × 2 × 2	5
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2
State × Age × Race (3 levels)	Model Specific	
State × Age × Hispanicity	Model Specific	
State × Age × Gender	Model Specific	
State × Race (3 levels) × Hispanicity	Model Specific	
State × Race (3 levels) × Gender	Model Specific	
State × Hispanicity × Gender	Model Specific	

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Appendix D1: Model Group 1: New England

(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont)

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Table D.1a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 1: New England)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	2.27	1.40	0.07	1.80159	306	(1.07, 1.26)	(1.08, 1.26)
	1.81	1.70	0.12	1.89713	134	(1.00, 2.64)	(1.00, 2.59)
						(1.01, 1.20)	(1.01, 1.19)
res.sdu.ps	1.80	1.69	0.12	1.89711	232	(0.73, 1.10)	(0.73, 1.10)
	1.57	3.33	0.75	1.94229	221	(0.20, 4.95)	(0.20, 4.94)
						(0.90, 3.88)	(0.90, 3.88)
sel.per.ps	1.98	3.09	0.78	3.51697	332	(0.20, 2.50)	(0.20, 2.50)
	2.03	6.09	1.69	3.95209	290	(0.20, 5.00)	(0.20, 5.00)
						(0.40, 1.25)	(0.40, 1.23)
res.per.nr	1.78	5.57	1.72	4.12626	332	(1.00, 3.00)	(1.00, 3.00)
	2.02	8.82	2.55	4.67298	229	(1.00, 5.00)	(1.00, 5.00)
						(1.20, 2.08)	(1.20, 2.07)
res.per.ps	2.07	8.80	2.59	4.67298	267	(0.20, 2.40)	(0.20, 2.40)
	1.74	5.43	1.30	4.63513	214	(0.20, 4.67)	(0.20, 4.63)
						(0.90, 4.94)	(0.90, 4.94)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.
[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.
[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.1b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 1: New England)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	37	0.67	63	0.20	29	1.01	34	0.15	7	0.38	7	0.07	3
1%	63	1.00	67	0.49	68	1.01	80	0.20	31	0.99	28	0.20	24
5%	65	1.03	93	0.76	93	1.01	126	0.41	107	1.00	121	0.38	107
10%	94	1.05	105	0.89	111	1.01	162	0.60	144	1.00	173	0.80	163
25%	148	1.09	160	0.97	165	1.15	266	0.83	257	1.05	299	0.95	301
Median	177	1.16	211	1.07	228	1.63	751	0.99	655	1.20	695	1.01	700
75%	500	1.20	582	1.17	565	6.52	1,755	1.14	1,792	1.40	2,264	1.08	2,222
90%	890	1.27	1,018	1.26	1,113	11.82	4,304	1.34	4,494	1.71	5,503	1.28	5,637
95%	1,000	1.33	1,247	1.38	1,330	13.56	7,124	1.50	7,414	2.12	9,938	1.83	10,155
99%	1,121	1.74	1,494	1.92	1,640	15.95	14,916	2.30	15,818	3.86	21,846	2.89	22,474
Maximum	1,228	2.59	2,464	4.94	4,216	29.26	31,107	5.00	34,165	5.00	61,618	8.95	60,286
n	16,352	14,050	14,050	14,048	14,048	7,088	7,088	7,088	7,088	5,448	5,448	5,448	5,448
Max/Mean	3.65	-	6.29	-	10.16	-	17.87	-	19.40	-	26.89	-	26.31

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 1 Overview

Dwelling Unit Nonresponse

All 24 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in all factors except the Rent/Housing × percent Black or African American, State × Quarter, State × percent Owner-Occupied, and State × Rent/Housing interactions. Out of 122 proposed variables, 85 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 160 proposed variables, 25 were included in the model.

In the final model, a total of 134 variables were included; see Exhibit D1.1.

Dwelling Unit Poststratification

All 19 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing was present in the Race × Hispanicity interaction. Out of 86 proposed variables, 85 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, and State × Race × Hispanicity interactions. Out of 127 proposed variables, 117 were included in the model.

In the final model, a total of 221 variables were included; see Exhibit D1.2.

Selected Person-Level Poststratification

All 37 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Black or African American, percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Race, State × percent Black or African American, and State × percent Hispanic or Latino interactions. Out of 168 proposed variables, 152 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in all factors except the Age × Race × Gender, Age × Hispanicity × Gender, State × Age × Gender, State × Race × Gender, and State × Hispanicity × Gender interactions. Out of 127 proposed variables, 101 were included in the model.

In the final model, a total of 290 variables were included; see Exhibit D1.3.

Respondent Person-Level Nonresponse

All 37 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Black or African American, percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Race, State × percent Black or African American, State × percent Hispanic or Latino, State × percent Owner-Occupied, and State × Rent/Housing interactions. Out of 168 proposed variables, 132 were included in the model.

For the three-factor effects, variable dropping was present in all factors except the Age × Hispanicity × Gender, State × Age × Gender, and State × Hispanicity × Gender interactions. Out of 127 proposed variables, 60 were included in the model.

In the final model, a total of 229 variables were included; see Exhibit D1.4.

Respondent Person-Level Poststratification

All 20 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing was present in the State × Race interaction. Out of 95 proposed variables, 94 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in all factors except the Age × Hispanicity × Gender, Race × Hispanicity × Gender, State × Age × Gender, and State × Hispanicity × Gender interactions. Out of 152 proposed variables, 100 were included in the model.

In the final model, a total of 214 variables were included; see Exhibit D1.5.

Exhibit D1.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 1: New England

Variables	Level	Proposed	Final	Comments
One-Factor Effects		**24**	**24**	All levels present.
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**122**	**85**	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (3,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,4); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Drop (3,1); zero.
State × Quarter	6 × 4	15	15	All levels present.
State × Population Density	6 × 4	15	5	Keep (1,1), (2/3,2), (2/3,3), drop all others; zero, sing.
State × Group Quarter	6 × 3	10	0	Drop all; conv.
State × % Black or African American	6 × 3	10	4	Keep (1,1/2), (3/4,2), drop all others; zero.
State × % Hispanic or Latino	6 × 3	10	3	Coll. (1,1) & (1,2), Coll. (4,1) & (4,2), keep (3,2), drop all others; zero, conv.
State × % Owner-Occupied	6 × 3	10	10	All levels present.
State × Rent/Housing	6 × 5	20	20	All levels present.
Three-Factor Effects		**160**	**25**	
State × % Owner-Occupied × % Black or African American	6 × 3 × 3	20	1	Keep (4,2,2), drop all others; hier., zero, sing., conv.
State × % Owner-Occupied × % Hispanic or Latino	6 × 3 × 3	20	1	Coll. (1,2,1) & (1,2,2), drop all others; hier./zero/sing./conv.
State × % Owner-Occupied × Rent/Housing	6 × 3 × 5	40	16	Keep (1,2,2/3/4), (2,2,1/2/3), (3/4,2,*) and (5,2,1/2), drop all others; zero/sing./conv.
State × Rent/Housing × % Black or African American	6 × 3 × 5	40	4	Keep (1,2/3/4,2) and (4,1,2), drop all others; hier./zero/sing.
State × Rent/Housing × % Hispanic or Latino	6 × 3 × 5	40	3	Coll. (1,2,1) & (1,2,2), (1,4,1) & (1,4,2), keep (3,3,2), drop all others; hier./zero/sing.
Total		**306**	**134**	

Exhibit D1.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 1: New England

Variables	Level	Proposed	Final	Comments
One-Factor Effects		**19**	**19**	
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**86**	**85**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	6 × 4	15	15	All levels present.
State × Age	6 × 5	20	20	All levels present.
State × Race (5 levels)	6 × 5	20	20	All levels present.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
Three-Factor Effects		**127**	**117**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all age levels; hier.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	6 × 5 × 3	40	40	All levels present.
State × Age × Hispanicity	6 × 5 × 2	20	20	All levels present.
State × Age × Gender	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1), repeat for all States; hier.
State × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
State × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Total		**232**	**221**	

Exhibit D1.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 1: New England

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**37**	**37**	
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**168**	**152**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (3,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,4); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Drop (3,1); zero.
State × Quarter	6 × 4	15	15	All levels present.
State × Age	6 × 5	20	20	All levels present.
State × Race (5 levels)	6 × 5	20	19	Coll. (1,3) & (1,4); zero.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
State × % Black or African American	6 × 3	10	4	Keep (1,1), (1/3/4,2), drop others; zero.
State × % Hispanic or Latino	6 × 3	10	5	Keep (1/4,1), (1/3/4,2), drop others; zero.
State × % Owner-Occupied	6 × 3	10	10	All levels present.
State × Rent/Housing	6 × 5	20	20	All levels present.
Three-Factor Effects		**127**	**101**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	34	Coll. (2,4,2) & (2,4,3), repeat for NH, coll. (4,1,2) & (4,1, 3), repeat for all age levels; sing./conv.
State × Age × Hispanicity	6 × 5 × 2	20	16	Drop (5, *,1); conv.
State × Age × Gender	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	3	Coll. (1,2,1) & (1, 3,1), repeat for RI and VT, drop all others; conv., zero, conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
State × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Total		**332**	**290**	

Exhibit D1.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 1: New England

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**37**	**37**	
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**168**	**132**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (3,1); zero. Coll. (2,1) & (2,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,4); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Drop (3,1); zero.
State × Quarter	6 × 4	15	15	All levels present.
State × Age	6 × 5	20	20	All levels present.
State × Race (5 levels)	6 × 5	20	11	Coll. (1,3) & (1,4), repeat for ME and NH, coll. (4,2) & (4,3) & (4,4) & (4,5), repeat for VT; zero/conv.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
State × % Black or African American	6 × 3	10	3	Drop (2,1/2), repeat for NH and VT, drop (4,1); zero/conv.
State × % Hispanic or Latino	6 × 3	10	4	Coll. (1,1) & (1,2); conv. Drop (2,1/2), repeat for VT, drop (3,1); zero.
State × % Owner-Occupied	6 × 3	10	6	Coll. (1,3) & (1,2), repeat for ME, RI, and VT; conv.
State × Rent/Housing	6 × 5	20	15	Coll. (1,1) & (1,2), repeat for all States; conv.
Three-Factor-Effects		**127**	**60**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all, sing./conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Drop (3/4,2/3,1); conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Drop all; conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	12	Coll. (1,1,2) & (1,1,3), repeat all age levels for CT; Coll. (2,1,2) & (2,1,3), repeat for age level 2, repeat for ME, NH, RI, and VT, drop others; hier./sing./conv.
State × Age × Hispanicity	6 × 5 × 2	20	11	Drop (1,4,1), repeat for NH and RI, drop (2,2,1), (2,3,1), (2,4,1), repeat for VT; zero/sing./conv.
State × Age × Gender	5 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	10	0	Drop all; zero/conv.
State × Race (3 levels) × Gender	5 × 3 × 2	10	4	Keep (1,2,1), (1,3,1), coll. (4,2,1) & (4,3,1), repeat for VT, drop others; hier./conv.
State × Hispanicity × Gender	5 × 2 × 2	5	5	All levels present.
Total		**332**	**229**	

Exhibit D1.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 1: New England

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**20**	**20**	
Intercept	1	1	1	All levels present.
State	6	5	5	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**95**	**94**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	6 × 4	15	15	All levels present.
State × Age	6 × 6	25	25	All levels present.
State × Race (5 levels)	6 × 5	20	19	Coll. (4,3) & (4,4); conv.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
Three-Factor Effects		**152**	**100**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	6	Coll. (3,2,1) & (3,3,1), repeat for age level 4, drop (5,*,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	6	Coll. (3,2,1) & (3,3,1), repeat for age level 4, drop (5,*,1); conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	6 × 5 × 3	50	23	Coll. (1,1,2) & (1,1,3), repeat for age levels 2,3,4 for CT and VT, all age levels for ME, age levels 1,2,3 for NH, and 3,4,5 for RI, drop (1,5,*), repeat for MH, RI, and VT; zero/sing./conv.
State × Age × Hispanicity	6 × 6 × 2	25	14	Drop (1/3,5,1), (2,4/5,1), (4,3/4/5,1), and (5, 2/3/4/5,1); zero/sing./conv.
State × Age × Gender	6 × 6 × 2	25	25	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1), repeat for all States; zero/conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Total		**267**	**214**	

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Appendix D2: Model Group 2: Middle Atlantic

(New Jersey, New York, and Pennsylvania)

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Table D.2a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 2: Middle Atlantic)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	2.69	3.51	0.30	1.18435	153	(1.00, 1.80)	(1.00, 1.80)
	1.79	2.60	0.60	1.17613	120	(1.00, 4.99)	(1.00, 4.98)
						(1.30, 5.00)	(1.30, 5.00)
res.sdu.ps	1.78	2.59	0.60	1.17609	127	(0.72, 2.20)	(0.74, 2.20)
	2.43	5.20	1.42	1.25426	126	(0.20, 4.95)	(0.20, 4.94)
						(0.90, 3.69)	(0.90, 3.69)
sel.per.ps	3.98	8.36	2.58	2.49304	197	(0.20, 3.00)	(0.20, 3.00)
	2.27	6.15	1.82	2.62278	191	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.28)	(0.90, 1.28)
res.per.nr	2.53	6.53	1.95	2.76777	197	(1.00, 3.00)	(1.00, 3.00)
	2.31	6.37	1.40	3.00245	176	(1.00, 5.00)	(1.00, 5.00)
						(1.40, 5.00)	(1.40, 5.00)
res.per.ps	2.41	6.68	1.58	3.00245	147	(0.20, 2.60)	(0.20, 2.60)
	1.14	4.02	0.80	3.14623	140	(0.18, 2.75)	(0.18, 2.74)
						(0.90, 1.02)	(0.90, 1.02)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.
[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.
[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.2b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 2: Middle Atlantic)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	50	0.53	411	0.20	117	1.01	153	0.07	74	0.37	103	0.10	46
1%	403	1.00	421	0.58	373	1.01	415	0.50	366	0.97	389	0.18	127
5%	408	1.09	448	0.77	450	1.01	526	0.72	512	1.00	582	0.40	533
10%	412	1.10	467	0.89	473	1.01	601	0.80	593	1.02	688	0.83	678
25%	424	1.16	508	1.00	527	1.16	772	0.90	763	1.15	930	0.98	952
Median	449	1.25	615	1.04	660	1.53	1,376	1.00	1,395	1.29	1,660	1.01	1,708
75%	550	1.37	774	1.11	864	6.07	4,124	1.12	4,085	1.48	4,992	1.06	4,830
90%	1,040	1.59	1,263	1.23	1,251	11.37	7,614	1.25	7,756	1.77	10,850	1.31	10,966
95%	1,191	1.70	1,449	1.36	1,466	11.97	9,791	1.36	9,931	2.03	15,286	1.59	15,460
99%	1,285	2.32	1,651	2.14	2,111	13.01	16,259	1.71	17,973	2.93	29,231	2.07	30,579
Maximum	2,191	40.25	2,039	4.94	7,890	18.11	79,356	5.00	70,011	13.12	86,244	2.74	93,093
n	27,256	20,737	20,737	20,734	20,734	11,246	11,246	11,246	11,246	8,213	8,213	8,213	8,213
Max/Mean	4.01	-	2.84	-	10.27	-	26.04	-	22.56	-	20.29	-	21.90

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 2 Overview

Dwelling Unit Nonresponse

All 21 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State × Population Density and State × Group Quarter interactions. Out of 68 proposed variables, 65 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 64 proposed variables, 34 were included in the model.

In the final model, a total of 120 variables were included; see Exhibit D2.1.

Dwelling Unit Poststratification

All 16 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State × Race interaction. Out of 47 proposed variables, 46 were included in the model.

All 64 proposed three-factor effects were included in the model.

In the final model, a total of 126 variables were included; see Exhibit D2.2.

Selected Person-Level Poststratification

All 34 proposed one-factor effects were included in the model.

All 99 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, and State × Hispanicity × Gender interactions. Out of 64 proposed variables, 58 were included in the model.

In the final model, a total of 191 variables were included; see Exhibit D2.3.

Respondent Person-Level Nonresponse

All 34 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the Rent/Housing × percent Black or African American and State × Race interactions. Out of 99 proposed variables, 94 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, State × Age × Race, State × Age × Hispanicity, and State × Race × Hispanicity interactions. Out of 64 proposed variables, 48 were included in the model.

In the final model, a total of 176 variables were included; see Exhibit D2.4.

Respondent Person-Level Poststratification

All 17 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State × Race interaction. Out of 53 proposed variables, 51 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Gender and State × Age × Hispanicity interactions. Out of 77 proposed variables, 72 were included in the model.

In the final model, a total of 140 variables were included; see Exhibit D2.5.

Exhibit D2.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**21**	**21**	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**68**	**65**	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Population Density	3 × 4	6	4	Drop (2,2), (2,3); sing.
State × Group Quarter	3 × 3	4	3	Coll. (2,1) & (2.2); sing.
State × % Black or African American	3 × 3	4	4	All levels present.
State × % Hispanic or Latino	3 × 3	4	4	All levels present.
State × % Owner-Occupied	3 × 3	4	4	All levels present.
State × Rent/Housing	3 × 5	8	8	All levels present.
Three-Factor Effects		**64**	**34**	
State × % Owner-Occupied × % Black or African American	3 × 3 × 3	8	4	Coll. (3,3,1) & (3,2,1), (3,3,2) & (3,2,2), (2,3,1) & (2,2,1), (2,2,1) & (2,2,2); sing./conv.
State × % Owner-Occupied × % Hispanic or Latino	3 × 3 × 3	8	5	Drop (3,3,1), (3,3,2), (2,2,1); zero/sing.
State × % Owner-Occupied × Rent/Housing	3 × 3 × 5	16	8	Keep (2,2,3), (2,2,4), (2,3,4), (2,2,1), (2,2,2), (2,1,3), (2,3,3), coll. (3,2,4) & (3,3,4), drop all others; zero/sing./conv.
State × Rent/Housing × % Black or African American	3 × 3 × 5	16	9	Keep (2,2,2), (2,3,2), (2,4,2), (3,1,1), (3,1,2), (3,2,1), (3,2,2), (3,3,2), (3,4,2), drop all others; zero/sing./conv.
State × Rent/Housing × % Hispanic or Latino	3 × 3 × 5	16	8	Keep (2,2,2), (2,3,1), (2,3,2), (2,4,1), (2,4,2), (3,1,1), (3,1,2), (3,2,2), drop all others; zero/sing./conv.
Total		**153**	**120**	

Exhibit D2.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**16**	**16**	All levels present.
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**47**	**46**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 5	8	8	All levels present.
State × Race (5 levels)	3 × 5	8	7	Coll. (3,3) & (3,4); conv.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
Three-Factor Effects		**64**	**64**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	3 × 5 × 3	16	16	All levels present.
State × Age × Hispanicity	3 × 5 × 2	8	8	All levels present.
State × Age × Gender	3 × 5 × 2	8	8	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	4	All levels present.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		**127**	**126**	

Exhibit D2.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**34**	**34**	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**99**	**99**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 5	8	8	All levels present.
State × Race (5 levels)	3 × 5	8	8	All levels present.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
State × % Black or African American	3 × 3	4	4	All levels present.
State × % Hispanic or Latino	3 × 3	4	4	All levels present.
State × % Owner-Occupied	3 × 3	4	4	All levels present.
State × Rent/Housing	3 × 5	8	8	All levels present.
Three-Factor Effects		**64**	**58**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (4,2,1) & (4,3,1), repeat for age levels 2 and 3, drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	3 × 5 × 3	16	16	All levels present.
State × Age × Hispanicity	3 × 5 × 2	8	8	All levels present.
State × Age × Gender	3 × 5 × 2	8	8	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	4	All levels present.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,2,1) & (2,3,1); conv.
Total		**197**	**191**	

Exhibit D2.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**34**	**34**	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**99**	**94**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	7	Coll. (4,1) & (4,2); conv.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 5	8	8	All levels present.
State × Race (5 levels)	3 × 5	8	4	Coll. (2,3) & (2,4) & (2,5), repeat for PA; sing./conv.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
State × % Black or African American	3 × 3	4	4	All levels present.
State × % Hispanic or Latino	3 × 3	4	4	All levels present.
State × % Owner-Occupied	3 × 3	4	4	All levels present.
State × Rent/Housing	3 × 5	8	8	All levels present.
Three-Factor Effects		**64**	**48**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all; conv.,
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Drop all, conv.
State × Age × Race (3 levels)	3 × 5 × 3	16	14	Coll. (2,1,2) & (2,1,3), (3,1,2) & (3,1,3); conv.
State × Age × Hispanicity	3 × 5 × 2	8	6	Coll. (3,1,1) & (3,2,1) & (3,3,1); conv.
State × Age × Gender	3 × 5 × 2	8	8	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	2	Coll. (2,2,1) & (2,3,1), repeat for PA; conv.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		**197**	**176**	

Exhibit D2.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**17**	**17**	
Intercept	1	1	1	All levels present.
State	3	2	2	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**53**	**51**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	3 × 4	6	6	All levels present.
State × Age	3 × 6	10	10	All levels present.
State × Race (5 levels)	3 × 5	8	6	Coll. (2,3) & (2,4), (3,3) & (3,4); conv.
State × Hispanicity	3 × 2	2	2	All levels present.
State × Gender	3 × 2	2	2	All levels present.
Three-Factor Effects		**77**	**72**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	10	All levels present.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	6	Coll. (5,2,1) & (5,3,1), repeat for age level 4, drop (5,2/3,1), (4,2/3,1); conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race(3 levels)	3 × 6 × 3	20	20	All levels present.
State × Age × Hispanicity	3 × 6 × 2	10	9	Drop (3,5,1); sing.
State × Age × Gender	3 × 6 × 2	10	10	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	4	All levels present.
State × Race (3 levels) × Gender	3 × 3 × 2	4	4	All levels present.
State × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
Total		**147**	**140**	

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Appendix D3: Model Group 3: East North Central

(Illinois, Indiana, Michigan, Ohio, and Wisconsin)

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Table D.3a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 3: East North Central)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	2.76	2.79	0.12	1.14148	255	(1.09, 2.50)	(1.12, 2.50)
	1.22	1.55	0.18	1.12964	197	(1.00, 2.50)	(1.00, 2.38)
						(1.10, 1.76)	(1.10, 1.69)
res.sdu.ps	1.22	1.55	0.18	1.12963	197	(0.27, 1.10)	(0.27, 1.10)
	0.72	1.72	0.37	1.18597	193	(0.20, 4.95)	(0.20, 4.94)
						(0.90, 1.73)	(0.90, 1.73)
sel.per.ps	2.74	4.12	0.92	2.38131	287	(0.21, 2.30)	(0.21, 2.30)
	1.44	4.16	1.03	2.59047	276	(0.21, 5.00)	(0.21, 5.00)
						(0.90, 4.99)	(0.90, 4.99)
res.per.nr	1.33	4.08	1.02	2.68507	287	(1.00, 3.00)	(1.00, 3.00)
	1.29	3.74	0.81	2.88094	261	(1.00, 5.00)	(1.00, 5.00)
						(1.40, 4.58)	(1.40, 4.58)
res.per.ps	1.30	3.79	0.85	2.88094	227	(0.20, 1.50)	(0.20, 1.50)
	1.08	2.46	0.38	2.93228	211	(0.20, 3.82)	(0.20, 3.82)
						(0.90, 1.08)	(0.90, 1.08)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.
[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.
[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.3b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 3: East North Central)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	32	0.71	154	0.20	81	1.01	87	0.09	24	0.39	41	0.08	8
1%	279	1.00	304	0.64	299	1.01	332	0.51	296	1.00	320	0.20	149
5%	283	1.05	327	0.88	362	1.01	450	0.77	436	1.00	489	0.71	427
10%	369	1.08	404	0.94	412	1.01	512	0.85	502	1.05	592	0.88	569
25%	395	1.12	456	1.02	491	1.18	633	0.94	632	1.17	792	0.98	795
Median	424	1.18	517	1.09	555	1.35	937	1.00	951	1.30	1,188	1.01	1,215
75%	494	1.26	603	1.16	657	5.57	3,083	1.07	3,076	1.45	3,976	1.05	3,968
90%	795	1.37	905	1.25	994	10.89	6,038	1.17	5,927	1.63	8,404	1.16	8,319
95%	879	1.45	1,030	1.33	1,187	11.41	7,013	1.28	7,291	1.78	11,038	1.31	11,278
99%	1,021	1.81	1,243	1.64	1,622	12.67	12,924	1.78	14,546	2.58	19,602	1.72	20,070
Maximum	1,642	4.79	1,888	4.94	3,811	23.49	43,704	10.43	49,365	9.18	72,257	3.82	62,062
n	35,068	29,030	29,030	29,029	29,029	16,695	16,695	16,695	16,695	12,468	12,468	12,468	12,468
Max/Mean	3.45	-	3.28	-	6.03	-	19.15	-	21.14	-	23.11	-	19.85

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 3 Overview

Dwelling Unit Nonresponse

All 23 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State × percent Owner-Occupied interaction. Out of 104 proposed variables, 103 were included in the model.

For three-factor effects, variable collapsing or dropping was present in all interactions. Out of 128 proposed variables, 71 were included in the model.

In the final model, a total of 197 variables were included; see Exhibit D3.1.

Dwelling Unit Poststratification

All 18 proposed one-factor effects were included in the model.

All 73 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the Age × Race × Hispanicity and State × Race × Hispanicity interactions. Out of 106 proposed variables, 102 were included in the model.

In the final model, a total of 193 variables were included; see Exhibit D3.2.

Selected Person-Level Poststratification

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State × Race interaction. Out of 145 proposed variables, 144 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, and State × Race × Hispanicity interactions. Out of 106 proposed variables, 96 were included in the model.

In the final model, a total of 276 variables were included; see Exhibit D3.3.

Respondent Person-Level Nonresponse

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State × Race interaction. Out of 145 proposed variables, 143 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, State × Age × Race, State × Age × Hispanicity, State × Race × Hispanicity, and State × Race × Gender interactions. Out of 106 proposed variables, 82 were included in the model.

In the final model, a total of 261 variables were included; see Exhibit D3.4.

Respondent Person-Level Poststratification

All 19 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the State × Race interaction. Out of 81 proposed variables, 80 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, Age × Race × Gender, State × Age × Race, State × Age × Hispanicity, and State × Race × Hispanicity interactions. Out of 127 proposed variables, 112 were included in the model.

In the final model, a total of 211 variables were included; see Exhibit D3.5.

Exhibit D3.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**23**	**23**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**104**	**103**	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Population Density	5 × 4	12	12	All levels present.
State × Group Quarter	5 × 3	8	8	All levels present.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	8	All levels present.
State × % Owner-Occupied	5 × 3	8	7	Coll. (5,2) & (5,3); conv.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**128**	**71**	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	10	Coll. (5,2,1) & (5,3,1), (5,2,2) & (5,3,2); hier. Drop (4,2,1), (4,3,1); sing. Coll. (4,2,2) & (4,3,2); conv. Drop (4,2/3,2); conv.
State × % Owner-Occupied × % Hispanic or Latino	5 × 3 × 3	16	6	Coll. (5,2,1) & (5,3,1), (5,2,2) & (5,3,2); hier. Drop (1,3,1), (5,2/3,1), (3,2,1), (4,2,1); sing. Drop (3,3,1), (4,3,1), (4,3,2); zero. Coll. (1,2,2) & (1,3,2); conv.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	22	Coll. (5,2,1) & (5,3,1), (5,2,2) & (5,3,2), (5,2,3) & (5,3,3), (5,2,4) & (5,3,4); hier. Drop (5,3,4); sing. Drop (3,3,1), (4,3,1); zero. Coll. (1,3,3) & (1,3,4), (3,2,2) & (3,3,2), (3,3,3) & (3,3,4); conv.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	21	Drop (3,3,1), (3,4,1), (3,4,2), (4,2,1), (4,3,1), (4,3,2); sing. Drop (4,1,1), (4,1,2), (4,4,1), (4,4,2); zero; Coll. (4,3,2) & (4,4,2); conv.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	12	Drop (1,2,1), (1,3,1), (1,4,1), (5,3,1), (5,4,1), (3,1,1), (3,2,1), (3,4,2), (4,2,1), (4,4,2); sing. Drop (5,1,1), (5,2,1), (5,4,1), (3,3,1), (3,4,1), (4,1,1), (4,3,1), (4,4,1); zero; Coll. (5,2,2) & (5,3,2) & (5,4,2); conv.
Total		**255**	**197**	

Exhibit D3.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**18**	**18**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**73**	**73**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		**106**	**102**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (1,2,1) & (1,3,1), (3,2,1) & (3,3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	32	All levels present.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (1,2,1) & (1,3,1), (4,2,1) & (4,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**197**	**193**	

Exhibit D3.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**36**	**36**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**145**	**144**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	15	Coll. (4,3) & (4,4); sing.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	8	All levels present.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**106**	**96**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (4,2,1) & (4,3,1); zero; Coll. (2,2,1) & (2,3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	31	Coll. (4,4,2) & (4,4,3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	1	Coll. (1,2,1) & (1,2,1), (3,2,1) & (3,3,1), (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); conv. Drop (3,2/3,1), (4,2/3,1), (5,2/3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**287**	**276**	

Exhibit D3.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**36**	**36**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**145**	**143**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	14	Coll. (4,3) & (4,4); sing; Coll. (1,3) & (1,4); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	8	All levels present.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**106**	**82**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Coll. (3,2,1) & (3,3,1); sing. Drop (4,2,1); zero. Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), (1,2/3,1) & (2,2/3,1); conv. Drop (4,3,1), (3,2/3,1), (1/2,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Coll. (2,1,1) & (3,1,1); conv. Drop (2/3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	27	Coll. (4,4,2) & (4,4,3), (4,1,2) & (4,1,3), (4,2,2) & (4,2,3), (1,4,2) & (1,4,3); conv. Drop (4,2,2/3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	15	Drop (5,3,1); conv.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Coll. (4,2,1) & (4,3,1); sing. Coll. (3,2,1) & (3,3,1), (5,2,1) & (5,3,1), (1,2,1) & (1,3,1); conv. Drop (4,2/3,1), (5,2/3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	6	Coll. (4,2,1), (4,3,1) conv. Drop (4,2/3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**287**	**261**	

Exhibit D3.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**19**	**19**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**81**	**80**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 6	20	20	All levels present.
State × Race (5 levels)	5 × 5	16	15	Coll. (1,3) & (1,4); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		**127**	**112**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	6	Coll. (4,2,1) & (4,3,1); sing; Coll. (5,2,1) & (5,3,1); zero; Coll. (1,2,1) & (1,3,1); conv. Drop (1,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (5,2,1) & (5,3,1); conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 6 × 3	40	34	Drop (4,5,2), (4,5,3); sing. Coll. (4,4,2) & (4,4,3), (1,5,2) & (1,5,3), (3,5,2) & (3,5,3); conv. Drop
State × Age × Hispanicity	5 × 6 × 2	20	19	Drop (4,5,1); sing.
State × Age × Gender	5 × 6 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	5	Coll. (4,2,1) & (4,3,1); sing. Coll. (5,2,1) & (5,3,1), (3,2,1) & (3,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**227**	**211**	

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Appendix D4: Model Group 4: West North Central

(Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota)

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Table D.4a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 4: West North Central)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	5.73	7.81	1.06	1.54617	357	(1.05, 3.00)	(1.06, 3.00)
	2.40	4.85	0.50	1.56278	153	(1.00, 4.35)	(1.00, 4.35)
						(1.00, 5.00)	(1.00, 1.06)
res.sdu.ps	2.40	4.85	0.50	1.56266	267	(0.20, 1.10)	(0.20, 1.10)
	1.78	3.04	0.59	1.57380	257	(0.20, 4.88)	(0.20, 4.86)
						(0.90, 1.32)	(0.90, 1.32)
sel.per.ps	3.19	6.70	1.52	3.10471	377	(0.20, 2.90)	(0.20, 2.90)
	2.39	6.91	1.51	3.21801	314	(0.20, 5.00)	(0.20, 5.00)
						(0.30, 5.00)	(0.30, 5.00)
res.per.nr	2.77	8.16	1.75	3.32451	377	(1.00, 3.00)	(1.00, 3.00)
	1.89	5.70	1.57	3.55168	286	(1.00, 5.00)	(1.00, 5.00)
						(1.00, 5.00)	(1.00, 1.24)
res.per.ps	1.83	5.58	1.59	3.55168	307	(0.20, 2.80)	(0.20, 2.80)
	1.54	5.12	1.27	3.75421	245	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.06)	(0.90, 1.06)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.
[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.
[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.4b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 4: West North Central)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	61	0.73	61	0.17	18	1.01	19	0.06	5	0.38	5	0.05	1
1%	61	0.99	64	0.48	65	1.01	77	0.25	72	0.86	82	0.20	40
5%	81	1.01	85	0.74	86	1.01	143	0.57	129	1.00	147	0.43	122
10%	102	1.03	103	0.86	111	1.01	186	0.73	178	1.00	211	0.76	195
25%	135	1.05	147	0.97	176	1.09	457	0.87	412	1.09	480	0.90	450
Median	449	1.09	486	1.06	484	1.50	963	0.98	944	1.22	1,134	1.01	1,129
75%	808	1.12	871	1.17	854	6.05	2,230	1.15	2,221	1.40	2,690	1.11	2,721
90%	892	1.17	1,010	1.34	1,083	11.05	5,897	1.34	5,609	1.65	7,419	1.21	7,194
95%	1,000	1.22	1,111	1.49	1,243	12.69	8,766	1.49	8,700	1.84	11,298	1.46	11,311
99%	1,153	1.38	1,450	2.14	1,776	14.09	14,383	2.27	14,512	2.87	20,267	2.41	22,485
Maximum	2,389	5.12	2,902	4.86	5,115	18.38	37,416	6.65	52,845	5.00	65,769	5.00	68,320
n	16,838	15,350	15,350	15,348	15,348	8,147	8,147	8,147	8,147	6,354	6,354	6,354	6,354
Max/Mean	5.00	-	5.54	-	9.34	-	17.58	-	24.98	-	24.25	-	25.19

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 4 Overview

Dwelling Unit Nonresponse

All 25 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in all factors except the percent Owner-Occupied × percent Hispanic or Latino, State × Quarter, and State × Rent/Housing interactions. Out of 140 proposed variables, 108 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 192 proposed variables, 20 were included in the model.

In the final model, a total of 153 variables were included; see Exhibit D4.1.

Dwelling Unit Poststratification

All 20 proposed one-factor effects were included in the model.

All 99 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the Age × Race × Hispanicity, State × Age × Race, and State × Race × Hispanicity interactions. Out of 148 proposed variables, 138 were included in the model.

In the final model, a total of 257 variables were included; see Exhibit D4.2.

Selected Person-Level Poststratification

All 38 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Black or African American, Rent/Housing × percent Black or African American, Rent/Housing × percent Hispanic or Latino, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 191 proposed variables, 173 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, State × Age × Hispanicity, State × Race × Hispanicity, and State × Race × Gender interactions. Out of 148 proposed variables, 103 were included in the model.

In the final model, a total of 314 variables were included; see Exhibit D4.3.

Respondent Person-Level Nonresponse

All 38 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Black or African American, Rent/Housing × percent Black or African American, Rent/Housing × percent Hispanic or Latino, State × Hispanicity, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 191 proposed variables, 170 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender, Race × Hispanicity × Gender, and State × Age × Gender interactions. Out of 148 proposed variables, 78 were included in the model.

In the final model, a total of 286 variables were included; see Exhibit D4.4.

Respondent Person-Level Poststratification

All 21 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the Age × Hispanicity interaction. Out of 109 proposed variables, 108 were included in the model.

For three-factor effects, all levels were present for the Race × Hispanicity × Gender and State × Age × Gender interactions. All the others were affected by variable collapsing or dropping. Out of 177 proposed variables, 116 were included in the model.

In the final model, a total of 245 variables were included; see Exhibit D4.5.

Exhibit D4.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**25**	**25**	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**140**	**108**	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (2,1) & (3,1); conv.
Rent/Housing × % Black or African American	3 × 5	8	6	Coll. (3,1) & (3,2); zero. Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
State × Quarter	7 × 4	18	18	All levels present.
State × Population Density	7 × 4	18	14	Coll. (1,1) & (1,2), do the same for States 5, 6, and 7; zero.
State × Group Quarter	7 × 3	12	4	Coll. (1,1) & (1,2), drop (3,1/2); zero. Coll. (6,1) & (6,2); sing. Coll. (2,1) & (2,2), do the same for State 7, drop (5,1/2); conv.
State × % Black or African American	7 × 3	12	7	Coll. (2,1) & (2,2), do the same for States 3 and 6, drop (7,1/2); zero.
State × % Hispanic or Latino	7 × 3	12	4	Coll. (1,1) & (1,2), drop (6,1/2), (7,1/2); zero. Coll. (2,1) & (2,2), do the same for States 3 and 5; sing.
State × % Owner-Occupied	7 × 3	12	10	Coll. (2,2) & (2,3), (5,2) & (5,3); conv.
State × Rent/Housing	7 × 5	24	24	All levels present.
Three-Factor Effects		**192**	**20**	
State × % Owner-Occupied × % Black or African American	7 × 3 × 3	24	4	Coll. (1,2,1) & (1,2,2) & (1,3,1) & (1,3,2), do the same for States 2, 3, and 5; conv. Drop rest; zero, sing., conv.
State × % Owner-Occupied × % Hispanic or Latino	7 × 3 × 3	24	4	Coll. (1,2,1) & (1,2,2) & (1,3,1) & (1,3,2), do the same for States 2, 3, and 5; conv. Drop rest; zero/sing./conv.
State × % Owner-Occupied × Rent/Housing	7 × 3 × 5	48	10	Coll. (3,2,1) & (3,2,2) & (3,3,1) & (3,3,2), do the same for State 6, coll. (3,2,3) & (3,3,3), do the same for (3,*,4), (7,*,1), (7,*,2) (7,*,3) (7,*,4), (6,*,3), (6,*,4), drop rest; zero/sing./conv.
State × Rent/Housing × % Black or African American	7 × 3 × 5	48	0	Drop all; zero/sing./conv.
State × Rent/Housing × % Hispanic or Latino	7 × 3 × 5	48	2	Coll. (2,1,1) & (2,1,2) & (2,2,1) & (2,2,2), (2,3,1) & (2,3,2); conv. Drop rest; zero/sing./conv.
Total		**357**	**153**	

Exhibit D4.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**20**	**20**	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**99**	**99**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	24	All levels present.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
Three-Factor Effects		**148**	**138**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (4,3,1) & (4,2,1), (3,3,1) & (3,2,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 5 × 3	48	44	Coll. (6,1,2) & (6,1,3). Do the same for all age levels; conv.
State × Age × Hispanicity	7 × 5 × 2	24	24	All levels present.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	8	Coll. (1,2,1) & (1,3,1); zero. Coll. (3,2,1) & (3,3,1). Do the same for States 5 and 7; conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	12	All levels present.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
Total		**267**	**257**	

Exhibit D4.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**38**	**38**	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**191**	**173**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Coll. (3,1) & (3,2); zero. Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	24	All levels present.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
State × % Black or African American	7 × 3	12	7	Coll. (2,1) & (2,2). Do the same for States 3 and 6. Drop (7,1/2); zero.
State × % Hispanic or Latino	7 × 3	12	4	Coll. (1,1) & (1,2), drop (6/7,1/2); zero. Coll. (2,1) & (2,2). Do the same for States 3 and 5; sing.
State × % Owner-Occupied	7 × 3	12	11	Coll. (2,2) & (2,3); sing.
State × Rent/Housing	7 × 5	24	24	All levels present.
Three-Factor Effects		**148**	**103**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (2,2,1) & (2,3,1); sing. Coll. (3,2,1) & (3,3,1); zero. Coll. (1,2,1) & (1,3,1), drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 5 × 3	48	24	Coll. (7,4,2) & (7,4,3), (6,3,2) & (6,3,3), (6,4,2) & (6,4,3); sing. Coll. (1,1,2) & (1,1,3). Do the same for all remaining State × Age combinations; conv.
State × Age × Hispanicity	7 × 5 × 2	24	18	Drop (1,4,1); sing. Drop (1,3,1), (2,4,1), (3,4,1), (6,4,1), (7,4,1); conv.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	3	Coll. (2,2,1) & (2,3,1). Do the same for States 5 and 6, drop rest; conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	11	Coll. (5,2,1) & (5,3,1); conv.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
Total		**377**	**314**	

Exhibit D4.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**38**	**38**	
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**191**	**170**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	6	Coll. (3,1) & (3,2), zero. Coll. (4,1) & (4,2); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	7	Coll. (4,1) & (4,2); sing.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	24	All levels present.
State × Hispanicity	7 × 2	6	3	Drop (1/6/7,1); conv.
State × Gender	7 × 2	6	6	All levels present.
State × % Black or African American	7 × 3	12	7	Coll. (2,1) & (2,2). Do the same for States 3 and 6, drop (7,1/2); zero.
State × % Hispanic or Latino	7 × 3	12	4	Coll. (2,1) & (2,2). Do the same for States 3 and 5; sing. Coll. (1,1) & (1,2), drop (6/7,1/2); zero.
State × % Owner-Occupied	7 × 3	12	11	Coll. (2,2) & (2,3); sing.
State × Rent/Housing	7 × 5	24	24	All levels present.
Three-Factor Effects		**148**	**78**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (2,2,1) & (2,3,1); sing. Coll. (3,2,1) & (3,3,1); zero. Coll. (1,2,1) & (1,3,1), drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (4,1,1); conv.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 5 × 3	48	18	Coll. (1,1,2) & (1,1,3). Do the same for all State × Age combinations, drop (7,2/3/4,2/3), (5,4,2/3), (6,3/4,2/3); conv.
State × Age × Hispanicity	7 × 5 × 2	24	8	Drop (1,*,1), (6,*,1), (7,*,1); hier. Drop (2,3/4,1), (3,4,1), (5,4,1); conv.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	1	Coll. (3,1,1) & (3,2,1). Drop rest; hier./conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	9	Coll. (2,2,1) & (2,3,1). Do the same for States 6 and 7; conv.
State × Hispanicity × Gender	7 × 2 × 2	6	2	Keep (2,1,1), (5,1,1). Drop rest; hier./conv.
Total		**377**	**286**	

Exhibit D4.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**21**	**21**	All levels present.
Intercept	1	1	1	All levels present.
State	7	6	6	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**109**	**108**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	4	Drop (5,1); sing.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	7 × 4	18	18	All levels present.
State × Age	7 × 6	30	30	All levels present.
State × Race (5 levels)	7 × 5	24	24	All levels present.
State × Hispanicity	7 × 2	6	6	All levels present.
State × Gender	7 × 2	6	6	All levels present.
Three-Factor Effects		**177**	**116**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	3	Drop (5,2/3,1); hier. Coll. (3,2,1) & (3,3,1); zero. Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (5,2,1) & (5,3,1); conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	4	Drop (5,1,1); hier.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 6 × 3	60	27	Drop (1/3/5/6/7,5,2/3). Coll. (7,2,2) & (7,2,3), (5,4,2) & (5,4,3); sing. Coll. (7,3,2) & (7,3,3), (6,3,2) & (6,3,3); zero. Coll. (6,1,2) & (6,1,3), (6,2,2) & (6,2,3). Do the same for States 1, 2, and 5. Coll. (5,3,2) & (5,3,3). Do the same for States 1 and 2. Coll. (1,4,2) & (1,4,3), (2,4,2) & (2,4,3), drop (6/7,4,2/3), (2,5,2/3); conv.
State × Age × Hispanicity	7 × 6 × 2	30	15	Drop (*,5,1); hier. Drop (1/3/5,4,1); sing. Drop (6/7,4,1), (1/3/5/7, 3,1); conv.
State × Age × Gender	7 × 6 × 2	30	30	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	9	Coll. (7,2,1) & (7,3,1); zero. Drop (6,2/3,1); conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	11	Coll. (6,2,1) & (6,3,1); conv.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
Total		**307**	**245**	

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Appendix D5: Model Group 5: South Atlantic

(Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia)

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Table D.5a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 5: South Atlantic)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	5.63	6.47	1.42	1.59375	459	(1.00, 3.00)	(1.00, 3.00)
	3.97	5.35	1.21	1.60079	210	(1.00, 5.00)	(1.00, 5.00)
						(1.10, 2.06)	(1.10, 2.05)
res.sdu.ps	3.97	5.35	1.21	1.60080	337	(0.20, 1.10)	(0.20, 1.10)
	1.97	3.25	0.62	1.65736	334	(0.20, 4.95)	(0.20, 4.94)
						(0.90, 4.83)	(0.90, 4.83)
sel.per.ps	2.70	5.03	1.12	2.92612	467	(0.20, 2.80)	(0.20, 2.80)
	1.43	3.44	0.84	3.32350	445	(0.20, 5.00)	(0.20, 5.00)
						(0.30, 2.98)	(0.30, 2.97)
res.per.nr	1.52	3.91	0.99	3.33292	467	(1.00, 2.90)	(1.00, 2.90)
	1.53	5.16	1.31	3.83884	395	(1.00, 5.00)	(1.00, 5.00)
						(1.30, 4.72)	(1.30, 4.72)
res.per.ps	1.58	5.31	1.48	3.83884	387	(0.10, 2.10)	(0.10, 2.10)
	1.07	4.69	1.04	4.03382	317	(0.42, 4.90)	(0.42, 4.90)
						(0.99, 1.18)	(0.99, 1.18)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.

[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.5b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 5: South Atlantic)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	45	0.42	46	0.09	11	1.01	11	0.09	2	0.31	2	0.04	1
1%	45	0.89	55	0.41	59	1.01	66	0.25	52	0.97	56	0.42	51
5%	50	1.00	62	0.81	70	1.01	200	0.59	161	1.00	180	0.43	177
10%	60	1.00	74	0.89	85	1.01	293	0.71	277	1.02	334	0.79	312
25%	231	1.06	256	1.00	274	1.15	822	0.85	784	1.09	937	0.93	892
Median	541	1.16	684	1.09	751	1.52	1,531	0.98	1,534	1.21	1,832	1.01	1,835
75%	985	1.26	1,091	1.20	1,181	6.19	4,509	1.12	4,417	1.40	5,335	1.10	5,292
90%	1,388	1.40	1,621	1.38	1,788	11.96	9,711	1.30	9,501	1.64	12,490	1.21	12,348
95%	1,497	1.66	1,820	1.55	2,154	12.74	13,668	1.46	13,668	1.86	18,764	1.32	18,510
99%	1,663	2.73	2,397	2.18	3,044	15.01	24,284	2.10	27,212	3.02	37,690	2.19	39,669
Maximum	7,453	5.00	7,681	5.88	9,346	23.28	78,294	5.52	72,618	7.63	130,534	4.90	181,411
n	33,212	27,772	27,772	27,771	27,771	13,887	13,887	13,887	13,887	10,801	10,801	10,801	10,801
Max/Mean	11.42	-	9.84	-	10.82	-	21.45	-	19.60	-	27.40	-	38.08

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 5 Overview

Dwelling Unit Nonresponse

All levels were present for one-factor effects except Group Quarter. Out of 27 proposed variables, 26 were included in the model.

Variable collapsing or dropping was present in all two-factor effects except the Rent/Housing × percent Black or African American and State × Quarter interactions. Out of 176 proposed variables, 127 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Many factors were excluded due to zero sample sizes or exact linear combinations. Out of 256 proposed variables, 57 were included in the model.

In the final model, a total of 210 variables were included; see Exhibit D5.1.

Dwelling Unit Poststratification

All 22 proposed one-factor effects were included in the model.

All 125 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the State × Race × Hispanicity interaction. Out of 190 proposed variables, 187 were included in the model.

In the final model, a total of 334 variables were included; see Exhibit D5.2.

Selected Person-Level Poststratification

All 40 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the State × percent Black or African American, State × percent Hispanic or Latino, State × percent Owner-Occupied, and State × Rent/Housing interactions. Out of 237 proposed variables, 230 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the State × Age × Race, State × Age × Hispanicity, and State × Race × Hispanicity interactions. Out of 190 proposed variables, 175 were included in the model.

In the final model, a total of 445 variables were included; see Exhibit D5.3.

Respondent Person-Level Nonresponse

All 40 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the State × Race, State × percent Black or African American, State × percent Hispanic or Latino, State × percent Owner-Occupied, and State × Rent/Housing interactions. Out of 237 proposed variables, 222 were included in the model.

For three-factor effects, all levels were present for the Age × Race × Gender, Age × Hispanicity × Gender, Race × Hispanicity × Gender, State × Age × Gender, State × Race × Gender, and State × Hispanicity × Gender interactions. Out of 190 proposed variables, 133 were included in the model.

In the final model, a total of 395 variables were included; see Exhibit D5.4.

Respondent Person-Level Poststratification

All 23 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing was present in the Race × Hispanicity and State × Race interactions. Out of 137 proposed variables, 128 were included in the model.

For three-factor effects, all levels were present for the Age × Race × Gender, Age × Hispanicity × Gender, State × Age × Gender, State × Race × Gender, and State × Hispanicity × Gender interactions. All the others were affected by variable collapsing or dropping. Out of 227 proposed variables, 166 were included in the model.

In the final model, a total of 317 variables were included; see Exhibit D5.5.

Exhibit D5.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**27**	**26**	
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	1	Coll. 1 & 2; conv.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**176**	**127**	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (3,1) & (2,1); conv.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	6	Coll. (1,1) & (1,2), (4,1) & (4,1); conv.
State × Quarter	9 × 4	24	24	All levels present.
State × Population Density	9 × 4	24	12	Drop (1,1/3), (2,2/3), (4,3), (7,3); zero. Drop (1,2), (2,1); sing. Drop (5,3), (6,3), (8,3), (9,3); conv.
State × Group Quarter	9 × 3	16	2	Coll. (1,2) & (1,2), (2,1) & (2,2), (5,1) & (5,2) then drop (9,1) & (9,2); conv. Drop (4,1/2), (6,2), (7,1), (8,2); zero. Drop (6,2), (7,2); conv. Drop (8,1); sing.
State × % Black or African American	9 × 3	16	15	Drop (8,1); zero.
State × % Hispanic or Latino	9 × 3	16	7	Drop (2,1), (4,1), (8,1/2); zero. Coll. (5,1) & (5,2), (6,1) & (6,2), (7,1) & (7,2), (9,1) & (9,2) then drop; conv.
State × % Owner-Occupied	9 × 3	16	13	Coll. (8,2) & (8,3), (9,2) & (9,3) then drop; conv.
State × Rent/Housing	9 × 5	32	27	Drop (8,4); sing. Coll. (9,1) & (9,2) then drop; conv. Drop (9,3/4); conv.
Three-Factor Effects		**256**	**57**	
State × % Owner-Occupied × % Black or African American	9 × 3 × 3	32	11	Keep (1,2,1/2), (2,2,1/2), (5,2,1/2), (6,3,1), (6,2,1/2), (8,2,2), coll. (2,3,1) & (2,3,2), drop all others; sing./zero/hier./conv.
State × % Owner-Occupied × % Hispanic or Latino	9 × 3 × 3	32	6	Keep (1,3,2), (1,2,2), (2,2,2), (5,2/3,2), (6,2,2), drop all others; sing./zero/hier./conv.
State × % Owner-Occupied × Rent/Housing	9 × 3 × 5	64	10	Keep (1,3,4), (1,2,2/3/4), (2,3,1/2/3), (2,2,2/3/4), drop all others; sing./zero/hier./conv.
State × Rent/Housing × % Black or African American	9 × 3 × 5	64	20	Keep (1,1,1), (1,3,1/2), (1,4,2), (2,2,1), (2,3,1/2), (2,4,1), (3,4,1/2), (5,2,1/2), (5,3,2), (6,2,1/2), (7,3/4,2), coll. (1,2,1) & (1,2,2), (5,1,1) & (5,1,2), (6,1,1) & (6,1,2), drop all others; sing./zero/hier./conv.
State × Rent/Housing × % Hispanic or Latino	9 × 3 × 5	64	10	Keep (1,2,2), (1,3,2), (2,2,2), (2,3/4,2), (3,4,2), (5,1/3,2), (7,4,2), drop all others; sing./zero/hier./conv.
Total		**459**	**210**	

Exhibit D5.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**22**	**22**	
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**125**	**125**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 5	32	32	All levels present.
State × Race (5 levels)	9 × 5	32	32	All levels present.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
Three-Factor Effects		**190**	**187**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	64	All levels present.
State × Age × Hispanicity	9 × 5 × 2	32	32	All levels present.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	13	Coll. (5,2,1) & (5,3,1), repeat for States SC and WV; conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		**337**	**334**	

Exhibit D5.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**40**	**40**	
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**237**	**230**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 5	32	32	All levels present.
State × Race (5 levels)	9 × 5	32	32	All levels present.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
State × % Black or African American	9 × 3	16	15	Drop (8,1); zero.
State × % Hispanic or Latino	9 × 3	16	12	Drop (1,1), (3,1), (8,*); zero
State × % Owner-Occupied	9 × 3	16	15	Drop (8,3); zero.
State × Rent/Housing	9 × 5	32	31	Drop (8,4); sing.
Three-Factor Effects		**190**	**175**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	60	Coll. (6,1,2) & (6,1,3), repeat for all age levels; conv.
State × Age × Hispanicity	9 × 5 × 2	32	23	Drop (8,*), (7,*); conv. Drop (6,4,1); sing.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	14	Coll. (6,2,1) & (6,3,1), (8,2,1) & (8,3,1); zero.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		**467**	**445**	

Exhibit D5.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**40**	**40**	
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**237**	**222**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 5	32	32	All levels present.
State × Race (5 levels)	9 × 5	32	24	Coll. (9,3) & (9,4), repeat for all States; conv.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
State × % Black or African American	9 × 3	16	15	Drop (8,1); zero.
State × % Hispanic or Latino	9 × 3	16	12	Drop (2,1), (3,1), (8,1), (8,2); zero.
State × % Owner-Occupied	9 × 3	16	15	Drop (8,3); zero.
State × Rent/Housing	9 × 5	32	31	Drop (8,4); sing.
Three-Factor Effects		**190**	**133**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (3,2,1) & (3,3,1), (4,2,1) & (4,3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	9 × 5 × 3	64	44	Coll. (5,1,2) & (5,1,3), repeat for all age levels, and repeat for States SC, VA, and WV, then drop all for State WV; conv.
State × Age × Hispanicity	9 × 5 × 2	32	12	Drop (6,4,1); sing. Drop (8,4,1); zero; Drop all for States DC, MD, SC, VA, and WV; conv.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	1	Coll. (9,2,1) & (9,3,1); conv. Repeat for all other States, then drop them; conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		**467**	**395**	

Exhibit D5.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 5: South Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**23**	**23**	
Intercept	1	1	1	All levels present.
State	9	8	8	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**137**	**128**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	9 × 4	24	24	All levels present.
State × Age	9 × 6	40	40	All levels present.
State × Race (5 levels)	9 × 5	32	24	Coll. (9,3) & (9,4), repeat for all States; conv.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
Three-Factor Effects		**227**	**166**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1), repeat for all age levels; hier.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	9 × 6 × 3	80	61	Coll. (9,1,2) & (9,1,3), repeat for all age levels, then do the same for States MD and WV; conv. Coll. (5,4,2) & (5,4,3), (5,5,2) & (5,5,3), (6,5,2) & (6,5,3), (8,5,2) & (8,5,3); sing.
State × Age × Hispanicity	9 × 6 × 2	40	18	Drop (6/7/8/9,*,1), (3,5,1), (5,5,1); sing./zero/conv.
State × Age × Gender	9 × 6 × 2	40	40	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	2	Coll. (9,2,1) & (9,3,1), repeat for all States; hier. Drop all except for States MD and SC; conv.
State × Race (3 levels) × Gender	9 × 3 × 2	16	16	All levels present.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		**387**	**317**	

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Appendix D6: Model Group 6: East South Central

(Alabama, Kentucky, Mississippi, and Tennessee)

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Table D.6a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 6: East South Central)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	4.42	5.98	1.24	1.07130	204	(1.10, 1.50)	(1.16, 1.50)
	4.89	5.71	0.75	1.08597	124	(1.00, 1.91)	(1.00, 1.91)
						(1.02, 1.14)	(1.02, 1.02)
res.sdu.ps	4.89	5.71	0.75	1.08597	162	(0.77, 2.60)	(0.78, 2.60)
	2.45	3.88	0.83	1.13587	150	(0.20, 4.72)	(0.20, 4.62)
						(0.98, 1.49)	(0.98, 1.49)
sel.per.ps	2.45	3.96	0.82	2.35914	242	(0.31, 2.10)	(0.32, 2.07)
	1.17	2.70	0.56	2.37827	194	(0.23, 3.91)	(0.24, 3.90)
						(0.90, 2.80)	(0.90, 2.80)
res.per.nr	1.74	3.23	0.65	2.44928	242	(1.00, 2.50)	(1.00, 2.50)
	1.47	4.13	0.65	2.87248	181	(1.00, 4.01)	(1.00, 3.97)
						(1.30, 4.78)	(4.74, 4.78)
res.per.ps	1.44	4.00	0.63	2.87248	187	(0.20, 2.10)	(0.20, 2.09)
	0.91	3.78	0.75	2.99811	138	(0.20, 4.85)	(0.20, 4.83)
						(0.90, 1.10)	(0.90, 0.90)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.

[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.6b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 6: East South Central)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	183	0.73	449	0.20	100	1.01	112	0.24	35	0.64	35	0.10	16
1%	440	0.99	463	0.41	289	1.01	346	0.31	294	0.99	322	0.21	130
5%	454	1.01	487	0.71	505	1.01	571	0.65	512	1.00	535	0.67	497
10%	474	1.02	545	0.81	569	1.01	695	0.74	648	1.02	688	0.86	684
25%	573	1.06	623	0.97	651	1.15	958	0.86	919	1.06	1,022	0.96	1,059
Median	668	1.10	712	1.09	794	1.48	1,525	0.97	1,531	1.18	1,739	1.02	1,768
75%	877	1.15	1,000	1.21	1,074	5.97	4,656	1.13	4,687	1.34	5,063	1.08	4,881
90%	1,005	1.24	1,123	1.38	1,282	11.16	8,690	1.31	8,848	1.58	11,613	1.17	11,328
95%	1,019	1.32	1,189	1.57	1,421	12.72	11,665	1.46	11,893	1.77	16,164	1.25	16,678
99%	1,053	1.79	1,361	2.13	1,783	14.49	18,438	2.04	18,061	2.27	29,169	1.71	30,708
Maximum	2,027	2.91	1,602	4.62	4,479	27.06	31,885	4.85	41,568	9.49	52,101	4.83	58,944
n	9,528	8,463	8,463	8,463	8,463	4,525	4,525	4,525	4,525	3,616	3,616	3,616	3,616
Max/Mean	2.85	-	2.00	-	5.12	-	9.26	-	12.14	-	12.16	-	13.76

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 6 Overview

Dwelling Unit Nonresponse

All 22 proposed one-factor effects were included in the model.

For the two-factor effects, variable dropping was present in the percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Group Quarter, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 86 proposed variables, 69 were included in the model.

Variable dropping was present in all three-factor effects. Out of 96 proposed variables, 33 were included in the model.

In the final model, a total of 124 variables were included; see Exhibit D6.1.

Dwelling Unit Poststratification

All 17 proposed one-factor effects were included in the model.

All 60 proposed two-factor effects were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, and State × Race × Hispanicity interactions. Out of 85 proposed variables, 73 were included in the model.

In the final model, a total of 150 variables were included; see Exhibit D6.2.

Selected Person-Level Poststratification

All levels were present for one-factor effects except Race. Out of 35 proposed variables, 34 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the Race × Hispanicity, percent Owner-Occupied × percent Black or African American, percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Race, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 122 proposed variables, 103 were included in the model.

For the three-factor effects, all levels were present for the Age × Race × Gender, Age × Hispanicity × Gender, and State × Age × Gender interactions. Variable collapsing or dropping was present in all other interactions. Out of 85 proposed variables, 57 were included in the model.

In the final model, a total of 194 variables were included; see Exhibit D6.3.

Respondent Person-Level Nonresponse

All 35 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Race, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 122 proposed variables, 101 were included in the model.

For the three-factor effects, all levels were present for the State × Age × Gender interaction. Variable collapsing or dropping was present in all other interactions. Out of 85 proposed variables, 45 were included in the model.

In the final model, a total of 181 variables were included; see Exhibit D6.4.

Respondent Person-Level Poststratification

All 18 proposed one-factor effects were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the Age × Hispanicity and State × Race interactions. Out of 67 proposed variables, 65 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the State × Age × Gender interaction. Out of 102 proposed variables, 55 were included in the model.

In the final model, a total of 138 variables were included; see Exhibit D6.5.

Exhibit D6.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**22**	**22**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**86**	**69**	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Drop (2,1), (3,1); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,1); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Drop (1,1), (2,1), (4,1); zero. Drop (3,1); sing.
State × Quarter	4 × 4	9	9	All levels present.
State × Population Density	4 × 4	9	9	All levels present.
State × Group Quarter	4 × 3	6	2	Keep (1,2), (3,1), drop all others; zero/sing.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	3	Drop (*,1); zero/sing.
State × % Owner-Occupied	4 × 3	6	3	Drop (*,3); sing.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**96**	**33**	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	6	Drop (*,3,*); hier.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	1	Keep (1,2,2), drop all others; hier./sing./zero.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	9	Keep (1,2,1), (1,2,2), (1,2,4), (2,2,*), (3,2,2), (3,2,3), drop all others; hier./zero/sing.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	17	Drop (1,4,1), (2,2,1), (2,4,1), (2,4,2), (3,1,2), (3,4,1); sing. Drop (2,3,1); zero.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	0	Drop all levels; hier./zero/sing./conv.
Total		**204**	**124**	

Exhibit D6.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**17**	**17**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**60**	**60**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		**85**	**73**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1), repeat for all age levels; conv. Coll. (1,2/3,1) & (2,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	4 × 5 × 3	24	24	All levels present.
State × Age × Hispanicity	4 × 5 × 2	12	12	All levels present.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Drop all levels; conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		**162**	**150**	

Exhibit D6.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**35**	**34**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	3	Coll. (3) & (4); conv.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**122**	**103**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Drop (2,1), (3,1); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,1); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	3	Keep (1,2), (2,2), (3,2), drop all others; zero/sing.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	9	Coll. (1,3) & (1,4), repeat for all States; hier.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	3	Drop (1,1); sing. Drop (2,1), (3,1); zero.
State × % Owner-Occupied	4 × 3	6	3	Coll. (1,3) & (1,2); conv. Coll. (2,3) & (2,2); sing. Drop (3,3); sing.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**85**	**57**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Coll. (1,2,1) & (1,3,1), repeat for all age groups; hier. Drop (3,3/2,1); sing. Drop (4,3/2,1); zero.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); hier.
State × Age × Race (3 levels)	4 × 5 × 3	24	19	Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), (1,3,2) & (1,3,3), (1,4,2) & (1,4,3); conv. Coll. (2,4,2) & (2,4,3); sing.
State × Age × Hispanicity	4 × 5 × 2	12	6	Drop (1,4,1), (2,4,1), (3,1,1), (3,2,1), (3,3,1), (3,4,1); conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Drop all levels; zero, conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	5	Coll. (1,2,1) & (1,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	0	Drop all levels; conv.
Total		**242**	**194**	

Exhibit D6.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**35**	**35**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**122**	**101**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Drop (3,1), (2,1); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,1); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	3	Keep (1,2), (2,2), (3,2), drop all others; zero/sing.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	5	Keep (1,2), (2,2), coll. (1,3) & (1,4) & (1,5), (2,3) & (2,4) & (2,5), (3,2) & (3,3) & (3,4) & (3,5); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	3	Drop (1,1); sing. Drop (2,1), (3,1); zero.
State × % Owner-Occupied	4 × 3	6	3	Drop (1,3), (2,3), (3,3); sing.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**85**	**45**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	1	Coll. (1,2,1) & (1,3,1), drop all others; zero/sing./conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,3,1) & (1,2,1), repeat for all age groups; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (4,1,1); conv.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	4 × 5 × 3	24	12	Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), (1,4,2) & (1,4,3), (2,1,2) & (2,1,3), (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (3,1,2) & (3,1,3), (3,2,2) & (3,2,3), (3,3,2) & (3,3,3), (3,4,2) & (3,4,3), keep (1,3,2), (1,3,3), drop all others; sing./conv.
State × Age × Hispanicity	4 × 5 × 2	12	7	Drop (3,4,1); zero. Drop (3,3,1); sing. Drop (1,3,1), (1,4,1), (2,4,1); conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	0	Drop all levels; zero, conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	4	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	1	Drop (1,1,1), (3,1,1); conv.
Total		**242**	**181**	

Exhibit D6.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**18**	**18**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**67**	**65**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	4	Drop (5,1); sing.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 6	15	15	All levels present.
State × Race (5 levels)	4 × 5	12	11	Coll. (1,4) & (1,5); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		**102**	**55**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	2	Drop (5,2,1), (5,3,1); hier. Coll. (1,2,1) & (1,3,1), repeat for remaining age levels; zero, sing., conv. Drop (3,2/3,1), (4,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (5,2,1) & (5,3,1); sing.
Age × Hispanicity × Gender	6 × 2 × 2	5	4	Drop (5,1,1); hier.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	4 × 6 × 3	30	15	Coll. (1,2,1) & (1,3,1), repeat for all States and all age levels; zero/sing./conv.
State × Age × Hispanicity	4 × 6 × 2	15	5	Keep (1,1,1), (1,2,1), (2,1,1), (2,2,1), (3,1,1), drop all others; hier., zero, sing., conv.
State × Age × Gender	4 × 6 × 2	15	15	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	1	Coll. (2,2,1) & (2,3,1); conv. Drop all others; conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	3	Coll. (1,2,1) & (1,3,1), repeat for all States; conv.
State × Hispanicity × Gender	4 × 2 × 2	3	0	Drop all levels; conv.
Total		**187**	**138**	

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Appendix D7: Model Group 7: West South Central

(Arkansas, Louisiana, Oklahoma, and Texas)

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Table D.7a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 7: West South Central)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	0.26	0.31	0.07	1.12251	204	(1.04, 1.14)	(1.04, 1.14)
	0.70	1.15	0.13	1.14739	147	(1.00, 2.21)	(1.00, 2.08)
						(1.04, 1.14)	(1.04, 1.13)
res.sdu.ps	0.70	1.15	0.13	1.14739	162	(0.68, 1.10)	(0.68, 1.10)
	1.52	3.12	0.69	1.18316	159	(0.33, 4.78)	(0.35, 4.77)
						(0.90, 1.46)	(0.90, 1.46)
sel.per.ps	2.54	5.77	1.26	2.07854	242	(0.20, 1.40)	(0.20, 1.40)
	1.47	3.44	0.77	2.13761	225	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 1.15)	(0.90, 1.14)
res.per.nr	1.15	3.14	0.74	2.18161	242	(1.00, 2.60)	(1.00, 2.60)
	1.21	3.41	0.58	2.39353	228	(1.00, 4.71)	(1.00, 4.67)
						(1.00, 5.00)	(N/A, N/A)
res.per.ps	1.29	3.87	0.72	2.39353	187	(0.20, 1.20)	(0.20, 1.20)
	0.44	1.38	0.24	2.49246	173	(0.20, 4.02)	(0.20, 4.01)
						(0.90, 5.00)	(0.90, 0.90)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.

[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.7b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 7: West South Central)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	161	0.41	178	0.35	131	1.01	157	0.09	70	0.60	79	0.10	34
1%	368	1.00	396	0.57	351	1.01	400	0.39	259	1.00	366	0.21	219
5%	452	1.04	480	0.74	487	1.01	590	0.63	520	1.04	632	0.39	448
10%	515	1.05	550	0.85	558	1.01	720	0.74	679	1.07	842	0.75	685
25%	586	1.08	650	0.98	728	1.15	1,134	0.87	1,131	1.14	1,353	0.94	1,347
Median	969	1.11	1,043	1.09	1,051	1.42	1,788	0.99	1,808	1.25	2,254	1.04	2,364
75%	1,103	1.15	1,226	1.21	1,335	5.33	5,566	1.11	5,243	1.43	6,302	1.11	6,288
90%	1,158	1.22	1,335	1.36	1,555	9.27	9,301	1.26	9,244	1.64	12,807	1.23	12,451
95%	1,171	1.25	1,407	1.49	1,764	9.69	12,063	1.41	12,117	1.81	17,182	1.30	16,961
99%	1,813	1.35	2,419	2.00	2,482	11.86	15,249	1.94	17,041	2.68	25,608	1.64	26,766
Maximum	2,002	2.08	2,453	4.77	9,709	24.94	36,697	5.00	43,751	4.67	50,475	4.01	68,757
n	14,723	13,053	13,053	13,053	13,053	8,346	8,346	8,346	8,346	6,365	6,365	6,365	6,365
Max/Mean	2.32	-	2.52	-	9.08	-	9.89	-	11.95	-	10.51	-	14.32

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 7 Overview

Dwelling Unit Nonresponse

All 22 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the State × Group Quarter and State × percent Hispanic or Latino interactions. Out of 86 proposed variables, 81 were included in the model.

Variable dropping was present in all three-factor effects. Out of 96 proposed variables, 44 were included in the model.

In the final model, a total of 147 variables were included; see Exhibit D7.1.

Dwelling Unit Poststratification

All 17 proposed one-factor effects were included in the model.

All 60 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the State × Race × Hispanicity interaction. Out of 85 proposed variables, 82 were included in the model.

In the final model, a total of 159 variables were included; see Exhibit D7.2.

Selected Person-Level Poststratification

All 35 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the State × percent Hispanic or Latino interaction. Out of 122 proposed variables, 121 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, State × Age × Hispanicity, State × Race × Hispanicity, State × Race × Gender, and State × Hispanicity × Gender interactions. Out of 85 proposed variables, 69 were included in the model.

In the final model, a total of 225 variables were included; see Exhibit D7.3.

Respondent Person-Level Nonresponse

All 35 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the State × percent Hispanic or Latino interaction. Out of 122 proposed variables, 121 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity and State × Age × Hispanicity interactions. Out of 85 proposed variables, 72 were included in the model.

In the final model, a total of 228 variables were included; see Exhibit D7.4.

Respondent Person-Level Poststratification

All 18 proposed one-factor effects were included in the model.

All 67 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, and State × Age × Hispanicity interactions. Out of 102 proposed variables, 88 were included in the model.

In the final model, a total of 173 variables were included; see Exhibit D7.5.

Exhibit D7.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**22**	**22**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**86**	**81**	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Population Density	4 × 4	9	9	All levels present.
State × Group Quarter	4 × 3	6	2	Drop (2,2), (3,1), (4,1); zero.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Drop (2,1); zero.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**96**	**44**	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	7	Drop (4,3,1), (2,3,1/2), (3,2/3,1); sing./zero.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	4	Keep (4.2/3,2), (2,2,2), (3,2,2), drop all others; sing./zero.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	12	Drop (4,4,1), (2,1,2), (2,3/4,1), (3,2,1), (3,3,1), (3,4,1/2); sing./zero.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	16	Drop (4,4,1), (2,1,2), (2,3/4,1), (3,2,1), (3,3,1), (3,4,1/2); sing./zero.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	5	Keep (4,1/2,2), (4,3,2), (2,2,2), (3,2,2), drop all others; sing./zero.
Total		**204**	**147**	

Exhibit D7.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**17**	**17**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**60**	**60**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		**85**	**82**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	24	All levels present.
State × Age × Hispanicity	4 × 5 × 2	12	12	All levels present.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	3	Coll. (2,2,1) & (2.3.1), repeat for all States; conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		**162**	**159**	

Exhibit D7.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**35**	**35**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**122**	**121**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Drop (2,1); zero.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**85**	**69**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (4,2,1) & (4,3,1), repeat for all age levels; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	20	Coll. (2,1,2) & (2,3,1), repeat for all age levels; conv.
State × Age × Hispanicity	4 × 5 × 2	12	7	Drop (2,4,1); sing. Drop (3,*,1); conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	5	Coll. (2,2,1) & (2,3,1); conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	5	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	2	Drop (2,1,1); conv.
Total		**242**	**225**	

Exhibit D7.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**35**	**35**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**122**	**121**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 5	12	12	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	5	Drop (2,1); sing.
State × % Owner-Occupied	4 × 3	6	6	All levels present.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**85**	**72**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 5 × 3	24	24	All levels present.
State × Age × Hispanicity	4 × 5 × 2	12	0	Drop all; conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	6	All levels present.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		**242**	**228**	

Exhibit D7.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 7: West South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**18**	**18**	
Intercept	1	1	1	All levels present.
State	4	3	3	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**67**	**67**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	4 × 4	9	9	All levels present.
State × Age	4 × 6	15	15	All levels present.
State × Race (5 levels)	4 × 5	12	12	All levels present.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		**102**	**88**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	9	Coll. (5,2,1) & (5,3,1); sing.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	4 × 6 × 3	30	24	Coll. (2,1,2) & (2,1,3), repeat for all age levels; conv. Coll. (3,5,2) & (3,5,2); sing.
State × Age × Hispanicity	4 × 6 × 2	15	8	Drop (4,5,1), (2,5,1), (3,4/5,1); sing. Drop (3,1/2/3,1); conv.
State × Age × Gender	4 × 6 × 2	15	15	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	6	All levels present.
State × Race (3 levels) × Gender	4 × 3 × 2	6	6	All levels present.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		**187**	**173**	

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Appendix D8: Model Group 8: Mountain

(Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming)

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Table D.8a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 8: Mountain)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	2.11	1.86	0.05	1.54928	408	(1.08, 1.27)	(1.09, 1.26)
	2.03	1.99	0.59	1.63383	210	(1.00, 4.87)	(1.00, 4.85)
						(1.00, 1.20)	(1.00, 1.09)
res.sdu.ps	2.03	1.99	0.59	1.63386	302	(0.45, 1.10)	(0.45, 1.10)
	2.30	4.27	1.18	1.69992	282	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 3.84)	(0.90, 3.84)
sel.per.ps	3.69	8.54	2.61	3.23879	422	(0.25, 2.90)	(0.26, 2.89)
	1.79	3.69	1.10	3.52890	373	(0.20, 4.86)	(0.20, 4.85)
						(0.90, 4.16)	(0.90, 4.16)
res.per.nr	2.01	4.77	1.39	3.56352	422	(1.00, 3.00)	(1.00, 3.00)
	2.00	5.53	1.11	4.41040	341	(1.00, 5.00)	(1.00, 4.94)
						(1.00, 2.31)	(1.00, 1.98)
res.per.ps	2.07	5.84	1.25	4.41040	347	(0.20, 2.90)	(0.20, 2.90)
	1.30	4.33	0.67	4.56286	294	(0.20, 4.79)	(0.20, 4.76)
						(0.90, 1.89)	(0.90, 1.89)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.
[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.
[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.8b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 8: Mountain)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	66	0.64	69	0.20	23	1.01	25	0.12	8	0.38	10	0.09	2
1%	67	1.00	73	0.50	74	1.01	79	0.30	63	1.00	70	0.20	27
5%	76	1.01	83	0.80	87	1.01	127	0.56	116	1.00	139	0.22	123
10%	79	1.04	87	0.90	98	1.01	178	0.68	168	1.02	199	0.59	187
25%	158	1.06	168	1.03	197	1.12	397	0.84	387	1.08	445	0.93	405
Median	300	1.09	327	1.14	386	1.44	915	0.99	878	1.20	980	1.03	913
75%	620	1.14	640	1.29	736	5.61	2,111	1.15	2,131	1.37	2,518	1.12	2,521
90%	796	1.22	928	1.51	1,127	10.43	5,213	1.36	5,071	1.64	6,476	1.32	6,336
95%	963	1.28	1,098	1.74	1,379	12.14	7,397	1.52	7,731	1.89	10,168	1.53	10,606
99%	1,034	1.50	1,380	2.67	1,881	14.13	14,663	2.17	16,340	2.76	22,976	2.56	23,958
Maximum	2,312	4.85	3,340	5.00	5,607	26.68	33,626	10.22	37,896	4.94	85,492	4.76	79,889
n	18,224	16,290	16,290	16,289	16,289	9,314	9,314	9,314	9,314	7,296	7,296	7,296	7,296
Max/Mean	5.91	-	7.63	-	10.73	-	16.98	-	18.88	-	33.36	-	31.17

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 8 Overview

Dwelling Unit Nonresponse

All 26 proposed one-factor effects were included in the model.

For two-factor effects, all levels were present for the percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Quarter, State × percent Owner-Occupied, and State × Rent/Housing interactions. All the others were affected by variable collapsing or dropping. Out of 158 proposed variables, 128 were included in the model.

All three-factor effects were affected by variable collapsing or dropping. Out of 224 proposed variables, 56 were included in the model.

In the final model, a total of 210 variables were included; see Exhibit D8.1.

Dwelling Unit Poststratification

All 21 proposed one-factor effects were included in the model.

All 112 proposed two-factor effects were included in the model.

For three-factor effects, variable collapsing was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, State × Age × Race, and State × Race × Hispanicity interactions. Out of 169 proposed variables, 149 were included in the model.

In the final model, a total of 282 variables were included; see Exhibit D8.2.

Selected Person-Level Poststratification

All 39 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Black or African American, Rent/Housing × percent Black or African American, State × percent Black or African American, and State × percent Hispanic or Latino interactions. Out of 214 proposed variables, 198 were included in the model.

For three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, State × Age × Hispanicity, State × Race × Hispanicity, and State × Race × Gender interactions. Out of 169 proposed variables, 136 were included in the model.

In the final model, a total of 373 variables were included; see Exhibit D8.3.

Respondent Person-Level Nonresponse

All 39 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × percent Black or African American, percent Owner-Occupied × Rent/Housing, State × percent Black or African American, and State × percent Hispanic or Latino interactions. Out of 214 proposed variables, 198 were included in the model.

For three-factor effects, all levels were present for the Age × Race × Gender, Age × Hispanicity × Gender, Race × Hispanicity × Gender, and State × Age × Gender interactions. All the others were affected by variable collapsing or dropping. Out of 169 proposed variables, 114 were included in the model.

In the final model, a total of 341 variables were included; see Exhibit D8.4.

Respondent Person-Level Poststratification

All 22 proposed one-factor effects were included in the model.

All 123 proposed two-factor effects were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Hispanicity × Gender, Race × Hispanicity × Gender, and State × Age × Gender interactions. Out of 202 proposed variables, 149 were included in the model.

In the final model, a total of 294 variables were included; see Exhibit D8.5.

Exhibit D8.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**26**	**26**	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**158**	**128**	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (2,1); zero.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	4	Drop (1,1), (1,2), (1,3); zero. Drop (1,4); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Population Density	8 × 4	21	15	Drop (2,1), (3,1), (5,1), (6,1), (7,1); zero. Drop (7,3); sing.
State × Group Quarter	8 × 3	14	6	Drop (1,*), (2,2), (4,*), (5,2), (7,2); zero. Drop (7,1); sing.
State × % Black or African American	8 × 3	14	5	Keep (1,*), (4,2), (5,2) & (6,2); Drop remainder; sing./zero.
State × % Hispanic or Latino	8 × 3	14	12	Drop (3,1), (7,1); zero.
State × % Owner-Occupied	8 × 3	14	14	All levels present.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		**224**	**56**	
State × % Owner-Occupied × % Black or African American	8 × 3 × 3	28	4	Keep (1,*,2), (4,*,2), drop remainder; zero, sing.
State × % Owner-Occupied × % Hispanic or Latino	8 × 3 × 3	28	7	Keep (1,*,1), (1,2,2), (2,2,2), (5,2,1), (6,2,1+2), (7,2,2). Coll. (6,2,1) & (6,2,2); conv., drop remainder; zero/ sing./conv.
State × % Owner-Occupied × Rent/Housing	8 × 3 × 5	56	23	Keep (1,*,3), (1,*,4), (2,2,1), (2,2,2), (2,2+3,3), (3,2,1), (3,2,2), (3,2,3), (4,2+3,2), (4,*,3), (4,*,4), (5,2,1), (5,2,2), (5,2,3), (6,2,*), (7,2,1). Coll. (2,2,3) & (2,3,3), (4,2,2) & (4,3,2); conv. Drop remainder; zero/sing./conv.
State × Rent/Housing × % Black or African American	8 × 3 × 5	56	3	Keep (1,1,2), (1,3,2), (1,4,2), drop remainder; zero/sing.
State × Rent/Housing × % Hispanic or Latino	8 × 3 × 5	56	19	Keep (1,1,1), (1,2,1), (1,3,2), (1,4,2), (2,1,2), (2,2,2), (2,3,2), (3,1,2), (4,1,2), (4,2,1+2), (4,3,1+2), (5,1,1), (5,2,1), (6,1,2), (6,2,2), (6,3,2), (6,4,1+2), (7,1,2) & (7,2,2). Coll. (4,2,1) & (4,2,2), (4,3,1) & (4,3,2), (6,4,1) & (6,4,2); conv. Drop remainder; zero/sing./conv.
Total		**408**	**210**	

Exhibit D8.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comment
One-Factor Effects		**21**	**21**	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**112**	**112**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 5	28	28	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
Three-Factor Effects		**169**	**149**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all age levels; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	8 × 5 × 3	56	46	Coll. (2,1,2) & (2,1,3); zero Coll. (2,4,2) & (2,4,3), (5,1,2) & (5,1,3), (5,2,2) & (5,2,3), (5,3,2) & (5,3,3), (5,4,2) & (5,4,3), (6,4,2) & (6,4,3), (7,2,2) & (7,2,3), (7,3,2) & (7,3,3), (7,4,2) & (7,4,3); conv.
State × Age × Hispanicity	8 × 5 × 2	28	28	All levels present.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	9	Coll. (4,2,1) & (4,3,1), (5,2,1) & (5,3,1), (6,2,1) & (6,3,1), (7,2,1) & (7,3,1); conv. Coll. (2,2,1) & (2,3,1); zero.
State × Race (3 levels) × Gender	8 × 3 × 2	14	14	All levels present.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		**302**	**282**	

Exhibit D8.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**39**	**39**	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**214**	**198**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	4	Drop (1,1), (2,1), (3,1); zero. Drop (4,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 5	28	28	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
State × % Black or African American	8 × 3	14	5	Drop (2,*), (3,*), (4,1), (6,1), (7,*); zero. Coll. (5,1) & (5,2); sing.
State × % Hispanic or Latino	8 × 3	14	12	Drop (3,1), (7,1); zero.
State × % Owner-Occupied	8 × 3	14	14	All levels present.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		**169**	**136**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	6	Coll. (1,2,1) & (1,3,1); conv. Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	8 × 5 × 3	56	40	Coll. (2,2,2) & (2,2,3), (3,3,2) & (3,3,3), (5,1,2) & (5,1,3), (5,2,2) & (5,2,3), (5,3,2) & (5,3,3), (5,4,2) & (7,4,2), (7,1,2) & (7,1,3), (7,2,2) & (7,2,3), (7,3,2) & (7,3,3); conv. Coll. (2,3,2) & (2,3,3), (3,4,2) & (3,4,3), (6,4,2) & (6,4,3), (5,4,3) & (7,4,3); sing. Coll. (2,1,2) & (2,1,3), (2,4,2) & (2,4,3), (6,3,2) & (6,3,3); zero.
State × Age × Hispanicity	8 × 5 × 2	28	27	Drop (3,4,1); conv.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	7	Coll. (2,2,1) & (2,3,1); zero. Coll. (3,2,1) & (3,3,1), (6,2,1) & (6,3,1); sing. Coll. (1,2,1) & (1,3,1); conv. Repeat for remaining States.
State × Race (3 levels) × Gender	8 × 3 × 2	14	7	Coll. (1,2,1) & (1,3,1); conv. Repeat for all States.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		**422**	**373**	

Exhibit D8.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**39**	**39**	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**214**	**198**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	4	Drop (4,1); sing. Drop (1,1), (1,2) & (1,3); zero.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 5	28	28	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
State × % Black or African American	8 × 3	14	5	Drop (2,*), (3,*), (4,1), (6,1), (7,*); zero. Drop (5,1); sing. Coll. (1,2) & (1,3); conv. Drop (3,3); zero.
State × % Hispanic or Latino	8 × 3	14	12	Drop (3,1) & (7,1); zero.
State × % Owner-Occupied	8 × 3	14	14	All levels present.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		**169**	**114**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Drop (4,2,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	8 × 5 × 3	56	30	Coll. (1,3,2) & (1,3,3), (1,4,2) & (1,4,3), (2,1,2), (2,1,3), (2,2,2) & (2,2,3), (4,1,2), (4,1,3), (4,2,2) & (4,2,3), (5,1,2) & (5,1,3), (6,1,2), (6,1,3), (6,2,2) & (6,2,3), (7,2,2) & (7,2,3), (7,3,2) & (7,3,3); conv. Coll. (2,4,2) & (2,4,3), (4,3,2) & (4,3,3), (6,3,2) & (6,3,3); zero. Coll. (2,3,2) & (2,3,3), (3,4,2) & (3,4,3), (4,4,2) & (4,4,3), (7,4,2) & (7,4,3); sing. Drop (6,4,2); sing. Drop (5,2,*), (5,3,*), (5,4,*), (6,4,3); conv.
State × Age × Hispanicity	8 × 5 × 2	28	12	Keep (1,1,1), (2,*,1), (4,*,1), (5,1,1), (7,1,1) & (7,2,1). Drop (3,4,1); sing. Drop remainder; conv.
State × Age × Gender	8 × 5 × 2	28	28	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	0	Drop (3,2,1); sing. Drop (6,2,1); zero. Drop remainder; conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	7	Coll. (1,2,1) & (1,3,1); conv. Drop (4,*,*), (5,*,*), (6,*,*); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	6	Drop (5,1,1); conv.
Total		**422**	**341**	

Exhibit D8.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**22**	**22**	
Intercept	1	1	1	All levels present.
State	8	7	7	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**123**	**123**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	8 × 4	21	21	All levels present.
State × Age	8 × 6	35	35	All levels present.
State × Race (5 levels)	8 × 5	28	28	All levels present.
State × Hispanicity	8 × 2	7	7	All levels present.
State × Gender	8 × 2	7	7	All levels present.
Three-Factor Effects		**202**	**149**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (2,2,1) & (2,3,1); conv. Coll. (3,2,1) & (3,3,1); sing. Coll. (4,2,1) & (4,3,1); zero. Drop (5,2,1); zero. Drop (5,3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	9	Coll. (5,2,1) & (5,3,1); sing.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	8 × 6 × 3	70	34	Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), (1,3,2) & (1,3,3), (2,1,2) & (2,1,3), (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (2,4,2) & (2,4,3), (3,1,2) & (3,1,3), (3,2,2) & (3,2,3), (3,3,2) & (3,3,3), (3,4,2) & (3,4,3), (4,3,2) & (4,3,3), (4,4,2) & (4,4,3), (4,5,2) & (4,5,3), (5,4,2) & (5,4,3), (5,5,2) & (5,5,3), (6,1,2) & (6,1,3), (6,2,2) & (6,2,3), (6,3,2) & (6,3,3), (6,4,2) & (6,4,3), (7,1,2) & (7,1,3), (7,2,2) & (7,2,3), (7,3,2) & (7,3,3), (7,4,2) & (7,4,3); sing./zero/conv. Coll. (2,5,2), (2,5,3), (3,5,2), (3,5,3), (7,5,2) & (7,5,3); sing./zero/conv. Drop (1,4,*), (1,5,*), (5,5,*), (6,5,*); zero/conv.
State × Age × Hispanicity	8 × 6 × 2	35	32	Coll. (2,5,1), (3,5,1) & (6,5,1); sing./zero. Coll. (2,4,1) & (3,4,1); sing./zero.
State × Age × Gender	8 × 6 × 2	35	35	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	9	Coll. (2,2,1), (2,3,1), (3,2,1), (3,3,1), (6,2,1) & (6,3,1); sing./zero/conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	12	Coll. (5,2,1) & (5,3,1), (7,2,1) & (7,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	6	Coll. (2,1,1) & (3,1,1); conv.
Total		**347**	**294**	

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Appendix D9: Model Group 9: Pacific

(Alaska, California, Hawaii, Oregon, and Washington)

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Table D.9a 2013 NSDUH Person Weight GEM Modeling Summary (Model Group 9: Pacific)

Modeling Step[1]	Extreme Weight Proportions			UWE[2]	# XVAR[3]	Bounds[4]	
	% Unweighted	% Weighted	% Outwinsor			Nominal	Realized
res.sdu.nr	1.46	1.85	0.13	1.36269	255	(1.05, 2.12)	(1.06, 2.11)
	1.95	2.22	0.05	1.39172	147	(1.00, 3.00)	(1.00, 2.99)
						(1.03, 1.34)	(1.03, 1.33)
res.sdu.ps	1.95	2.21	0.05	1.39181	197	(0.78, 1.17)	(0.78, 1.17)
	1.68	4.37	1.42	1.51257	187	(0.38, 5.00)	(0.39, 5.00)
						(0.97, 1.33)	(0.97, 1.33)
sel.per.ps	3.59	7.01	2.12	2.70130	287	(0.47, 2.30)	(0.47, 2.30)
	1.70	4.33	1.20	2.80046	262	(0.37, 3.04)	(0.38, 3.03)
						(0.90, 1.05)	(0.90, 1.05)
res.per.nr	1.95	4.88	1.42	2.85481	287	(1.00, 3.00)	(1.00, 3.00)
	2.16	5.18	1.09	3.30671	250	(1.00, 3.93)	(1.00, 3.91)
						(1.40, 1.45)	(1.40, 1.40)
res.per.ps	2.23	5.69	1.28	3.30671	227	(0.21, 2.10)	(0.22, 2.09)
	0.62	0.87	0.12	3.34683	198	(0.20, 2.10)	(0.20, 2.05)
						(0.90, 1.44)	(1.44, 1.44)

[1] For a key to modeling abbreviations, see Chapter 5, Exhibit 5.1.

[2] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

[3] Number of proposed covariates (XVAR) on top line and number finalized after modeling.

[4] There are six sets of bounds for each modeling step. Nominal bounds are used in defining maximum/minimum values for the generalized exponential model (GEM) adjustment factors. The realized bound is the actual adjustment produced by the modeling. The set of three bounds listed for each step correspond to the high extreme values, the nonextreme values, and the low extreme values.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table D.9b Distribution of Weight Adjustment Factors and Weight Products for the 2013 NSDUH Person Weight (Model Group 9: Pacific)

	sel.sdu.des[1]	*res.sdu.nr*[1]		*res.sdu.ps*[1]		*sel.per.des*[1]		*sel.per.ps*[1]		*res.per.nr*[1]		*res.per.ps*[1]	
	1-7[2]	**8**[3]	**1-8**[3]	**9**[4]	**1-9**[4]	**11**[5]	**1-11**[5]	**12**[5]	**1-12**[5]	**13**[6]	**1-13**[6]	**14**[6]	**1-14**[6]
Minimum	83	0.90	88	0.39	45	1.01	58	0.28	26	0.59	26	0.10	10
1%	85	1.02	94	0.66	95	1.01	122	0.49	104	1.00	119	0.21	113
5%	90	1.08	103	0.81	117	1.01	169	0.68	163	1.01	190	0.26	193
10%	117	1.09	128	0.87	136	1.01	225	0.77	238	1.05	287	0.63	281
25%	162	1.13	225	0.97	259	1.17	1,081	0.88	1,028	1.12	1,181	0.95	943
Median	1,097	1.18	1,236	1.09	1,279	1.48	2,094	1.00	2,131	1.23	2,494	1.06	2,536
75%	1,282	1.27	1,566	1.20	1,693	5.80	6,165	1.13	5,564	1.39	5,947	1.20	5,874
90%	1,367	1.36	1,728	1.35	2,045	10.31	11,624	1.28	12,113	1.65	16,193	1.31	16,640
95%	1,389	1.48	1,856	1.51	2,285	12.28	17,318	1.41	16,753	1.84	23,698	1.37	24,093
99%	1,510	1.64	2,059	2.39	3,132	14.86	24,589	1.80	28,075	2.44	41,651	1.74	42,193
Maximum	2,858	4.18	2,916	5.00	9,009	25.16	87,768	3.03	78,134	3.91	118,542	2.05	79,958
n	18,866	15,580	15,580	15,577	15,577	9,494	9,494	9,494	9,494	7,277	7,277	7,277	7,277
Max/Mean	3.38	-	2.85	-	7.84	-	19.78	-	17.42	-	20.26	-	13.67

Note 1: Weight component 10 and weight products 1-10 are excluded because weight 10 = 1 for all selected dwelling units.
Note 2: Weight component 15 and weight products 1-15 are excluded because weight 15 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #8 and #13) could be less than 1 due to the built-in control for extreme values. For an explanation, see Chapter 2.

[1] Sel.sdu.des refers to selected screener dwelling unit design weight, and sel.per.des refers to selected person design weight. For a key to other modeling abbreviations, see Chapter 5, Exhibit 5.1.
[2] Based on eligible dwelling units.
[3] Based on screener-complete dwelling units.
[4] Based on screener-complete dwelling units, occupants verified eligible.
[5] Based on selected people.
[6] Based on questionnaire-complete people.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Model Group 9 Overview

Dwelling Unit Nonresponse

All 23 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the percent Owner-Occupied × percent Black or African American, Rent/Housing × percent Black or African American, State × Population Density, State × Group Quarter, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 104 proposed variables, 86 were included in the model.

Variable dropping was present in all three-factor effects. Out of 128 proposed variables, 38 were included in the model.

In the final model, a total of 147 variables were included; see Exhibit D9.1.

Dwelling Unit Poststratification

All 18 proposed one-factor effects were included in the model.

All 73 proposed two-factor effects were included in the model.

For the three-factor effects, variable collapsing was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, State × Age × Race, and State × Race × Hispanicity interactions. Out of 106 proposed variables, 96 were included in the model.

In the final model, a total of 187 variables were included; see Exhibit D9.2.

Selected Person-Level Poststratification

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable collapsing or dropping was present in the Race × Hispanicity, percent Owner-Occupied × percent Black or African American, Rent/Housing × percent Black or African American, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 145 proposed variables, 133 were included in the model.

For three-factor effects, variable collapsing was present in the Age × Race × Hispanicity, Race × Hispanicity × Gender, State × Age × Race, State × Race × Hispanicity, and State × Race × Gender interactions. Out of 106 proposed variables, 93 were included in the model.

In the final model, a total of 262 variables were included; see Exhibit D9.3.

Respondent Person-Level Nonresponse

All 36 proposed one-factor effects were included in the model.

For two-factor effects, variable dropping was present in the percent Owner-Occupied × percent Black or African American, Rent/Housing × percent Black or African American, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 145 proposed variables, 134 were included in the model.

For three-factor effects, all levels were present for the Age × Race × Gender, Age × Hispanicity × Gender, Race × Hispanicity × Gender, and State × Age × Gender interactions. All the others were affected by variable collapsing or dropping. Out of 106 proposed variables, 80 were included in the model.

In the final model, a total of 250 variables were included; see Exhibit D9.4.

Respondent Person-Level Poststratification

All 19 proposed one-factor effects were included in the model.

All 81 proposed two-factor effects were included in the model.

For three-factor effects, all levels were present for the Age × Race × Gender, Age × Hispanicity × Gender, and State × Age × Gender interactions. All the others were affected by variable collapsing or dropping. Out of 127 proposed variables, 98 were included in the model.

In the final model, a total of 198 variables were included; see Exhibit D9.5.

Exhibit D9.1 Covariates for 2013 NSDUH Person Weights (res.sdu.nr), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**23**	**23**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**104**	**86**	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (1,1), (4,1); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Population Density	5 × 4	12	7	Drop (1,1), (2,1), (2,3); zero. Drop (2,2), (3,3); sing.
State × Group Quarter	5 × 3	8	6	Drop (2,2); zero. Drop (3,1); sing.
State × % Black or African American	5 × 3	8	4	Drop (*,1); zero, sing.
State × % Hispanic or Latino	5 × 3	8	6	Drop (1,1), (2,1); zero.
State × % Owner-Occupied	5 × 3	8	7	Drop (3,3); zero.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**128**	**38**	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	2	Keep (5,3,2), (5,2,2). Drop all others; hier., zero, sing.
State × % Owner-Occupied × % Hispanic or Latino	5 × 3 × 3	16	7	Keep (1,2,2), (2,2,2), (2,3,2), (3,2,2), (5,2,1), (5,2,2), (5,3,2). Drop all others; hier., sing.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	15	Keep (*,2,1), (*,2,2), (1,2,3), (2,2,3), (5,2,3), (5,2,4), (5,3,1), (5,3,2), (5,3,3). Drop all others; hier., zero, sing., conv.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	4	Keep (3,1,2), (5,1,2), (5,2,2), (5,3,2,). Drop all others; hier., zero, sing., conv.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	10	Keep (1,2,2), (1,3,2), (2,2,2), (3,1,2), (3,2,2), (5,1,1), (5,1,2), (5,2,2), (5,3,2), (5,4,2). Drop all others; hier., zero, sing.
Total		**255**	**147**	

Exhibit D9.2 Covariates for 2013 NSDUH Person Weights (res.sdu.ps), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**18**	**18**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**73**	**73**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor-Effects		**106**	**96**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all age levels; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	31	Coll. (3,1,2) & (3,1,3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (2,2,1) & (2,3,1); zero. Repeat for all other States; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**197**	**187**	

Exhibit D9.3 Covariates for 2013 NSDUH Person Weights (sel.per.ps), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**36**	**36**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**145**	**133**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	1	Coll. (2,1) & (3,1); conv.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (1,1), (4,1); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	4	Drop (1,1); sing. Drop (2,1), (3,1), (5,1); zero.
State × % Hispanic or Latino	5 × 3	8	6	Drop (1,1), (2,1); zero.
State × % Owner-Occupied	5 × 3	8	7	Drop (3,3); zero.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**106**	**93**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all age groups; hier.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (1,2,1) & (1,3,1); hier.
State × Age × Race (3 levels)	5 × 5 × 3	32	29	Coll. (2,1,2) & (2,1,3), (2,2,2) & (2,2,3); conv. Coll. (2,3,2) & (2,3,3); zero.
State × Age × Hispanicity	5 × 5 × 2	16	16	All levels present.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all States; hier.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**287**	**262**	

Exhibit D9.4 Covariates for 2013 NSDUH Person Weights (res.per.nr), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**36**	**36**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	5	4	4	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Relation to Householder	4	3	3	All levels present.
Population Density	4	3	3	All levels present.
Group Quarter	3	2	2	All levels present.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	2	All levels present.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**145**	**134**	
Age × Race (3 levels)	5 × 3	8	8	All levels present.
Age × Hispanicity	5 × 2	4	4	All levels present.
Age × Gender	5 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	3	Drop (2,1); sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	8	All levels present.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (1,1), (4,1); zero. Drop (3,1); sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 5	16	16	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
State × % Black or African American	5 × 3	8	4	Drop (1,1), repeat for all States; zero, sing.
State × % Hispanic or Latino	5 × 3	8	6	Drop (1,1), (2,1); zero.
State × % Owner-Occupied	5 × 3	8	7	Drop (3,3); zero.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**106**	**80**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); sing.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	8	All levels present.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	5 × 5 × 3	32	21	Coll. (1,3,2) & (1,3,3); zero. Drop (2,3,2); zero. Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), repeat for all States; conv. Coll. (1,4,2) & (1,4,3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	12	Drop (1,3,1), (1,4,1), (2,4,1), (3,4,1); conv.
State × Age × Gender	5 × 5 × 2	16	16	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Keep (2,3,1), (3,2/3,1), (5,2/3,1). Drop all others; zero, sing., conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all States; conv.
State × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (1,1,1); conv.
Total		**287**	**250**	

Exhibit D9.5 Covariates for 2013 NSDUH Person Weights (res.per.ps), Model Group 9: Pacific

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**19**	**19**	
Intercept	1	1	1	All levels present.
State	5	4	4	All levels present.
Quarter	4	3	3	All levels present.
Age	6	5	5	All levels present.
Race (5 levels)	5	4	4	All levels present.
Gender	2	1	1	All levels present.
Hispanicity	2	1	1	All levels present.
Two-Factor Effects		**81**	**81**	
Age × Race (3 levels)	6 × 3	10	10	All levels present.
Age × Hispanicity	6 × 2	5	5	All levels present.
Age × Gender	6 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity	3 × 2	2	2	All levels present.
Race (3 levels) × Gender	3 × 2	2	2	All levels present.
Hispanicity × Gender	2 × 2	1	1	All levels present.
State × Quarter	5 × 4	12	12	All levels present.
State × Age	5 × 6	20	20	All levels present.
State × Race (5 levels)	5 × 5	16	16	All levels present.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		**127**	**98**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1), repeat for all age groups; zero, sing.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	10	All levels present.
Age × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 6 × 3	40	31	Coll. (1,3,2) & (1,3,3), (2,3,2) & (2,3,3), (3,5,2) & (3,5,3); zero. Coll. (1,5,2) & (1,5,3), (2,5,2) & (2,5,3), (3,4,2) & (3,4,3); sing. Coll. (3,1,2) & (3,1,3), (3,2,2) & (3,2,3), (3,3,2) & (3,3,3); conv.
State × Age × Hispanicity	5 × 6 × 2	20	14	Drop (1,5,1), (2,5,1), (3,5,1); sing. Drop (1,4,1), (3,4,1), (5,5,1); conv.
State × Age × Gender	5 × 6 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), repeat for all States; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	5	Coll. (2,2,1) & (2,3,1); sing. Coll. (1,2,1) & (1,3,1), (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (1,1,1); conv.
Total		**227**	**198**	

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Appendix E: Evaluation of Calibration Weights: Response Rates

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Table E.1 2013 NSDUH Weighted Response Rates: United States, District of Columbia, and the 50 States

Domain	Dwelling Unit (DU)					Person Level		Interview Response Rate	
	Selected DUs	Eligible DUs	Completed DUs	Eligibility Rate	Screening Rate	Selected People	Respondents	WT1-11[1]	WT1-12[2]
United States	227,075	190,067	160,325	84.04%	83.93%	88,742	67,838	71.69%	71.67%
Alabama	3,110	2,522	2,141	81.81%	84.04%	1,156	900	69.26%	69.82%
Alaska	3,177	2,347	2,044	73.98%	87.05%	1,122	863	74.91%	74.93%
Arizona	3,013	2,324	1,991	76.04%	85.43%	1,170	882	69.25%	67.84%
Arkansas	2,721	2,189	1,984	80.57%	90.66%	1,193	908	73.21%	73.51%
California	9,994	8,965	7,211	88.60%	80.33%	4,864	3,729	70.45%	70.24%
Colorado	2,790	2,436	2,016	87.22%	82.93%	1,173	885	71.19%	71.77%
Connecticut	2,989	2,691	2,294	90.09%	85.25%	1,198	893	70.24%	70.56%
Delaware	3,042	2,485	2,073	80.20%	83.64%	1,113	862	72.21%	72.07%
District of Columbia	5,466	4,554	3,700	83.61%	80.83%	1,142	907	75.40%	74.97%
Florida	14,174	11,056	9,176	73.74%	81.41%	4,792	3,649	71.63%	71.76%
Georgia	2,660	2,218	1,836	83.13%	82.63%	1,093	852	73.03%	72.27%
Hawaii	3,294	2,861	2,235	87.00%	77.45%	1,240	924	66.79%	67.61%
Idaho	2,388	2,020	1,863	84.41%	92.19%	1,163	907	75.66%	74.97%
Illinois	11,767	10,379	7,912	88.26%	76.19%	4,935	3,503	65.98%	65.98%
Indiana	2,992	2,513	2,182	83.91%	86.71%	1,165	894	71.51%	71.39%
Iowa	2,700	2,318	2,120	86.15%	91.46%	1,164	900	71.34%	71.26%
Kansas	2,608	2,191	1,944	84.14%	88.60%	1,165	887	73.15%	73.14%
Kentucky	3,085	2,556	2,341	82.93%	91.53%	1,160	904	73.51%	72.86%
Louisiana	2,877	2,321	2,096	80.47%	90.32%	1,160	903	73.28%	74.25%
Maine	3,624	2,708	2,444	73.24%	90.02%	1,125	926	78.25%	78.45%
Maryland	2,759	2,430	1,919	88.07%	79.18%	1,183	925	76.85%	75.74%
Massachusetts	3,007	2,692	2,189	89.37%	80.96%	1,240	897	69.49%	69.03%
Michigan	12,080	9,938	8,310	82.12%	83.39%	4,716	3,636	72.79%	72.82%
Minnesota	2,595	2,272	2,056	86.57%	90.74%	1,126	906	77.38%	77.87%
Mississippi	2,441	2,019	1,829	82.98%	90.55%	1,088	918	79.27%	79.07%

(continued)

Table E.1 2013 NSDUH Weighted Response Rates: United States, District of Columbia, and the 50 States (continued)

Domain	Dwelling Unit (DU)					Person Level		Interview Response Rate	
	Selected DUs	Eligible DUs	Completed DUs	Eligibility Rate	Screening Rate	Selected People	Respondents	WT1-11[1]	WT1-12[2]
Missouri	3,144	2,586	2,330	82.39%	89.93%	1,183	917	73.20%	74.26%
Montana	2,991	2,429	2,251	79.68%	92.54%	1,177	910	74.42%	73.92%
Nebraska	3,052	2,500	2,279	82.03%	91.03%	1,146	910	74.27%	73.55%
Nevada	2,753	2,285	2,004	83.20%	87.68%	1,137	932	74.64%	75.40%
New Hampshire	3,488	2,919	2,498	82.62%	85.43%	1,243	953	76.03%	75.72%
New Jersey	3,164	2,774	2,281	87.77%	82.31%	1,238	913	68.88%	69.03%
New Mexico	2,868	2,254	2,038	78.26%	90.20%	1,168	922	73.84%	73.47%
New York	15,157	12,992	9,243	85.44%	71.27%	5,248	3,637	63.66%	64.11%
North Carolina	2,872	2,382	2,090	82.87%	87.63%	1,103	880	75.94%	75.29%
North Dakota	3,634	2,767	2,562	75.65%	92.58%	1,257	945	68.81%	69.88%
Ohio	11,540	9,824	8,450	85.22%	85.92%	4,734	3,568	71.01%	71.14%
Oklahoma	2,830	2,326	2,100	82.24%	90.39%	1,250	950	68.89%	68.50%
Oregon	2,770	2,458	2,153	88.54%	87.44%	1,093	861	76.84%	76.66%
Pennsylvania	13,292	11,490	9,213	85.58%	80.00%	4,760	3,663	73.13%	72.89%
Rhode Island	2,969	2,515	2,205	84.82%	87.59%	1,167	904	71.97%	72.71%
South Carolina	3,291	2,763	2,308	83.51%	83.36%	1,134	908	76.40%	75.89%
South Dakota	2,728	2,204	2,059	80.19%	93.35%	1,106	889	76.78%	77.72%
Tennessee	2,967	2,431	2,152	79.82%	88.53%	1,121	894	73.11%	73.30%
Texas	9,323	7,887	6,873	84.88%	87.12%	4,743	3,604	72.07%	72.42%
Utah	2,032	1,771	1,678	87.44%	95.05%	1,150	930	75.09%	75.59%
Vermont	3,622	2,827	2,420	77.58%	85.51%	1,115	875	76.92%	76.36%
Virginia	2,792	2,413	2,072	86.75%	85.14%	1,148	902	76.51%	75.46%
Washington	2,598	2,235	1,937	86.12%	86.55%	1,175	900	71.56%	71.58%
West Virginia	3,526	2,911	2,598	82.77%	89.32%	1,179	916	76.28%	76.79%
Wisconsin	2,865	2,414	2,176	84.21%	90.41%	1,145	867	73.66%	74.39%
Wyoming	3,454	2,705	2,449	77.33%	90.40%	1,176	928	78.69%	78.31%

[1] Includes DU-level and person-level design weights, DU nonresponse adjustment, and DU poststratification adjustment.
[2] Includes a selected person poststratification weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Appendix F: Evaluation of Calibration Weights: Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors

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Table F.1 2013 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States

Domain	*n*	Before nr[1] (WT1*...*WT7)			After nr[1] & Before ps[2] (WT1*...*WT8)			After ps[2] (WT1*...*WT9)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
United States	160,325	3.18%	3.64%	0.61%	2.24%	3.03%	0.53%	1.75%	3.53%	0.90%
Alabama	2,141	2.15%	4.48%	0.97%	1.73%	2.30%	0.09%	0.93%	2.68%	0.82%
Alaska	2,044	1.66%	2.19%	0.16%	4.01%	5.22%	0.23%	1.22%	2.83%	0.78%
Arizona	1,991	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.16%	3.14%	0.90%
Arkansas	1,984	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.66%	1.63%	0.39%
California	7,211	0.25%	0.37%	0.10%	1.25%	1.23%	0.04%	1.97%	5.11%	1.79%
Colorado	2,016	4.61%	4.69%	0.30%	1.24%	4.40%	2.06%	2.63%	4.74%	1.07%
Connecticut	2,294	0.31%	0.48%	0.19%	1.92%	2.16%	0.15%	4.01%	7.58%	2.03%
Delaware	2,073	9.31%	11.15%	0.95%	4.78%	5.03%	0.25%	4.00%	6.64%	2.11%
District of Columbia	3,700	2.68%	6.62%	0.73%	2.86%	6.82%	0.67%	1.73%	1.93%	0.29%
Florida	9,176	11.56%	17.17%	4.01%	3.27%	6.52%	1.95%	2.01%	3.56%	0.51%
Georgia	1,836	1.09%	0.80%	0.23%	4.52%	6.24%	1.67%	1.03%	2.62%	0.51%
Hawaii	2,235	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.60%	5.39%	1.19%
Idaho	1,863	0.27%	0.07%	0.09%	3.17%	3.28%	0.07%	3.11%	6.12%	2.62%
Illinois	7,912	8.10%	9.06%	0.57%	3.36%	4.27%	0.57%	0.86%	1.72%	0.57%
Indiana	2,182	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.70%	3.53%	0.48%
Iowa	2,120	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.71%	1.57%	0.30%
Kansas	1,944	13.37%	15.61%	1.06%	3.65%	5.50%	0.88%	4.06%	7.16%	1.42%
Kentucky	2,341	13.71%	18.21%	3.77%	13.28%	16.20%	2.80%	4.19%	6.37%	1.27%
Louisiana	2,096	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.76%	1.67%	0.26%
Maine	2,444	0.00%	0.00%	0.00%	3.11%	3.38%	0.50%	0.57%	0.67%	0.11%
Maryland	1,919	0.00%	0.00%	0.00%	1.56%	2.19%	0.10%	0.47%	1.31%	0.21%
Massachusetts	2,189	0.00%	0.00%	0.00%	0.23%	0.38%	0.03%	0.87%	1.94%	0.30%
Michigan	8,310	0.37%	0.33%	0.07%	0.00%	0.00%	0.00%	0.14%	0.38%	0.13%
Minnesota	2,056	1.41%	1.80%	0.01%	0.00%	0.00%	0.00%	0.63%	1.73%	0.34%
Mississippi	1,829	0.00%	0.00%	0.00%	0.60%	1.17%	0.14%	2.57%	3.23%	0.88%

(continued)

Table F.1 2013 NSDUH Dwelling Unit–Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before nr[1] (WT1*...*WT7)			After nr[1] & Before ps[2] (WT1*...*WT8)			After ps[2] (WT1*...*WT9)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
Missouri	2,330	13.26%	16.88%	3.27%	11.16%	13.93%	1.30%	1.46%	2.38%	0.41%
Montana	2,251	6.18%	7.05%	0.49%	0.00%	0.00%	0.00%	1.47%	2.86%	0.51%
Nebraska	2,279	0.00%	0.00%	0.00%	0.44%	0.72%	0.04%	2.37%	4.82%	1.34%
Nevada	2,004	2.84%	2.95%	0.17%	1.10%	2.39%	0.73%	2.10%	4.56%	1.43%
New Hampshire	2,498	9.01%	11.53%	0.46%	1.92%	2.47%	0.08%	1.00%	1.76%	0.30%
New Jersey	2,281	2.15%	3.40%	0.02%	0.00%	0.00%	0.00%	2.76%	6.62%	2.13%
New Mexico	2,038	0.00%	0.00%	0.00%	1.57%	2.06%	0.10%	2.45%	5.52%	1.37%
New York	9,243	2.77%	4.04%	0.81%	1.97%	2.57%	0.29%	2.28%	5.20%	1.55%
North Carolina	2,090	0.38%	0.18%	0.06%	2.01%	2.16%	0.16%	1.29%	3.45%	0.84%
North Dakota	2,562	3.40%	4.38%	1.50%	1.05%	1.72%	0.29%	1.09%	2.93%	0.66%
Ohio	8,450	1.53%	1.84%	0.09%	0.93%	1.28%	0.20%	0.70%	0.85%	0.19%
Oklahoma	2,100	0.38%	1.26%	0.80%	0.43%	0.72%	0.08%	1.71%	2.60%	0.62%
Oregon	2,153	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.79%	1.94%	0.38%
Pennsylvania	9,213	2.74%	2.94%	0.13%	2.05%	4.36%	1.56%	2.52%	4.26%	0.85%
Rhode Island	2,205	1.86%	1.55%	0.02%	1.90%	4.08%	0.60%	1.72%	4.10%	1.25%
South Carolina	2,308	1.21%	1.57%	0.22%	0.91%	2.22%	0.76%	3.73%	5.88%	2.09%
South Dakota	2,059	9.47%	9.52%	1.00%	0.00%	0.00%	0.00%	2.53%	4.52%	1.50%
Tennessee	2,152	0.33%	0.70%	0.23%	2.56%	2.79%	0.07%	1.95%	3.40%	0.70%
Texas	6,873	0.38%	0.25%	0.03%	1.21%	1.56%	0.20%	1.94%	3.66%	0.86%
Utah	1,678	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.31%	3.30%	0.99%
Vermont	2,420	1.90%	1.51%	0.34%	1.61%	3.70%	0.57%	1.40%	2.53%	0.37%
Virginia	2,072	0.39%	2.36%	1.14%	3.14%	7.01%	1.71%	1.01%	2.53%	0.30%
Washington	1,937	9.09%	9.63%	0.81%	6.81%	8.25%	0.55%	1.19%	2.20%	0.30%
West Virginia	2,598	5.66%	7.11%	0.56%	13.74%	16.22%	1.78%	2.08%	3.20%	0.90%
Wisconsin	2,176	0.00%	0.00%	0.00%	0.37%	0.68%	0.05%	1.61%	3.74%	0.88%
Wyoming	2,449	2.04%	2.44%	0.25%	7.84%	7.55%	0.40%	3.84%	8.23%	3.02%

[1] nr = nonresponse adjustment.
[2] ps = poststratification adjustment.
[3] Weighted extreme value percentage = $100*\sum_k w_{ek}/\sum_k w_k$, where w_{ek} denotes the weight for extreme weights and w_k denotes the weight for both extreme weights and nonextreme weights.
[4] Outwinsor weight percentage = $100*\sum_k(w_{ek} - b_k)/\sum_k w_k$, where b_k denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Appendix G: Evaluation of Calibration Weights: Person-Level Percentages of Extreme Weights and Outwinsors

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Table G.1 2013 NSDUH Selected Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States

Domain	*n*	Before sel.per.ps[1] (WT1*...*WT11)			After sel.per.ps[1] (WT1*...*WT12)		
		% Unweighted	% Weighted[2]	% Outwinsor[3]	% Unweighted	% Weighted[2]	% Outwinsor[3]
United States	88,742	3.04%	6.05%	1.60%	1.96%	4.64%	1.20%
Alabama	1,156	1.56%	2.72%	0.63%	1.30%	3.08%	0.70%
Alaska	1,122	4.63%	7.51%	1.98%	2.58%	8.23%	1.50%
Arizona	1,170	2.22%	6.14%	1.47%	1.20%	1.96%	0.51%
Arkansas	1,193	1.93%	4.35%	1.40%	1.17%	4.19%	1.02%
California	4,864	3.39%	7.63%	2.44%	1.79%	4.60%	1.36%
Colorado	1,173	4.35%	10.59%	2.88%	1.19%	4.01%	0.93%
Connecticut	1,198	2.17%	4.09%	1.23%	2.42%	11.08%	3.89%
Delaware	1,113	5.12%	7.98%	1.99%	2.07%	2.38%	0.73%
District of Columbia	1,142	2.98%	5.95%	1.50%	0.88%	3.11%	0.47%
Florida	4,792	2.55%	5.43%	1.24%	1.38%	3.26%	0.79%
Georgia	1,093	2.93%	5.76%	1.16%	1.46%	3.67%	0.78%
Hawaii	1,240	4.84%	12.63%	3.43%	1.94%	4.75%	0.65%
Idaho	1,163	5.25%	10.18%	4.03%	1.55%	3.37%	0.85%
Illinois	4,935	3.10%	4.75%	1.18%	1.52%	3.66%	0.95%
Indiana	1,165	2.23%	3.74%	0.84%	1.72%	6.42%	1.21%
Iowa	1,164	2.58%	4.06%	0.63%	1.03%	3.08%	0.73%
Kansas	1,165	3.78%	9.21%	1.84%	2.75%	7.88%	1.41%
Kentucky	1,160	2.67%	3.36%	0.72%	1.72%	2.74%	0.77%
Louisiana	1,160	1.29%	3.02%	0.65%	1.72%	5.05%	1.65%
Maine	1,125	1.24%	1.13%	0.22%	0.80%	0.71%	0.18%
Maryland	1,183	1.69%	5.25%	1.34%	2.11%	5.66%	1.09%
Massachusetts	1,240	1.45%	2.70%	0.58%	1.53%	4.82%	0.87%
Michigan	4,716	1.82%	3.30%	0.70%	0.95%	1.99%	0.60%
Minnesota	1,126	4.09%	10.11%	2.22%	2.22%	6.50%	1.38%
Mississippi	1,088	2.76%	4.61%	0.87%	1.38%	4.05%	0.58%

(continued)

Table G.1 2013 NSDUH Selected Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before sel.per.ps[1] (WT1*...*WT11)			After sel.per.ps[1] (WT1*...*WT12)		
		% Unweighted	% Weighted[2]	% Outwinsor[3]	% Unweighted	% Weighted[2]	% Outwinsor[3]
Missouri	1,183	3.72%	5.40%	1.34%	4.40%	10.39%	2.29%
Montana	1,177	3.74%	5.04%	1.01%	2.55%	4.90%	1.34%
Nebraska	1,146	4.80%	8.87%	3.04%	4.19%	10.11%	2.84%
Nevada	1,137	2.90%	5.84%	1.65%	2.02%	7.26%	3.43%
New Hampshire	1,243	4.34%	4.14%	0.71%	3.54%	4.58%	1.09%
New Jersey	1,238	4.77%	11.23%	3.99%	2.34%	6.84%	1.92%
New Mexico	1,168	3.17%	7.53%	2.08%	2.65%	3.70%	0.93%
New York	5,248	2.86%	7.20%	2.37%	2.13%	6.09%	2.21%
North Carolina	1,103	1.36%	4.31%	0.87%	1.09%	2.48%	0.79%
North Dakota	1,257	1.43%	1.98%	0.40%	1.67%	3.05%	0.60%
Ohio	4,734	2.09%	2.80%	0.55%	2.09%	6.83%	1.73%
Oklahoma	1,250	1.76%	3.44%	1.00%	0.80%	2.75%	0.61%
Oregon	1,093	3.11%	5.33%	0.92%	1.74%	3.83%	0.71%
Pennsylvania	4,760	5.25%	8.86%	2.09%	3.38%	6.38%	1.37%
Rhode Island	1,167	2.91%	5.93%	2.11%	3.68%	13.37%	3.98%
South Carolina	1,134	3.70%	7.76%	2.17%	2.20%	4.95%	1.48%
South Dakota	1,106	4.07%	7.40%	2.05%	2.71%	4.21%	1.03%
Tennessee	1,121	3.30%	5.43%	1.28%	1.61%	2.83%	0.63%
Texas	4,743	2.80%	6.75%	1.42%	1.71%	3.50%	0.68%
Utah	1,150	6.35%	17.58%	6.93%	3.74%	7.59%	1.72%
Vermont	1,115	2.06%	2.22%	0.40%	2.06%	2.06%	0.34%
Virginia	1,148	0.87%	1.99%	0.44%	1.31%	3.68%	0.97%
Washington	1,175	2.38%	3.28%	0.78%	1.87%	3.78%	1.01%
West Virginia	1,179	2.88%	5.12%	1.12%	1.53%	3.79%	0.71%
Wisconsin	1,145	3.06%	6.64%	1.65%	2.71%	3.23%	0.72%
Wyoming	1,176	4.51%	11.92%	4.47%	2.13%	3.91%	1.51%

[1] Before sel.per.ps (WT1*...*WT11) and after sel.per.ps (WT1*...*WT12) used demographic variables from screener data for all selected people; ps = poststratification adjustment.
[2] Weighted extreme value percentage = $100*\sum_k w_{ek}/\sum_k w_k$, where w_{ek} denotes the weight for extreme weights and w_k denotes the weight for both extreme weights and nonextreme weights.
[3] Outwinsor weight percentage = $100*\sum_k(w_{ek} - b_k)/\sum_k w_k$, where b_k denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table G.2 2013 NSDUH Respondent Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States

Domain	*n*	Before res.per.nr[1] (WT1*…*WT12)			After res.per.nr[1] (WT1*…*WT13)			Before res.per.ps[2] (WT1*…*WT13)			After res.per.ps[2] (WT1*…*WT14)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
United States	67,838	2.00%	4.93%	1.30%	1.90%	5.29%	1.19%	1.95%	5.51%	1.31%	1.22%	3.46%	0.70%
Alabama	900	1.78%	3.73%	0.98%	1.56%	6.47%	0.78%	1.56%	6.47%	0.66%	0.78%	2.34%	0.43%
Alaska	863	2.32%	7.45%	1.54%	3.59%	8.49%	2.67%	3.48%	8.99%	2.71%	0.93%	4.21%	0.71%
Arizona	882	1.36%	2.62%	0.75%	2.15%	6.38%	1.00%	2.15%	6.38%	0.98%	0.91%	3.60%	0.16%
Arkansas	908	0.99%	3.81%	0.90%	0.66%	3.21%	0.31%	0.66%	3.21%	0.65%	1.10%	2.99%	0.89%
California	3,729	1.98%	5.19%	1.57%	1.98%	5.15%	1.06%	2.20%	5.84%	1.31%	0.27%	0.63%	0.06%
Colorado	885	1.47%	5.15%	1.04%	2.26%	5.90%	1.13%	2.26%	6.26%	1.25%	0.56%	2.84%	0.54%
Connecticut	893	2.46%	10.27%	3.64%	3.92%	18.32%	6.00%	3.92%	18.32%	6.01%	2.24%	9.05%	2.01%
Delaware	862	1.74%	2.23%	0.76%	1.86%	3.15%	0.78%	1.86%	3.15%	0.75%	1.51%	1.97%	0.39%
District of Columbia	907	0.99%	2.95%	0.33%	1.32%	5.92%	1.63%	1.21%	5.73%	1.63%	0.44%	3.68%	0.85%
Florida	3,649	1.48%	3.60%	0.85%	1.23%	3.05%	0.64%	1.29%	3.14%	0.64%	0.82%	3.08%	0.66%
Georgia	852	1.76%	4.57%	1.03%	2.82%	5.91%	1.97%	3.05%	7.36%	2.86%	1.41%	4.72%	0.69%
Hawaii	924	1.73%	3.00%	0.65%	1.30%	2.50%	0.42%	1.30%	2.56%	0.51%	0.76%	1.13%	0.37%
Idaho	907	1.98%	4.49%	1.09%	1.65%	2.93%	0.59%	1.65%	2.93%	0.58%	0.88%	0.96%	0.23%
Illinois	3,503	1.68%	3.65%	1.20%	1.83%	5.28%	1.27%	1.91%	5.68%	1.36%	2.14%	5.08%	0.58%
Indiana	894	1.68%	6.26%	0.91%	1.01%	3.32%	0.43%	1.01%	3.32%	0.42%	0.67%	0.77%	0.12%
Iowa	900	1.33%	4.20%	1.00%	0.56%	1.56%	0.19%	0.56%	1.56%	0.19%	0.89%	3.20%	0.50%
Kansas	887	2.71%	5.52%	0.94%	2.71%	9.04%	2.61%	2.59%	8.58%	2.76%	1.80%	6.65%	2.13%
Kentucky	904	1.77%	2.19%	0.58%	2.10%	4.54%	0.88%	2.21%	4.77%	1.01%	1.66%	4.85%	1.26%
Louisiana	903	2.10%	5.04%	1.42%	1.99%	5.29%	0.97%	1.99%	5.29%	0.92%	0.11%	0.10%	0.00%
Maine	926	0.97%	0.91%	0.24%	1.19%	3.51%	1.04%	1.30%	3.67%	1.11%	0.86%	0.82%	0.23%
Maryland	925	1.95%	5.51%	1.35%	2.49%	8.31%	2.98%	2.49%	8.31%	3.00%	2.16%	8.32%	2.59%
Massachusetts	897	1.45%	4.13%	1.10%	1.90%	6.54%	1.46%	1.90%	6.49%	1.48%	1.56%	3.83%	1.04%
Michigan	3,636	0.94%	1.97%	0.48%	1.13%	3.68%	0.72%	1.07%	3.51%	0.80%	0.25%	0.79%	0.23%
Minnesota	906	2.65%	9.53%	1.85%	2.10%	6.14%	1.29%	2.10%	6.14%	1.28%	0.66%	3.33%	0.56%
Mississippi	918	1.09%	2.54%	0.29%	1.63%	5.89%	1.89%	1.53%	5.55%	1.84%	0.54%	3.85%	1.52%

(continued)

Table G.2 2013 NSDUH Respondent Person-Level Percentages of Extreme Weights and Outwinsors: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before res.per.nr[1] (WT1*…*WT12)			After res.per.nr[1] (WT1*…*WT13)			Before res.per.ps[2] (WT1*…*WT13)			After res.per.ps[2] (WT1*…*WT14)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
Missouri	917	4.69%	10.67%	2.31%	2.29%	6.54%	1.90%	2.18%	6.44%	1.86%	2.62%	7.46%	1.55%
Montana	910	1.87%	3.93%	0.85%	3.52%	3.52%	1.12%	3.41%	3.32%	1.04%	1.21%	3.15%	1.11%
Nebraska	910	4.29%	10.86%	3.13%	1.98%	4.81%	1.67%	1.98%	4.81%	1.64%	1.32%	5.15%	2.45%
Nevada	932	2.04%	9.40%	4.33%	2.25%	9.50%	2.28%	2.25%	9.50%	2.27%	1.50%	8.78%	0.84%
New Hampshire	953	3.88%	4.58%	0.90%	1.15%	2.33%	0.49%	1.15%	2.33%	0.48%	0.52%	2.70%	0.93%
New Jersey	913	2.30%	6.57%	1.77%	2.19%	7.35%	1.53%	2.19%	7.35%	1.80%	1.42%	3.25%	0.35%
New Mexico	922	2.60%	3.74%	1.01%	1.63%	3.03%	0.69%	1.84%	5.05%	1.84%	1.30%	7.11%	1.22%
New York	3,637	2.45%	6.89%	2.50%	2.25%	6.20%	1.36%	2.47%	6.81%	1.61%	1.13%	4.81%	0.98%
North Carolina	880	1.25%	3.11%	1.06%	1.48%	6.42%	1.39%	1.48%	5.50%	1.41%	1.36%	8.82%	2.18%
North Dakota	945	1.69%	2.98%	0.59%	1.90%	7.85%	2.49%	2.01%	7.96%	2.91%	1.06%	3.40%	1.01%
Ohio	3,568	1.99%	6.91%	1.76%	1.46%	3.44%	0.65%	1.46%	3.35%	0.65%	1.23%	3.07%	0.62%
Oklahoma	950	0.21%	0.83%	0.08%	0.42%	0.85%	0.09%	0.42%	0.97%	0.23%	0.53%	2.65%	1.04%
Oregon	861	2.21%	5.23%	0.93%	2.21%	5.44%	0.91%	2.09%	5.31%	0.89%	1.39%	1.75%	0.24%
Pennsylvania	3,663	3.39%	6.94%	1.61%	3.19%	6.94%	1.51%	3.17%	6.95%	1.52%	1.94%	4.45%	1.16%
Rhode Island	904	2.88%	11.33%	3.87%	2.77%	10.93%	3.77%	2.77%	10.93%	3.89%	3.54%	12.74%	2.49%
South Carolina	908	2.31%	5.31%	1.70%	2.31%	7.20%	1.71%	2.64%	7.76%	1.97%	1.76%	5.30%	0.94%
South Dakota	889	2.59%	4.67%	1.18%	1.80%	6.17%	2.90%	2.02%	6.68%	3.18%	2.92%	7.13%	2.19%
Tennessee	894	2.01%	3.85%	0.83%	1.12%	2.10%	0.17%	1.01%	1.72%	0.15%	1.23%	4.85%	0.72%
Texas	3,604	1.69%	3.56%	0.76%	1.66%	3.80%	0.66%	1.83%	4.47%	0.81%	0.61%	1.59%	0.16%
Utah	930	3.76%	8.68%	1.97%	2.90%	6.70%	1.51%	3.01%	6.80%	1.45%	2.58%	6.14%	1.89%
Vermont	875	1.37%	1.39%	0.21%	1.37%	2.66%	0.57%	1.71%	3.94%	0.73%	1.60%	6.62%	0.61%
Virginia	902	1.66%	4.36%	0.84%	1.88%	6.95%	1.19%	1.88%	6.95%	1.21%	1.66%	3.67%	0.53%
Washington	900	1.78%	3.67%	1.22%	2.11%	5.55%	1.44%	1.89%	5.32%	1.34%	1.56%	2.14%	0.41%
West Virginia	916	1.31%	3.22%	0.78%	1.42%	1.89%	0.15%	1.42%	1.90%	0.17%	0.98%	1.24%	0.07%
Wisconsin	867	2.77%	3.05%	0.68%	2.08%	3.15%	1.08%	2.08%	3.15%	1.08%	1.85%	1.99%	0.45%
Wyoming	928	1.94%	4.08%	1.76%	2.37%	4.71%	1.33%	2.37%	4.71%	1.42%	1.62%	4.92%	1.68%

[1] Before res.per.nr (WT1*...*WT12) and after res.per.nr (WT1*...*WT13) used demographic variables from screener data for all respondents; nr = nonresponse adjustment.
[2] Before res.per.ps (WT1*...*WT13) and after res.per.ps (WT1*...*WT14) used demographic variables from questionnaire data for all respondents; ps = poststratification adjustment.
[3] Weighted outlier percentage = $100*\sum_k w_{ok} / \sum_k w_k$, where w_{ok} denotes the weight for outliers and w_k denotes the weight for both outliers and nonoutliers.
[4] Outwinsor weight percentage = $100*\sum_k (w_{ek} - b_k)/\sum_k w_k$, where b_k denotes the cutoff point for defining the extreme weight.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Appendix H: Evaluation of Calibration Weights: Slippage Rates

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Table H.1 2013 NSDUH Slippage Rates: UNITED STATES

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		67,838	262,391,455	262,391,455	262,391,455	0.00	0.00
Quarter	**Quarter 1**	15,829	65,382,044	65,382,044	65,382,044	0.00	0.00
	Quarter 2	18,273	65,518,257	65,518,257	65,518,257	0.00	0.00
	Quarter 3	17,576	65,672,379	65,672,379	65,672,379	0.00	0.00
	Quarter 4	16,160	65,818,776	65,818,776	65,818,776	0.00	0.00
Age Group	**12-17**	22,494	24,907,818	24,892,618	24,892,618	0.06	0.00
	18-25	22,214	34,666,588	34,785,500	34,785,500	-0.34	0.00
	26-34	6,310	37,467,272	37,346,394	37,346,394	0.32	0.00
	35-49	9,058	60,671,117	60,510,636	60,510,636	0.27	0.00
	50-64	4,801	64,864,396	61,404,778	61,404,778	5.63	-0.00
	65+	2,961	39,814,265	43,451,529	43,451,529	-8.37	0.00
Race	**White**	49,652	197,259,664	206,640,007	206,640,007	-4.54	-0.00
	Black or African American	9,258	33,542,945	32,959,434	32,959,435	1.77	-0.00
	Other	8,928	31,588,846	22,792,013	22,792,013	38.60	0.00
Hispanicity	**Hispanic or Latino**	11,600	42,030,072	41,261,045	41,261,045	1.86	0.00
	Non-Hispanic or Latino	56,238	220,361,383	221,130,410	221,130,410	-0.35	0.00
Gender	**Male**	32,843	127,079,858	127,119,769	127,119,769	-0.03	0.00
	Female	34,995	135,311,597	135,271,686	135,271,686	0.03	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.2 2013 NSDUH Slippage Rates: ALABAMA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		900	4,025,044	4,025,044	4,025,044	0.00	0.00
Quarter	**Quarter 1**	231	1,004,250	1,004,250	1,004,250	0.00	0.00
	Quarter 2	203	1,005,438	1,005,438	1,005,438	0.00	0.00
	Quarter 3	238	1,006,952	1,006,952	1,006,952	0.00	-0.00
	Quarter 4	228	1,008,405	1,008,405	1,008,405	0.00	-0.00
Age Group	**12-17**	320	380,216	382,694	382,694	-0.65	0.00
	18-25	302	533,258	536,933	536,933	-0.68	-0.00
	26-34	67	544,809	538,656	538,657	1.14	-0.00
	35-49	113	899,595	904,525	904,525	-0.55	-0.00
	50-64	54	963,165	960,339	960,339	0.29	-0.00
	65+	44	704,000	701,896	701,896	0.30	-0.00
Race	**White**	478	2,831,304	2,861,050	2,861,050	-1.04	-0.00
	Black or African American	377	1,028,830	1,033,669	1,033,669	-0.47	0.00
	Other	45	164,910	130,324	130,324	26.54	-0.00
Hispanicity	**Hispanic or Latino**	44	122,264	139,048	139,048	-12.07	0.00
	Non-Hispanic or Latino	856	3,902,780	3,885,996	3,885,996	0.43	-0.00
Gender	**Male**	427	1,919,046	1,916,784	1,916,784	0.12	0.00
	Female	473	2,105,997	2,108,260	2,108,260	-0.11	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.3 2013 NSDUH Slippage Rates: ALASKA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		863	577,309	577,309	577,309	-0.00	-0.00
Quarter	**Quarter 1**	236	144,179	144,179	144,179	-0.00	0.00
	Quarter 2	240	144,249	144,249	144,249	0.00	0.00
	Quarter 3	194	144,387	144,387	144,387	-0.00	-0.00
	Quarter 4	193	144,494	144,494	144,494	0.00	0.00
Age Group	**12-17**	277	60,468	60,220	60,220	0.41	0.00
	18-25	296	81,575	83,264	83,264	-2.03	-0.00
	26-34	78	94,450	92,217	92,217	2.42	0.00
	35-49	115	130,480	131,146	131,146	-0.51	-0.00
	50-64	67	142,179	145,543	145,543	-2.31	0.00
	65+	30	68,158	64,920	64,920	4.99	0.00
Race	**White**	577	401,815	400,778	400,778	0.26	0.00
	Black or African American	23	21,441	20,196	20,196	6.17	-0.00
	Other	263	154,053	156,336	156,336	-1.46	0.00
Hispanicity	**Hispanic or Latino**	63	33,040	34,309	34,309	-3.70	-0.00
	Non-Hispanic or Latino	800	544,270	543,001	543,001	0.23	-0.00
Gender	**Male**	438	294,445	294,445	294,445	-0.00	-0.00
	Female	425	282,864	282,864	282,864	-0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.4 2013 NSDUH Slippage Rates: ARIZONA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		882	5,443,545	5,443,545	5,443,545	0.00	0.00
Quarter	**Quarter 1**	190	1,353,884	1,353,884	1,353,884	0.00	0.00
	Quarter 2	250	1,358,584	1,358,584	1,358,584	0.00	0.00
	Quarter 3	274	1,363,369	1,363,369	1,363,369	0.00	-0.00
	Quarter 4	168	1,367,709	1,367,708	1,367,709	0.00	-0.00
Age Group	**12-17**	324	544,717	541,841	541,841	0.53	-0.00
	18-25	288	719,951	727,937	727,937	-1.10	-0.00
	26-34	85	759,190	762,051	762,051	-0.38	0.00
	35-49	98	1,221,020	1,208,675	1,208,675	1.02	-0.00
	50-64	50	1,129,058	1,196,963	1,196,963	-5.67	-0.00
	65+	37	1,069,610	1,006,077	1,006,077	6.31	0.00
Race	**White**	647	4,277,451	4,640,483	4,640,483	-7.82	0.00
	Black or African American	40	219,372	234,810	234,810	-6.57	-0.00
	Other	195	946,722	568,252	568,252	66.60	0.00
Hispanicity	**Hispanic or Latino**	365	1,512,631	1,501,222	1,501,222	0.76	0.00
	Non-Hispanic or Latino	517	3,930,914	3,942,323	3,942,323	-0.29	0.00
Gender	**Male**	438	2,656,533	2,657,880	2,657,880	-0.05	-0.00
	Female	444	2,787,012	2,785,665	2,785,665	0.05	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.5 2013 NSDUH Slippage Rates: ARKANSAS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		908	2,435,182	2,435,182	2,435,182	0.00	-0.00
Quarter	**Quarter 1**	196	607,640	607,640	607,640	-0.00	0.00
	Quarter 2	280	608,260	608,260	608,260	-0.00	-0.00
	Quarter 3	234	609,170	609,170	609,170	0.00	-0.00
	Quarter 4	198	610,113	610,113	610,113	0.00	0.00
Age Group	**12-17**	255	236,968	236,968	236,968	-0.00	0.00
	18-25	345	314,369	319,725	319,725	-1.68	0.00
	26-34	78	327,944	333,975	333,975	-1.81	0.00
	35-49	117	577,776	540,422	540,422	6.91	0.00
	50-64	68	611,285	565,015	565,015	8.19	0.00
	65+	45	366,840	439,078	439,078	-16.45	-0.00
Race	**White**	658	1,911,278	1,977,415	1,977,415	-3.34	-0.00
	Black or African American	184	369,120	358,773	358,773	2.88	-0.00
	Other	66	154,784	98,994	98,994	56.36	0.00
Hispanicity	**Hispanic or Latino**	81	153,640	144,956	144,956	5.99	0.00
	Non-Hispanic or Latino	827	2,281,542	2,290,226	2,290,226	-0.38	-0.00
Gender	**Male**	424	1,172,165	1,176,261	1,176,261	-0.35	0.00
	Female	484	1,263,017	1,258,921	1,258,922	0.33	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.6 2013 NSDUH Slippage Rates: CALIFORNIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,729	31,739,919	31,739,919	31,739,919	-0.00	-0.00
Quarter	**Quarter 1**	885	7,905,173	7,905,173	7,905,173	-0.00	0.00
	Quarter 2	1,047	7,924,610	7,924,610	7,924,610	-0.00	-0.00
	Quarter 3	828	7,945,372	7,945,372	7,945,372	-0.00	0.00
	Quarter 4	969	7,964,763	7,964,763	7,964,763	-0.00	0.00
Age Group	**12-17**	1,266	3,122,839	3,095,715	3,095,715	0.88	-0.00
	18-25	1,208	4,402,367	4,464,898	4,464,898	-1.40	0.00
	26-34	364	4,962,804	4,886,808	4,886,808	1.56	-0.00
	35-49	530	7,644,749	7,609,428	7,609,428	0.46	-0.00
	50-64	229	7,221,094	6,983,821	6,983,821	3.40	-0.00
	65+	132	4,386,065	4,699,249	4,699,249	-6.66	0.00
Race	**White**	2,412	21,071,083	23,414,924	23,414,924	-10.01	-0.00
	Black or African American	260	2,126,262	2,021,447	2,021,447	5.19	-0.00
	Other	1,057	8,542,573	6,303,548	6,303,548	35.52	0.00
Hispanicity	**Hispanic or Latino**	1,797	11,698,030	11,371,928	11,371,928	2.87	-0.00
	Non-Hispanic or Latino	1,932	20,041,889	20,367,991	20,367,991	-1.60	0.00
Gender	**Male**	1,857	15,532,580	15,555,313	15,555,313	-0.15	0.00
	Female	1,872	16,207,339	16,184,606	16,184,606	0.14	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.7 2013 NSDUH Slippage Rates: COLORADO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		885	4,339,337	4,339,337	4,339,337	0.00	-0.00
Quarter	**Quarter 1**	214	1,077,985	1,077,985	1,077,985	0.00	0.00
	Quarter 2	278	1,082,647	1,082,647	1,082,647	0.00	0.00
	Quarter 3	194	1,087,288	1,087,288	1,087,288	0.00	0.00
	Quarter 4	199	1,091,416	1,091,416	1,091,416	0.00	0.00
Age Group	**12-17**	258	399,120	405,187	405,187	-1.50	-0.00
	18-25	305	584,454	570,429	570,429	2.46	-0.00
	26-34	103	653,484	675,379	675,379	-3.24	0.00
	35-49	137	1,043,915	1,034,581	1,034,581	0.90	0.00
	50-64	54	1,063,327	1,022,424	1,022,424	4.00	-0.00
	65+	28	595,037	631,338	631,338	-5.75	0.00
Race	**White**	664	3,603,665	3,859,009	3,859,009	-6.62	0.00
	Black or African American	51	181,519	176,054	176,054	3.10	0.00
	Other	170	554,153	304,274	304,274	82.12	0.00
Hispanicity	**Hispanic or Latino**	260	851,396	824,677	824,677	3.24	0.00
	Non-Hispanic or Latino	625	3,487,941	3,514,660	3,514,660	-0.76	0.00
Gender	**Male**	419	2,144,464	2,144,464	2,144,464	0.00	-0.00
	Female	466	2,194,873	2,194,873	2,194,873	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.8 2013 NSDUH Slippage Rates: CONNECTICUT

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		893	3,045,630	3,045,630	3,045,630	0.00	0.00
Quarter	**Quarter 1**	226	760,248	760,248	760,248	0.00	0.00
	Quarter 2	228	760,774	760,774	760,774	0.00	0.00
	Quarter 3	214	761,750	761,750	761,750	-0.00	0.00
	Quarter 4	225	762,858	762,858	762,858	0.00	0.00
Age Group	**12-17**	316	287,546	287,546	287,546	0.00	0.00
	18-25	268	375,439	378,789	378,789	-0.88	0.00
	26-34	69	384,088	386,715	386,715	-0.68	0.00
	35-49	121	728,738	708,480	708,480	2.86	0.00
	50-64	62	733,954	758,879	758,879	-3.28	0.00
	65+	57	535,865	525,221	525,221	2.03	-0.00
Race	**White**	659	2,338,219	2,524,905	2,524,905	-7.39	-0.00
	Black or African American	124	347,701	325,827	325,827	6.71	0.00
	Other	110	359,709	194,898	194,898	84.56	0.00
Hispanicity	**Hispanic or Latino**	130	404,799	404,181	404,181	0.15	0.00
	Non-Hispanic or Latino	763	2,640,831	2,641,449	2,641,449	-0.02	0.00
Gender	**Male**	439	1,463,815	1,467,539	1,467,539	-0.25	0.00
	Female	454	1,581,815	1,578,091	1,578,091	0.24	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.9 2013 NSDUH Slippage Rates: DELAWARE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		862	774,640	774,640	774,640	0.00	0.00
Quarter	**Quarter 1**	227	192,924	192,925	192,925	-0.00	0.00
	Quarter 2	230	193,427	193,427	193,427	0.00	0.00
	Quarter 3	210	193,930	193,930	193,930	-0.00	0.00
	Quarter 4	195	194,359	194,359	194,359	-0.00	0.00
Age Group	**12-17**	281	67,694	67,694	67,694	0.00	0.00
	18-25	306	101,194	102,069	102,069	-0.86	0.00
	26-34	67	103,634	103,380	103,380	0.25	0.00
	35-49	108	171,361	170,740	170,740	0.36	0.00
	50-64	62	198,401	187,296	187,296	5.93	0.00
	65+	38	132,357	143,462	143,462	-7.74	-0.00
Race	**White**	553	544,858	564,313	564,313	-3.45	0.00
	Black or African American	219	168,704	163,452	163,452	3.21	0.00
	Other	90	61,078	46,875	46,875	30.30	0.00
Hispanicity	**Hispanic or Latino**	111	65,321	59,535	59,535	9.72	0.00
	Non-Hispanic or Latino	751	709,319	715,105	715,105	-0.81	0.00
Gender	**Male**	416	368,064	367,882	367,882	0.05	0.00
	Female	446	406,576	406,758	406,758	-0.04	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.10 2013 NSDUH Slippage Rates: DISTRICT OF COLUMBIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		907	555,335	555,334	555,335	0.00	-0.00
Quarter	**Quarter 1**	205	137,959	137,959	137,959	0.00	0.00
	Quarter 2	210	138,504	138,504	138,504	0.00	0.00
	Quarter 3	238	139,117	139,117	139,117	0.00	0.00
	Quarter 4	254	139,754	139,754	139,754	0.00	-0.00
Age Group	**12-17**	326	30,260	30,375	30,375	-0.38	0.00
	18-25	233	91,034	93,799	93,799	-2.95	0.00
	26-34	125	130,465	129,060	129,060	1.09	0.00
	35-49	133	125,819	125,321	125,321	0.40	0.00
	50-64	58	116,323	105,731	105,731	10.02	-0.00
	65+	32	61,433	71,049	71,050	-13.53	-0.00
Race	**White**	311	231,941	249,739	249,739	-7.13	-0.00
	Black or African American	496	259,696	266,757	266,757	-2.65	0.00
	Other	100	63,697	38,838	38,838	64.01	0.00
Hispanicity	**Hispanic or Latino**	118	54,610	52,763	52,763	3.50	-0.00
	Non-Hispanic or Latino	789	500,725	502,571	502,571	-0.37	0.00
Gender	**Male**	423	258,030	258,030	258,030	0.00	0.00
	Female	484	297,304	297,304	297,304	0.00	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.11 2013 NSDUH Slippage Rates: FLORIDA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,649	16,599,656	16,599,656	16,599,656	0.00	0.00
Quarter	**Quarter 1**	819	4,129,846	4,129,846	4,129,846	0.00	-0.00
	Quarter 2	917	4,142,576	4,142,576	4,142,576	0.00	0.00
	Quarter 3	974	4,156,733	4,156,733	4,156,733	0.00	0.00
	Quarter 4	939	4,170,501	4,170,501	4,170,501	0.00	0.00
Age Group	**12-17**	1,157	1,393,461	1,387,520	1,387,520	0.43	0.00
	18-25	1,167	1,957,589	1,973,936	1,973,936	-0.83	0.00
	26-34	329	2,124,803	2,124,341	2,124,341	0.02	0.00
	35-49	491	3,621,958	3,647,706	3,647,706	-0.71	0.00
	50-64	297	4,179,291	3,882,230	3,882,230	7.65	0.00
	65+	208	3,322,554	3,583,922	3,583,923	-7.29	-0.00
Race	**White**	2,615	12,801,778	13,233,490	13,233,490	-3.26	0.00
	Black or African American	709	2,602,798	2,567,240	2,567,240	1.39	0.00
	Other	325	1,195,080	798,926	798,926	49.59	0.00
Hispanicity	**Hispanic or Latino**	1,094	3,895,536	3,802,327	3,802,327	2.45	0.00
	Non-Hispanic or Latino	2,555	12,704,120	12,797,329	12,797,329	-0.73	0.00
Gender	**Male**	1,771	7,994,036	7,974,396	7,974,396	0.25	0.00
	Female	1,878	8,605,620	8,625,260	8,625,260	-0.23	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.12 2013 NSDUH Slippage Rates: GEORGIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		852	8,133,541	8,133,541	8,133,541	0.00	0.00
Quarter	**Quarter 1**	174	2,025,829	2,025,829	2,025,829	0.00	0.00
	Quarter 2	285	2,031,085	2,031,085	2,031,085	0.00	0.00
	Quarter 3	208	2,036,158	2,036,158	2,036,158	0.00	0.00
	Quarter 4	185	2,040,470	2,040,470	2,040,470	-0.00	0.00
Age Group	**12-17**	290	834,298	834,836	834,836	-0.06	0.00
	18-25	303	1,172,121	1,103,523	1,103,523	6.22	0.00
	26-34	61	1,112,992	1,174,085	1,174,085	-5.20	0.00
	35-49	130	2,088,577	2,019,457	2,019,457	3.42	0.00
	50-64	46	1,936,266	1,836,358	1,836,358	5.44	0.00
	65+	22	989,286	1,165,283	1,165,283	-15.10	0.00
Race	**White**	454	5,119,585	5,188,028	5,188,028	-1.32	0.00
	Black or African American	321	2,452,478	2,475,820	2,475,820	-0.94	0.00
	Other	77	561,478	469,693	469,693	19.54	0.00
Hispanicity	**Hispanic or Latino**	76	704,456	654,127	654,127	7.69	0.00
	Non-Hispanic or Latino	776	7,429,085	7,479,415	7,479,415	-0.67	0.00
Gender	**Male**	410	3,865,656	3,875,187	3,875,187	-0.25	0.00
	Female	442	4,267,885	4,258,355	4,258,355	0.22	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.13 2013 NSDUH Slippage Rates: HAWAII

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		924	1,135,919	1,135,919	1,135,919	0.00	0.00
Quarter	**Quarter 1**	249	283,182	283,182	283,182	0.00	0.00
	Quarter 2	185	283,624	283,625	283,625	-0.00	0.00
	Quarter 3	257	284,247	284,247	284,247	0.00	0.00
	Quarter 4	233	284,866	284,866	284,866	0.00	0.00
Age Group	**12-17**	307	97,039	97,238	97,238	-0.20	-0.00
	18-25	308	135,145	140,183	140,183	-3.59	0.00
	26-34	87	169,959	164,282	164,282	3.46	0.00
	35-49	116	240,934	248,187	248,187	-2.92	0.00
	50-64	63	288,784	270,586	270,586	6.73	0.00
	65+	43	204,058	215,444	215,444	-5.29	0.00
Race	**White**	186	282,618	298,114	298,114	-5.20	0.00
	Black or African American	9	19,394	19,105	19,105	1.51	0.00
	Other	729	833,908	818,700	818,700	1.86	-0.00
Hispanicity	**Hispanic or Latino**	132	103,870	94,064	94,064	10.42	0.00
	Non-Hispanic or Latino	792	1,032,049	1,041,855	1,041,855	-0.94	-0.00
Gender	**Male**	436	558,188	554,596	554,596	0.65	-0.00
	Female	488	577,731	581,323	581,323	-0.62	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.14 2013 NSDUH Slippage Rates: IDAHO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		907	1,305,833	1,305,833	1,305,833	0.00	0.00
Quarter	**Quarter 1**	237	324,867	324,867	324,867	0.00	0.00
	Quarter 2	189	325,946	325,946	325,946	0.00	-0.00
	Quarter 3	254	327,028	327,028	327,028	0.00	0.00
	Quarter 4	227	327,992	327,993	327,993	-0.00	-0.00
Age Group	**12-17**	281	142,522	142,022	142,022	0.35	-0.00
	18-25	336	170,615	172,682	172,682	-1.20	-0.00
	26-34	103	186,362	186,107	186,107	0.14	-0.00
	35-49	92	288,217	286,905	286,905	0.46	-0.00
	50-64	54	299,838	299,351	299,351	0.16	0.00
	65+	41	218,280	218,766	218,766	-0.22	0.00
Race	**White**	823	1,214,504	1,230,839	1,230,839	-1.33	0.00
	Black or African American	10	10,879	9,064	9,064	20.02	0.00
	Other	74	80,450	65,930	65,930	22.02	-0.00
Hispanicity	**Hispanic or Latino**	131	140,257	135,431	135,431	3.56	0.00
	Non-Hispanic or Latino	776	1,165,576	1,170,402	1,170,402	-0.41	0.00
Gender	**Male**	450	645,417	645,417	645,417	0.00	0.00
	Female	457	660,416	660,416	660,416	-0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.15 2013 NSDUH Slippage Rates: ILLINOIS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,503	10,713,667	10,713,667	10,713,667	0.00	0.00
Quarter	**Quarter 1**	808	2,674,871	2,674,871	2,674,871	0.00	0.00
	Quarter 2	941	2,676,675	2,676,675	2,676,675	-0.00	0.00
	Quarter 3	964	2,679,547	2,679,547	2,679,547	0.00	0.00
	Quarter 4	790	2,682,575	2,682,575	2,682,575	0.00	0.00
Age Group	**12-17**	1,142	1,037,436	1,039,658	1,039,658	-0.21	0.00
	18-25	1,185	1,377,742	1,395,665	1,395,665	-1.28	-0.00
	26-34	314	1,604,602	1,579,582	1,579,582	1.58	0.00
	35-49	471	2,543,551	2,518,368	2,518,368	1.00	0.00
	50-64	263	2,847,426	2,495,983	2,495,983	14.08	0.00
	65+	128	1,302,910	1,684,412	1,684,412	-22.65	0.00
Race	**White**	2,459	7,962,272	8,437,891	8,437,891	-5.64	0.00
	Black or African American	596	1,539,700	1,512,058	1,512,058	1.83	0.00
	Other	448	1,211,696	763,718	763,718	58.66	0.00
Hispanicity	**Hispanic or Latino**	589	1,587,451	1,608,442	1,608,442	-1.31	0.00
	Non-Hispanic or Latino	2,914	9,126,216	9,105,226	9,105,226	0.23	0.00
Gender	**Male**	1,700	5,194,190	5,193,399	5,193,399	0.02	-0.00
	Female	1,803	5,519,477	5,520,268	5,520,268	-0.01	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.16 2013 NSDUH Slippage Rates: INDIANA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		894	5,430,975	5,430,975	5,430,975	0.00	0.00
Quarter	**Quarter 1**	193	1,354,173	1,354,173	1,354,173	0.00	0.00
	Quarter 2	255	1,356,327	1,356,327	1,356,327	0.00	0.00
	Quarter 3	253	1,358,952	1,358,952	1,358,952	0.00	0.00
	Quarter 4	193	1,361,523	1,361,523	1,361,523	0.00	0.00
Age Group	**12-17**	291	539,485	541,496	541,496	-0.37	0.00
	18-25	285	732,939	738,003	738,003	-0.69	0.00
	26-34	102	746,131	740,129	740,129	0.81	0.00
	35-49	122	1,240,646	1,239,572	1,239,572	0.09	0.00
	50-64	58	1,473,908	1,290,963	1,290,963	14.17	0.00
	65+	36	697,866	880,811	880,811	-20.77	-0.00
Race	**White**	731	4,659,266	4,750,979	4,750,979	-1.93	0.00
	Black or African American	96	488,136	480,684	480,684	1.55	0.00
	Other	67	283,572	199,312	199,312	42.28	0.00
Hispanicity	**Hispanic or Latino**	68	313,698	303,376	303,376	3.40	0.00
	Non-Hispanic or Latino	826	5,117,277	5,127,599	5,127,599	-0.20	0.00
Gender	**Male**	436	2,640,112	2,640,112	2,640,112	0.00	0.00
	Female	458	2,790,862	2,790,862	2,790,862	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.17 2013 NSDUH Slippage Rates: IOWA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		900	2,566,989	2,566,989	2,566,989	0.00	0.00
Quarter	**Quarter 1**	197	640,073	640,073	640,073	0.00	0.00
	Quarter 2	265	640,998	640,998	640,998	0.00	0.00
	Quarter 3	243	642,276	642,276	642,276	0.00	0.00
	Quarter 4	195	643,643	643,643	643,643	0.00	0.00
Age Group	**12-17**	287	241,880	242,247	242,247	-0.15	0.00
	18-25	314	350,495	350,483	350,483	0.00	0.00
	26-34	65	348,792	348,437	348,437	0.10	0.00
	35-49	125	542,213	549,146	549,146	-1.26	0.00
	50-64	74	757,514	618,486	618,486	22.48	-0.00
	65+	35	326,096	458,191	458,191	-28.83	0.00
Race	**White**	782	2,361,888	2,397,478	2,397,478	-1.48	-0.00
	Black or African American	44	73,529	74,509	74,509	-1.32	0.00
	Other	74	131,572	95,002	95,002	38.49	0.00
Hispanicity	**Hispanic or Latino**	61	107,066	119,140	119,140	-10.13	0.00
	Non-Hispanic or Latino	839	2,459,923	2,447,849	2,447,849	0.49	0.00
Gender	**Male**	434	1,263,345	1,265,175	1,265,175	-0.14	0.00
	Female	466	1,303,645	1,301,814	1,301,814	0.14	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.18 2013 NSDUH Slippage Rates: KANSAS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		887	2,344,171	2,344,171	2,344,171	0.00	0.00
Quarter	**Quarter 1**	208	585,028	585,028	585,028	0.00	0.00
	Quarter 2	246	585,542	585,542	585,542	0.00	0.00
	Quarter 3	210	586,374	586,374	586,374	0.00	0.00
	Quarter 4	223	587,227	587,227	587,227	0.00	0.00
Age Group	**12-17**	296	237,783	237,924	237,924	-0.06	0.00
	18-25	291	330,425	324,627	324,627	1.79	0.00
	26-34	67	321,053	334,671	334,671	-4.07	0.00
	35-49	122	514,247	506,286	506,286	1.57	0.00
	50-64	73	611,251	553,226	553,226	10.49	0.00
	65+	38	329,412	387,437	387,437	-14.98	0.00
Race	**White**	757	2,081,912	2,068,998	2,068,998	0.62	-0.00
	Black or African American	57	122,103	134,129	134,129	-8.97	0.00
	Other	73	140,155	141,043	141,043	-0.63	0.00
Hispanicity	**Hispanic or Latino**	104	248,151	227,949	227,949	8.86	0.00
	Non-Hispanic or Latino	783	2,096,019	2,116,221	2,116,221	-0.95	0.00
Gender	**Male**	435	1,151,378	1,148,238	1,148,238	0.27	0.00
	Female	452	1,192,792	1,195,933	1,195,933	-0.26	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.19 2013 NSDUH Slippage Rates: KENTUCKY

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		904	3,633,237	3,633,237	3,633,237	0.00	0.00
Quarter	**Quarter 1**	203	906,245	906,245	906,245	0.00	0.00
	Quarter 2	257	907,611	907,611	907,611	0.00	0.00
	Quarter 3	205	909,085	909,085	909,085	0.00	0.00
	Quarter 4	239	910,296	910,296	910,296	0.00	0.00
Age Group	**12-17**	302	343,512	340,478	340,478	0.89	0.00
	18-25	292	468,839	468,033	468,033	0.17	0.00
	26-34	88	478,849	485,659	485,659	-1.40	-0.00
	35-49	108	836,492	842,526	842,526	-0.72	0.00
	50-64	73	999,968	884,169	884,169	13.10	-0.00
	65+	41	505,577	612,372	612,372	-17.44	0.00
Race	**White**	769	3,250,449	3,254,018	3,254,018	-0.11	0.00
	Black or African American	88	275,822	275,967	275,967	-0.05	0.00
	Other	47	106,966	103,252	103,252	3.60	0.00
Hispanicity	**Hispanic or Latino**	35	100,020	100,135	100,135	-0.11	0.00
	Non-Hispanic or Latino	869	3,533,217	3,533,102	3,533,102	0.00	0.00
Gender	**Male**	452	1,761,868	1,756,298	1,756,298	0.32	-0.00
	Female	452	1,871,369	1,876,939	1,876,939	-0.30	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.20 2013 NSDUH Slippage Rates: LOUISIANA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		903	3,774,189	3,774,189	3,774,189	0.00	0.00
Quarter	**Quarter 1**	178	941,207	941,207	941,207	0.00	0.00
	Quarter 2	274	942,597	942,597	942,597	0.00	0.00
	Quarter 3	256	944,342	944,342	944,342	0.00	0.00
	Quarter 4	195	946,043	946,043	946,043	0.00	0.00
Age Group	**12-17**	296	365,669	367,993	367,993	-0.63	0.00
	18-25	274	517,486	520,801	520,801	-0.64	-0.00
	26-34	95	572,638	566,999	566,999	0.99	0.00
	35-49	111	825,954	832,080	832,080	-0.74	0.00
	50-64	87	1,007,102	892,342	892,342	12.86	0.00
	65+	40	485,341	593,975	593,975	-18.29	0.00
Race	**White**	472	2,388,209	2,467,342	2,467,342	-3.21	0.00
	Black or African American	372	1,179,756	1,166,487	1,166,487	1.14	-0.00
	Other	59	206,224	140,360	140,360	46.93	0.00
Hispanicity	**Hispanic or Latino**	42	213,476	166,111	166,111	28.51	0.00
	Non-Hispanic or Latino	861	3,560,712	3,608,078	3,608,078	-1.31	0.00
Gender	**Male**	425	1,801,555	1,800,028	1,800,028	0.08	0.00
	Female	478	1,972,634	1,974,161	1,974,161	-0.08	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.21 2013 NSDUH Slippage Rates: MAINE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		926	1,147,984	1,147,984	1,147,984	0.00	0.00
Quarter	**Quarter 1**	262	286,826	286,826	286,826	0.00	0.00
	Quarter 2	183	286,911	286,911	286,911	0.00	0.00
	Quarter 3	260	287,068	287,068	287,068	0.00	0.00
	Quarter 4	221	287,181	287,181	287,181	0.00	0.00
Age Group	**12-17**	328	94,311	94,311	94,311	0.00	0.00
	18-25	304	128,687	127,972	127,972	0.56	0.00
	26-34	62	132,482	133,197	133,197	-0.54	0.00
	35-49	114	252,000	252,000	252,000	0.00	0.00
	50-64	75	338,348	312,372	312,372	8.32	0.00
	65+	43	202,157	228,133	228,133	-11.39	0.00
Race	**White**	833	1,097,860	1,100,298	1,100,298	-0.22	0.00
	Black or African American	22	13,594	13,072	13,072	3.99	0.00
	Other	71	36,531	34,614	34,614	5.54	0.00
Hispanicity	**Hispanic or Latino**	21	11,097	14,410	14,410	-22.99	0.00
	Non-Hispanic or Latino	905	1,136,887	1,133,574	1,133,574	0.29	0.00
Gender	**Male**	463	556,844	557,284	557,284	-0.08	0.00
	Female	463	591,141	590,700	590,700	0.07	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.22 2013 NSDUH Slippage Rates: MARYLAND

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		925	4,947,041	4,947,041	4,947,041	0.00	0.00
Quarter	**Quarter 1**	195	1,233,007	1,233,007	1,233,007	0.00	-0.00
	Quarter 2	256	1,235,437	1,235,437	1,235,437	0.00	0.00
	Quarter 3	296	1,238,101	1,238,101	1,238,101	0.00	0.00
	Quarter 4	178	1,240,496	1,240,496	1,240,496	-0.00	-0.00
Age Group	**12-17**	298	451,352	455,935	455,935	-1.01	0.00
	18-25	304	619,732	630,762	630,762	-1.75	-0.00
	26-34	79	741,721	713,557	713,557	3.95	0.00
	35-49	145	1,152,457	1,179,559	1,179,559	-2.30	0.00
	50-64	58	1,222,990	1,195,634	1,195,634	2.29	0.00
	65+	41	758,789	771,594	771,594	-1.66	0.00
Race	**White**	551	2,830,340	3,053,411	3,053,411	-7.31	-0.00
	Black or African American	270	1,458,449	1,457,857	1,457,857	0.04	0.00
	Other	104	658,253	435,774	435,774	51.05	0.00
Hispanicity	**Hispanic or Latino**	75	306,232	403,953	403,953	-24.19	0.00
	Non-Hispanic or Latino	850	4,640,809	4,543,088	4,543,088	2.15	0.00
Gender	**Male**	454	2,354,358	2,354,606	2,354,606	-0.01	-0.00
	Female	471	2,592,683	2,592,436	2,592,436	0.01	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.23 2013 NSDUH Slippage Rates: MASSACHUSETTS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		897	5,711,595	5,711,595	5,711,595	0.00	0.00
Quarter	**Quarter 1**	258	1,423,156	1,423,156	1,423,156	0.00	0.00
	Quarter 2	226	1,426,106	1,426,106	1,426,106	0.00	0.00
	Quarter 3	153	1,429,513	1,429,513	1,429,513	0.00	0.00
	Quarter 4	260	1,432,820	1,432,820	1,432,820	0.00	0.00
Age Group	**12-17**	284	488,894	489,152	489,152	-0.05	0.00
	18-25	310	784,403	777,767	777,767	0.85	0.00
	26-34	85	794,966	807,035	807,035	-1.50	0.00
	35-49	110	1,308,190	1,317,205	1,317,205	-0.68	0.00
	50-64	66	1,459,156	1,368,223	1,368,223	6.65	0.00
	65+	42	875,985	952,213	952,213	-8.01	0.00
Race	**White**	658	4,590,029	4,812,113	4,812,113	-4.62	0.00
	Black or African American	87	456,670	433,160	433,160	5.43	0.00
	Other	152	664,896	466,322	466,322	42.58	0.00
Hispanicity	**Hispanic or Latino**	161	516,389	539,198	539,198	-4.23	0.00
	Non-Hispanic or Latino	736	5,195,206	5,172,397	5,172,397	0.44	0.00
Gender	**Male**	400	2,750,491	2,738,996	2,738,996	0.42	0.00
	Female	497	2,961,104	2,972,599	2,972,599	-0.39	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.24 2013 NSDUH Slippage Rates: MICHIGAN

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,636	8,346,148	8,346,148	8,346,148	0.00	0.00
Quarter	**Quarter 1**	762	2,083,781	2,083,781	2,083,781	0.00	0.00
	Quarter 2	1,114	2,085,304	2,085,304	2,085,304	0.00	0.00
	Quarter 3	908	2,087,498	2,087,498	2,087,498	0.00	0.00
	Quarter 4	852	2,089,566	2,089,566	2,089,566	0.00	0.00
Age Group	**12-17**	1,193	802,149	802,126	802,126	0.00	-0.00
	18-25	1,211	1,104,380	1,112,833	1,112,833	-0.76	0.00
	26-34	311	1,051,220	1,043,857	1,043,857	0.71	0.00
	35-49	508	1,861,533	1,856,307	1,856,307	0.28	0.00
	50-64	250	2,110,358	2,078,972	2,078,972	1.51	0.00
	65+	163	1,416,508	1,452,055	1,452,055	-2.45	0.00
Race	**White**	2,745	6,656,042	6,790,266	6,790,266	-1.98	0.00
	Black or African American	558	1,123,024	1,130,373	1,130,373	-0.65	-0.00
	Other	333	567,082	425,510	425,510	33.27	0.00
Hispanicity	**Hispanic or Latino**	253	326,170	341,684	341,684	-4.54	0.00
	Non-Hispanic or Latino	3,383	8,019,978	8,004,464	8,004,464	0.19	0.00
Gender	**Male**	1,732	4,060,432	4,046,057	4,046,057	0.36	0.00
	Female	1,904	4,285,716	4,300,091	4,300,091	-0.33	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.25 2013 NSDUH Slippage Rates: MINNESOTA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		906	4,509,704	4,509,704	4,509,704	0.00	0.00
Quarter	**Quarter 1**	203	1,123,669	1,123,669	1,123,669	0.00	0.00
	Quarter 2	267	1,126,067	1,126,067	1,126,067	0.00	0.00
	Quarter 3	245	1,128,735	1,128,735	1,128,735	0.00	0.00
	Quarter 4	191	1,131,233	1,131,233	1,131,233	0.00	-0.00
Age Group	**12-17**	286	421,621	424,921	424,921	-0.78	0.00
	18-25	306	569,677	571,675	571,675	-0.35	0.00
	26-34	86	668,500	664,103	664,103	0.66	0.00
	35-49	110	1,002,390	1,022,491	1,022,491	-1.97	0.00
	50-64	70	1,113,791	1,099,654	1,099,654	1.29	0.00
	65+	48	733,724	726,861	726,861	0.94	-0.00
Race	**White**	728	3,873,226	3,961,877	3,961,877	-2.24	-0.00
	Black or African American	64	234,249	226,196	226,196	3.56	0.00
	Other	114	402,229	321,631	321,631	25.06	0.00
Hispanicity	**Hispanic or Latino**	59	164,790	191,320	191,320	-13.87	0.00
	Non-Hispanic or Latino	847	4,344,915	4,318,385	4,318,385	0.61	-0.00
Gender	**Male**	428	2,197,930	2,225,484	2,225,484	-1.24	0.00
	Female	478	2,311,774	2,284,220	2,284,220	1.21	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.26 2013 NSDUH Slippage Rates: MISSISSIPPI

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		918	2,428,802	2,428,802	2,428,802	0.00	-0.00
Quarter	**Quarter 1**	246	606,381	606,381	606,381	0.00	0.00
	Quarter 2	201	606,797	606,797	606,797	0.00	0.00
	Quarter 3	229	607,466	607,466	607,466	0.00	0.00
	Quarter 4	242	608,158	608,158	608,158	0.00	-0.00
Age Group	**12-17**	334	244,519	246,305	246,305	-0.73	0.00
	18-25	280	328,688	338,137	338,137	-2.79	-0.00
	26-34	87	349,136	332,207	332,207	5.10	0.00
	35-49	126	536,141	541,834	541,834	-1.05	-0.00
	50-64	49	538,688	567,532	567,532	-5.08	-0.00
	65+	42	431,630	402,786	402,786	7.16	-0.00
Race	**White**	457	1,469,345	1,493,821	1,493,821	-1.64	-0.00
	Black or African American	412	848,856	876,125	876,125	-3.11	-0.00
	Other	49	110,601	58,857	58,857	87.92	0.00
Hispanicity	**Hispanic or Latino**	37	65,622	60,237	60,237	8.94	-0.00
	Non-Hispanic or Latino	881	2,363,180	2,368,565	2,368,565	-0.23	0.00
Gender	**Male**	445	1,149,228	1,148,599	1,148,599	0.05	-0.00
	Female	473	1,279,573	1,280,203	1,280,203	-0.05	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.27 2013 NSDUH Slippage Rates: MISSOURI

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		917	5,009,791	5,009,791	5,009,791	-0.00	-0.00
Quarter	**Quarter 1**	188	1,250,081	1,250,081	1,250,081	-0.00	-0.00
	Quarter 2	238	1,251,388	1,251,387	1,251,388	0.00	-0.00
	Quarter 3	256	1,253,225	1,253,225	1,253,225	0.00	0.00
	Quarter 4	235	1,255,097	1,255,097	1,255,097	0.00	-0.00
Age Group	**12-17**	301	467,643	471,719	471,719	-0.86	0.00
	18-25	292	655,634	655,369	655,369	0.04	0.00
	26-34	76	687,362	697,909	697,909	-1.51	0.00
	35-49	139	1,122,553	1,100,794	1,100,794	1.98	0.00
	50-64	69	1,396,724	1,211,822	1,211,822	15.26	0.00
	65+	40	679,875	872,178	872,178	-22.05	-0.00
Race	**White**	747	4,137,541	4,251,915	4,251,915	-2.69	-0.00
	Black or African American	104	582,763	555,286	555,286	4.95	0.00
	Other	66	289,487	202,590	202,590	42.89	0.00
Hispanicity	**Hispanic or Latino**	57	179,663	167,334	167,334	7.37	0.00
	Non-Hispanic or Latino	860	4,830,128	4,842,457	4,842,458	-0.25	-0.00
Gender	**Male**	438	2,399,578	2,418,809	2,418,809	-0.80	0.00
	Female	479	2,610,213	2,590,982	2,590,982	0.74	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.28 2013 NSDUH Slippage Rates: MONTANA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		910	850,469	850,469	850,469	0.00	0.00
Quarter	**Quarter 1**	279	211,823	211,823	211,823	0.00	0.00
	Quarter 2	230	212,353	212,353	212,353	0.00	0.00
	Quarter 3	176	212,900	212,900	212,900	0.00	0.00
	Quarter 4	225	213,392	213,392	213,392	0.00	0.00
Age Group	**12-17**	312	73,458	74,018	74,018	-0.76	-0.00
	18-25	306	107,653	110,155	110,155	-2.27	-0.00
	26-34	76	114,679	111,725	111,725	2.64	0.00
	35-49	117	168,005	172,421	172,421	-2.56	-0.00
	50-64	59	227,825	221,979	221,979	2.63	-0.00
	65+	40	158,848	160,172	160,172	-0.83	0.00
Race	**White**	768	763,609	773,341	773,341	-1.26	0.00
	Black or African American	9	5,305	4,111	4,112	29.04	-0.00
	Other	133	81,554	73,016	73,016	11.69	-0.00
Hispanicity	**Hispanic or Latino**	42	25,844	24,660	24,660	4.81	0.00
	Non-Hispanic or Latino	868	824,624	825,809	825,809	-0.14	0.00
Gender	**Male**	439	421,729	423,300	423,300	-0.37	-0.00
	Female	471	428,740	427,169	427,169	0.37	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.29 2013 NSDUH Slippage Rates: NEBRASKA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		910	1,524,399	1,524,399	1,524,399	-0.00	-0.00
Quarter	**Quarter 1**	219	379,870	379,870	379,870	0.00	-0.00
	Quarter 2	210	380,590	380,590	380,590	0.00	0.00
	Quarter 3	252	381,502	381,502	381,502	0.00	0.00
	Quarter 4	229	382,436	382,437	382,437	-0.00	0.00
Age Group	**12-17**	320	148,230	148,681	148,681	-0.30	0.00
	18-25	303	204,389	208,331	208,331	-1.89	0.00
	26-34	84	233,476	223,591	223,591	4.42	0.00
	35-49	104	322,800	331,711	331,711	-2.69	0.00
	50-64	62	389,619	359,367	359,368	8.42	-0.00
	65+	37	225,886	252,718	252,718	-10.62	0.00
Race	**White**	786	1,376,515	1,385,234	1,385,234	-0.63	-0.00
	Black or African American	47	69,640	67,374	67,374	3.36	0.00
	Other	77	78,244	71,792	71,792	8.99	0.00
Hispanicity	**Hispanic or Latino**	113	137,393	129,972	129,972	5.71	-0.00
	Non-Hispanic or Latino	797	1,387,006	1,394,427	1,394,427	-0.53	0.00
Gender	**Male**	412	743,788	750,399	750,399	-0.88	-0.00
	Female	498	780,612	774,000	774,000	0.85	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.30 2013 NSDUH Slippage Rates: NEVADA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		932	2,312,257	2,312,257	2,312,257	0.00	0.00
Quarter	**Quarter 1**	201	575,059	575,059	575,059	0.00	-0.00
	Quarter 2	231	577,102	577,102	577,102	0.00	-0.00
	Quarter 3	252	579,149	579,149	579,149	0.00	0.00
	Quarter 4	248	580,947	580,947	580,947	0.00	0.00
Age Group	**12-17**	310	220,958	221,435	221,435	-0.22	-0.00
	18-25	310	282,984	286,394	286,394	-1.19	-0.00
	26-34	83	331,646	346,128	346,128	-4.18	-0.00
	35-49	121	571,522	558,630	558,630	2.31	-0.00
	50-64	59	531,721	523,688	523,688	1.53	-0.00
	65+	49	373,425	375,981	375,981	-0.68	0.00
Race	**White**	669	1,692,764	1,793,235	1,793,235	-5.60	0.00
	Black or African American	96	207,824	198,198	198,198	4.86	0.00
	Other	167	411,669	320,825	320,825	28.32	0.00
Hispanicity	**Hispanic or Latino**	371	612,284	581,075	581,075	5.37	0.00
	Non-Hispanic or Latino	561	1,699,972	1,731,181	1,731,181	-1.80	0.00
Gender	**Male**	441	1,159,269	1,150,383	1,150,383	0.77	0.00
	Female	491	1,152,987	1,161,874	1,161,874	-0.76	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.31 2013 NSDUH Slippage Rates: NEW HAMPSHIRE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		953	1,137,904	1,137,904	1,137,904	0.00	0.00
Quarter	**Quarter 1**	194	284,099	284,099	284,099	0.00	0.00
	Quarter 2	256	284,357	284,357	284,357	0.00	0.00
	Quarter 3	224	284,626	284,626	284,626	0.00	0.00
	Quarter 4	279	284,822	284,822	284,822	0.00	0.00
Age Group	**12-17**	304	100,312	100,312	100,312	0.00	0.00
	18-25	316	139,539	140,525	140,525	-0.70	0.00
	26-34	79	134,576	134,401	134,401	0.13	0.00
	35-49	144	262,510	261,699	261,699	0.31	0.00
	50-64	74	340,223	305,559	305,559	11.34	0.00
	65+	36	160,744	195,407	195,407	-17.74	0.00
Race	**White**	869	1,067,311	1,078,892	1,078,892	-1.07	0.00
	Black or African American	18	18,173	15,332	15,332	18.53	0.00
	Other	66	52,420	43,679	43,679	20.01	0.00
Hispanicity	**Hispanic or Latino**	40	34,023	31,495	31,495	8.03	0.00
	Non-Hispanic or Latino	913	1,103,881	1,106,409	1,106,409	-0.23	0.00
Gender	**Male**	473	558,879	558,879	558,879	0.00	0.00
	Female	480	579,025	579,025	579,025	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.32 2013 NSDUH Slippage Rates: NEW JERSEY

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		913	7,476,944	7,476,944	7,476,944	0.00	0.00
Quarter	**Quarter 1**	185	1,865,183	1,865,184	1,865,184	-0.00	0.00
	Quarter 2	261	1,867,376	1,867,376	1,867,376	0.00	0.00
	Quarter 3	204	1,870,502	1,870,502	1,870,502	0.00	0.00
	Quarter 4	263	1,873,883	1,873,883	1,873,883	0.00	0.00
Age Group	**12-17**	292	702,127	703,594	703,594	-0.21	0.00
	18-25	310	901,249	887,966	887,966	1.50	0.00
	26-34	72	1,027,350	1,011,593	1,011,593	1.56	0.00
	35-49	138	1,795,239	1,822,812	1,822,812	-1.51	0.00
	50-64	54	1,637,689	1,804,882	1,804,882	-9.26	0.00
	65+	47	1,413,290	1,246,097	1,246,097	13.42	0.00
Race	**White**	589	5,171,854	5,571,483	5,571,483	-7.17	-0.00
	Black or African American	138	1,029,983	1,053,190	1,053,190	-2.20	-0.00
	Other	186	1,275,107	852,271	852,271	49.61	0.00
Hispanicity	**Hispanic or Latino**	203	1,391,916	1,327,285	1,327,285	4.87	0.00
	Non-Hispanic or Latino	710	6,085,028	6,149,659	6,149,659	-1.05	0.00
Gender	**Male**	449	3,610,256	3,601,331	3,601,331	0.25	0.00
	Female	464	3,866,688	3,875,614	3,875,614	-0.23	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.33 2013 NSDUH Slippage Rates: NEW MEXICO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		922	1,707,564	1,707,564	1,707,564	0.00	-0.00
Quarter	**Quarter 1**	227	426,529	426,529	426,529	0.00	-0.00
	Quarter 2	238	426,729	426,729	426,729	0.00	-0.00
	Quarter 3	224	427,033	427,033	427,033	-0.00	-0.00
	Quarter 4	233	427,273	427,273	427,273	0.00	0.00
Age Group	**12-17**	295	166,402	167,385	167,385	-0.59	0.00
	18-25	296	229,348	229,365	229,365	-0.01	0.00
	26-34	119	241,475	238,521	238,521	1.24	0.00
	35-49	119	382,196	360,951	360,951	5.89	-0.00
	50-64	69	500,048	409,770	409,770	22.03	-0.00
	65+	24	188,096	301,571	301,571	-37.63	0.00
Race	**White**	720	1,376,392	1,434,469	1,434,470	-4.05	-0.00
	Black or African American	14	32,132	39,213	39,213	-18.06	0.00
	Other	188	299,039	233,881	233,882	27.86	-0.00
Hispanicity	**Hispanic or Latino**	528	781,977	771,852	771,852	1.31	0.00
	Non-Hispanic or Latino	394	925,586	935,711	935,712	-1.08	-0.00
Gender	**Male**	427	830,483	830,483	830,483	-0.00	-0.00
	Female	495	877,081	877,081	877,081	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.34 2013 NSDUH Slippage Rates: NEW YORK

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,637	16,619,482	16,619,482	16,619,482	-0.00	0.00
Quarter	**Quarter 1**	845	4,146,469	4,146,469	4,146,469	-0.00	0.00
	Quarter 2	868	4,151,110	4,151,110	4,151,110	0.00	0.00
	Quarter 3	1,086	4,157,574	4,157,574	4,157,574	-0.00	0.00
	Quarter 4	838	4,164,329	4,164,329	4,164,329	-0.00	0.00
Age Group	**12-17**	1,301	1,456,273	1,446,714	1,446,714	0.66	0.00
	18-25	1,126	2,238,448	2,239,850	2,239,850	-0.06	0.00
	26-34	303	2,475,024	2,471,876	2,471,876	0.13	0.00
	35-49	494	3,869,742	3,851,643	3,851,643	0.47	0.00
	50-64	263	4,209,614	3,869,424	3,869,424	8.79	0.00
	65+	150	2,370,381	2,739,975	2,739,975	-13.49	0.00
Race	**White**	2,289	10,868,088	11,933,457	11,933,457	-8.93	-0.00
	Black or African American	686	2,982,766	2,809,762	2,809,762	6.16	0.00
	Other	662	2,768,628	1,876,264	1,876,264	47.56	0.00
Hispanicity	**Hispanic or Latino**	827	2,932,438	2,886,999	2,886,999	1.57	0.00
	Non-Hispanic or Latino	2,810	13,687,045	13,732,483	13,732,483	-0.33	0.00
Gender	**Male**	1,790	7,974,722	7,953,533	7,953,533	0.27	0.00
	Female	1,847	8,644,760	8,665,949	8,665,949	-0.24	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.35 2013 NSDUH Slippage Rates: NORTH CAROLINA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		880	8,114,142	8,114,142	8,114,142	0.00	0.00
Quarter	**Quarter 1**	191	2,019,193	2,019,193	2,019,193	0.00	-0.00
	Quarter 2	341	2,025,376	2,025,376	2,025,376	0.00	0.00
	Quarter 3	196	2,031,873	2,031,873	2,031,873	0.00	0.00
	Quarter 4	152	2,037,700	2,037,700	2,037,700	0.00	0.00
Age Group	**12-17**	265	780,160	768,619	768,619	1.50	0.00
	18-25	291	1,058,142	1,050,264	1,050,264	0.75	0.00
	26-34	94	1,055,437	1,090,515	1,090,515	-3.22	0.00
	35-49	142	1,934,608	1,938,591	1,938,591	-0.21	-0.00
	50-64	50	1,676,835	1,899,247	1,899,247	-11.71	0.00
	65+	38	1,608,960	1,366,906	1,366,906	17.71	0.00
Race	**White**	581	5,705,735	5,920,024	5,920,024	-3.62	0.00
	Black or African American	214	1,774,737	1,741,441	1,741,441	1.91	0.00
	Other	85	633,669	452,676	452,676	39.98	0.00
Hispanicity	**Hispanic or Latino**	83	614,089	610,313	610,313	0.62	0.00
	Non-Hispanic or Latino	797	7,500,052	7,503,829	7,503,829	-0.05	0.00
Gender	**Male**	397	3,857,433	3,857,433	3,857,433	0.00	0.00
	Female	483	4,256,709	4,256,709	4,256,709	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.36 2013 NSDUH Slippage Rates: NORTH DAKOTA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		945	593,987	593,987	593,987	0.00	0.00
Quarter	**Quarter 1**	160	146,860	146,860	146,860	0.00	0.00
	Quarter 2	284	147,891	147,891	147,891	0.00	0.00
	Quarter 3	315	149,029	149,029	149,029	0.00	0.00
	Quarter 4	186	150,206	150,206	150,206	-0.00	0.00
Age Group	**12-17**	298	50,864	50,250	50,250	1.22	0.00
	18-25	312	97,705	99,046	99,046	-1.35	0.00
	26-34	103	89,209	89,204	89,204	0.01	0.00
	35-49	116	127,398	118,966	118,966	7.09	0.00
	50-64	72	155,830	139,387	139,387	11.80	0.00
	65+	44	72,980	97,134	97,134	-24.87	0.00
Race	**White**	825	519,585	541,070	541,070	-3.97	0.00
	Black or African American	15	8,892	9,102	9,102	-2.31	0.00
	Other	105	65,510	43,815	43,815	49.52	0.00
Hispanicity	**Hispanic or Latino**	28	26,081	14,536	14,536	79.43	0.00
	Non-Hispanic or Latino	917	567,906	579,451	579,451	-1.99	0.00
Gender	**Male**	480	300,939	301,395	301,395	-0.15	0.00
	Female	465	293,047	292,592	292,592	0.16	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.37 2013 NSDUH Slippage Rates: OHIO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,568	9,677,958	9,677,958	9,677,958	-0.00	-0.00
Quarter	**Quarter 1**	838	2,416,064	2,416,064	2,416,064	-0.00	0.00
	Quarter 2	933	2,417,789	2,417,789	2,417,789	-0.00	0.00
	Quarter 3	972	2,420,594	2,420,594	2,420,594	0.00	0.00
	Quarter 4	825	2,423,511	2,423,511	2,423,511	-0.00	-0.00
Age Group	**12-17**	1,215	921,059	924,863	924,863	-0.41	0.00
	18-25	1,162	1,227,830	1,238,671	1,238,671	-0.88	0.00
	26-34	340	1,288,059	1,273,604	1,273,605	1.13	-0.00
	35-49	446	2,161,552	2,159,995	2,159,995	0.07	0.00
	50-64	246	2,474,683	2,394,026	2,394,026	3.37	0.00
	65+	159	1,604,775	1,686,798	1,686,798	-4.86	0.00
Race	**White**	2,776	8,049,826	8,182,885	8,182,885	-1.63	0.00
	Black or African American	554	1,147,359	1,138,537	1,138,537	0.77	-0.00
	Other	238	480,774	356,536	356,536	34.85	0.00
Hispanicity	**Hispanic or Latino**	174	298,034	281,951	281,951	5.70	-0.00
	Non-Hispanic or Latino	3,394	9,379,924	9,396,007	9,396,007	-0.17	0.00
Gender	**Male**	1,753	4,672,825	4,673,796	4,673,796	-0.02	-0.00
	Female	1,815	5,005,133	5,004,162	5,004,162	0.02	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.38 2013 NSDUH Slippage Rates: OKLAHOMA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		950	3,130,656	3,130,656	3,130,656	0.00	0.00
Quarter	**Quarter 1**	241	779,589	779,589	779,589	0.00	0.00
	Quarter 2	231	781,473	781,473	781,473	0.00	0.00
	Quarter 3	238	783,677	783,677	783,677	0.00	0.00
	Quarter 4	240	785,917	785,917	785,917	0.00	0.00
Age Group	**12-17**	343	305,356	308,182	308,182	-0.92	0.00
	18-25	319	425,035	428,032	428,032	-0.70	0.00
	26-34	66	460,652	454,830	454,830	1.28	0.00
	35-49	114	701,846	681,907	681,907	2.92	0.00
	50-64	66	721,933	725,574	725,574	-0.50	0.00
	65+	42	515,834	532,132	532,132	-3.06	0.00
Race	**White**	622	2,346,585	2,418,142	2,418,142	-2.96	0.00
	Black or African American	107	232,242	225,387	225,387	3.04	0.00
	Other	221	551,829	487,127	487,127	13.28	0.00
Hispanicity	**Hispanic or Latino**	118	267,150	258,498	258,498	3.35	0.00
	Non-Hispanic or Latino	832	2,863,506	2,872,158	2,872,158	-0.30	0.00
Gender	**Male**	452	1,519,612	1,520,819	1,520,819	-0.08	0.00
	Female	498	1,611,044	1,609,837	1,609,837	0.07	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.39 2013 NSDUH Slippage Rates: OREGON

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		861	3,327,918	3,327,918	3,327,918	0.00	-0.00
Quarter	**Quarter 1**	196	829,172	829,172	829,172	-0.00	-0.00
	Quarter 2	249	831,055	831,055	831,055	0.00	-0.00
	Quarter 3	293	833,006	833,006	833,006	0.00	-0.00
	Quarter 4	123	834,686	834,686	834,686	0.00	-0.00
Age Group	**12-17**	261	291,595	291,705	291,705	-0.04	0.00
	18-25	286	405,049	413,732	413,732	-2.10	0.00
	26-34	98	483,203	476,519	476,519	1.40	-0.00
	35-49	112	744,415	747,498	747,498	-0.41	-0.00
	50-64	73	975,288	801,012	801,012	21.76	0.00
	65+	31	428,368	597,451	597,451	-28.30	-0.00
Race	**White**	705	2,812,256	2,962,433	2,962,433	-5.07	-0.00
	Black or African American	19	48,692	61,888	61,888	-21.32	0.00
	Other	137	466,970	303,597	303,597	53.81	-0.00
Hispanicity	**Hispanic or Latino**	153	348,756	352,284	352,284	-1.00	0.00
	Non-Hispanic or Latino	708	2,979,162	2,975,634	2,975,634	0.12	-0.00
Gender	**Male**	409	1,607,106	1,628,813	1,628,813	-1.33	0.00
	Female	452	1,720,812	1,699,104	1,699,105	1.28	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.40 2013 NSDUH Slippage Rates: PENNSYLVANIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,663	10,808,879	10,808,879	10,808,879	-0.00	-0.00
Quarter	**Quarter 1**	858	2,699,587	2,699,587	2,699,587	-0.00	-0.00
	Quarter 2	960	2,700,438	2,700,438	2,700,439	-0.00	-0.00
	Quarter 3	906	2,702,922	2,702,922	2,702,922	-0.00	0.00
	Quarter 4	939	2,705,931	2,705,931	2,705,931	-0.00	0.00
Age Group	**12-17**	1,145	944,162	945,209	945,209	-0.11	0.00
	18-25	1,214	1,389,291	1,391,012	1,391,012	-0.12	0.00
	26-34	361	1,415,298	1,405,575	1,405,575	0.69	0.00
	35-49	501	2,378,464	2,367,439	2,367,439	0.47	0.00
	50-64	253	2,746,558	2,682,300	2,682,300	2.40	-0.00
	65+	189	1,935,106	2,017,344	2,017,344	-4.08	0.00
Race	**White**	2,932	8,906,695	9,149,478	9,149,478	-2.65	-0.00
	Black or African American	451	1,185,135	1,147,315	1,147,315	3.30	-0.00
	Other	280	717,049	512,086	512,086	40.03	0.00
Hispanicity	**Hispanic or Latino**	325	615,749	593,742	593,742	3.71	-0.00
	Non-Hispanic or Latino	3,338	10,193,130	10,215,137	10,215,137	-0.22	0.00
Gender	**Male**	1,812	5,220,548	5,210,087	5,210,087	0.20	0.00
	Female	1,851	5,588,331	5,598,792	5,598,792	-0.19	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.41 2013 NSDUH Slippage Rates: RHODE ISLAND

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		904	897,301	897,301	897,301	0.00	0.00
Quarter	**Quarter 1**	229	224,083	224,083	224,083	0.00	0.00
	Quarter 2	223	224,170	224,170	224,170	0.00	0.00
	Quarter 3	255	224,390	224,390	224,390	0.00	0.00
	Quarter 4	197	224,658	224,658	224,658	0.00	0.00
Age Group	**12-17**	312	75,840	75,840	75,840	0.00	0.00
	18-25	288	130,873	131,461	131,461	-0.45	0.00
	26-34	63	117,842	117,411	117,411	0.37	0.00
	35-49	124	191,272	198,221	198,221	-3.51	-0.00
	50-64	83	263,114	218,684	218,684	20.32	0.00
	65+	34	118,360	155,685	155,685	-23.97	0.00
Race	**White**	703	718,586	779,668	779,668	-7.83	-0.00
	Black or African American	81	86,116	61,703	61,703	39.57	0.00
	Other	120	92,600	55,931	55,931	65.56	0.00
Hispanicity	**Hispanic or Latino**	154	115,686	108,698	108,698	6.43	0.00
	Non-Hispanic or Latino	750	781,615	788,603	788,603	-0.89	0.00
Gender	**Male**	459	429,190	429,190	429,190	0.00	0.00
	Female	445	468,111	468,111	468,111	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.42 2013 NSDUH Slippage Rates: SOUTH CAROLINA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		908	3,952,463	3,952,463	3,952,463	0.00	0.00
Quarter	**Quarter 1**	208	983,361	983,361	983,361	-0.00	0.00
	Quarter 2	255	986,649	986,649	986,649	0.00	0.00
	Quarter 3	221	989,827	989,827	989,827	0.00	0.00
	Quarter 4	224	992,626	992,626	992,626	0.00	-0.00
Age Group	**12-17**	320	363,398	360,577	360,578	0.78	-0.00
	18-25	284	548,217	522,721	522,722	4.88	-0.00
	26-34	51	491,393	523,138	523,138	-6.07	0.00
	35-49	134	880,957	887,743	887,743	-0.76	0.00
	50-64	80	1,078,324	947,696	947,696	13.78	0.00
	65+	39	590,174	710,587	710,587	-16.95	0.00
Race	**White**	574	2,687,359	2,763,553	2,763,553	-2.76	0.00
	Black or African American	274	1,067,309	1,060,777	1,060,777	0.62	-0.00
	Other	60	197,795	128,133	128,133	54.37	0.00
Hispanicity	**Hispanic or Latino**	46	186,455	181,074	181,074	2.97	0.00
	Non-Hispanic or Latino	862	3,766,008	3,771,389	3,771,389	-0.14	0.00
Gender	**Male**	410	1,881,590	1,877,193	1,877,193	0.23	0.00
	Female	498	2,070,873	2,075,270	2,075,270	-0.21	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.43 2013 NSDUH Slippage Rates: SOUTH DAKOTA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		889	685,112	685,112	685,112	0.00	0.00
Quarter	**Quarter 1**	218	170,427	170,427	170,427	0.00	0.00
	Quarter 2	294	170,976	170,976	170,976	0.00	0.00
	Quarter 3	203	171,570	171,570	171,570	0.00	0.00
	Quarter 4	174	172,140	172,140	172,140	0.00	0.00
Age Group	**12-17**	303	65,062	65,259	65,259	-0.30	0.00
	18-25	284	94,724	93,194	93,194	1.64	0.00
	26-34	82	92,151	96,952	96,952	-4.95	0.00
	35-49	101	145,293	141,825	141,825	2.44	0.00
	50-64	63	157,977	167,921	167,921	-5.92	0.00
	65+	56	129,905	119,961	119,961	8.29	0.00
Race	**White**	745	599,043	602,624	602,624	-0.59	0.00
	Black or African American	15	12,136	11,454	11,454	5.96	0.00
	Other	129	73,934	71,035	71,035	4.08	0.00
Hispanicity	**Hispanic or Latino**	40	30,036	19,827	19,827	51.49	0.00
	Non-Hispanic or Latino	849	655,076	665,286	665,286	-1.53	0.00
Gender	**Male**	427	342,683	340,125	340,125	0.75	0.00
	Female	462	342,429	344,988	344,988	-0.74	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.44 2013 NSDUH Slippage Rates: TENNESSEE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		894	5,407,982	5,407,982	5,407,982	-0.00	-0.00
Quarter	**Quarter 1**	214	1,347,863	1,347,863	1,347,863	0.00	0.00
	Quarter 2	265	1,350,542	1,350,542	1,350,542	0.00	-0.00
	Quarter 3	195	1,353,471	1,353,471	1,353,471	0.00	0.00
	Quarter 4	220	1,356,106	1,356,106	1,356,106	-0.00	-0.00
Age Group	**12-17**	315	502,408	505,527	505,527	-0.62	-0.00
	18-25	290	697,308	697,396	697,396	-0.01	0.00
	26-34	99	726,142	737,130	737,130	-1.49	-0.00
	35-49	102	1,262,333	1,256,976	1,256,976	0.43	0.00
	50-64	53	1,357,001	1,286,630	1,286,630	5.47	0.00
	65+	35	862,790	924,323	924,324	-6.66	-0.00
Race	**White**	690	4,291,581	4,347,659	4,347,659	-1.29	-0.00
	Black or African American	149	908,183	878,285	878,285	3.40	-0.00
	Other	55	208,218	182,039	182,039	14.38	0.00
Hispanicity	**Hispanic or Latino**	48	234,883	223,834	223,834	4.94	0.00
	Non-Hispanic or Latino	846	5,173,099	5,184,148	5,184,148	-0.21	-0.00
Gender	**Male**	441	2,577,689	2,594,345	2,594,345	-0.64	-0.00
	Female	453	2,830,293	2,813,637	2,813,637	0.59	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.45 2013 NSDUH Slippage Rates: TEXAS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,604	21,223,105	21,223,105	21,223,105	-0.00	0.00
Quarter	**Quarter 1**	924	5,272,426	5,272,426	5,272,426	0.00	0.00
	Quarter 2	881	5,294,638	5,294,638	5,294,638	0.00	0.00
	Quarter 3	961	5,317,370	5,317,370	5,317,370	-0.00	0.00
	Quarter 4	838	5,338,671	5,338,671	5,338,671	0.00	0.00
Age Group	**12-17**	1,137	2,311,941	2,311,623	2,311,623	0.01	0.00
	18-25	1,204	2,962,737	2,985,606	2,985,606	-0.77	0.00
	26-34	371	3,367,699	3,325,386	3,325,386	1.27	0.00
	35-49	501	5,149,472	5,146,575	5,146,575	0.06	0.00
	50-64	254	4,844,600	4,571,599	4,571,599	5.97	0.00
	65+	137	2,586,656	2,882,317	2,882,317	-10.26	0.00
Race	**White**	2,739	16,272,353	17,177,845	17,177,845	-5.27	0.00
	Black or African American	439	2,614,693	2,553,822	2,553,822	2.38	0.00
	Other	426	2,336,059	1,491,438	1,491,438	56.63	0.00
Hispanicity	**Hispanic or Latino**	1,698	7,735,546	7,668,452	7,668,452	0.87	0.00
	Non-Hispanic or Latino	1,906	13,487,559	13,554,653	13,554,653	-0.49	0.00
Gender	**Male**	1,697	10,335,753	10,350,823	10,350,823	-0.15	0.00
	Female	1,907	10,887,352	10,872,282	10,872,282	0.14	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.46 2013 NSDUH Slippage Rates: UTAH

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		930	2,258,561	2,258,560	2,258,561	0.00	-0.00
Quarter	**Quarter 1**	209	560,563	560,563	560,563	0.00	0.00
	Quarter 2	253	563,313	563,313	563,314	-0.00	-0.00
	Quarter 3	207	566,069	566,069	566,069	0.00	0.00
	Quarter 4	261	568,615	568,615	568,615	-0.00	-0.00
Age Group	**12-17**	318	278,975	279,317	279,317	-0.12	0.00
	18-25	338	371,323	370,856	370,856	0.13	-0.00
	26-34	87	380,836	390,884	390,884	-2.57	0.00
	35-49	112	535,241	515,618	515,619	3.81	-0.00
	50-64	46	434,444	422,783	422,783	2.76	0.00
	65+	29	257,741	279,102	279,102	-7.65	-0.00
Race	**White**	850	2,088,507	2,082,981	2,082,982	0.27	-0.00
	Black or African American	6	28,285	27,052	27,052	4.56	-0.00
	Other	74	141,769	148,527	148,527	-4.55	-0.00
Hispanicity	**Hispanic or Latino**	167	296,482	277,300	277,300	6.92	-0.00
	Non-Hispanic or Latino	763	1,962,078	1,981,261	1,981,261	-0.97	0.00
Gender	**Male**	438	1,123,453	1,123,453	1,123,453	0.00	-0.00
	Female	492	1,135,107	1,135,107	1,135,107	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.47 2013 NSDUH Slippage Rates: VERMONT

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		875	542,516	542,516	542,516	0.00	0.00
Quarter	**Quarter 1**	184	135,514	135,514	135,514	0.00	0.00
	Quarter 2	286	135,591	135,591	135,591	0.00	-0.00
	Quarter 3	213	135,683	135,683	135,683	0.00	0.00
	Quarter 4	192	135,728	135,728	135,728	0.00	0.00
Age Group	**12-17**	274	44,642	44,641	44,641	0.00	0.00
	18-25	296	72,827	73,683	73,683	-1.16	-0.00
	26-34	70	64,721	63,867	63,867	1.34	-0.00
	35-49	117	117,763	115,743	115,743	1.75	0.00
	50-64	66	127,999	145,398	145,398	-11.97	0.00
	65+	52	114,564	99,185	99,185	15.50	0.00
Race	**White**	801	512,139	519,287	519,287	-1.38	-0.00
	Black or African American	18	7,663	5,710	5,710	34.20	0.00
	Other	56	22,714	17,519	17,519	29.65	0.00
Hispanicity	**Hispanic or Latino**	21	7,626	8,511	8,511	-10.39	-0.00
	Non-Hispanic or Latino	854	534,890	534,005	534,005	0.17	0.00
Gender	**Male**	445	266,321	265,752	265,752	0.21	-0.00
	Female	430	276,195	276,764	276,764	-0.21	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.48 2013 NSDUH Slippage Rates: VIRGINIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		902	6,803,508	6,803,508	6,803,508	0.00	0.00
Quarter	**Quarter 1**	179	1,694,725	1,694,725	1,694,725	0.00	0.00
	Quarter 2	257	1,698,658	1,698,658	1,698,658	0.00	0.00
	Quarter 3	253	1,703,059	1,703,059	1,703,059	0.00	0.00
	Quarter 4	213	1,707,067	1,707,067	1,707,067	0.00	0.00
Age Group	**12-17**	330	619,339	620,869	620,869	-0.25	0.00
	18-25	246	896,459	895,156	895,156	0.15	0.00
	26-34	100	982,304	982,078	982,078	0.02	0.00
	35-49	130	1,610,691	1,610,691	1,610,691	0.00	0.00
	50-64	61	1,802,826	1,616,193	1,616,193	11.55	0.00
	65+	35	891,889	1,078,521	1,078,521	-17.30	0.00
Race	**White**	594	4,710,988	4,916,425	4,916,425	-4.18	0.00
	Black or African American	172	1,298,176	1,288,149	1,288,149	0.78	0.00
	Other	136	794,344	598,934	598,934	32.63	0.00
Hispanicity	**Hispanic or Latino**	101	501,871	532,560	532,560	-5.76	0.00
	Non-Hispanic or Latino	801	6,301,637	6,270,949	6,270,949	0.49	0.00
Gender	**Male**	441	3,263,961	3,265,463	3,265,463	-0.05	0.00
	Female	461	3,539,547	3,538,045	3,538,045	0.04	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.49 2013 NSDUH Slippage Rates: WASHINGTON

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		900	5,797,644	5,797,644	5,797,644	0.00	0.00
Quarter	**Quarter 1**	199	1,443,611	1,443,611	1,443,611	0.00	-0.00
	Quarter 2	273	1,447,420	1,447,420	1,447,420	0.00	-0.00
	Quarter 3	236	1,451,491	1,451,490	1,451,491	0.00	-0.00
	Quarter 4	192	1,455,123	1,455,123	1,455,123	0.00	0.00
Age Group	**12-17**	296	529,762	530,892	530,892	-0.21	-0.00
	18-25	284	718,422	738,379	738,379	-2.70	0.00
	26-34	107	891,396	864,932	864,932	3.06	-0.00
	35-49	102	1,333,536	1,346,558	1,346,558	-0.97	-0.00
	50-64	65	1,400,056	1,384,848	1,384,848	1.10	-0.00
	65+	46	924,472	932,035	932,035	-0.81	0.00
Race	**White**	669	4,560,387	4,777,974	4,777,974	-4.55	0.00
	Black or African American	43	224,540	214,002	214,002	4.92	0.00
	Other	188	1,012,717	805,669	805,669	25.70	-0.00
Hispanicity	**Hispanic or Latino**	150	602,921	594,087	594,087	1.49	0.00
	Non-Hispanic or Latino	750	5,194,724	5,203,558	5,203,558	-0.17	0.00
Gender	**Male**	445	2,869,147	2,855,418	2,855,418	0.48	-0.00
	Female	455	2,928,497	2,942,227	2,942,227	-0.47	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.50 2013 NSDUH Slippage Rates: WEST VIRGINIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		916	1,574,493	1,574,493	1,574,493	0.00	0.00
Quarter	**Quarter 1**	217	393,625	393,625	393,625	0.00	0.00
	Quarter 2	252	393,530	393,530	393,530	0.00	0.00
	Quarter 3	241	393,617	393,617	393,617	0.00	0.00
	Quarter 4	206	393,721	393,721	393,721	-0.00	0.00
Age Group	**12-17**	316	129,314	130,210	130,210	-0.69	0.00
	18-25	252	188,028	190,624	190,624	-1.36	0.00
	26-34	97	198,091	191,335	191,335	3.53	0.00
	35-49	130	346,676	347,248	347,248	-0.16	0.00
	50-64	70	423,092	403,226	403,226	4.93	0.00
	65+	51	289,292	311,850	311,850	-7.23	-0.00
Race	**White**	841	1,492,694	1,488,796	1,488,796	0.26	0.00
	Black or African American	37	44,043	51,480	51,480	-14.45	0.00
	Other	38	37,755	34,217	34,217	10.34	0.00
Hispanicity	**Hispanic or Latino**	14	22,052	18,963	18,963	16.28	0.00
	Non-Hispanic or Latino	902	1,552,441	1,555,529	1,555,529	-0.20	0.00
Gender	**Male**	438	768,064	768,064	768,064	-0.00	0.00
	Female	478	806,429	806,429	806,429	0.00	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.51 2013 NSDUH Slippage Rates: WISCONSIN

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		867	4,811,751	4,811,751	4,811,751	0.00	0.00
Quarter	**Quarter 1**	189	1,200,544	1,200,544	1,200,544	0.00	0.00
	Quarter 2	245	1,201,991	1,201,991	1,201,991	0.00	0.00
	Quarter 3	254	1,203,778	1,203,777	1,203,778	0.00	-0.00
	Quarter 4	179	1,205,439	1,205,439	1,205,439	0.00	0.00
Age Group	**12-17**	275	448,884	448,884	448,884	0.00	-0.00
	18-25	320	607,701	618,657	618,657	-1.77	0.00
	26-34	81	679,472	649,157	649,157	4.67	0.00
	35-49	100	1,054,475	1,073,834	1,073,834	-1.80	0.00
	50-64	64	1,500,972	1,198,040	1,198,040	25.29	0.00
	65+	27	520,248	823,179	823,179	-36.80	0.00
Race	**White**	754	4,236,605	4,308,222	4,308,222	-1.66	0.00
	Black or African American	55	299,293	279,682	279,682	7.01	-0.00
	Other	58	275,853	223,847	223,847	23.23	0.00
Hispanicity	**Hispanic or Latino**	82	286,036	259,425	259,425	10.26	0.00
	Non-Hispanic or Latino	785	4,525,715	4,552,326	4,552,326	-0.58	0.00
Gender	**Male**	420	2,348,138	2,365,484	2,365,484	-0.73	0.00
	Female	447	2,463,613	2,446,267	2,446,267	0.71	0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table H.52 2013 NSDUH Slippage Rates: WYOMING

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		928	479,279	479,279	479,279	-0.00	-0.00
Quarter	**Quarter 1**	235	119,343	119,344	119,344	-0.00	0.00
	Quarter 2	232	119,657	119,657	119,657	0.00	0.00
	Quarter 3	204	119,987	119,987	119,987	0.00	0.00
	Quarter 4	257	120,292	120,292	120,292	0.00	-0.00
Age Group	**12-17**	341	43,892	43,892	43,892	-0.00	-0.00
	18-25	264	63,068	64,129	64,129	-1.65	0.00
	26-34	91	72,708	71,647	71,647	1.48	-0.00
	35-49	125	101,603	101,603	101,603	-0.00	0.00
	50-64	67	125,941	121,633	121,633	3.54	0.00
	65+	40	72,067	76,375	76,375	-5.64	-0.00
Race	**White**	835	443,728	447,341	447,341	-0.81	-0.00
	Black or African American	8	4,785	8,353	8,353	-42.72	-0.00
	Other	85	30,766	23,585	23,585	30.45	-0.00
Hispanicity	**Hispanic or Latino**	110	45,067	41,799	41,799	7.82	-0.00
	Non-Hispanic or Latino	818	434,212	437,480	437,480	-0.75	-0.00
Gender	**Male**	458	242,532	242,532	242,532	-0.00	-0.00
	Female	470	236,748	236,748	236,748	-0.00	-0.00

[1] WT1*...*WT13 (before person poststratification).
[2] WT1*...*WT14 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Appendix I: Evaluation of Calibration Weights: Weight Summary Statistics

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Table I.1 2013 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	*n*	Before res.du.nr (WT1*...*WT7)[1]						After res.du.nr & Before res.du.ps (WT1*...*WT8)[1]						After res.du.ps (WT1*...*WT9)[1]					
		Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]
United States	160,325	32	311	491	777	7,453	1.44	46	351	582	914	7,681	1.46	11	392	620	1,002	9,709	1.54
Alaska	2,044	83	87	95	102	170	1.03	88	101	107	125	308	1.04	45	111	126	143	518	1.07
Alabama	2,141	502	639	688	745	1,447	1.04	541	686	775	895	1,602	1.07	145	694	868	1,037	4,352	1.13
Arkansas	1,984	186	376	457	519	804	1.06	186	424	526	571	912	1.07	131	515	594	697	2,496	1.07
Arizona	1,991	612	634	793	980	1,109	1.04	651	752	978	1,154	1,493	1.05	347	954	1,175	1,428	5,607	1.12
California	7,211	233	1,167	1,273	1,355	2,858	1.01	975	1,428	1,576	1,708	2,916	1.02	779	1,474	1,701	1,975	9,009	1.11
Colorado	2,016	610	677	692	803	838	1.01	616	731	807	941	3,340	1.10	169	844	951	1,095	4,286	1.10
Connecticut	2,294	258	488	501	521	1,002	1.00	389	576	587	614	1,008	1.00	286	540	583	634	2,881	1.07
District of Columbia	3,700	45	50	57	60	194	1.11	46	59	67	74	240	1.11	11	66	74	86	217	1.08
Delaware	2,073	57	111	123	130	198	1.03	105	130	148	157	224	1.02	33	150	166	184	652	1.09
Florida	9,176	180	529	538	693	6,685	1.26	491	579	661	870	2,920	1.14	175	672	769	962	3,499	1.10
Georgia	1,836	630	1,112	1,393	1,456	1,542	1.02	1,005	1,392	1,477	1,658	6,977	1.14	388	1,465	1,840	2,302	7,089	1.15
Hawaii	2,235	108	120	129	159	449	1.13	123	147	183	198	576	1.14	77	161	185	228	1,056	1.16
Iowa	2,120	415	433	479	634	961	1.06	436	485	539	681	1,089	1.06	153	495	559	694	2,629	1.09
Idaho	1,863	71	265	282	293	306	1.00	186	287	300	315	397	1.01	64	281	314	352	1,434	1.12
Illinois	7,912	50	408	420	431	609	1.01	205	503	551	606	1,062	1.03	151	532	585	662	3,316	1.06
Indiana	2,182	784	816	873	974	1,642	1.03	799	929	1,030	1,119	1,888	1.04	223	951	1,112	1,346	3,291	1.09
Kansas	1,944	79	455	467	482	577	1.01	406	500	526	570	2,486	1.04	95	490	535	617	2,737	1.09
Kentucky	2,341	183	578	588	619	902	1.03	501	627	641	697	1,093	1.04	277	646	688	796	2,860	1.06
Louisiana	2,096	521	544	568	705	841	1.03	543	604	661	803	948	1.03	232	699	820	953	2,518	1.06
Massachusetts	2,189	683	714	901	1,013	1,228	1.03	767	894	1,166	1,369	2,464	1.05	309	997	1,212	1,381	4,216	1.07
Maryland	1,919	322	702	738	1,001	1,271	1.05	322	783	1,030	1,287	3,091	1.14	408	835	1,049	1,357	4,298	1.17
Maine	2,444	149	153	199	214	334	1.03	151	175	218	242	504	1.04	33	195	240	269	595	1.06
Michigan	8,310	271	285	375	437	550	1.03	276	349	466	521	859	1.04	86	390	483	547	3,293	1.06
Minnesota	2,056	797	830	879	981	2,389	1.10	839	903	971	1,051	2,659	1.11	194	825	999	1,207	5,115	1.13
Missouri	2,330	790	808	825	849	1,721	1.03	824	887	913	1,070	2,902	1.03	196	908	974	1,131	3,208	1.06

(continued)

Table I.1 2013 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before res.du.nr (WT1*...*WT7)[1]						After res.du.nr & Before res.du.ps (WT1*...*WT8)[1]						After res.du.ps (WT1*...*WT9)[1]					
		Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]
Mississippi	1,829	435	457	476	574	599	1.01	449	491	559	629	1,103	1.02	100	551	631	720	2,406	1.09
Montana	2,251	115	124	144	151	249	1.03	115	132	155	170	247	1.03	26	158	175	204	569	1.05
North Carolina	2,090	569	1,388	1,561	1,616	1,865	1.01	1,358	1,548	1,680	1,859	3,772	1.02	281	1,435	1,803	2,153	9,346	1.14
North Dakota	2,562	61	63	83	105	214	1.07	61	81	89	116	166	1.06	18	85	108	134	487	1.14
Nebraska	2,279	225	235	283	289	370	1.01	231	256	306	329	509	1.03	61	280	317	355	1,647	1.09
New Hampshire	2,498	95	157	163	177	293	1.02	95	180	191	217	469	1.03	48	188	210	234	621	1.05
New Jersey	2,281	1,032	1,071	1,191	1,253	1,857	1.01	1,051	1,280	1,417	1,516	2,012	1.01	424	1,234	1,389	1,607	7,890	1.12
New Mexico	2,038	246	253	273	287	363	1.01	249	275	291	317	462	1.02	76	323	364	426	1,954	1.10
Nevada	2,004	298	332	365	376	467	1.01	308	351	401	443	1,067	1.03	77	420	489	565	2,385	1.11
New York	9,243	50	449	538	553	2,029	1.03	523	639	700	785	2,028	1.04	117	664	753	890	3,838	1.12
Ohio	8,450	32	390	406	436	914	1.01	154	442	480	542	1,239	1.02	81	496	540	595	2,840	1.03
Oklahoma	2,100	528	571	607	627	2,002	1.02	574	638	665	698	1,119	1.01	213	627	735	801	2,922	1.07
Oregon	2,153	444	460	546	670	728	1.03	444	533	623	768	899	1.04	275	588	685	835	2,583	1.08
Pennsylvania	9,213	128	413	421	433	1,059	1.00	411	470	502	548	2,039	1.07	151	482	526	585	3,069	1.07
Rhode Island	2,205	119	124	148	161	175	1.02	119	145	164	182	368	1.05	29	155	180	213	837	1.11
South Carolina	2,308	578	602	621	637	1,375	1.01	580	681	744	782	1,896	1.04	129	700	790	887	5,012	1.13
South Dakota	2,059	89	103	133	138	183	1.02	102	119	142	149	190	1.02	25	136	164	183	706	1.10
Tennessee	2,152	856	881	898	1,016	2,027	1.01	883	989	1,049	1,147	1,488	1.01	348	1,047	1,151	1,294	4,479	1.05
Texas	6,873	161	1,006	1,087	1,141	1,933	1.02	178	1,152	1,216	1,304	2,453	1.04	190	1,183	1,310	1,479	9,709	1.08
Utah	1,678	171	323	483	549	2,312	1.45	171	343	518	559	2,415	1.45	67	420	531	597	2,773	1.26
Virginia	2,072	175	1,038	1,054	1,358	7,453	1.13	404	1,064	1,351	1,572	7,681	1.15	196	1,182	1,436	1,738	5,667	1.12
Vermont	2,420	37	64	90	95	235	1.04	63	83	102	113	270	1.06	35	94	111	125	418	1.06
Washington	1,937	958	996	1,055	1,084	1,345	1.01	996	1,146	1,216	1,292	2,663	1.02	468	1,200	1,337	1,504	3,905	1.06
Wisconsin	2,176	680	715	735	851	1,486	1.02	690	793	860	988	1,636	1.02	324	907	1,041	1,178	3,811	1.08
West Virginia	2,598	210	216	234	244	315	1.02	210	247	257	272	498	1.03	51	257	281	314	1,161	1.07
Wyoming	2,449	66	74	77	80	151	1.01	69	79	86	88	121	1.01	23	84	93	101	438	1.11

[1] WT1*…*WT7 are design-based weight components; nr = nonresponse adjustment; ps = poststratification adjustment.
[2] Q1 and Q3 refer to the first and third quartile of the weight distribution.
[3] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table I.2 2013 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	*n*	Before sel.per.ps (WT1*...*WT11)[1]						After sel.per.ps (WT1*...*WT12)[1]					
		Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]
United States	88,742	11	665	1,321	3,470	87,768	2.87	2	646	1,310	3,485	78,134	3.08
Alaska	1,122	58	151	203	687	3,974	2.29	26	148	227	788	4,417	2.20
Alabama	1,156	196	991	1,467	5,371	31,149	2.29	153	909	1,503	5,249	25,368	2.28
Arkansas	1,193	157	611	836	3,277	15,045	2.07	70	590	883	3,373	18,400	2.19
Arizona	1,170	358	1,247	1,958	6,379	33,626	2.23	108	1,216	1,954	6,378	34,978	2.51
California	4,864	837	2,018	2,942	8,799	87,768	2.11	627	2,053	3,069	9,069	78,134	2.17
Colorado	1,173	171	1,128	1,604	5,156	33,527	2.16	66	1,087	1,783	4,877	37,896	2.26
Connecticut	1,198	350	724	1,162	3,809	24,799	1.91	78	633	1,188	3,825	28,484	2.38
District of Columbia	1,142	11	89	310	760	3,645	1.87	2	96	321	690	3,632	2.08
Delaware	1,113	36	200	266	994	4,513	2.27	9	186	277	1,047	4,850	2.31
Florida	4,792	195	951	1,459	5,060	48,242	2.19	59	947	1,545	5,048	30,859	2.16
Georgia	1,093	475	1,906	2,995	9,735	78,294	2.36	132	1,881	3,206	9,040	59,257	2.74
Hawaii	1,240	96	217	364	1,339	11,287	2.48	52	217	404	1,262	7,048	2.35
Iowa	1,164	180	621	959	3,047	12,062	2.10	43	618	1,018	3,250	16,934	2.17
Idaho	1,163	84	335	433	1,502	20,173	2.49	27	336	484	1,457	9,558	2.36
Illinois	4,935	172	658	881	3,198	22,352	2.02	162	657	926	3,239	22,860	2.04
Indiana	1,165	262	1,441	2,112	6,378	31,453	2.05	199	1,394	2,259	6,401	49,365	2.37
Kansas	1,165	104	592	884	2,785	11,952	2.11	26	610	885	2,956	17,073	2.17
Kentucky	1,160	311	922	1,312	4,477	15,374	1.96	226	909	1,322	4,893	27,695	2.07
Louisiana	1,160	318	1,046	1,606	5,194	26,118	1.94	84	973	1,769	4,562	28,967	2.10
Massachusetts	1,240	384	1,332	1,899	6,771	31,107	2.13	206	1,201	1,967	6,847	34,165	2.31
Maryland	1,183	442	1,099	1,753	5,434	46,061	2.53	122	1,053	1,781	5,281	40,472	2.58
Maine	1,125	39	255	333	1,558	6,154	2.52	8	253	358	1,606	6,520	2.46
Michigan	4,716	87	539	744	2,543	23,864	2.16	24	540	761	2,548	23,450	2.20
Minnesota	1,126	212	1,116	1,553	6,101	37,416	2.30	99	1,080	1,635	5,665	31,782	2.30
Missouri	1,183	244	1,298	1,765	6,273	27,879	2.00	56	1,262	1,921	5,756	52,845	2.23

(continued)

Table I.2 2013 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before sel.per.ps (WT1*...*WT11)[1]						After sel.per.ps (WT1*...*WT12)[1]					
		Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]
Mississippi	1,088	112	693	1,072	3,241	14,209	2.08	35	666	1,010	3,061	17,268	2.21
Montana	1,177	67	190	266	1,042	5,374	2.39	15	181	281	975	7,832	2.63
North Carolina	1,103	344	2,080	3,647	9,206	60,156	2.23	220	1,959	3,697	8,583	72,618	2.61
North Dakota	1,257	19	153	277	675	2,937	2.01	5	148	266	678	2,528	1.94
Nebraska	1,146	104	384	536	1,872	12,177	2.10	26	366	535	2,098	10,761	2.21
New Hampshire	1,243	54	259	343	1,274	4,448	2.23	16	251	346	1,240	5,603	2.44
New Jersey	1,238	737	1,645	2,378	8,952	79,356	2.29	284	1,618	2,581	8,173	70,011	2.50
New Mexico	1,168	76	459	707	1,916	19,280	2.21	17	455	676	1,848	12,836	2.35
Nevada	1,137	85	580	888	3,174	13,361	2.01	46	551	928	3,078	31,750	2.46
New York	5,248	197	867	1,335	4,516	39,868	2.21	74	860	1,406	4,628	46,152	2.27
Ohio	4,734	101	621	801	3,147	11,125	2.03	24	619	832	3,097	20,373	2.17
Oklahoma	1,250	260	744	1,084	4,371	25,752	2.17	160	701	1,081	3,976	28,055	2.34
Oregon	1,093	347	880	1,284	4,197	17,509	2.17	252	814	1,305	3,969	30,400	2.39
Pennsylvania	4,760	153	672	925	3,182	16,648	2.01	103	658	946	3,120	19,143	2.11
Rhode Island	1,167	34	214	353	1,201	7,430	2.10	7	207	366	1,075	12,403	2.47
South Carolina	1,134	130	926	1,527	5,313	26,123	2.12	26	899	1,530	5,303	21,143	2.14
South Dakota	1,106	26	179	253	976	6,869	2.37	7	174	270	1,049	6,633	2.16
Tennessee	1,121	618	1,369	1,919	7,207	31,885	2.22	262	1,375	1,995	6,972	41,568	2.25
Texas	4,743	483	1,494	2,070	6,658	36,697	1.92	361	1,489	2,149	6,509	43,751	1.94
Utah	1,150	75	605	871	2,393	24,412	2.47	45	565	906	2,869	14,808	2.21
Virginia	1,148	208	1,666	2,857	7,811	32,546	2.02	42	1,522	2,752	8,074	72,609	2.44
Vermont	1,115	39	132	200	687	2,938	2.18	26	123	201	670	3,055	2.25
Washington	1,175	619	1,484	2,121	7,526	27,015	2.01	632	1,482	2,272	6,944	32,183	2.04
Wisconsin	1,145	328	1,145	1,490	5,796	43,704	2.40	105	1,056	1,472	6,025	30,708	2.60
West Virginia	1,179	57	338	569	1,887	7,676	2.08	16	330	584	1,821	9,068	2.23
Wyoming	1,176	25	105	165	641	3,241	2.25	8	107	171	573	2,983	2.33

[1] WT1*...*WT11 and WT1*...*WT12 used demographic variables from screener data; ps = poststratification adjustment.
[2] Q1 and Q3 refer to the first and third quartile of the weight distribution.
[3] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.

Table I.3 2013 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	*n*	Before res.per.nr (WT1*...*WT12)[1]						After res.per.nr (WT1*...*WT13)[1]						Before res.per.ps (WT1*...*WT13)[2]						Final Weight After res.per.ps (WT1*...*WT14)[2]					
		Min	Q1[3]	Med	Q3[3]	Max	UWE[4]	Min	Q1[3]	Med	Q3[3]	Max	UWE[4]	Min	Q1[3]	Med	Q3[3]	Max	UWE[4]	Min	Q1[3]	Med	Q3[3]	Max	UWE[4]
United States	67,838	2	624	1,237	3,161	77,933	3.15	2	769	1,552	4,195	130,534	3.56	2	769	1,552	4,195	130,534	3.56	1	739	1,553	4,181	181,411	3.68
Alaska	863	26	148	227	739	4,417	2.21	26	183	286	959	7,285	2.43	26	183	286	959	7,285	2.43	10	193	307	936	7,120	2.49
Alabama	900	153	856	1,341	4,435	25,368	2.40	154	1,027	1,707	5,763	41,819	2.89	154	1,027	1,707	5,763	41,819	2.89	62	1,125	1,765	5,357	39,098	2.95
Arkansas	908	70	584	864	3,228	18,400	2.22	79	737	1,135	4,084	21,825	2.36	79	737	1,135	4,084	21,825	2.36	34	698	1,154	3,879	28,329	2.43
Arizona	882	108	1,176	1,801	5,362	34,978	2.54	109	1,403	2,360	6,971	85,492	3.25	109	1,403	2,360	6,971	85,492	3.25	22	1,400	2,547	6,620	79,889	3.25
California	3,729	627	1,963	2,864	8,267	77,933	2.23	627	2,329	3,595	11,247	118,542	2.58	627	2,329	3,595	11,247	118,542	2.58	230	2,349	3,882	11,184	79,958	2.61
Colorado	885	66	1,051	1,709	4,665	37,896	2.33	68	1,319	2,114	5,992	54,832	2.63	68	1,319	2,114	5,992	54,832	2.63	14	1,152	2,192	6,083	63,850	2.81
Connecticut	893	78	580	1,111	3,634	28,484	2.42	79	706	1,414	4,921	38,135	2.70	79	706	1,414	4,921	38,135	2.70	40	658	1,375	4,927	34,666	2.64
District of Columbia	907	2	89	296	661	3,559	2.11	2	104	356	863	9,597	2.60	2	104	356	863	9,597	2.60	1	105	363	855	7,845	2.50
Delaware	862	9	180	261	969	4,850	2.40	9	220	340	1,263	6,235	2.63	9	220	340	1,263	6,235	2.63	4	231	340	1,191	7,875	2.74
Florida	3,649	59	921	1,448	4,646	30,859	2.23	81	1,148	1,829	6,460	41,341	2.45	81	1,148	1,829	6,460	41,341	2.45	65	1,166	1,890	6,250	71,027	2.60
Georgia	852	132	1,874	3,077	8,202	53,487	2.71	221	2,280	3,607	11,217	130,534	3.46	221	2,280	3,607	11,217	130,534	3.46	247	2,286	3,831	9,447	181,411	3.62
Hawaii	924	52	205	345	1,031	6,542	2.50	52	247	458	1,346	13,814	2.86	52	247	458	1,346	13,814	2.86	38	255	467	1,421	11,735	2.87
Iowa	900	43	606	938	2,886	13,614	2.19	43	716	1,226	3,695	24,941	2.52	43	716	1,226	3,695	24,941	2.52	16	713	1,225	3,649	29,183	2.66
Idaho	907	27	335	475	1,294	9,558	2.45	30	403	595	1,652	10,531	2.58	30	403	595	1,652	10,531	2.58	9	423	606	1,708	10,250	2.55
Illinois	3,503	162	643	869	3,056	22,860	2.12	202	842	1,199	4,522	37,985	2.38	202	842	1,199	4,522	37,985	2.38	40	840	1,260	4,409	26,981	2.43
Indiana	894	199	1,340	2,152	5,634	48,984	2.45	328	1,683	2,842	7,284	72,257	2.69	328	1,683	2,842	7,284	72,257	2.69	83	1,623	2,784	7,387	62,062	2.67
Kansas	887	26	603	876	2,803	15,968	2.14	67	773	1,118	3,563	31,267	2.48	67	773	1,118	3,563	31,267	2.48	23	746	1,156	3,666	42,479	2.55
Kentucky	904	226	900	1,279	4,649	17,779	2.07	281	1,060	1,561	6,334	30,392	2.36	281	1,060	1,561	6,334	30,392	2.36	260	1,060	1,586	6,240	40,038	2.52
Louisiana	903	84	964	1,649	4,481	22,222	2.10	88	1,182	2,087	5,623	30,125	2.30	88	1,182	2,087	5,623	30,125	2.30	68	1,195	2,153	5,446	41,219	2.44
Massachusetts	897	206	1,134	1,876	6,252	34,165	2.42	216	1,475	2,549	8,836	61,618	2.61	216	1,475	2,549	8,836	61,618	2.61	54	1,511	2,500	8,419	60,286	2.59
Maryland	925	122	1,018	1,667	5,142	40,472	2.61	414	1,316	2,152	6,421	98,215	2.95	414	1,316	2,152	6,421	98,215	2.95	174	1,310	2,132	6,377	78,131	2.93
Maine	926	8	251	344	1,459	6,520	2.53	8	285	399	1,855	17,091	2.83	8	285	399	1,855	17,091	2.83	3	288	408	1,842	10,566	2.77
Michigan	3,636	24	533	742	2,435	23,450	2.23	41	658	951	3,065	28,781	2.49	41	658	951	3,065	28,781	2.49	8	668	962	3,108	34,484	2.48
Minnesota	906	99	1,075	1,631	5,536	27,389	2.33	99	1,221	1,991	6,637	50,373	2.51	99	1,221	1,991	6,637	50,373	2.51	58	1,255	2,106	6,442	50,186	2.67
Missouri	917	56	1,237	1,868	5,436	52,845	2.33	87	1,501	2,404	7,113	65,769	2.45	87	1,501	2,404	7,113	65,769	2.45	86	1,465	2,522	6,912	68,320	2.58

(continued)

Table I.3 2013 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before res.per.nr (WT1*...*WT12)[1]						After res.per.nr (WT1*...*WT13)[1]						Before res.per.ps (WT1*...*WT13)[2]						Final Weight After res.per.ps (WT1*...*WT14)[2]					
		Min	Q1[3]	Med	Q3[3]	Max	UWE[4]	Min	Q1[3]	Med	Q3[3]	Max	UWE[4]	Min	Q1[3]	Med	Q3[3]	Max	UWE[4]	Min	Q1[3]	Med	Q3[3]	Max	UWE[4]
Mississippi	918	35	659	974	2,903	16,290	2.26	35	703	1,106	3,540	34,615	2.70	35	703	1,106	3,540	34,615	2.70	16	734	1,178	3,453	45,199	2.96
Montana	910	15	179	273	954	7,832	2.69	52	212	348	1,333	7,399	2.77	52	212	348	1,333	7,399	2.77	22	219	367	1,274	10,953	2.88
North Carolina	880	220	1,911	3,544	7,965	71,678	2.65	220	2,313	4,400	9,890	101,077	2.93	220	2,313	4,400	9,890	101,077	2.93	100	2,209	4,465	10,038	131,735	3.14
North Dakota	945	5	141	237	622	2,483	1.99	5	175	299	841	9,079	2.50	5	175	299	841	9,079	2.50	1	174	305	833	9,024	2.44
Nebraska	910	26	358	515	1,910	10,761	2.33	26	441	631	2,495	17,963	2.59	26	441	631	2,495	17,963	2.59	5	437	670	2,432	34,346	2.91
New Hampshire	953	16	251	342	1,223	5,603	2.47	16	318	443	1,561	10,459	2.54	16	318	443	1,561	10,459	2.54	6	329	457	1,507	15,398	2.65
New Jersey	913	284	1,579	2,447	7,421	70,011	2.67	512	2,051	3,191	10,067	86,244	2.78	512	2,051	3,191	10,067	86,244	2.78	93	2,042	3,124	9,799	93,093	2.92
New Mexico	922	17	444	647	1,679	12,836	2.42	17	513	853	2,175	18,508	2.80	17	513	853	2,175	18,508	2.80	3	500	855	2,070	26,794	3.20
Nevada	932	80	531	850	2,523	31,750	2.78	84	582	1,002	3,102	29,189	2.81	84	582	1,002	3,102	29,189	2.81	17	574	942	2,899	25,741	2.98
New York	3,637	74	819	1,286	4,236	46,152	2.39	246	1,039	1,744	6,284	49,491	2.62	246	1,039	1,744	6,284	49,491	2.62	46	1,096	1,807	6,095	71,202	2.76
Ohio	3,568	24	611	813	2,934	20,373	2.22	41	774	1,054	3,837	27,535	2.42	41	774	1,054	3,837	27,535	2.42	33	789	1,074	3,812	38,064	2.48
Oklahoma	950	189	693	1,056	3,122	17,528	2.26	230	861	1,304	4,044	26,517	2.68	230	861	1,304	4,044	26,517	2.68	53	870	1,378	3,956	68,757	3.08
Oregon	861	309	802	1,243	3,762	30,400	2.47	326	948	1,566	4,897	41,497	2.60	326	948	1,566	4,897	41,497	2.60	84	977	1,563	4,631	40,953	2.85
Pennsylvania	3,663	103	649	896	2,974	19,143	2.18	103	801	1,140	3,933	32,440	2.38	103	801	1,140	3,933	32,440	2.38	46	817	1,155	3,956	44,585	2.44
Rhode Island	904	7	190	340	953	12,403	2.69	7	237	427	1,391	12,223	2.70	7	237	427	1,391	12,223	2.70	6	237	422	1,338	9,977	2.67
South Carolina	908	26	882	1,477	4,982	21,143	2.18	26	1,087	1,805	5,988	29,897	2.42	26	1,087	1,805	5,988	29,897	2.42	11	1,046	1,833	5,909	41,778	2.57
South Dakota	889	7	171	264	943	6,633	2.22	7	212	327	1,211	11,681	2.63	7	212	327	1,211	11,681	2.63	1	201	301	1,169	7,556	2.48
Tennessee	894	262	1,352	1,905	5,945	41,568	2.33	262	1,598	2,318	7,411	52,101	2.66	262	1,598	2,318	7,411	52,101	2.66	61	1,612	2,322	7,279	58,944	2.76
Texas	3,604	361	1,457	2,028	6,190	43,751	1.99	361	1,800	2,656	8,033	50,475	2.18	361	1,800	2,656	8,033	50,475	2.18	94	1,903	2,788	8,022	50,214	2.24
Utah	930	45	548	869	2,642	13,012	2.21	45	639	1,104	3,155	19,621	2.48	45	639	1,104	3,155	19,621	2.48	27	637	1,094	3,130	36,338	2.70
Virginia	902	42	1,518	2,605	7,511	60,914	2.39	47	1,750	3,352	8,794	83,823	2.72	47	1,750	3,352	8,794	83,823	2.72	20	1,637	3,347	8,732	67,306	2.83
Vermont	875	38	122	197	637	3,055	2.33	38	155	253	835	4,148	2.42	38	155	253	835	4,148	2.42	8	152	256	791	5,094	2.52
Washington	900	632	1,421	2,093	6,382	32,183	2.11	770	1,681	2,619	9,462	77,437	2.36	770	1,681	2,619	9,462	77,437	2.36	180	1,749	2,739	9,285	41,236	2.33
Wisconsin	867	105	1,053	1,450	5,989	30,708	2.64	125	1,257	1,986	7,508	47,726	2.74	125	1,257	1,986	7,508	47,726	2.74	35	1,245	2,039	6,994	62,062	2.88
West Virginia	916	16	330	565	1,791	9,068	2.28	16	420	753	2,295	9,807	2.32	16	420	753	2,295	9,807	2.32	7	423	762	2,242	9,807	2.34
Wyoming	928	8	105	170	569	2,983	2.35	10	132	211	689	3,346	2.41	10	132	211	689	3,346	2.41	2	131	215	685	6,107	2.56

[1] WT1*...*WT12 and WT1*...*WT13 used demographic variables from screener data; nr = nonresponse adjustment.
[2] WT1*...*WT13 and WT1*...*WT14 used demographic variables from questionnaire data; ps = poststratification adjustment.
[3] Q1 and Q3 refer to the first and third quartile of the weight distribution.
[4] Unequal weighting effect (UWE) is defined as $1 + [(n - 1)/n]*CV^2$, where CV = coefficient of variation of weights.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013.