2015 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

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Prepared for the 2015 Methodological Resource Book (Section 11)

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Preface and Acknowledgments

This report contains a brief review of the sampling weight calibration methodology used for the 2015 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 main 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 2015 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 (SAMHSA), 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, and Margaret Smith.

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Table of Contents

Appendix **Page**

List of Tables

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

List of Tables (continued)

List of Exhibits

List of Exhibits (continued)

Exhibit **Page**

List of Exhibits (continued)

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 2015 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 2014 through 2017 NSDUHs. The coordinated design facilitates 50 percent overlap in third-stage units (area segments) within each successive 2-year period from 2014 through 2017. This designed sample overlap slightly increases the precision of estimates of year-to-year trends because of the expected small but positive correlation resulting from the overlapping sampled area segments between successive survey years. The 50 percent overlap of segments significantly reduces segment listing costs because only one-half of the segments will need to be listed for the 2014 through 2017 surveys.

The current 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. Unlike the previous designs, such as the 2005 through 2013 NSDUH design, where the sample was divided into 8 "large" states and 43 "small" states (which include the District of Columbia) with the large and small sample states designed to yield 3,600 and 900 respondents per state, respectively, for 2014 through 2017, the survey's sample was designed to yield

- 4,560 completed interviews in California;
- 3,300 completed interviews each in Florida, New York, and Texas;
- 2,400 completed interviews each in Illinois, Michigan, Ohio, and Pennsylvania;
- 1,500 completed interviews each in Georgia, New Jersey, North Carolina, and Virginia;
- 967 completed interviews in Hawaii; and
- 960 completed interviews in each of the remaining 37 states and the District of Columbia.

The target national sample size for the 2015 NSDUH was 67,507 people, and the achieved sample for the 2015 NSDUH was 68,073 people—corresponding to 50,119 responding dwelling units [DUs] selected at the second phase out of 132,194[1] DUs screened at the first phase, in which the first phase is screening and the second phase is interviewing.

In addition to having a different sample allocation by state, the 2014 through 2017 survey design places more sample in the 26 or older age groups to estimate drug use and related mental health measures more accurately among the aging population that uses drugs. For the 2014 through 2017 NSDUHs, each state sample will be allocated to age groups as follows: 25 percent for youths aged 12 to 17, 25 percent for young adults aged 18 to 25, 15 percent for adults aged 26 to 34, 20 percent for adults aged 35 to 49, and 15 percent for adults aged 50 or older. In the

[1] The number of DUs that completed the first-phase screening was 132,210, but some DUs did not have eligible people, so they were removed from the DU poststratification and person-level calibration steps. The number of DUs that had eligible people in them was 132,194.

2005 through 2013 NSDUHs, the sample was allocated equally across the 12 to 17, 18 to 25, and 26 or older age groups.

Similar to the 2005 through 2013 NSDUHs, the first stage of selection for the 2014 through 2017 NSDUHs is census tracts. This stage was included to contain sample segments within a single census tract to the extent possible.

The 2014 through 2017 survey design includes the selection of census block groups at the second stage of selection. This additional stage of selection was included to facilitate moving to an address-based sampling (ABS) design in the future, if desired. The selection of census tracts at the first stage of selection and census block groups at the second stage has the potential to reduce sampling variance by controlling the distribution of selected areas and reducing the chance of selecting neighboring and possibly similar areas within tracts and block groups.

Finally, as mentioned in Section 1.5, the 2014 through 2017 NSDUH fourth-stage sampling frames are supplemented with new DUs on the premises of sampled DUs that were missed during the original counting and listing activities (e.g., garage apartments).

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 aggregated within state sampling regions (SSRs) until each first-stage sampling unit met the minimum size requirement. In California, Florida, Georgia, Illinois, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Texas, and Virginia, this minimum size requirement was 250 DUs in urban areas and 200 DUs in rural areas. In the remaining states and the District of Columbia, the minimum requirement was 150 DUs in urban areas and 100 DUs in rural areas. There were 48 census tracts per SSR selected with probabilities proportionate to a composite size measure and with minimum replacement (Chromy, 1979).

For the second stage of selection, adjacent census block groups were aggregated within selected census tracts as necessary to meet the minimum DU requirements (150 or 250 DUs in urban areas and 100 or 200 DUs in rural areas according to state). After the resulting second-stage sampling units were formed, they were sorted in the order they were formed (i.e., geographically), and one census block group was selected per sampled census tract with probability proportionate to a composite size measure and with minimum replacement (Chromy, 1979). Compared with prior years, the selection of census block groups is an additional stage of selection that was included to facilitate possible transitioning to an ABS design in the future.

Because census block groups generally exceed the minimum DU requirement, one smaller geographic region was selected within each sampled census block group. For this third stage of sampling, each selected census block group 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

[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).

or a shelter bed. Similar to census tracts and census block groups, segments were formed to contain a minimum of 150 or 250 DUs in urban areas and 100 or 200 DUs in rural areas according to state. This minimum DU requirement will support the overlapping sample design and any special supplemental samples or field tests that SAMHSA may wish to conduct.

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

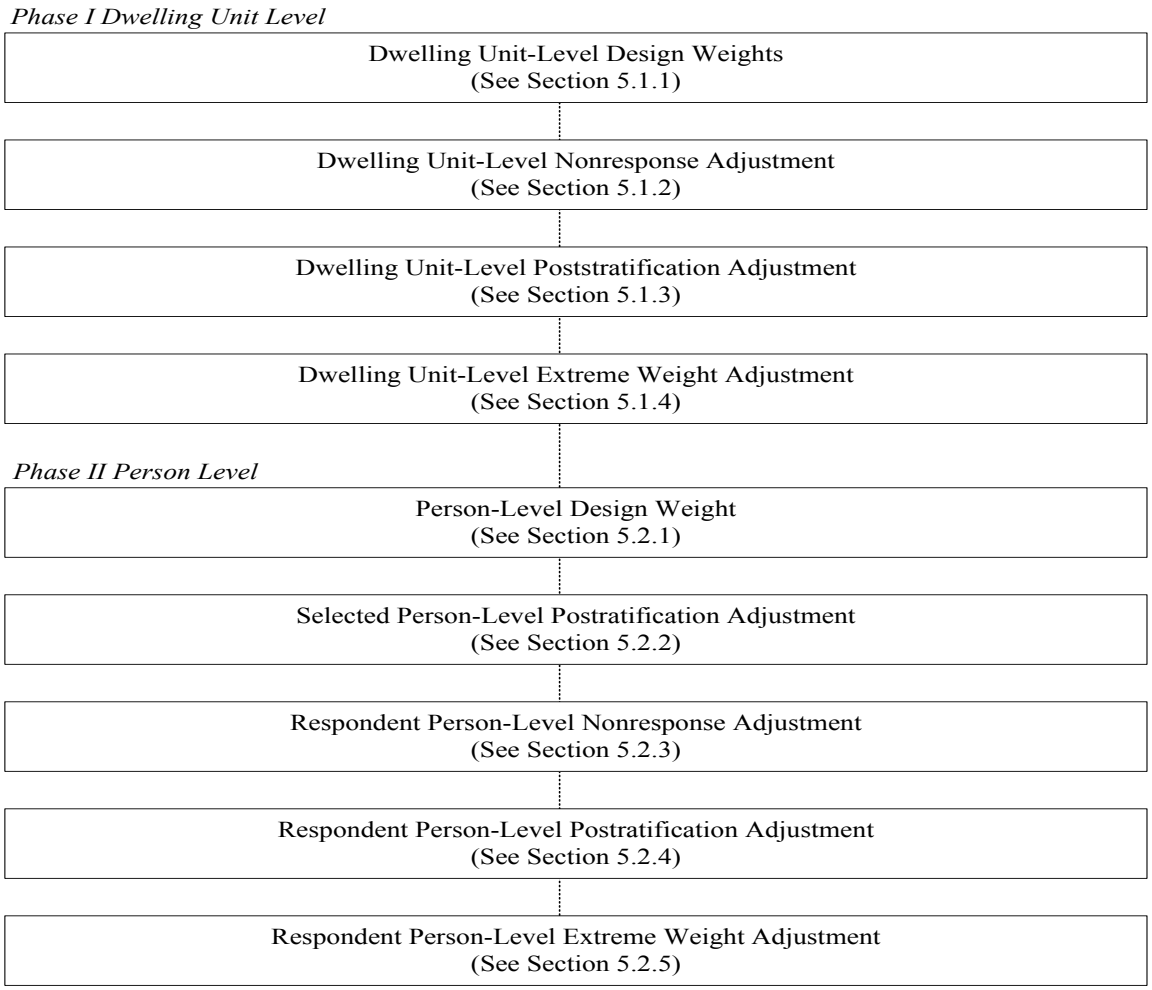
After sample segments for the 2015 NSDUH were selected, specially trained field household listers visited the areas and obtained complete and accurate lists of all eligible DUs within the sample segment boundaries. These lists served as the frames for the fourth stage of sample selection. Using a random 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 fifth stage of selection based on the state and age group sampling parameters.

As in previous years of the survey,[3] the 2015 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.

As with each survey after 1999, an important feature of the 2015 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 main 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.

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

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 2015 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, major depressive episode, and serious mental illness. 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.

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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 lower 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. (See the example in Section 4.2 for details.)

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 2015 NSDUH

For the 2015 National Survey on Drug Use and Health (NSDUH), the initial set of predictor variables was identical to the set used for the 2014 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+[1,2]

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)[3]
1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile[1]

States[4]

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] 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.

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

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

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 2015 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 largest 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 was checked.

For the 2015 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 2015 NSDUH, as in the 1999 through 2014 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 (ev) 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

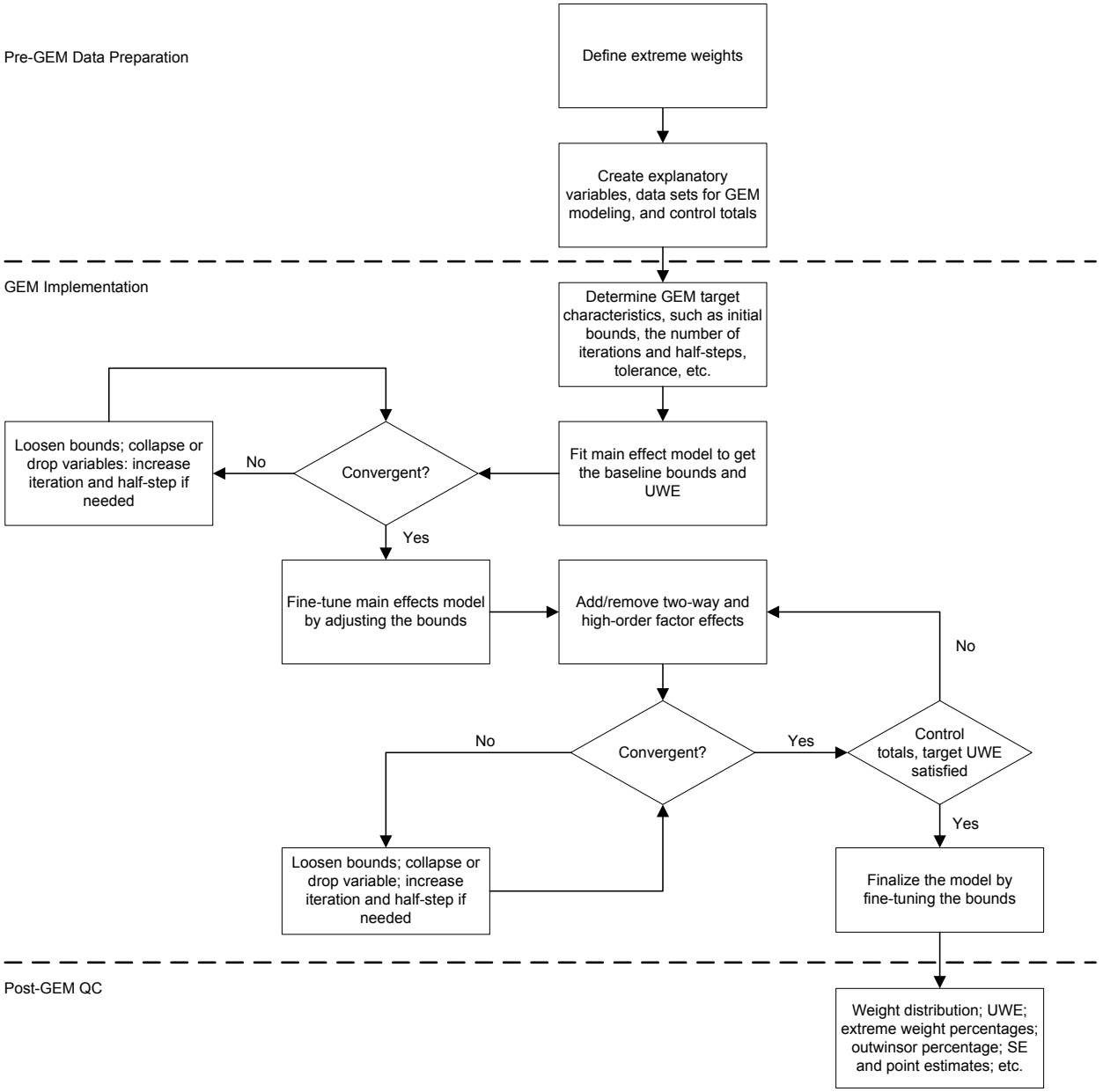
An important aspect of GEM is the built-in provision of extreme weight adjustment. Sampling weights for the survey generally were classified as extreme (high or low) if they fell outside the commonly used interval defined by the median $\pm 3 \times$ interquartile range (IQR) for some prespecified domains; these domains were usually defined by design strata, taking into account deep stratification. For example, the dwelling unit (DU)-level weight for the 2015 National Survey on Drug Use and Health (NSDUH) used the state sampling region (SSR) as the domain. The person-level weight adjustments used a hierarchy of four domains: (1) SSR × Age group, (2) State × Age group, (3) SSR, 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 SSR × Age group domain corresponded to a deep stratum, it could be unsuitable for defining extreme weights because of insufficient sample sizes. So, collapsing SSRs within a state gave rise to such domains as State × Age group. Even at this level, sample sizes could be insufficient, so SSRs 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 $b_{k(1)} / w_k$ 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 have 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.

The following example shows how the build-in extreme weight works. Table 4.1 lists 30 respondents from the person-level nonresponse (PLNR) adjustment step for Model Group 1. Outlier level 0 is for nonextreme weight, 1 for high extreme weight, and 2 for low extreme weight. PRE_WT is the weight before PLNR adjustment, which is the product of weight 1 to weight 13. The critical values $b_{k(l)}$ and $b_{k(u)}$ are defined as median $\pm 2.5 \times$ IQR. L and U are nominal bounds that we specified in GEM modeling. m_k is defined as 1 for nonextreme weights, $b_{k(u)}$/PRE_WT for high extreme weights, and $b_{k(l)}$/PRE_WT for low extreme weights. L_k is the actual lower bound for a certain respondent, which is the product of nominal lower bound L and m_k, whereas U_k is the upper bounds for the respondent, which is the product of nominal upper bound U and m_k. Alpha is the final nonresponse adjustment calculated from GEM, and POST_WT is weight after nonresponse adjustment, which is the product of PRE_WT and adjustment factor alpha.

Although GEM requires the nonresponse adjustment factor to be greater than 1, the actual adjustment could be less than 1 because of m_k. For example, respondent Case 14 has a high extreme weight of 4,073.30. The nominal lower bounds for GEM is 1.00, the actual lower and upper bounds are 0.9019 and 2.6156, and the adjustment factor is 0.9113, which is less than 1. Meanwhile, GEM also requires the nonresponse adjustment factor to be less than 5 (less than 3 for high extreme weights), but the actual adjustment could be greater than 5 because of m_k. For example, Case 22 has a low extreme weight of 229.24. The nominal higher bounds for GEM is 5.00, the actual lower and upper bounds are 2.2599 and 9.4164, and the adjustment factor is 5.4909, which is greater than 5.

We applied tighter upper bounds for the high extreme weights and tighter lower bounds for the low extreme weights so that the high extreme weights will not have a large adjustment factor to make them more extreme, and the low extreme weights will not have a small adjustment factor to make them more extreme.

Table 4.1 List of 30 Respondents with Pre- and Post-Weights, Critical Values, Bounds, and Adjustment Factors from the Person-Level Nonresponse Adjustment Step for Model Group 1

Case ID	Outlier	PRE_WT	$b_{k(l)}$	$b_{k(u)}$	m_k	L	U	L_k	U_k	Alpha	POST_WT
1	0	1,401.71	-849.83	2,897.95	1.0000	1.00	5.00	1.0000	5.0000	1.3730	1,924.59
2	0	1,241.59	-718.14	2,075.72	1.0000	1.00	5.00	1.0000	5.0000	1.5568	1,932.90
3	0	2,959.61	-792.32	4,485.45	1.0000	1.00	5.00	1.0000	5.0000	1.7549	5,193.85
4	0	10,880.38	-771.76	11,087.83	1.0000	1.00	5.00	1.0000	5.0000	1.5946	17,349.40
5	0	671.43	-718.14	2,075.72	1.0000	1.00	5.00	1.0000	5.0000	1.2847	862.58
6	0	1,290.17	-861.62	3,673.77	1.0000	1.00	5.00	1.0000	5.0000	1.7031	2,197.29
7	0	1,508.83	-861.62	3,673.77	1.0000	1.00	5.00	1.0000	5.0000	2.2195	3,348.78
8	0	2,990.14	-792.32	4,485.45	1.0000	1.00	5.00	1.0000	5.0000	2.5501	7,625.05
9	0	839.17	-718.14	2,075.72	1.0000	1.00	5.00	1.0000	5.0000	1.7047	1,430.56
10	0	870.17	-718.14	2,075.72	1.0000	1.00	5.00	1.0000	5.0000	1.2847	1,117.90
11	1	6,171.51	-792.32	4,485.45	0.7268	1.00	2.90	0.7268	2.1077	1.6082	9,924.75
12	1	13,099.43	-771.76	11,087.83	0.8464	1.00	2.90	0.8464	2.4547	1.4057	18,413.61
13	1	8,078.83	-861.62	3,673.77	0.4547	1.00	2.90	0.4547	1.3187	1.3188	10,653.92
14	1	4,073.30	-861.62	3,673.77	0.9019	1.00	2.90	0.9019	2.6156	0.9113	3,711.88
15	1	3,684.85	-861.62	3,673.77	0.9970	1.00	2.90	0.9970	2.8913	1.2980	4,783.07
16	1	3,919.03	-861.62	3,673.77	0.9374	1.00	2.90	0.9374	2.7185	0.9390	3,680.12
17	1	12,160.73	-771.76	11,087.83	0.9118	1.00	2.90	0.9118	2.6441	1.8997	23,101.13
18	1	3,099.97	-849.83	2,897.95	0.9348	1.00	2.90	0.9348	2.7110	0.9379	2,907.32
19	1	2,472.83	-718.14	2,075.72	0.8394	1.00	2.90	0.8394	2.4343	0.8398	2,076.79
20	1	2,663.39	-718.14	2,075.72	0.7794	1.00	2.90	0.7794	2.2601	1.2018	3,200.87
21	2	163.00	169.70	1,266.55	1.0411	1.20	5.00	1.2493	5.2052	5.2052	848.48
22	2	229.24	431.73	1,653.76	1.8833	1.20	5.00	2.2599	9.4164	5.4909	1,258.74
23	2	67.49	169.70	1,266.55	2.5143	1.20	5.00	3.0171	12.5713	3.0171	203.63
24	2	152.40	211.91	3,185.11	1.3905	1.20	5.00	1.6686	6.9525	1.6686	254.29
25	2	191.30	202.29	1,942.75	1.0574	1.20	5.00	1.2689	5.2871	1.3180	252.14
26	2	154.12	202.29	1,942.75	1.3125	1.20	5.00	1.5751	6.5627	1.5751	242.75
27	2	106.45	149.74	313.33	1.4067	1.20	5.00	1.6880	7.0334	1.6889	179.78
28	2	39.25	149.74	313.33	3.8153	1.20	5.00	4.5783	19.0763	4.5783	179.69
29	2	33.54	149.74	313.33	4.4649	1.20	5.00	5.3579	22.3244	5.3579	179.69
30	2	114.22	149.74	313.33	1.3110	1.20	5.00	1.5732	6.5551	1.7760	202.85

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 2015 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 2015 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 2015 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 standard errors (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 the largest sample sizes (California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and 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.

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

The 2015 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 five 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 region (SSR); (2) the selection of census block groups from census tracts; (3) the selection of segments within each sampled census block group; (4) the selection of DUs within these segments, and within Phase II, and (5) 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 2015 sample design report in the *NSDUH Methodological Resource Book* (Center for Behavioral Health Statistics and Quality, 2016).

As part of the postsurvey data-processing activities, analysis weights were calculated for the 2015 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 (main interview 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 2015 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 11 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 2015 NSDUH sample are the product of all 16 weight components, as illustrated in Exhibit 5.1.

Exhibit 5.2 shows the U.S. Census Bureau divisions and model groups used in the 2015 NSDUH person-level weight calibration.

Exhibit 5.1 Summary of 2015 NSDUH Sample Weight Components

Phase I Dwelling Unit Level

	2014-2015 Design Weight Components	Corresponding 2005-2013 Design Weight Components
#1	Inverse Probability of Selecting Census Tract	#1
#2	Inverse Probability of Selecting Census Block Group	
#3	Inverse Probability of Selecting Segment	#2
#4	Quarter Segment Weight Adjustment	#3
#5	Subsegmentation Inflation Adjustment	#4
#6	Inverse Probability of Selecting Dwelling Unit	#5
#7	Inverse Probability of Added/Subsampled Dwelling Unit	#6
#8	Dwelling Unit Release Adjustment	#7

	2014-2015 Weight Adjustment Components	Corresponding 2005-2013 Weight Adjustment Components
#9	Dwelling Unit Nonresponse Adjustment ***(res.sdu.nr)****	#8
#10	Dwelling Unit Poststratification Adjustment ***(res.sdu.ps)****	#9
#11	Dwelling Unit Extreme Weight Adjustment ***(res.sdu.ev)****	#10

Phase II Person Level

	2014-2015 Design Weight Component	Corresponding 2005-2013 Design Weight Component
#12	Inverse Probability of Selecting a Person within a Dwelling Unit	#11

	2014-2015 Weight Adjustment Components	Corresponding 2005-2013 Weight Adjustment Components
#13	Selecting Person-Level Poststratification Adjustment to Screener Data Controls ***(sel.per.ps)****	#12
#14	Person-Level Nonresponse Adjustment ***(res.per.nr)****	#13
#15	Person-Level Poststratification Adjustment ***(res.per.ps)****	#14
#16	Person-Level Extreme Weight Adjustment ***(res.per.ev)****	#15

* 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	16,892	13,341	27,809	8,546	5,825
2	20,400	14,724	31,922	10,442	7,201
3	22,777	18,192	38,132	13,174	9,168
4	16,076	13,916	28,031	9,178	6,722
5	32,461	25,686	53,419	17,370	12,735
6	8,417	7,113	14,640	5,208	3,816
7	11,983	10,265	22,080	8,342	6,217
8	16,540	13,888	29,309	10,393	7,811
9	19,782	15,085	34,362	11,846	8,578
Total	165,328	132,210	279,704	94,499	68,073

DU = dwelling unit.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

In the 2015 NSDUH, as in the 2000 through 2014 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 2015 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 #8: Selection of a Dwelling Unit

The first eight 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 SSR, (2) the probability of selecting the census block group, (3) the probability of selecting the segment within each census tract, (4) a quarter segment weight adjustment, (5) a subsegmentation inflation factor, (6) the probability of selecting a DU from within each counted and listed sampled segment, (7) the probability of inclusion of added DUs, and (8) DU percent release adjustment.

Segments were selected with probabilities representing a full year's sample; therefore, Weight Component #4 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 2010 U.S. Census Bureau data adjusted for more recent 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 #5 (i.e., subsegmentation inflation factor) is an adjustment that accounts for this selection process.

As noted in the 2015 and earlier sample design reports, a lengthy process of determining the optimal DU sample was used during the design of the survey. Weight Component #6 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 2014. Because the listing was done a short time before the 2015 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. 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 #7 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 #8 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 #8, refer to the 2015 sample design report (Center for Behavioral Health Statistics and Quality, 2016).

5.1.2 Weight Component #9: 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 #8) were adjusted using a multiplicative adjustment factor derived from modeling response propensity via GEM.

5.1.3 Weight Component #10: 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 #11: Dwelling Unit–Level Extreme Weight Adjustment

The product of Weight Components #1 through #10 was checked to see if the extreme weight adjustment step was needed. Using the SSR as the domain for the extreme weight definition, weights were defined as extreme if they were outside the range defined by the median $\pm 3 \times$ interquartile range. 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 #11 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 #11 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 11 weight components became the first 11 components of the final interview respondent sample weight. The remaining five weight components discussed in the next section account for the person-level probability of selection for those people for whom 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	4	418	722	906	4,823	677	165,238	1.33
Weight after DU-Level Adjustments	12	451	928	1,249	7,313	928	132,194	1.43

DU = dwelling unit; UWE = unequal weighting effect.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

5.2 Phase II Person-Level Weight Components

5.2.1 Weight Component #12: 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 2015 study; this also was done for the probabilities of selecting DUs (i.e., Weight Component #6). 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 FIs' use of the Samsung tablets, 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 2015. 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 #12 represents the inverse of this probability of selection.

5.2.2 Weight Component #13: 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 estimate control totals from the screener person data; the second step was respondent person-level nonresponse adjustment (see Component #14) 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 #14: 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 main interview 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 #15: 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 2015 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 #16: Respondent Person-Level Extreme Weight Adjustment

The weights for the product of Weight Components #1 through #15 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 #11, 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 #16 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	12	963	1,819	3,538	44,937	2,817	94,499	2.07
Weight after Person-Level Adjustments	1	1,094	2,314	4,878	67,438	3,932	68,073	2.39

UWE = unequal weighting effect.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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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 2015 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 83.52 percent as compared with 83.67 percent for 2014. This similarity in overall rates held in nearly all states, with a few notable exceptions: the eligibility rate decreased from 82.28 to 73.54 percent for Wisconsin and increased from 83.90 to 87.98 percent for Illinois. The screening rate at the national level decreased from 81.94 percent for 2014 to 79.69 percent for 2015. The national interview response rate was 69.15 percent, a decrease of 1.97 percentage points compared with 71.12 percent for 2014, with the biggest decrease for Tennessee (from 78.05 percent for 2014 to 69.17 percent for 2015) and the biggest increase for Texas (from 70.47 percent for 2014 to 73.06 percent for 2015). 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	83.52%	69.05% (Maine)	83.35% (North Carolina)	90.14% (Washington)
Screener Response Rate	79.69%	64.83% (New York)	82.82% (Nebraska)	91.69% (South Dakota)
Person Level				
Interview Response Rate	69.15%	57.86% (Massachusetts)	69.92% (Montana)	77.27% (Utah)

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 2015 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 region (SSR);
- DU poststratification by SSR;
- selected person-level poststratification by SSR and age group,[4] state and age group, SSR, and state;
- person-level nonresponse by SSR and age group, state and age group, SSR, and state; and
- person-level poststratification by SSR and age group, state and age group, SSR, and state.

Before any weight adjustment was implemented, the percentage of unweighted extreme weights was 2.99 percent and the outwinsor was 0.34 percent for the product of design Weight Components #1 to #8. After DU-level nonresponse adjustment and poststratification, the percentage of unweighted extreme weights decreased to 1.51 percent and the outwinsor increased to 0.65 percent. When the design Weight Component #12 (inverse probability of selecting a person within a dwelling unit) was introduced, the percentage of unweighted extreme weights increased to 2.75 percent and the outwinsor increased to 1.39 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 0.77 percent and the outwinsor to 0.44 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 2,303 for race domain "white"; an initial total, also known as the design-based weight, of 12,831,633; a census total of 13,684,875; and an initial slippage rate of -6.23 percent. The ratio of the census total to the initial total gives the value of the weight adjustment: 1.07. Similar to this example, but in the opposite direction, is Table H.38 for Oklahoma. The domain "Age 65+" contains a sample size of 70 and an initial slippage rate of 12.45 percent. The initial total of 628,839 and the census total of 559,225 indicate that an adjustment of 0.89 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 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, a sensitivity analysis was conducted for the final poststratification step, where a simple baseline model was fitted with the same bounds and maximum number of iterations as those 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, Gordek, & Singh, 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), major depressive episode, and serious mental illness variables across four age groups (12 to 17, 18 to 25, 26 to 34, and 35 or older), for the eight states with the largest 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 6.8 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 6.8, 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 the Eight Largest States): Lifetime Cigarette and Alcohol Use Estimates: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Lifetime											
Total	Point Estimates	58.71	58.46	53.61	53.02	56.72	56.90	58.42	57.82	63.95	63.71
	SE1	0.32	0.33	1.30	1.30	1.62	1.60	1.54	1.64	1.25	1.27
	SE2	0.29	0.28	1.14	1.01	1.48	1.27	1.47	1.34	1.23	1.11
12-17	Point Estimates	13.28	13.23	9.08	9.08	11.76	12.17	12.55	12.58	17.65	17.60
	SE1	0.34	0.34	0.93	0.98	1.27	1.32	1.43	1.43	1.75	1.75
	SE2	0.33	0.33	0.93	0.96	1.28	1.34	1.44	1.47	1.76	1.77
18-25	Point Estimates	53.33	53.27	47.25	47.64	50.93	50.70	52.59	52.98	54.89	54.67
	SE1	0.54	0.54	1.91	1.97	2.00	2.00	2.52	2.53	2.39	2.41
	SE2	0.53	0.52	1.88	1.87	1.98	1.90	2.51	2.44	2.40	2.32
26-34	Point Estimates	65.32	65.15	60.81	60.47	61.70	61.72	69.82	69.09	70.69	70.78
	SE1	0.62	0.63	2.32	2.33	2.40	2.36	2.89	3.02	2.46	2.45
	SE2	0.60	0.57	2.27	2.04	2.37	2.21	2.87	2.77	2.43	2.23
35+	Point Estimates	65.00	64.66	59.93	59.01	62.23	62.44	63.83	63.02	71.19	70.84
	SE1	0.43	0.45	1.77	1.83	1.97	1.96	2.29	2.50	1.65	1.68
	SE2	0.41	0.39	1.62	1.43	1.86	1.72	2.22	2.00	1.63	1.52
Alcohol Lifetime											
Total	Point Estimates	81.20	81.00	80.26	79.90	81.93	82.32	81.51	80.91	83.92	83.92
	SE1	0.23	0.24	0.83	0.88	1.06	1.08	1.03	1.36	0.99	1.03
	SE2	0.21	0.21	0.73	0.71	0.98	0.81	0.97	0.77	0.96	0.83
12-17	Point Estimates	28.53	28.42	25.17	25.33	29.20	29.41	27.29	27.18	28.04	28.24
	SE1	0.45	0.46	1.44	1.51	1.63	1.67	2.07	2.06	2.07	2.12
	SE2	0.45	0.45	1.44	1.50	1.63	1.69	2.07	2.07	2.06	2.08
18-25	Point Estimates	82.41	82.37	79.66	80.14	81.48	81.58	81.01	81.04	83.74	83.40
	SE1	0.39	0.40	1.38	1.46	1.49	1.52	2.10	2.13	1.64	1.65
	SE2	0.39	0.39	1.38	1.44	1.48	1.51	2.11	2.03	1.65	1.68
26-34	Point Estimates	90.46	90.28	90.99	90.77	91.08	91.31	91.22	90.71	89.03	89.06
	SE1	0.38	0.39	1.42	1.43	1.49	1.47	1.74	1.86	1.70	1.71
	SE2	0.37	0.36	1.38	1.28	1.47	1.35	1.72	1.54	1.70	1.66
35+	Point Estimates	86.59	86.34	86.01	85.39	86.70	87.12	87.47	86.71	91.04	91.06
	SE1	0.31	0.33	1.07	1.19	1.21	1.24	1.41	2.03	1.27	1.32
	SE2	0.29	0.28	1.00	0.99	1.15	1.07	1.37	1.10	1.24	1.12

(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 the Eight Largest States): Lifetime Cigarette and Alcohol Use Estimates: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Lifetime									
Total	Point Estimates	54.85	54.24	64.69	64.53	61.50	61.06	54.56	54.35
	SE1	1.24	1.30	1.37	1.38	1.43	1.48	1.31	1.34
	SE2	1.17	1.15	1.35	1.31	1.43	1.37	1.21	1.14
12-17	Point Estimates	11.58	11.69	15.45	15.24	10.75	10.53	14.36	14.54
	SE1	1.31	1.32	1.63	1.62	1.48	1.50	1.33	1.38
	SE2	1.31	1.31	1.63	1.70	1.48	1.51	1.32	1.35
18-25	Point Estimates	47.95	48.10	60.53	60.01	54.54	54.39	52.36	52.14
	SE1	2.26	2.23	2.94	2.92	2.40	2.45	2.28	2.32
	SE2	2.23	2.12	2.94	2.87	2.40	2.44	2.29	2.26
26-34	Point Estimates	63.92	64.72	69.22	68.87	68.05	67.40	59.51	59.18
	SE1	2.26	2.35	2.80	2.80	2.57	2.60	2.50	2.55
	SE2	2.26	2.19	2.80	2.74	2.58	2.54	2.47	2.44
35+	Point Estimates	59.87	58.73	71.72	71.67	68.15	67.65	61.04	60.76
	SE1	1.61	1.71	1.78	1.81	2.04	2.07	1.84	1.86
	SE2	1.56	1.50	1.76	1.77	2.02	1.96	1.74	1.64
Alcohol Lifetime									
Total	Point Estimates	79.91	79.48	83.89	83.76	84.55	84.21	75.93	75.76
	SE1	0.89	0.93	1.07	1.09	0.92	0.96	1.06	1.07
	SE2	0.88	0.85	1.05	1.02	0.91	0.85	0.95	0.93
12-17	Point Estimates	33.19	33.20	32.27	32.16	28.41	28.36	28.33	28.34
	SE1	1.80	1.81	2.24	2.24	2.10	2.14	1.95	2.01
	SE2	1.80	1.80	2.25	2.26	2.10	2.12	1.93	1.93
18-25	Point Estimates	84.61	84.51	85.10	84.95	88.83	88.84	76.45	76.24
	SE1	1.67	1.67	1.90	1.94	1.39	1.39	1.73	1.76
	SE2	1.67	1.53	1.91	1.94	1.39	1.40	1.73	1.71
26-34	Point Estimates	89.55	89.24	91.96	91.97	92.49	92.24	86.71	86.54
	SE1	1.45	1.46	1.56	1.56	1.45	1.55	1.60	1.65
	SE2	1.45	1.40	1.55	1.49	1.45	1.49	1.60	1.60
35+	Point Estimates	82.85	82.30	89.49	89.33	89.46	89.00	81.58	81.36
	SE1	1.30	1.36	1.40	1.42	1.21	1.26	1.37	1.38
	SE2	1.28	1.20	1.38	1.36	1.21	1.16	1.27	1.24

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 the Eight Largest States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Lifetime											
Total	Point Estimates	44.26	44.03	46.04	45.39	42.79	43.51	41.72	42.12	50.32	50.26
	SE1	0.33	0.34	1.31	1.31	1.43	1.44	1.51	1.55	1.24	1.27
	SE2	0.29	0.27	1.15	1.01	1.30	1.12	1.42	1.22	1.22	1.15
12-17	Point Estimates	15.83	15.72	16.00	15.90	15.63	15.95	14.10	13.80	17.46	17.42
	SE1	0.36	0.36	1.18	1.18	1.41	1.44	1.66	1.68	1.77	1.78
	SE2	0.36	0.35	1.15	1.16	1.41	1.46	1.67	1.65	1.78	1.80
18-25	Point Estimates	52.70	52.69	52.18	52.49	51.81	51.78	53.76	53.64	53.82	53.64
	SE1	0.53	0.54	1.85	1.91	1.87	1.88	2.39	2.43	2.43	2.46
	SE2	0.53	0.52	1.83	1.76	1.84	1.88	2.37	2.34	2.42	2.36
26-34	Point Estimates	55.43	55.29	58.52	58.24	56.08	56.34	54.83	54.69	60.22	60.23
	SE1	0.66	0.67	2.65	2.59	2.36	2.31	3.08	3.03	2.76	2.76
	SE2	0.65	0.61	2.56	2.31	2.32	2.30	3.05	2.70	2.74	2.57
35+	Point Estimates	44.17	43.86	46.09	45.03	42.03	42.95	40.38	41.12	52.42	52.35
	SE1	0.47	0.47	1.84	1.89	1.96	1.97	2.04	2.15	1.81	1.82
	SE2	0.41	0.39	1.67	1.45	1.79	1.55	1.96	1.74	1.80	1.74
Cocaine Lifetime											
Total	Point Estimates	14.52	14.47	18.39	18.15	15.75	16.19	12.55	12.92	12.81	12.74
	SE1	0.24	0.24	0.94	0.93	1.02	1.06	0.95	1.03	0.84	0.85
	SE2	0.22	0.21	0.86	0.82	0.99	0.94	0.92	0.90	0.82	0.81
12-17	Point Estimates	0.83	0.84	0.92	0.94	0.94	0.99	0.79	0.83	1.00	1.06
	SE1	0.09	0.09	0.30	0.30	0.35	0.37	0.36	0.39	0.46	0.48
	SE2	0.09	0.09	0.30	0.30	0.36	0.37	0.36	0.38	0.46	0.48
18-25	Point Estimates	11.66	11.67	13.10	13.23	11.35	11.15	8.97	9.23	8.30	8.28
	SE1	0.32	0.33	1.07	1.12	1.22	1.22	1.26	1.28	1.26	1.26
	SE2	0.32	0.31	1.06	1.09	1.22	1.19	1.26	1.23	1.26	1.18
26-34	Point Estimates	18.02	17.94	20.68	20.53	18.89	19.28	17.41	17.22	15.36	15.36
	SE1	0.51	0.51	1.83	1.80	2.01	2.07	2.86	2.87	2.00	2.00
	SE2	0.50	0.48	1.81	1.66	1.97	1.85	2.84	2.71	2.00	2.00
35+	Point Estimates	16.33	16.27	21.61	21.25	17.71	18.29	13.91	14.49	14.93	14.83
	SE1	0.34	0.34	1.28	1.29	1.40	1.43	1.44	1.57	1.29	1.30
	SE2	0.31	0.30	1.22	1.18	1.34	1.29	1.41	1.40	1.27	1.22

(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 the Eight Largest States): Lifetime Illicit Drug Estimates, Marijuana and Cocaine: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Lifetime									
Total	Point Estimates	42.33	42.02	46.29	45.93	46.54	46.66	36.40	35.95
	SE1	1.31	1.32	1.61	1.65	1.41	1.44	1.20	1.22
	SE2	1.23	1.11	1.55	1.43	1.37	1.17	1.05	0.96
12-17	Point Estimates	16.90	16.77	14.37	14.12	13.71	13.69	15.41	15.73
	SE1	1.45	1.45	1.46	1.44	1.68	1.70	1.41	1.45
	SE2	1.45	1.43	1.46	1.48	1.68	1.71	1.40	1.41
18-25	Point Estimates	55.02	54.54	54.88	54.51	54.97	54.76	45.78	45.69
	SE1	1.98	1.98	2.89	2.87	2.21	2.35	2.19	2.19
	SE2	1.98	1.86	2.89	2.85	2.22	2.20	2.20	2.22
26-34	Point Estimates	57.42	56.86	56.89	56.48	58.85	58.43	45.48	45.49
	SE1	2.09	2.23	3.16	3.16	3.18	3.30	2.41	2.44
	SE2	2.11	2.10	3.15	3.15	3.16	3.22	2.38	2.34
35+	Point Estimates	39.48	39.24	47.07	46.70	46.72	47.04	35.61	34.81
	SE1	1.75	1.76	2.02	2.06	2.01	2.04	1.80	1.81
	SE2	1.65	1.51	1.92	1.72	1.98	1.74	1.58	1.44
Cocaine Lifetime									
Total	Point Estimates	14.23	14.20	13.99	13.88	14.95	15.10	11.89	11.71
	SE1	1.00	1.00	0.97	0.98	1.17	1.17	0.92	0.92
	SE2	0.97	0.92	0.96	0.96	1.14	1.07	0.88	0.83
12-17	Point Estimates	0.28	0.28	0.60	0.61	0.78	0.76	1.08	1.12
	SE1	0.21	0.21	0.25	0.26	0.27	0.28	0.44	0.46
	SE2	0.21	0.21	0.25	0.26	0.27	0.28	0.44	0.45
18-25	Point Estimates	12.85	12.97	13.01	12.71	11.88	11.65	10.54	10.38
	SE1	1.33	1.37	2.01	1.92	1.60	1.57	1.15	1.15
	SE2	1.29	1.28	2.01	1.93	1.59	1.43	1.15	1.12
26-34	Point Estimates	17.24	16.54	18.60	18.38	22.13	21.93	16.82	16.77
	SE1	1.88	1.79	2.28	2.27	2.61	2.59	1.92	1.96
	SE2	1.89	1.80	2.27	2.22	2.63	2.58	1.93	1.93
35+	Point Estimates	15.65	15.76	15.18	15.10	15.95	16.24	12.86	12.60
	SE1	1.42	1.43	1.31	1.33	1.61	1.61	1.31	1.31
	SE2	1.37	1.30	1.30	1.30	1.58	1.47	1.24	1.18

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 the Eight Largest States): Past Year Cigarette and Alcohol Use Estimates: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Year											
Total	Point Estimates	23.17	23.10	18.67	18.63	20.33	20.47	21.56	21.48	25.33	25.20
	SE1	0.27	0.27	0.83	0.84	1.23	1.25	1.29	1.33	1.37	1.37
	SE2	0.25	0.24	0.80	0.79	1.18	1.14	1.25	1.17	1.35	1.22
12-17	Point Estimates	8.11	8.12	5.85	5.80	7.64	7.89	8.78	8.79	10.95	10.99
	SE1	0.27	0.27	0.77	0.79	1.06	1.10	1.21	1.21	1.55	1.56
	SE2	0.27	0.26	0.77	0.78	1.07	1.08	1.22	1.22	1.56	1.55
18-25	Point Estimates	35.01	34.99	28.65	29.33	30.77	30.69	35.42	35.35	35.53	35.27
	SE1	0.51	0.52	1.69	1.79	1.90	1.91	2.15	2.18	2.35	2.36
	SE2	0.50	0.49	1.66	1.68	1.90	1.85	2.14	2.04	2.35	2.25
26-34	Point Estimates	35.19	35.07	29.30	28.61	30.91	30.61	40.41	39.93	42.11	42.08
	SE1	0.62	0.63	2.03	2.04	2.28	2.25	3.31	3.29	2.99	2.99
	SE2	0.62	0.59	2.04	1.85	2.28	2.26	3.26	2.98	2.99	2.90
35+	Point Estimates	20.22	20.15	15.75	15.67	18.08	18.28	16.30	16.31	22.03	21.88
	SE1	0.35	0.35	1.02	1.06	1.60	1.64	1.57	1.62	1.69	1.68
	SE2	0.33	0.33	1.00	1.01	1.54	1.52	1.56	1.56	1.68	1.57
Alcohol Past Year											
Total	Point Estimates	65.89	65.69	65.79	65.24	68.02	68.32	67.87	67.60	67.43	67.48
	SE1	0.31	0.31	1.16	1.16	1.39	1.41	1.28	1.48	1.38	1.42
	SE2	0.29	0.28	1.10	1.02	1.34	1.27	1.26	1.14	1.34	1.29
12-17	Point Estimates	22.78	22.70	19.69	19.69	22.87	22.90	21.14	21.16	21.04	21.26
	SE1	0.42	0.43	1.33	1.39	1.54	1.58	1.82	1.84	1.80	1.83
	SE2	0.42	0.41	1.33	1.38	1.55	1.59	1.82	1.85	1.79	1.77
18-25	Point Estimates	75.56	75.50	71.69	72.10	74.70	74.75	75.93	75.89	76.37	76.09
	SE1	0.45	0.46	1.61	1.69	1.80	1.83	2.28	2.31	2.29	2.27
	SE2	0.45	0.44	1.60	1.61	1.78	1.80	2.28	2.25	2.29	2.29
26-34	Point Estimates	80.59	80.32	80.71	80.21	79.64	79.89	83.63	83.32	78.86	78.88
	SE1	0.53	0.54	1.95	1.93	2.12	2.18	2.35	2.48	2.38	2.39
	SE2	0.52	0.50	1.90	1.82	2.11	2.12	2.35	2.25	2.39	2.38
35+	Point Estimates	66.90	66.67	67.70	66.85	70.18	70.48	69.58	69.26	70.09	70.15
	SE1	0.42	0.43	1.63	1.62	1.72	1.75	1.97	2.26	1.79	1.85
	SE2	0.41	0.40	1.60	1.46	1.68	1.69	1.93	1.69	1.76	1.75

(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 the Eight Largest States): Past Year Cigarette and Alcohol Use Estimates: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Year									
Total	Point Estimates	22.16	22.42	27.78	27.84	25.39	25.45	22.92	22.75
	SE1	1.17	1.21	1.48	1.48	1.35	1.37	1.02	1.03
	SE2	1.13	1.15	1.46	1.37	1.33	1.23	1.00	0.98
12-17	Point Estimates	7.22	7.22	8.32	8.15	6.37	6.17	8.99	9.13
	SE1	0.98	0.95	1.29	1.27	1.14	1.14	1.20	1.24
	SE2	0.99	0.91	1.29	1.31	1.14	1.15	1.18	1.18
18-25	Point Estimates	30.51	30.64	41.88	41.70	37.39	37.45	32.45	32.09
	SE1	1.98	1.98	2.84	2.85	2.39	2.46	2.28	2.30
	SE2	1.96	1.86	2.84	2.78	2.39	2.44	2.27	2.21
26-34	Point Estimates	35.22	35.57	35.83	35.46	35.75	36.03	34.52	34.38
	SE1	2.23	2.44	3.17	3.16	2.81	2.86	2.45	2.47
	SE2	2.24	2.42	3.16	3.08	2.83	2.88	2.43	2.36
35+	Point Estimates	19.30	19.60	26.19	26.43	23.46	23.53	20.15	19.97
	SE1	1.48	1.55	1.88	1.88	1.81	1.83	1.40	1.41
	SE2	1.46	1.48	1.86	1.82	1.78	1.70	1.41	1.42
Alcohol Past Year									
Total	Point Estimates	66.76	66.85	67.22	67.00	71.21	70.94	61.60	61.57
	SE1	1.24	1.29	1.31	1.34	1.29	1.31	1.25	1.26
	SE2	1.18	1.12	1.32	1.33	1.26	1.23	1.17	1.17
12-17	Point Estimates	27.90	27.87	26.27	26.19	25.54	25.46	22.17	22.21
	SE1	1.81	1.85	2.09	2.08	2.03	2.06	1.81	1.86
	SE2	1.83	1.81	2.09	2.06	2.02	1.99	1.78	1.78
18-25	Point Estimates	78.67	78.71	79.03	78.95	83.64	83.69	68.46	68.32
	SE1	1.81	1.80	1.95	1.98	1.72	1.72	2.02	2.02
	SE2	1.79	1.58	1.96	2.09	1.72	1.77	2.00	1.93
26-34	Point Estimates	80.08	79.69	81.64	81.64	84.64	84.34	78.47	78.35
	SE1	1.84	1.92	2.07	2.07	1.94	2.05	1.99	2.02
	SE2	1.83	1.83	2.08	2.09	1.97	1.97	1.96	1.99
35+	Point Estimates	66.28	66.53	67.91	67.58	72.08	71.73	62.68	62.67
	SE1	1.85	1.92	1.81	1.85	1.83	1.86	1.66	1.66
	SE2	1.77	1.65	1.80	1.80	1.79	1.75	1.59	1.63

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 the Eight Largest States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Year											
Total	Point Estimates	13.47	13.46	15.85	15.72	13.35	13.60	12.25	12.27	15.68	15.56
	SE1	0.20	0.20	0.80	0.78	0.87	0.89	0.87	0.88	0.96	0.97
	SE2	0.18	0.18	0.75	0.72	0.82	0.79	0.83	0.73	0.93	0.82
12-17	Point Estimates	12.70	12.60	11.90	11.66	12.27	12.56	11.74	11.43	14.85	14.88
	SE1	0.33	0.33	1.07	1.05	1.16	1.20	1.39	1.39	1.67	1.69
	SE2	0.33	0.32	1.06	1.02	1.16	1.18	1.39	1.39	1.69	1.72
18-25	Point Estimates	32.09	32.22	32.42	32.94	32.48	32.53	32.80	32.61	32.17	32.23
	SE1	0.47	0.48	1.44	1.48	1.67	1.65	2.39	2.39	2.40	2.44
	SE2	0.47	0.47	1.42	1.44	1.66	1.71	2.36	2.33	2.39	2.36
26-34	Point Estimates	20.70	20.62	24.25	23.76	20.14	20.58	19.62	19.73	24.74	24.71
	SE1	0.56	0.57	2.22	2.21	2.01	2.08	2.89	3.01	2.36	2.36
	SE2	0.55	0.53	2.15	1.99	2.01	2.05	2.91	2.99	2.34	2.26
35+	Point Estimates	8.11	8.11	10.70	10.48	8.94	9.15	6.47	6.52	10.66	10.46
	SE1	0.24	0.24	0.98	0.97	1.10	1.13	0.96	1.01	1.01	1.01
	SE2	0.23	0.23	0.95	0.90	1.07	1.08	0.95	0.95	1.00	0.93
Cocaine Past Year											
Total	Point Estimates	1.81	1.80	2.24	2.18	1.54	1.58	2.11	2.15	1.31	1.30
	SE1	0.07	0.07	0.27	0.26	0.23	0.24	0.38	0.40	0.32	0.31
	SE2	0.07	0.07	0.26	0.24	0.23	0.24	0.38	0.36	0.32	0.30
12-17	Point Estimates	0.59	0.61	0.75	0.74	0.54	0.57	0.71	0.78	0.39	0.44
	SE1	0.07	0.08	0.27	0.26	0.28	0.29	0.35	0.39	0.28	0.32
	SE2	0.07	0.08	0.27	0.26	0.28	0.29	0.35	0.38	0.29	0.33
18-25	Point Estimates	5.38	5.37	5.75	5.69	4.63	4.63	4.75	4.85	3.44	3.42
	SE1	0.26	0.26	0.87	0.89	0.90	0.91	1.10	1.10	0.99	0.99
	SE2	0.25	0.25	0.87	0.88	0.90	0.89	1.10	1.07	0.99	0.96
26-34	Point Estimates	3.24	3.18	5.51	5.28	3.17	3.36	3.45	3.19	1.83	1.81
	SE1	0.25	0.25	1.03	0.99	0.91	0.99	1.43	1.40	0.83	0.82
	SE2	0.25	0.23	1.03	0.93	0.91	0.97	1.42	1.34	0.83	0.81
35+	Point Estimates	0.94	0.93	0.87	0.84	0.83	0.84	1.47	1.56	0.91	0.88
	SE1	0.08	0.08	0.23	0.21	0.26	0.27	0.48	0.52	0.41	0.40
	SE2	0.08	0.07	0.22	0.20	0.26	0.26	0.47	0.47	0.41	0.40

(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 the Eight Largest States): Past Year Illicit Drug Estimates, Marijuana and Cocaine: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Year									
Total	Point Estimates	15.25	15.03	13.77	13.59	12.70	12.81	10.01	9.90
	SE1	0.72	0.73	1.05	1.04	0.98	0.99	0.67	0.67
	SE2	0.70	0.68	1.03	0.97	0.95	0.86	0.63	0.59
12-17	Point Estimates	13.74	13.54	11.84	11.61	11.92	11.96	12.48	12.74
	SE1	1.29	1.29	1.35	1.32	1.55	1.57	1.34	1.38
	SE2	1.29	1.26	1.35	1.34	1.56	1.59	1.34	1.36
18-25	Point Estimates	39.11	38.86	32.99	32.74	33.49	33.38	23.68	23.57
	SE1	2.02	2.04	2.34	2.29	2.19	2.22	1.87	1.88
	SE2	2.01	1.99	2.34	2.30	2.19	2.26	1.86	1.86
26-34	Point Estimates	25.59	24.66	19.02	18.83	19.72	19.56	13.51	13.48
	SE1	2.13	2.10	2.40	2.39	2.73	2.71	1.77	1.78
	SE2	2.14	2.00	2.39	2.37	2.75	2.73	1.76	1.71
35+	Point Estimates	8.04	7.95	9.21	9.07	7.37	7.63	5.45	5.26
	SE1	0.77	0.79	1.11	1.10	1.05	1.08	0.70	0.69
	SE2	0.77	0.80	1.10	1.11	1.05	1.01	0.69	0.67
Cocaine Past Year									
Total	Point Estimates	2.40	2.33	1.64	1.61	1.63	1.70	1.44	1.44
	SE1	0.33	0.32	0.38	0.37	0.30	0.33	0.25	0.25
	SE2	0.32	0.30	0.38	0.37	0.30	0.31	0.25	0.24
12-17	Point Estimates	0.28	0.28	0.28	0.29	0.33	0.33	0.95	0.99
	SE1	0.21	0.21	0.20	0.20	0.23	0.24	0.39	0.40
	SE2	0.21	0.21	0.20	0.20	0.23	0.24	0.39	0.39
18-25	Point Estimates	7.40	7.42	5.31	5.15	4.91	4.81	4.63	4.54
	SE1	1.12	1.16	1.38	1.28	1.04	1.02	1.00	0.98
	SE2	1.11	1.13	1.37	1.30	1.04	0.99	1.00	1.00
26-34	Point Estimates	5.14	4.88	2.53	2.46	3.35	3.32	1.49	1.50
	SE1	1.33	1.25	0.91	0.88	0.95	0.94	0.73	0.73
	SE2	1.34	1.23	0.90	0.88	0.96	0.94	0.73	0.72
35+	Point Estimates	0.99	0.94	0.93	0.94	0.82	0.96	0.78	0.78
	SE1	0.29	0.28	0.32	0.33	0.33	0.40	0.28	0.28
	SE2	0.29	0.29	0.33	0.33	0.33	0.38	0.28	0.28

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 the Eight Largest States): Past Month Cigarette and Alcohol Use Estimates: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Month											
Total	Point Estimates	19.48	19.41	14.87	14.80	16.90	17.06	18.62	18.52	21.80	21.68
	SE1	0.25	0.26	0.75	0.77	1.09	1.12	1.24	1.28	1.25	1.24
	SE2	0.24	0.23	0.73	0.73	1.07	1.04	1.21	1.15	1.23	1.13
12-17	Point Estimates	4.19	4.17	3.12	3.11	2.73	2.81	4.66	4.70	5.10	5.12
	SE1	0.19	0.19	0.59	0.59	0.61	0.63	0.95	0.98	1.04	1.01
	SE2	0.19	0.19	0.60	0.58	0.61	0.63	0.96	0.97	1.04	1.01
18-25	Point Estimates	26.76	26.73	20.80	21.32	21.79	21.67	27.19	27.28	28.52	28.18
	SE1	0.46	0.46	1.37	1.45	1.44	1.46	2.12	2.16	2.26	2.27
	SE2	0.45	0.44	1.34	1.39	1.44	1.43	2.11	2.05	2.26	2.11
26-34	Point Estimates	29.37	29.29	21.07	20.77	26.38	26.47	33.63	32.99	36.25	36.27
	SE1	0.60	0.60	1.89	1.92	2.29	2.28	3.13	3.11	2.84	2.84
	SE2	0.59	0.56	1.90	1.83	2.29	2.26	3.09	2.74	2.83	2.72
35+	Point Estimates	18.00	17.90	13.79	13.62	15.98	16.18	15.50	15.47	20.01	19.88
	SE1	0.33	0.34	0.97	1.00	1.45	1.48	1.55	1.60	1.65	1.63
	SE2	0.32	0.32	0.95	0.96	1.40	1.38	1.54	1.54	1.64	1.54
Alcohol Past Month											
Total	Point Estimates	51.89	51.67	51.79	51.28	54.48	54.61	52.49	52.78	52.78	52.76
	SE1	0.33	0.33	1.16	1.14	1.57	1.58	1.49	1.57	1.49	1.51
	SE2	0.31	0.30	1.09	1.04	1.51	1.36	1.42	1.31	1.44	1.36
12-17	Point Estimates	9.61	9.61	8.48	8.58	9.43	9.49	9.55	9.34	10.41	10.48
	SE1	0.29	0.29	0.83	0.88	1.05	1.07	1.32	1.31	1.23	1.26
	SE2	0.29	0.29	0.84	0.87	1.05	1.08	1.32	1.31	1.23	1.24
18-25	Point Estimates	58.45	58.35	54.91	55.47	58.21	58.05	60.61	60.35	61.29	61.04
	SE1	0.53	0.54	1.84	1.88	2.10	2.14	2.52	2.58	2.54	2.52
	SE2	0.52	0.51	1.85	1.81	2.07	2.02	2.52	2.48	2.54	2.52
26-34	Point Estimates	65.12	64.97	64.18	63.68	64.29	64.52	68.91	69.22	63.23	63.26
	SE1	0.61	0.62	2.09	2.10	2.55	2.62	2.70	2.73	3.00	3.01
	SE2	0.61	0.59	2.06	2.09	2.56	2.57	2.75	2.66	2.99	2.91
35+	Point Estimates	53.76	53.47	54.54	53.70	57.48	57.56	53.47	53.98	55.13	55.11
	SE1	0.45	0.45	1.63	1.58	1.98	1.99	2.14	2.29	1.94	1.98
	SE2	0.43	0.42	1.57	1.47	1.93	1.83	2.07	1.84	1.91	1.85

(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 the Eight Largest States): Past Month Cigarette and Alcohol Use Estimates: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Cigarettes Past Month									
Total	Point Estimates	18.78	18.92	24.70	24.65	21.03	21.07	18.21	18.09
	SE1	1.13	1.17	1.44	1.42	1.21	1.21	1.03	1.05
	SE2	1.12	1.16	1.42	1.32	1.20	1.14	1.01	1.00
12-17	Point Estimates	4.18	4.30	4.52	4.41	3.18	3.07	4.35	4.34
	SE1	0.77	0.78	0.86	0.85	0.70	0.70	0.75	0.76
	SE2	0.77	0.77	0.86	0.89	0.70	0.69	0.74	0.72
18-25	Point Estimates	23.36	23.19	35.08	34.94	29.47	29.59	23.73	23.63
	SE1	1.95	1.94	2.81	2.81	2.41	2.48	1.89	1.91
	SE2	1.93	1.83	2.81	2.82	2.41	2.47	1.87	1.83
26-34	Point Estimates	29.17	29.35	30.67	30.18	29.84	30.18	29.27	29.26
	SE1	2.21	2.36	2.93	2.91	2.63	2.65	2.44	2.47
	SE2	2.22	2.38	2.92	2.80	2.65	2.69	2.43	2.34
35+	Point Estimates	17.30	17.49	24.38	24.45	19.96	19.94	16.51	16.34
	SE1	1.49	1.54	1.80	1.78	1.63	1.64	1.41	1.42
	SE2	1.47	1.51	1.78	1.72	1.62	1.56	1.41	1.42
Alcohol Past Month									
Total	Point Estimates	54.23	54.16	52.69	52.40	56.85	56.73	47.32	47.22
	SE1	1.34	1.39	1.44	1.48	1.52	1.51	1.40	1.39
	SE2	1.28	1.23	1.44	1.42	1.48	1.43	1.30	1.28
12-17	Point Estimates	13.87	13.66	9.42	9.38	10.27	10.18	9.37	9.42
	SE1	1.49	1.47	1.30	1.29	1.51	1.53	1.28	1.29
	SE2	1.51	1.49	1.30	1.29	1.50	1.50	1.27	1.24
18-25	Point Estimates	63.88	63.59	60.17	60.04	64.70	64.96	50.79	50.72
	SE1	2.26	2.29	1.91	1.94	2.61	2.62	1.99	2.02
	SE2	2.20	1.91	1.91	1.99	2.61	2.54	1.97	1.99
26-34	Point Estimates	64.74	65.13	67.04	67.03	68.51	67.93	61.73	61.77
	SE1	2.24	2.32	2.89	2.89	2.54	2.59	2.31	2.37
	SE2	2.23	2.09	2.88	2.93	2.54	2.53	2.28	2.33
35+	Point Estimates	55.08	54.99	54.57	54.15	59.08	58.97	49.57	49.39
	SE1	1.96	2.03	2.03	2.08	2.05	2.07	1.90	1.87
	SE2	1.90	1.81	2.03	2.00	2.02	1.96	1.80	1.78

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 the Eight Largest States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Month											
Total	Point Estimates	8.32	8.30	10.16	10.02	7.61	7.77	7.91	7.83	10.43	10.38
	SE1	0.16	0.16	0.66	0.64	0.60	0.63	0.65	0.66	0.82	0.82
	SE2	0.15	0.14	0.62	0.59	0.58	0.59	0.64	0.56	0.82	0.75
12-17	Point Estimates	7.07	7.04	6.67	6.63	5.84	5.91	6.16	5.91	9.19	9.35
	SE1	0.25	0.25	0.83	0.85	0.76	0.77	0.96	0.94	1.28	1.30
	SE2	0.25	0.24	0.82	0.83	0.76	0.77	0.95	0.96	1.28	1.33
18-25	Point Estimates	19.78	19.83	21.15	21.43	20.32	20.23	19.95	19.75	20.63	20.78
	SE1	0.40	0.41	1.24	1.26	1.59	1.58	2.33	2.33	1.84	1.86
	SE2	0.40	0.40	1.22	1.23	1.59	1.58	2.32	2.29	1.84	1.82
26-34	Point Estimates	13.02	12.87	15.13	14.76	13.29	13.82	10.98	10.67	17.77	17.78
	SE1	0.44	0.44	1.54	1.57	1.56	1.64	2.23	2.21	2.15	2.15
	SE2	0.43	0.41	1.50	1.44	1.56	1.63	2.23	2.12	2.14	2.08
35+	Point Estimates	5.09	5.08	7.03	6.79	4.59	4.70	5.02	5.03	7.09	6.95
	SE1	0.19	0.19	0.88	0.85	0.72	0.76	0.81	0.83	0.98	0.97
	SE2	0.19	0.18	0.85	0.79	0.71	0.74	0.80	0.79	0.98	0.92
Cocaine Past Month											
Total	Point Estimates	0.71	0.70	0.90	0.86	0.54	0.57	1.02	1.06	0.21	0.22
	SE1	0.05	0.05	0.18	0.16	0.13	0.14	0.30	0.32	0.08	0.08
	SE2	0.05	0.04	0.17	0.15	0.13	0.14	0.29	0.29	0.08	0.08
12-17	Point Estimates	0.21	0.21	0.32	0.34	0.00	0.00	0.35	0.38	0.39	0.44
	SE1	0.05	0.05	0.17	0.18	0.00	0.00	0.25	0.27	0.28	0.32
	SE2	0.05	0.05	0.17	0.18	0.00	0.00	0.25	0.27	0.29	0.33
18-25	Point Estimates	1.66	1.66	2.35	2.30	1.32	1.33	1.19	1.23	1.05	1.04
	SE1	0.13	0.14	0.52	0.51	0.43	0.44	0.46	0.47	0.46	0.45
	SE2	0.14	0.13	0.52	0.50	0.43	0.43	0.46	0.47	0.46	0.45
26-34	Point Estimates	1.26	1.21	2.34	2.19	1.78	1.92	1.32	1.31	0.00	0.00
	SE1	0.16	0.16	0.66	0.61	0.77	0.85	0.76	0.75	0.00	0.00
	SE2	0.16	0.15	0.66	0.58	0.77	0.83	0.76	0.72	0.00	0.00
35+	Point Estimates	0.46	0.46	0.31	0.27	0.23	0.24	1.01	1.07	0.06	0.06
	SE1	0.06	0.06	0.17	0.14	0.11	0.11	0.42	0.46	0.06	0.06
	SE2	0.05	0.05	0.17	0.14	0.11	0.11	0.41	0.42	0.06	0.06

(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 the Eight Largest States): Past Month Illicit Drug Estimates, Marijuana and Cocaine: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Marijuana Past Month									
Total	Point Estimates	9.92	9.72	9.09	8.93	7.77	7.94	5.71	5.64
	SE1	0.63	0.62	0.89	0.88	0.70	0.73	0.53	0.51
	SE2	0.61	0.57	0.88	0.83	0.69	0.67	0.51	0.49
12-17	Point Estimates	8.03	7.96	5.79	5.60	6.60	6.58	7.21	7.40
	SE1	1.18	1.16	1.01	0.99	1.06	1.06	1.02	1.05
	SE2	1.18	1.13	1.01	0.98	1.06	1.04	1.02	1.03
18-25	Point Estimates	25.91	25.56	21.41	20.98	19.06	19.28	13.85	13.82
	SE1	1.93	1.94	1.95	1.90	1.90	1.87	1.43	1.45
	SE2	1.94	1.92	1.95	1.91	1.90	2.02	1.41	1.41
26-34	Point Estimates	16.98	16.33	13.14	12.98	12.11	11.84	6.77	6.64
	SE1	2.04	2.01	1.92	1.90	2.18	2.16	1.36	1.34
	SE2	2.06	1.95	1.92	1.91	2.20	2.13	1.35	1.31
35+	Point Estimates	5.17	5.06	6.33	6.23	4.87	5.15	3.25	3.15
	SE1	0.63	0.62	0.92	0.92	0.84	0.89	0.60	0.58
	SE2	0.62	0.60	0.92	0.91	0.85	0.85	0.60	0.58
Cocaine Past Month									
Total	Point Estimates	1.05	1.00	0.74	0.72	0.63	0.69	0.56	0.57
	SE1	0.24	0.23	0.22	0.22	0.21	0.24	0.16	0.16
	SE2	0.24	0.23	0.22	0.22	0.21	0.23	0.16	0.16
12-17	Point Estimates	0.00	0.00	0.00	0.00	0.18	0.18	0.62	0.64
	SE1	0.00	0.00	0.00	0.00	0.18	0.18	0.34	0.35
	SE2	0.00	0.00	0.00	0.00	0.18	0.18	0.33	0.34
18-25	Point Estimates	2.36	2.41	0.95	0.94	1.12	1.10	1.15	1.17
	SE1	0.68	0.72	0.48	0.48	0.49	0.48	0.50	0.51
	SE2	0.68	0.73	0.48	0.48	0.49	0.49	0.50	0.51
26-34	Point Estimates	1.95	1.78	1.55	1.49	0.71	0.70	0.60	0.60
	SE1	0.76	0.68	0.71	0.69	0.42	0.41	0.44	0.44
	SE2	0.76	0.68	0.71	0.68	0.42	0.42	0.44	0.44
35+	Point Estimates	0.70	0.65	0.63	0.63	0.57	0.68	0.39	0.41
	SE1	0.27	0.26	0.27	0.26	0.28	0.34	0.21	0.22
	SE2	0.27	0.27	0.27	0.27	0.28	0.33	0.21	0.21

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table 6.8 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and the Eight Largest States): Major Depressive Episode (MDE) in the Past Year and Serious Mental Illness (SMI) in the Past Year among Persons Aged 18 or Older: 2015 NSDUH

Variables		United States		California		Florida		Illinois		Michigan	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Major Depressive Episode											
Total	Point Estimates	6.72	6.69	5.57	5.56	5.81	5.86	4.71	4.65	6.56	6.50
	SE1	0.16	0.16	0.43	0.43	0.59	0.61	0.68	0.68	0.66	0.66
	SE2	0.16	0.15	0.42	0.42	0.58	0.58	0.67	0.64	0.66	0.62
18-25	Point Estimates	10.37	10.31	9.71	9.93	9.64	9.71	8.22	8.09	12.07	11.98
	SE1	0.31	0.31	0.95	0.98	0.96	0.99	1.17	1.15	1.35	1.36
	SE2	0.30	0.31	0.95	0.98	0.95	0.97	1.17	1.15	1.36	1.35
26-34	Point Estimates	7.66	7.66	7.23	7.02	5.66	5.68	7.06	6.73	9.49	9.55
	SE1	0.34	0.34	1.02	1.00	1.11	1.13	1.57	1.44	1.61	1.62
	SE2	0.34	0.33	1.02	1.01	1.11	1.15	1.56	1.36	1.61	1.60
35+	Point Estimates	5.76	5.73	4.24	4.21	5.19	5.24	3.46	3.46	4.86	4.78
	SE1	0.20	0.20	0.54	0.54	0.70	0.72	0.80	0.82	0.84	0.83
	SE2	0.20	0.19	0.54	0.53	0.68	0.69	0.80	0.80	0.84	0.79
Serious Mental Illness											
Total	Point Estimates	4.05	4.02	3.32	3.38	3.34	3.29	2.79	2.77	4.35	4.31
	SE1	0.13	0.13	0.35	0.35	0.45	0.45	0.53	0.53	0.56	0.56
	SE2	0.12	0.12	0.35	0.35	0.44	0.43	0.52	0.51	0.56	0.54
18-25	Point Estimates	5.07	5.03	4.52	4.70	4.43	4.43	4.87	4.81	6.25	6.29
	SE1	0.23	0.23	0.70	0.73	0.57	0.58	0.94	0.95	1.02	1.02
	SE2	0.23	0.23	0.69	0.74	0.57	0.58	0.94	0.93	1.03	1.02
26-34	Point Estimates	5.32	5.33	4.76	4.58	3.94	4.04	5.74	5.50	4.91	4.95
	SE1	0.30	0.30	0.90	0.87	0.91	0.94	1.57	1.48	1.20	1.21
	SE2	0.30	0.29	0.89	0.84	0.91	0.96	1.56	1.39	1.20	1.20
35+	Point Estimates	3.55	3.52	2.70	2.78	3.04	2.95	1.69	1.73	3.85	3.78
	SE1	0.16	0.16	0.44	0.46	0.56	0.55	0.53	0.55	0.74	0.73
	SE2	0.16	0.15	0.44	0.45	0.55	0.54	0.53	0.55	0.74	0.71

(continued)

Table 6.8 Point Estimates, Ratio-Adjusted Standard Errors (SE1), and Sandwich Standard Errors (SE2) for Baseline and Final Models—Drug Estimates (United States and the Eight Largest States): Major Depressive Episode (MDE) in the Past Year and Serious Mental Illness (SMI) in the Past Year among Persons Aged 18 or Older: 2015 NSDUH (continued)

Variables		New York		Ohio		Pennsylvania		Texas	
		Baseline	Final	Baseline	Final	Baseline	Final	Baseline	Final
Major Depressive Episode									
Total	Point Estimates	6.85	6.69	8.62	8.64	7.03	6.84	5.70	5.60
	SE1	0.79	0.75	0.87	0.88	0.72	0.72	0.49	0.48
	SE2	0.78	0.71	0.87	0.87	0.71	0.70	0.48	0.44
18-25	Point Estimates	10.01	9.91	11.55	11.49	11.48	11.25	9.92	9.78
	SE1	1.20	1.21	1.45	1.46	1.17	1.17	1.13	1.11
	SE2	1.20	1.22	1.45	1.47	1.17	1.13	1.11	1.08
26-34	Point Estimates	7.41	7.67	8.92	8.94	8.44	8.55	6.19	6.30
	SE1	1.29	1.33	1.59	1.58	1.61	1.65	1.21	1.24
	SE2	1.29	1.26	1.59	1.56	1.62	1.61	1.20	1.19
35+	Point Estimates	6.07	5.80	7.99	8.02	5.90	5.66	4.58	4.45
	SE1	1.06	0.99	1.10	1.10	0.94	0.93	0.63	0.61
	SE2	1.05	0.95	1.10	1.11	0.93	0.90	0.63	0.59
Serious Mental Illness									
Total	Point Estimates	4.08	4.08	5.69	5.75	4.10	3.96	2.87	2.84
	SE1	0.52	0.51	0.67	0.68	0.62	0.61	0.35	0.35
	SE2	0.51	0.47	0.67	0.68	0.62	0.61	0.35	0.33
18-25	Point Estimates	4.82	4.73	5.81	5.80	5.50	5.14	5.20	5.17
	SE1	0.83	0.81	1.18	1.18	0.90	0.87	0.95	0.95
	SE2	0.83	0.79	1.18	1.17	0.91	0.87	0.94	0.96
26-34	Point Estimates	5.11	5.30	6.72	6.73	3.85	3.95	4.04	4.09
	SE1	1.20	1.22	1.46	1.45	0.99	1.02	0.91	0.92
	SE2	1.20	1.20	1.46	1.46	0.99	1.02	0.90	0.90
35+	Point Estimates	3.68	3.65	5.45	5.54	3.88	3.74	2.02	1.96
	SE1	0.62	0.60	0.88	0.90	0.82	0.81	0.40	0.39
	SE2	0.62	0.57	0.88	0.90	0.82	0.81	0.41	0.38

NOTE: Major Depressive Episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV), which specifies a period of at least 2 weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms.

NOTE: Serious Mental Illness (SMI) is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, assessed by the Mental Health Surveillance Study (MHSS) *Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition—Research Version—Axis I Disorders* (MHSS-SCID), which is based on the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). SMI includes persons with diagnoses resulting in serious functional impairment.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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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. Census Bureau 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 the census. In general, the controls include adjustments for births, deaths, and net migration, as well as adjustments from the Count Question Resolution Program and any geography updates. However, the controls do not include any adjustments for the undercount or overcount of specific populations as determined from the 2010 Census Coverage Measurement Program. Since the 2011 National Survey on Drug Use and Health (NSDUH), the control totals used for poststratification were based on the 2010 census. For the 2005 through 2013 NSDUHs, the sample and the source of design variables used as the generalized exponential model predictors were based on the 2000 census, but starting with the 2014 NSDUH, they are based on the 2010 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 2015, 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

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 2015 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]

As in 2002-2014, the predictive mean neighborhood (PMN) methodology was used for the 2015 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.

C.1 Unweighted Hot Deck

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 dataset 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 2015 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

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

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

(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)

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 Rubin's model-based predictive mean matching method (Rubin, 1986). 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 2015 editing and imputation report in the *NSDUH Methodological Resource Book* (Center for Behavioral Health Statistics and Quality, 2017).

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 2015 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 and person-level poststratification for this year were reasonably distributed, so the additional treatment of the extreme weight adjustment step was not necessary at the DU level or the person level. 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 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	4	0.39	52	0.09	12	1.01	12	0.08	4	0.25	4	0.04	1
1%	54	1.00	74	0.51	78	1.01	122	0.51	113	1.00	136	0.20	111
5%	88	1.05	104	0.78	110	1.01	266	0.74	256	1.03	318	0.38	277
10%	126	1.08	148	0.89	162	1.01	416	0.82	404	1.08	511	0.79	452
25%	418	1.14	461	0.99	451	1.32	963	0.91	942	1.19	1,176	0.97	1,094
Median	722	1.21	886	1.08	928	2.40	1,819	1.00	1,831	1.33	2,339	1.02	2,314
75%	906	1.31	1,130	1.18	1,249	3.25	3,538	1.10	3,601	1.51	4,869	1.08	4,878
90%	1,131	1.45	1,477	1.32	1,662	7.03	6,769	1.21	6,773	1.74	9,692	1.23	9,656
95%	1,301	1.60	1,728	1.46	1,967	7.85	9,106	1.31	9,081	1.94	13,272	1.42	13,378
99%	1,760	2.05	2,096	2.02	2,654	9.34	13,129	1.66	13,598	2.59	21,432	1.82	22,285
Maximum	4,823	16.46	7,652	5.74	7,313	25.09	44,937	10.99	42,762	5.92	56,238	4.51	67,438
n	165,328	132,210	132,210	132,194	132,194	94,499	94,499	94,499	94,499	68,073	68,073	68,073	68,073
Max/Mean	7.13	-	9.05	-	7.88	-	15.95	-	15.10	-	14.30	-	17.15

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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+[1,2]

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)[3]
1: First Quintile, 2: Second Quintile, 3: Third Quintile, 4: Fourth Quintile, 5: Fifth Quintile[1]

States[4]

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] 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.

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

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

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

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 2015 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 2015 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 2015 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 2015 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 2015 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	1.48	5.24	0.43	1.76673	306	(1.00, 2.20)	(1.00, 2.20)
	3.45	10.13	1.71	1.93791	126	(1.00, 5.00)	(1.00, 5.00)
						(1.30, 1.37)	(1.30, 1.37)
res.sdu.ps	3.45	10.13	1.71	1.93804	232	(0.51, 1.10)	(0.51, 1.10)
	2.57	4.46	1.29	2.06707	231	(0.20, 5.00)	(0.20, 5.00)
						(0.99, 1.03)	(1.00, 1.03)
sel.per.ps	3.59	8.89	2.10	2.81067	332	(0.38, 2.94)	(0.40, 2.94)
	1.98	6.79	1.57	2.84279	306	(0.25, 4.80)	(0.26, 4.76)
						(0.90, 3.54)	(0.90, 3.54)
res.per.nr	2.06	7.19	1.60	2.90975	332	(1.00, 3.00)	(1.00, 3.00)
	1.58	5.74	1.24	3.37768	245	(1.00, 5.00)	(1.00, 5.00)
						(1.50, 3.85)	(1.50, 3.85)
res.per.ps	1.61	5.97	1.29	3.37768	267	(0.20, 1.10)	(0.20, 1.10)
	0.77	3.70	1.12	3.48713	185	(0.20, 4.40)	(0.20, 4.40)
						(0.90, 5.00)	(N/A, N/A)

[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, 2015.

Table D.1b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	71	0.69	85	0.12	21	1.01	25	0.19	8	0.25	8	0.08	2
1%	72	1.00	86	0.44	73	1.01	101	0.45	94	1.00	111	0.20	47
5%	73	1.04	93	0.73	93	1.01	149	0.69	143	1.04	168	0.35	140
10%	87	1.10	104	0.87	101	1.01	207	0.79	201	1.11	235	0.69	208
25%	145	1.19	148	0.97	152	1.36	346	0.89	345	1.23	439	0.96	420
Median	188	1.23	216	1.04	235	2.25	736	0.99	738	1.38	979	1.03	930
75%	513	1.31	636	1.12	617	3.43	1,753	1.10	1,780	1.62	2,365	1.09	2,424
90%	737	1.39	1,009	1.28	1,075	8.00	3,404	1.24	3,617	1.93	5,367	1.24	5,385
95%	822	1.47	1,101	1.45	1,307	9.94	5,669	1.37	5,796	2.19	8,665	1.50	8,229
99%	1,126	2.02	1,585	2.14	1,903	11.80	9,484	1.92	9,230	2.92	16,318	2.11	17,698
Maximum	1,805	5.00	4,110	5.00	5,787	16.95	32,548	10.99	28,356	5.92	46,831	4.40	54,255
n	16,892	13,341	13,341	13,339	13,339	8,546	8,546	8,546	8,546	5,825	5,825	5,825	5,825
Max/Mean	5.62	-	10.10	-	13.38	-	22.07	-	19.19	-	21.60	-	25.03

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 1 Overview

Dwelling Unit Nonresponse

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

Variable collapsing or dropping was present in all two-factor effects except the State × Quarter and State × Rent/Housing interactions. Out of 122 proposed variables, 76 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 160 proposed variables, 26 were included in the model.

In the final model, a total of 126 variables were included; see Exhibit D1.1.

Dwelling Unit Poststratification

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

All 86 proposed two-factor effects were included in the model.

For the three-factor effects, variable collapsing was present in the State × Age × Race interaction. Out of 127 proposed variables, 126 were included in the model.

In the final model, a total of 231 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, Rent/Housing × percent Black or African American, State × Race, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 168 proposed variables, 149 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Hispanicity, and State × Race × Hispanicity interactions. Out of 127 proposed variables, 120 were included in the model.

In the final model, a total of 306 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, Rent/Housing × percent Black or African American, State × Race, State × percent Black or African American, State × percent Hispanic or Latino, and State × percent Owner-Occupied interactions. Out of 168 proposed variables, 142 were included in the model.

Variable dropping was present in all three-factor effects except the Age × Hispanicity × Gender and State × Age × Gender interactions. Out of 127 proposed variables, 66 were included in the model.

In the final model, a total of 245 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 Age × Race and State × Race interactions. Out of 95 proposed variables, 84 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Hispanicity × Gender, Race × Hispanicity × Gender, State × Age × Gender, and State × Hispanicity × Gender interactions. Out of 152 proposed variables, 81 were included in the model.

In the final model, a total of 185 variables were included; see Exhibit D1.5.

Exhibit D1.1 Covariates for 2015 NSDUH Person Weights (res.sdu.nr), Model Group 1: New England

Variables	Level	Proposed	Final	Comments
One-Factor Effects		**24**	**24**	
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**	**76**	
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (3,1) & (2,1); zero, sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Coll. (3,1) & (3,2); & (2,1) & (2,2), conv.
% Owner-Occupied × Rent/Housing	3 × 5	8	4	Coll. (2,1) & (3,1). Repeat for Rent/Housing levels 2, 3, & 4; conv.
Rent/Housing × % Black or African American	3 × 5	8	5	Drop (2/3/4,1); zero, sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Coll. (1,1) & (1,2). Repeat for Rent/Housing levels 2, 3, & 4; conv.
State × Quarter	6 × 4	15	15	All levels present.
State × Population Density	6 × 4	15	5	Keep (1,1), (2/3,2/3). Drop all others; zero, sing.
State × Group Quarter	6 × 3	10	2	Coll. (4,1) & (4,2). Repeat for state 5; drop all others; conv.
State × % Black or African American	6 × 3	10	3	Keep (1/4/5,2). Drop all others; sing., zero.
State × % Hispanic or Latino	6 × 3	10	5	Keep (1/4,1/2), (3,2). Drop all others; zero.
State × % Owner-Occupied	6 × 3	10	9	Drop (2,3); zero.
State × Rent/Housing	6 × 5	20	20	All levels present.
Three-Factor Effects		**160**	**26**	
State × % Owner-Occupied × % Black or African American	6 × 3 × 3	20	4	Keep (1,3/2,2), (4,2,2), and (5,3,2). Drop all others; hier./conv.
State × % Owner-Occupied × % Hispanic or Latino	6 × 3 × 3	20	2	Coll. (1,2,1) & (1,2,2); (4,2,1), (4,3,1), (4,2,2) & (4,3,2). Drop all others; hier./conv.
State × % Owner-Occupied × Rent/Housing	6 × 3 × 5	40	10	Coll. (1,2,1) & (1,3,1); coll. (3,2,1) & (3,3,1). Repeat for Rent/Housing levels 2 & 3; also repeat for states SR and VT; drop all others; hier./zero/sing./conv.
State × Rent/Housing × % Black or African American	6 × 3 × 5	40	5	Coll. (1,1,2) & (1,2,2), keep (1,3/4,2), (4,2/3,2). Drop all others; hier./zero/sing./conv.
State × Rent/Housing × % Hispanic or Latino	6 × 3 × 5	40	5	Coll. (1,2,1) & (1,2,2). Repeat for Rent/Housing levels 3 & 4. Coll. (4,2,1) & (4,2,2). Repeat for Rent/Housing level 3.
Total		**306**	**126**	

Exhibit D1.2 Covariates for 2015 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**	**86**	
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	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**	**126**	
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)	6 × 5 × 3	40	39	Coll. (2,1,2) & (2,1,3); conv.
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	10	All levels present.
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**	**231**	

Exhibit D1.3 Covariates for 2015 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**	**149**	
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 (2/3,1); zero, 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 (2/3/4,1); zero, sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	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	19	Coll. (3,3) & (3,4); 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 (1/4/5,1), (2/3,1/2); zero, sing.
State × % Hispanic or Latino	6 × 3	10	5	Drop (2/5,1/2), (3,1); zero.
State × % Owner-Occupied	6 × 3	10	9	Drop (2,3); zero.
State × Rent/Housing	6 × 5	20	20	All levels present.
Three-Factor Effects		**127**	**120**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1). Repeat for Age levels 2 & 3. Drop (4,2/3,1); sing./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)	6 × 5 × 3	40	40	All levels present.
State × Age × Hispanicity	6 × 5 × 2	20	19	Drop (5,4,1); sing.
State × Age × Gender	6 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	9	Coll. (5,3,1) & (5,2,1); zero.
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**	**306**	

Exhibit D1.4 Covariates for 2015 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**	**142**	
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 (3/2,1); zero, 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 (2/3/4,1); zero, sing.
Rent/Housing × % Hispanic or Latino	3 × 5	8	8	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	12	Coll. (1,3) & (1,4). Repeat for NH; coll. (2,3) & (2,4) & (2,5). Repeat for RI and VT; 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	Keep (1/4/5, 2). Drop all others; zero, sing.
State × % Hispanic or Latino	6 × 3	10	5	Drop (2/5, 1/2), (3,1); zero.
State × % Owner-Occupied	6 × 3	10	9	Drop (2,3); zero.
State × Rent/Housing	6 × 5	20	20	All levels present.
Three-Factor-Effects		**127**	**66**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (1,3,1) & (1,2,1), repeat for Age levels 2 & 3. Drop for Age level 4; conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,3,1) & (1,2,1), repeat for Age levels 2, 3, & 4; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	1	Coll. (3,1,1) & (2,1,1); conv.
State × Age × Race (3 levels)	6 × 5 × 3	40	6	Coll. (1,1,3) & (1,1,2); coll. (1,2,3) & (1,2,2). Repeat for NH and RI. Drop all others; conv.
State × Age × Hispanicity	6 × 5 × 2	20	16	Drop (2/5,3/4,1); sing.
State × Age × Gender	5 × 5 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	10	3	Coll. (1,3,1) & (1,2,1). Repeat for ME and RI. Drop all others; zero; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	10	5	Keep (1/3, 3/2, 1), coll. (4,3,1) & (4,2,1). Drop all others; conv.
State × Hispanicity × Gender	5 × 2 × 2	5	4	Drop (2,1,1); conv.
Total		**332**	**245**	

Exhibit D1.5 Covariates for 2015 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**	**84**	
Age × Race (3 levels)	6 × 3	10	9	Coll. (5,2) & (5,3); conv.
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	10	Coll. (1,3) & (1,4) & (1,5). Repeat for all states; conv.
State × Hispanicity	6 × 2	5	5	All levels present.
State × Gender	6 × 2	5	5	All levels present.
Three-Factor Effects		**152**	**81**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (5,2,1) & (5,3,1); hier. Coll. (1,2,1) & (1,3,1). Repeat for all other Age levels; conv. Drop (5,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	7	Coll. (5,2,1) & (5,3,1); hier. Drop (5,2/3,1); conv. Coll. (4,2,1) & (4,3,1); 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)	6 × 5 × 3	50	9	Coll. (1,1,2) & (1,1,3). Repeat for Age levels 2 & 3 for CT. Coll. (3,1,2) & (3,1,3). Repeat for Age levels 2, 3, & 4 for NH. Coll. (4,1,2) & (4,1,3). Repeat for Age level 2 for RI. Drop all others; hier./conv. Drop all others; conv.
State × Age × Hispanicity	6 × 6 × 2	25	15	Drop (1/4,5,1), (2,2/3/4/5,1), (3/5,4/5,1); zero/sing./conv.
State × Age × Gender	6 × 6 × 2	25	25	All levels present.
State × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1). Repeat for ME, NH, and RI. Drop (5,2/3,1); conv.
State × Race (3 levels) × Gender	6 × 3 × 2	10	5	Coll. (2,2,1) & (2,3,1). Drop (4/5,2/3,1); conv.
State × Hispanicity × Gender	6 × 2 × 2	5	5	All levels present.
Total		**267**	**185**	

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Appendix D2: Model Group 2: Middle Atlantic

(New Jersey, New York, and Pennsylvania)

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Table D.2a 2015 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	0.34	0.70	0.13	1.02568	153	(1.13, 1.39)	(1.13, 1.39)
	1.56	2.01	0.20	1.05515	115	(1.00, 4.63)	(1.00, 4.58)
						(1.38, 5.00)	(1.38, 1.38)
res.sdu.ps	1.56	2.01	0.20	1.05516	127	(0.78, 1.10)	(0.78, 1.10)
	1.78	3.72	1.01	1.09713	127	(0.45, 4.82)	(0.47, 4.80)
						(0.82, 4.69)	(0.83, 4.69)
sel.per.ps	3.60	7.57	1.92	1.77610	197	(0.70, 2.70)	(0.71, 2.70)
	2.45	5.07	0.93	1.74135	196	(0.60, 2.70)	(0.62, 2.35)
						(0.90, 1.47)	(0.90, 1.46)
res.per.nr	2.68	5.72	1.09	1.78237	197	(1.00, 2.50)	(1.00, 2.50)
	1.64	4.68	0.62	1.95511	195	(1.00, 3.94)	(1.00, 3.88)
						(1.50, 5.00)	(1.50, 1.50)
res.per.ps	1.71	4.82	0.66	1.95511	147	(0.20, 1.10)	(0.20, 1.10)
	0.67	2.62	0.47	2.01494	143	(0.20, 3.34)	(0.20, 3.26)
						(0.90, 1.28)	(1.03, 1.28)

[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, 2015.

Table D.2b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	530	0.76	635	0.26	402	1.01	486	0.29	383	0.56	469	0.11	147
1%	533	1.04	659	0.64	593	1.01	703	0.67	634	1.00	760	0.20	272
5%	536	1.12	693	0.79	709	1.01	903	0.81	873	1.07	1,075	0.30	772
10%	540	1.16	790	0.89	780	1.01	1,027	0.86	1,016	1.14	1,279	0.77	1,203
25%	656	1.22	880	0.99	916	1.32	1,385	0.93	1,394	1.24	1,793	0.96	1,770
Median	739	1.31	948	1.06	1,019	2.52	2,396	1.00	2,354	1.37	3,117	1.03	3,138
75%	766	1.48	1,097	1.13	1,194	3.34	3,781	1.08	3,973	1.58	5,912	1.07	6,021
90%	858	1.77	1,329	1.23	1,441	7.59	8,157	1.20	8,030	1.87	11,590	1.30	11,440
95%	953	1.95	1,472	1.34	1,590	8.31	9,220	1.29	9,309	2.13	14,274	1.56	14,368
99%	1,198	2.31	1,912	2.14	2,267	8.88	12,183	1.52	13,660	2.77	23,421	1.87	24,388
Maximum	1,749	4.58	3,480	5.74	5,559	25.09	44,937	2.53	28,437	3.88	43,637	3.26	62,430
n	20,400	14,724	14,724	14,721	14,721	10,442	10,442	10,442	10,442	7,201	7,201	7,201	7,201
Max/Mean	2.39	-	3.43	-	5.12	-	13.47	-	8.44	-	8.93	-	12.78

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 2 Overview

Dwelling Unit Nonresponse

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

For the two-factor effects, variable collapsing or dropping was present in the State × Population Density and State × Group Quarter interactions. Out of 68 proposed variables, 62 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 64 proposed variables, 32 were included in the model.

In the final model, a total of 115 variables were included; see Exhibit D2.1.

Dwelling Unit Poststratification

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

All 47 proposed two-factor effects were included in the model.

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

In the final model, a total of 127 variables were included; see Exhibit D2.2.

Selected Person-Level Poststratification

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

For the two-factor effects, variable collapsing was present in the State × Rent/Housing interaction. Out of 99 proposed variables, 98 were included in the model.

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

In the final model, a total of 196 variables were included; see Exhibit D2.3.

Respondent Person-Level Nonresponse

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

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

For the three-factor effects, variable collapsing was present in the State × Race × Hispanicity interaction. Out of 64 proposed variables, 62 were included in the model.

In the final model, a total of 195 variables were included; see Exhibit D2.4.

Respondent Person-Level Poststratification

All 17 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 53 proposed variables, 52 were included in the model.

For the three-factor effects, variable collapsing was present in the State × Age × Race and State × Race × Hispanicity interactions. Out of 77 proposed variables, 74 were included in the model.

In the final model, a total of 143 variables were included; see Exhibit D2.5.

Exhibit D2.1 Covariates for 2015 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**	**62**	
% 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	3	Drop (2,2), (2,3), (3,3); sing.
State × Group Quarter	3 × 3	4	1	Coll. (3, 1) & (3,2). Drop others; sing./conv.
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**	**32**	
State × % Owner-Occupied × % Black or African American	3 × 3 × 3	8	4	Coll. (2,2,1) & (2,2,2), (2,3,1) & (2,3,2), (3,2,1) & (3,3,1). Keep (3,2,2); drop others; zero/sing./conv.
State × % Owner-Occupied × % Hispanic or Latino	3 × 3 × 3	8	4	Keep (2,2,1), (2,2,2), (2,2,1). Coll. (2,2,2) & (2,3,2); drop others; zero/sing./conv.
State × % Owner-Occupied × Rent/Housing	3 × 3 × 5	16	8	Coll. (2,2,2) & (2,3,2), (2,2,3) & (2,3,3), (2,2,4) & (2,3,4), (3,2,3) & (3,3,3), (3,2,4) & (3,3,4). Keep (3,3,2), (3,2,1), (3,2,2); drop others; zero/sing./conv.
State × Rent/Housing × % Black or African American	3 × 3 × 5	16	8	Coll. (2,2,1) & (2,2,2), (2,3,1) & (2,3,2), (2,4,1) & (2,4,2), (3,2,1) & (3,2,2). Keep (3,1,1), (3,1,2), (3,3,2), (3,4,2); drop others; zero/sing./conv.
State × Rent/Housing × % Hispanic or Latino	3 × 3 × 5	16	8	Coll. (2,2,1) & (2,2,2), (2,4,1) & (2,4,2), (3,2,1) & (3,2,2). Keep (2,3,1), (2,3,2), (3,1,1), (3,1,2), (3,3,2); drop others; zero/sing./conv.
Total		**153**	**115**	

Exhibit D2.2 Covariates for 2015 NSDUH Person Weights (res.sdu.ps), Model Group 2: Middle Atlantic

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**16**	**16**	
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**	**47**	
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	8	All levels present.
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**	**127**	

Exhibit D2.3 Covariates for 2015 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**	**98**	
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	7	Coll. (3,1) & (3,2); conv.
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		**197**	**196**	

Exhibit D2.4 Covariates for 2015 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**	**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**	**62**	
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	2	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); 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**	**195**	

Exhibit D2.5 Covariates for 2015 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**	**52**	
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	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		**77**	**74**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	10	All levels present.
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)	3 × 6 × 3	20	18	Coll. (3,5,2) & (3,5,3), (2,5,2) & (2,5,3); conv.
State × Age × Hispanicity	3 × 6 × 2	10	10	All levels present.
State × Age × Gender	3 × 6 × 2	10	10	All levels present.
State × Race (3 levels) × Hispanicity	3 × 3 × 2	4	3	Coll. (3,2,1) & (3,3,1); 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		**147**	**143**	

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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 2015 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	3.39	4.22	0.41	1.04386	255	(1.14, 1.80)	(1.15, 1.80)
	1.01	1.93	0.42	1.06581	171	(1.01, 4.50)	(1.02, 4.48)
						(1.20, 2.52)	(1.20, 2.52)
res.sdu.ps	1.01	1.93	0.42	1.06581	197	(0.76, 1.10)	(0.76, 1.10)
	1.39	2.82	0.65	1.10653	197	(0.24, 4.55)	(0.25, 4.52)
						(0.90, 1.10)	(N/A, N/A)
sel.per.ps	3.13	6.51	1.55	1.70343	287	(0.22, 2.68)	(0.22, 2.67)
	1.22	2.64	0.46	1.69835	279	(0.36, 2.68)	(0.37, 2.57)
						(0.70, 1.31)	(0.70, 1.30)
res.per.nr	1.31	2.66	0.47	1.71338	287	(1.00, 2.60)	(1.00, 2.60)
	0.82	2.23	0.23	1.84249	260	(1.00, 3.50)	(1.00, 3.50)
						(1.40, 1.88)	(1.40, 1.88)
res.per.ps	0.91	2.38	0.27	1.84249	227	(0.20, 1.75)	(0.20, 1.75)
	0.46	1.82	0.38	1.90716	193	(0.20, 3.56)	(0.20, 3.55)
						(0.90, 1.10)	(0.94, 0.94)

[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, 2015.

Table D.3b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	540	0.85	586	0.25	197	1.01	309	0.08	206	0.57	207	0.14	68
1%	547	1.05	618	0.58	525	1.01	611	0.58	575	1.00	642	0.21	284
5%	556	1.09	652	0.82	663	1.01	803	0.76	799	1.08	994	0.72	883
10%	576	1.13	675	0.90	714	1.01	931	0.84	930	1.14	1,190	0.90	1,156
25%	684	1.15	801	0.98	814	1.28	1,253	0.94	1,286	1.26	1,686	0.98	1,692
Median	749	1.21	909	1.06	952	2.41	2,145	1.02	2,142	1.41	2,879	1.01	2,907
75%	810	1.29	1,068	1.12	1,130	3.08	3,397	1.11	3,504	1.58	5,140	1.04	5,129
90%	988	1.41	1,267	1.26	1,400	6.97	6,660	1.20	6,688	1.77	9,944	1.12	9,855
95%	1,055	1.54	1,389	1.35	1,611	7.35	7,935	1.29	8,189	1.92	12,419	1.25	12,521
99%	1,145	2.00	1,836	1.69	2,051	7.85	11,397	1.53	11,459	2.37	18,115	1.41	18,552
Maximum	2,422	4.48	2,982	4.52	6,185	21.55	32,352	2.57	29,477	3.50	38,981	3.55	56,323
n	22,777	18,192	18,192	18,189	18,189	13,174	13,174	13,174	13,174	9,168	9,168	9,168	9,168
Max/Mean	3.17	-	3.12	-	6.08	-	10.99	-	9.91	-	9.12	-	13.17

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 3 Overview

Dwelling Unit Nonresponse

For the one-factor effects, College Dorm had to be collapsed with Other Group Quarter and was then dropped because of a convergence problem. Out of 23 proposed variables, 21 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Black or African American, State × Population Density, State × Group Quarter, and State × percent Hispanic or Latino interactions. Out of 104 proposed variables, 90 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 128 proposed variables, 60 were included in the model.

In the final model, a total of 171 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.

All 106 proposed three-factor effects were included in the model.

In the final model, a total of 197 variables were included; see Exhibit D3.2.

Selected Person-Level Poststratification

All 36 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 × Rent/Housing, Rent/Housing × percent Black or African American, State × Race, and State × percent Hispanic or Latino interactions. Out of 145 proposed variables, 137 were included in the model.

All 106 proposed three-factor effects were included in the model.

In the final model, a total of 279 variables were included; see Exhibit D3.3.

Respondent Person-Level Nonresponse

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

For the two-factor effects, variable dropping was present in the percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Black or African American, and State × percent Hispanic or Latino interactions. Out of 145 proposed variables, 141 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the State × Age × Race, State × Age × Hispanicity, State × Race × Hispanicity, and State × Race × Gender interactions. Out of 106 proposed variables, 83 were included in the model.

In the final model, a total of 260 variables were included; see Exhibit D3.4.

Respondent Person-Level Poststratification

All 19 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 81 proposed variables, 80 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, State × Age × Hispanicity, and State × Race × Hispanicity interactions. Out of 127 proposed variables, 94 were included in the model.

In the final model, a total of 193 variables were included; see Exhibit D3.5.

Exhibit D3.1 Covariates for 2015 NSDUH Person Weights (res.sdu.nr), Model Group 3: East North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**23**	**21**	
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	0	Coll. (1) & (2); conv. Drop (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		**104**	**90**	
% 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	6	Coll. (3,1) & (2,1); zero. Coll. (3,4) & (2,4); zero.
Rent/Housing × % Black or African American	3 × 5	8	7	Coll. (4,1) & (4,2); 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	11	Drop (4,3); sing.
State × Group Quarter	5 × 3	8	0	Drop all levels; hier.
State × % Black or African American	5 × 3	8	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	6	Coll. (5,1) & (5,2); zero. Coll. (1,1) & (1,2); sing.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**128**	**60**	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	10	Drop (1,3,1), (1,3,2), (4,3,1); zero. Drop (4,3,2); sing. Coll. (3,2,1) & (3,2,2), (4,2,1) & (4,2,2); sing.
State × % Owner-Occupied × % Hispanic or Latino	5 × 3 × 3	16	5	Coll. (1,3,1) & (1,3,2), (1,2,1) & (1,2,2), (5,3,1) & (5,3,2), (5,2,1) & (5,2,2); hier. Coll. (3,2,1) & (3,2,2), (4,2,1) & (4,2,2); sing. Drop (1,3,1/2), (3,3,1), (4,3,2); zero. Drop (3,3,2), (4,3,1); sing.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	16	Coll. (1,3,1) & (1,2,1), (1,3,4) & (1,2,4), repeat for all states; hier. Coll. (1,3,2) & (1,2,2), (1,3,3) & (1,2,3), (3,3,2) & (3,2,2); zero. Coll. (3,2,3) & (3,3,3), (4,3,2) & (4,2,2); sing. Drop (3,3/2,4), (4,3/2,4); sing. Coll. (4,3/2,1) & (4,3/2,2); zero.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	19	Coll. (1,4,1) & (1,4,2), repeat for all states; hier. Coll. (4,2,1) & (4,2,2); zero. Coll. (3,2,1) & (3,2,2), (3,3,1) & (3,3,2), (4,3,1) & (4,3,2), (5,3,1) & (5,3,2); sing. Drop (4,1,1), (4,1,2); zero. Drop (3,4,1/2), (4,4,1/2); sing.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	10	Coll. (1,1,1) & (1,1,2), (1,2,1) & (1,2,2), (1,3,1) & (1,3,2), (1,4,1) & (1,4,2), repeat for state 5; hier. Drop (1,4,1/2), (5,3,1/2), (5,4,1/2); sing. Coll. (3,1,1) & (3,1,2), (3,3,1) & (3,3,2), (4,3,1) & (4,3,2); zero. Coll. (3,2,1) & (3,2,2), (4,2,1) & (4,2,2); sing. Drop (3,4,1), (4,1,1), (4,1,2); zero. Drop (3,4,2), (4,4,1), (4,4,2); sing.
Total		**255**	**171**	

Exhibit D3.2 Covariates for 2015 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**	**106**	
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)	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	8	All levels present.
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**	**197**	

Exhibit D3.3 Covariates for 2015 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**	**137**	
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	3 × 3	4	4	All levels present.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,1); zero.
Rent/Housing × % Black or African American	3 × 5	8	7	Drop (4,1); 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	12	Coll. (1,3) & (1,4). Repeat for all states; 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	6	Drop (1,1); sing. Drop (5,1); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**106**	**106**	
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)	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	8	All levels present.
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**	**279**	

Exhibit D3.4 Covariates for 2015 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**	**141**	
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	7	Drop (3,1); zero.
Rent/Housing × % Black or African American	3 × 5	8	7	Drop (4,1); 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	8	All levels present.
State × % Hispanic or Latino	5 × 3	8	6	Drop (5,1); zero. Drop (1,1); sing.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	16	All levels present.
Three-Factor Effects		**106**	**83**	
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)	5 × 5 × 3	32	15	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). Repeat for all states; conv. Drop (4,4,2/3); conv.
State × Age × Hispanicity	5 × 5 × 2	16	15	Drop (5,4,1); conv.
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; conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (4,2,1) & (4,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**287**	**260**	

Exhibit D3.5 Covariates for 2015 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**	**94**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	5	Coll. (5,2,1) & (5,3,1); sing. Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), (3,2,1) & (3,3,1), (4,2,1) & (4,3,1); conv.
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)	5 × 6 × 3	40	20	Coll. (4,5,2) & (4,5,3); sing. Repeat for remaining age levels and all states; conv.
State × Age × Hispanicity	5 × 6 × 2	20	16	Drop (4,5,1), (5,5,1); sing. Drop (1,5,1), (3,5,1); 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	8	All levels present.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**227**	**193**	

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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 2015 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	5.55	4.86	0.19	1.50830	357	(1.02, 2.18)	(1.03, 2.17)
	1.71	1.14	0.12	1.52483	198	(1.00, 2.54)	(1.00, 2.53)
						(1.10, 1.43)	(1.10, 1.43)
res.sdu.ps	1.71	1.14	0.12	1.52477	267	(0.49, 1.05)	(0.49, 1.05)
	1.34	2.17	0.42	1.59664	261	(0.20, 5.00)	(0.20, 5.00)
						(0.95, 3.87)	(0.95, 3.87)
sel.per.ps	2.76	4.87	1.12	2.42553	377	(0.20, 3.00)	(0.20, 3.00)
	1.43	3.74	1.20	2.60968	349	(0.20, 4.44)	(0.20, 4.40)
						(0.90, 2.32)	(0.90, 2.32)
res.per.nr	1.55	3.83	1.30	2.62032	377	(1.00, 3.00)	(1.00, 3.00)
	1.80	5.37	1.47	2.83288	284	(1.00, 5.00)	(1.00, 5.00)
						(1.10, 1.47)	(1.10, 1.46)
res.per.ps	1.81	5.40	1.47	2.83288	307	(0.20, 1.80)	(0.20, 1.80)
	1.23	3.64	0.74	2.83451	251	(0.20, 4.18)	(0.20, 4.11)
						(0.30, 5.00)	(N/A, N/A)

[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, 2015.

Table D.4b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	84	0.95	85	0.20	35	1.01	46	0.09	32	0.33	32	0.09	7
1%	85	1.00	91	0.48	94	1.01	122	0.40	103	0.96	125	0.24	103
5%	94	1.03	100	0.78	109	1.01	198	0.65	183	1.00	228	0.71	224
10%	97	1.06	105	0.92	121	1.01	288	0.76	268	1.00	332	0.87	329
25%	171	1.09	180	0.99	194	1.32	515	0.88	503	1.16	650	0.95	633
Median	429	1.13	483	1.09	506	2.50	1,155	1.00	1,141	1.31	1,435	1.01	1,457
75%	812	1.19	910	1.18	885	3.21	2,174	1.11	2,210	1.48	2,978	1.07	3,007
90%	984	1.28	1,217	1.32	1,358	7.37	4,331	1.26	4,262	1.72	6,082	1.21	6,138
95%	1,103	1.33	1,292	1.43	1,511	8.18	5,623	1.41	6,043	1.92	8,779	1.43	8,657
99%	1,242	1.55	1,429	1.93	1,758	9.77	11,378	2.01	12,421	3.31	18,484	2.11	18,106
Maximum	1,279	2.53	2,518	5.00	4,442	15.40	34,554	4.40	38,342	5.00	50,296	4.11	49,584
n	16,076	13,916	13,916	13,915	13,915	9,178	9,178	9,178	9,178	6,722	6,722	6,722	6,722
Max/Mean	2.66	-	4.53	-	7.29	-	18.37	-	20.15	-	19.36	-	19.09

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 4 Overview

Dwelling Unit Nonresponse

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

Variable collapsing or dropping was present in all two-factor effects except the percent Owner-Occupied × percent Black or African American, State × Quarter, and State × percent Owner-Occupied interactions. Out of 140 proposed variables, 121 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 192 proposed variables, 52 were included in the model.

In the final model, a total of 198 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 the three-factor effects, variable collapsing or dropping was present in the State × Age × Race and State × Race × Hispanicity interactions. Out of 148 proposed variables, 142 were included in the model.

In the final model, a total of 261 variables were included; see Exhibit D4.2.

Selected Person-Level Poststratification

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

For the two-factor effects, variable collapsing was present in the percent Owner-Occupied × percent Black or African American, percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, State × Race, State × percent Black or African American, State × percent Hispanic or Latino, and State × Rent/Housing interactions. Out of 191 proposed variables, 178 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, State × Age × Hispanicity, and State × Race × Hispanicity interactions. Out of 148 proposed variables, 133 were included in the model.

In the final model, a total of 349 variables were included; see Exhibit D4.3.

Respondent Person-Level Nonresponse

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

For the two-factor effects, variable collapsing was present in the percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Black or African American, Rent/Housing × percent Hispanic or Latino, State × Race, State × percent Black or African American, State × percent Hispanic or Latino, and State × Rent/Housing interactions. Out of 191 proposed variables, 175 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the State × Age × Gender interaction. Out of 148 proposed variables, 71 were included in the model.

In the final model, a total of 284 variables were included; see Exhibit D4.4.

Respondent Person-Level Poststratification

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

All 109 proposed two-factor effects were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Race × Hispanicity × Gender, State × Age × Gender, State × Race × Gender, and State × Hispanicity × Gender interactions. Out of 177 proposed variables, 121 were included in the model.

In the final model, a total of 251 variables were included; see Exhibit D4.5.

Exhibit D4.1 Covariates for 2015 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**	**121**	
% Owner-Occupied × % Black or African American	3 × 3	4	4	All levels present.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (2,1) & (3,1); zero.
Rent/Housing × % Black or African American	3 × 5	8	7	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); zero. Do the same for states 5, 6, & 7.
State × Group Quarter	7 × 3	12	9	Drop (5,1/2); conv. Coll. (6,1) & (6,2); sing.
State × % Black or African American	7 × 3	12	9	Coll. (3,1) & (3,2). Do the same for states 6 & 7; zero.
State × % Hispanic or Latino	7 × 3	12	8	Coll. (3,1) & (3,2), (5,1) & (5,2); sing. Coll. (6,1) & (6,2), (7,1) & (7,2); zero.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	23	Coll. (3,1) & (3,2); zero.
Three-Factor Effects		**192**	**52**	
State × % Owner-Occupied × % Black or African American	7 × 3 × 3	24	7	Coll. (1,2,1) & (1,2,2), (1,3,1) & (1,3,2); sing. Coll. (2,2,1) & (2,2,2), (2,3,1) & (2,3,2); zero. (3,2,1) & (3,2,2), (3,3,1) & (3,3,2), (3,3,1) & (3,3,2); hier. Drop remainder.
State × % Owner-Occupied × % Hispanic or Latino	7 × 3 × 3	24	5	Coll. (1,2,1) & (1,2,2), (2,3,1) & (2,3,2); zero. Coll. (2,2,1) & (2,2,2); sing. (3,2,1) & (3,2,2), (5,2,1) & (5,2,2); hier. Drop remainder.
State × % Owner-Occupied × Rent/Housing	7 × 3 × 5	48	26	Coll. (1,2,2) & (1,3,2), (1,2,3) & (1,3,3), (1,2,4) & (1,3,4), (2,2,1) & (2,3,1), (2,2,4) & (2,3,4), (3,2,3) & (3,3,3), (3,2,4) & (3,3,4), (5,2,1) & (5,3,1), (5,2,2) & (5,3,2), (5,2,3) & (5,3,3), (5,2,4) & (5,3,4), (6,2,1) & (6,3,1); zero. Drop (1,2/3,1), (3,2/3,3/4), (7,2/3,1/4); sing, zero.
State × Rent/Housing × % Black or African American	7 × 3 × 5	48	6	Coll. (1,2,1) & (1,2,2), (2,3,1) & (2,3,2); zero. Coll. (2,2,1) & (2,2,2); sing. Coll. (3,4,1) & (3,4,2); hier. Keep (5,2,1), (5,2,2). Drop remainder; conv.
State × Rent/Housing × % Hispanic or Latino	7 × 3 × 5	48	8	Coll. (1,1,1) & (1,1,2), (2,2,1) & (2,2,2), (2,3,1) & (2,3,2); zero. Coll. (2,1,1) & (2,2,2); sing. Coll. (3,4,1) & (3,4,2), (5,2,1) & (5,2,2), (5,3,1) & (5,3,2), (6,1,1) & (6,1,2); hier. Drop remainder.
Total		**357**	**198**	

Exhibit D4.2 Covariates for 2015 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**	**142**	
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)	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	10	Coll. (1,2,1) & (1,3,1); zero. Coll. (5,2,1) & (5,3,1); 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**	**261**	

Exhibit D4.3 Covariates for 2015 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**	**178**	
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. (4,1) & (4,2); sing.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	2	Coll. (3,1) & (3,2); zero. Coll. (4,1) & (4,2); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (2,1) & (3,1); 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	7 × 4	18	18	All levels present.
State × Age	7 × 5	24	24	All levels present.
State × Race (5 levels)	7 × 5	24	23	Coll. (3,3) & (3,4); conv.
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	9	Coll. (3,1) & (3,2), (7,1) & (7,2), (6,1) & (6,2); zero.
State × % Hispanic or Latino	7 × 3	12	8	Coll. (3,1) & (3,2), (5,1) & (5,2), (6,1) & (6,2); sing. Coll. (7,1) & (7,2); zero.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	23	Coll. (3,1) & (3,2); zero.
Three-Factor Effects		**148**	**133**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (4,2,1) & (4,3,1); sing. Do the same 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)	7 × 5 × 3	48	46	Coll. (7,4,2) & (7,4,3), (6,4,2) & (6,4,3); sing.
State × Age × Hispanicity	7 × 5 × 2	24	23	Coll. (7,3,1) & (7,4,1); conv.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	4	Coll. (1,2,1) & (1,3,1); zero. Coll. (6,2,1) & (6,3,1); sing. Do the same for remaining states. Drop (5/7,2/3,1); conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	12	All levels present.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Hispanicity × Gender	7 × 2 × 2	6	6	All levels present.
Total		**377**	**349**	

Exhibit D4.4 Covariates for 2015 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**	**175**	
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	3	Coll. (3,1) & (3,2); zero.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Coll. (3,1) & (3,2); zero.
Rent/Housing × % Black or African American	3 × 5	8	7	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	20	Coll. (2,3) & (2,4). Do the same for states 3, 5, & 7; conv.
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	9	Coll. (3,1) & (3,2), (7,1) & (7,2), (6,1) & (6,2); zero.
State × % Hispanic or Latino	7 × 3	12	8	Coll. (3,1) & (3,2), (5,1) & (5,2); sing. Coll. (7,1) & (7,2), (6,1) & (6,2); zero.
State × % Owner-Occupied	7 × 3	12	12	All levels present.
State × Rent/Housing	7 × 5	24	23	Coll. (3,1) & (3,2); zero.
Three-Factor Effects		**148**	**71**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	0	Drop all; zero, conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1). Do the same for all age levels; conv.
Age × Hispanicity × Gender	5 × 2 × 2	4	3	Drop (4,1,1); conv.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	0	Drop all; conv.
State × Age × Race (3 levels)	7 × 5 × 3	48	17	Coll. (6,2,2) & (6,2,3); sing. 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). Do the same for all states. Drop (5,*,*), (6,4,*), (7,3,*), (7,4,*); conv.
State × Age × Hispanicity	7 × 5 × 2	24	12	Drop (1,4,1). Do the same for all states. Drop (3,*,1), (5,3,1), (6,2,1), (6,3,1); conv.
State × Age × Gender	7 × 5 × 2	24	24	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	0	Drop all levels; conv.
State × Race (3 levels) × Gender	7 × 3 × 2	12	6	Coll. (1,2,1) & (1,3,1). Do the same for all states; conv.
State × Hispanicity × Gender	7 × 2 × 2	6	5	Drop (3,1,1); conv.
Total		**377**	**284**	

Exhibit D4.5 Covariates for 2015 NSDUH Person Weights (res.per.ps), Model Group 4: West North Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**21**	**21**	
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**	**109**	
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	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**	**121**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	4	Coll. (1,2,1) & (1,3,1). Do the same for all age levels. Drop (5,2/3,1); conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1). Do the same for all age levels; conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	4	Drop (5,1,1); conv.
Race (3 levels) × Hispanicity × Gender	3 × 2 × 2	2	2	All levels present.
State × Age × Race (3 levels)	7 × 6 × 3	60	28	Coll. (7,4,2) & (7,4,3), (6,4,2) & (6,4,3); sing. Coll. (3,5,2) & (3,5,3), (6,5,2) & (6,5,3). Drop (7,5,2/3); zero. Coll. (1,5,2) & (1,5,3). Do the same for all age levels. Do the same for all states. Drop (5,5,2/3); conv.
State × Age × Hispanicity	7 × 6 × 2	30	21	Drop (7,5,1), (5,4/5,1); sing. Drop (6,5,1); zero. Drop (*,5,1), (6,3/4,1); conv.
State × Age × Gender	7 × 6 × 2	30	30	All levels present.
State × Race (3 levels) × Hispanicity	7 × 3 × 2	12	9	Coll. (6,2,1) & (6,3,1); sing. Coll. (7,2,1) & (7,3,1); zero. Coll. (3,2,1) & (3,3,1); 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		**307**	**251**	

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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 2015 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	4.41	4.33	0.38	1.28192	459	(1.09, 1.80)	(1.09, 1.80)
	1.64	2.94	0.64	1.30717	289	(1.00, 4.24)	(1.00, 4.22)
						(1.20, 1.72)	(1.20, 1.72)
res.sdu.ps	1.64	2.95	0.64	1.30715	337	(0.56, 1.10)	(0.56, 1.10)
	1.07	1.80	0.37	1.34365	334	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 2.21)	(0.90, 2.21)
sel.per.ps	2.20	4.04	0.86	2.06276	467	(0.21, 2.48)	(0.21, 2.46)
	1.20	2.28	0.42	2.02370	458	(0.23, 3.79)	(0.23, 3.74)
						(0.90, 1.50)	(0.90, 1.50)
res.per.nr	1.49	2.84	0.47	2.04923	467	(1.00, 2.90)	(1.00, 2.90)
	1.15	2.46	0.43	2.23027	431	(1.00, 5.00)	(1.00, 5.00)
						(1.10, 2.89)	(1.10, 2.86)
res.per.ps	1.29	2.77	0.52	2.23027	387	(0.10, 2.96)	(0.10, 2.96)
	0.82	1.65	0.29	2.29784	345	(0.26, 3.60)	(0.26, 3.60)
						(0.40, 1.04)	(0.40, 1.03)

[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, 2015.

Table D.5b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	4	0.81	52	0.20	12	1.01	12	0.18	4	0.56	4	0.04	1
1%	52	1.01	59	0.45	62	1.01	110	0.55	103	1.00	121	0.26	91
5%	54	1.08	72	0.78	87	1.01	290	0.74	277	1.05	371	0.37	304
10%	59	1.11	107	0.90	121	1.01	448	0.82	425	1.09	548	0.76	487
25%	282	1.15	356	1.01	387	1.34	1,054	0.91	1,040	1.18	1,260	0.98	1,197
Median	788	1.22	973	1.11	1,052	2.49	1,929	1.00	1,944	1.31	2,424	1.03	2,371
75%	920	1.33	1,160	1.20	1,321	3.34	3,748	1.09	3,843	1.47	5,147	1.08	5,190
90%	1,031	1.45	1,366	1.33	1,601	7.70	7,938	1.18	7,637	1.68	10,615	1.19	10,615
95%	1,175	1.59	1,513	1.45	1,803	8.32	10,067	1.26	9,837	1.86	14,200	1.28	14,496
99%	1,422	1.96	1,843	1.88	2,272	9.35	14,108	1.56	13,859	2.31	21,607	1.88	22,539
Maximum	2,250	16.46	4,302	5.00	6,516	18.95	28,862	3.74	27,268	5.00	35,818	3.60	35,496
n	32,461	25,686	25,686	25,683	25,683	17,370	17,370	17,370	17,370	12,735	12,735	12,735	12,735
Max/Mean	3.28	-	4.96	-	6.76	-	9.39	-	8.95	-	8.62	-	8.55

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 5 Overview

Dwelling Unit Nonresponse

For the one-factor effects, variable collapsing was present in Group Quarter. Out of 27 proposed variables, 26 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the State × Population Density, State × Group Quarter, State × percent Black or African American, State × percent Hispanic or Latino, and State × Rent/Housing interactions. Out of 176 proposed variables, 145 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Many factors were excluded because of zero sample sizes or exact linear combinations. Out of 256 proposed variables, 118 were included in the model.

In the final model, a total of 289 variables were included; see Exhibit D5.1.

Dwelling Unit Poststratification

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

All two-factor effects were included in the model except the State × Race interaction. Out of 125 proposed variables, 122 were included in the model.

All 190 proposed three-factor effects 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 the two-factor effects, variable collapsing or dropping was present in the State × Race, State × percent Black or African American, State × percent Hispanic or Latino, and State × Rent/Housing interactions. Out of 237 proposed variables, 229 were included in the model.

For the three-factor effects, variable dropping was present in the State × Age × Hispanicity interaction. Out of 190 proposed variables, 189 were included in the model.

In the final model, a total of 458 variables were included; see Exhibit D5.3.

Respondent Person-Level Nonresponse

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

For the two-factor effects, variable collapsing or dropping was present in the State × Race, State × percent Black or African American, State × percent Hispanic or Latino, and State × Rent/Housing interactions. Out of 237 proposed variables, 228 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except 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, 163 were included in the model.

In the final model, a total of 431 variables were included; see Exhibit D5.4.

Respondent Person-Level Poststratification

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

For the 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.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender, Age × Hispanicity × Gender, State × Age × Gender, and State × Hispanicity × Gender interactions. Out of 227 proposed variables, 194 were included in the model.

In the final model, a total of 345 variables were included; see Exhibit D5.5.

Exhibit D5.1 Covariates for 2015 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**	**145**	
% 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 × Population Density	9 × 4	24	16	Drop (1,1/2/3), (2,1/2/3), (4,3), (8,3); sing./zero.
State × Group Quarter	9 × 3	16	0	Coll. (1,2) & (1,3). Repeat for all states; hier. Drop all; conv.
State × % Black or African American	9 × 3	16	15	Drop (8,1); sing.
State × % Hispanic or Latino	9 × 3	16	12	Drop (4,1), (6,1), (8,1/2); zero/sing.
State × % Owner-Occupied	9 × 3	16	16	All levels present.
State × Rent/Housing	9 × 5	32	30	Drop (2,1), (8,4); sing./zero.
Three-Factor Effects		**256**	**118**	
State × % Owner-Occupied × % Black or African American	9 × 3 × 3	32	28	Drop (6,3,2), (8,3,1/2), (8,2,1); sing./zero.
State × % Owner-Occupied × % Hispanic or Latino	9 × 3 × 3	32	16	Drop (1,2/3,1), (2,3,1), (4,2/3,1), (5,2/3,1), (6,3,1/2), (6,2,1), (7,2/3,1), (8,3,1/2), (8,2,1/2); sing./zero.
State × % Owner-Occupied × Rent/Housing	9 × 3 × 5	64	24	Keep (9,3,2), (9,2,1/2/3/4), (1,2,2/3), (2,3,2), (2,2,3/4), (4,2,1/3/4), (5,3,2), (5,2,1/2/3), (6,2,1/2), (7,2,1/2/3), (8,2,1); sing./zero. Coll. (7,3,2) & (7,3,3); sing.
State × Rent/Housing × % Black or African American	9 × 3 × 5	64	33	Drop (9,4,1), (1,1,1), (1,1/2,2), (1,3/4,1), (4,1/2,2), (5,3,1), (5,4,1/2), (6,3,1), (6,4,1/2), (7,3,1), (7,4,1/2), (8,1/2,1), (8,3,1), (8,4,1/2); coll. (4,4,1) & (4,4,2). Drop all for state DC; sing./zero.
State × Rent/Housing × % Hispanic or Latino	9 × 3 × 5	64	17	Keep (9,1/3,2), (9,2,1/2), (9,4,2), (1,2/3,2), (2,3/4,2), (4,4,2), (5,1/2,2), (5,3,2), (6,1/2,2), (7,2/3,2). Drop remainder; sing./zero.
Total		**459**	**289**	

Exhibit D5.2 Covariates for 2015 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**	**122**	
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	29	Coll. (4,3) & (4,4). Repeat for states DC and VA; conv.
State × Hispanicity	9 × 2	8	8	All levels present.
State × Gender	9 × 2	8	8	All levels present.
Three-Factor Effects		**190**	**190**	
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	16	All levels present.
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 2015 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**	**229**	
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	31	Coll. (4,3) & (4,4); zero.
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 (4,1), (6,1), (8,1/2); zero.
State × % Owner-Occupied	9 × 3	16	16	All levels present.
State × Rent/Housing	9 × 5	32	30	Drop (2,1), (8,4); sing./zero.
Three-Factor Effects		**190**	**189**	
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	31	Drop (8,4,1); zero.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	16	All levels present.
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**	**458**	

Exhibit D5.4 Covariates for 2015 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**	**228**	
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	30	Drop (4,3); zero. Coll. (8,3) & (8,4); 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 (4,1), (6,1), (8,1/2); zero.
State × % Owner-Occupied	9 × 3	16	16	All levels present.
State × Rent/Housing	9 × 5	32	30	Drop (2,1); zero. Drop (8,4); sing.
Three-Factor Effects		**190**	**163**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (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)	9 × 5 × 3	64	51	Drop (8,3,2); zero. Coll. (4,1,2) & (4,1,3); conv. Coll. (6,1,2) & (6,1,3). Repeat for all age levels; conv. Coll. (8,1,2) & (8,1,3). Repeat for age levels 2 & 4. Drop all; conv.
State × Age × Hispanicity	9 × 5 × 2	32	27	Drop (8,3/4,1); sing/zero. Coll. (4,1,1) & (4,2,1); conv. Drop (8,1,1), (8,2,1); conv.
State × Age × Gender	9 × 5 × 2	32	32	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	8	Coll. (1,2,1) & (1,3,1). Repeat for all states; 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**	**431**	

Exhibit D5.5 Covariates for 2015 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**	**194**	
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	68	Coll. (6,1,2) & (6,1,3). Repeat for age levels 2, 3, & 4; conv. Drop (8,5,2/3); zero. Coll. (8,3,2) & (8,3,3); conv. Coll. (2,1,2) & (2,1,3). Repeat for all age levels; conv.
State × Age × Hispanicity	9 × 6 × 2	40	34	Drop (6,5,1), (8,3/4/5,1); sing. Drop (8,1/2,1); conv.
State × Age × Gender	9 × 6 × 2	40	40	All levels present.
State × Race (3 levels) × Hispanicity	9 × 3 × 2	16	8	Coll. (9,2,1) & (9,3,1). Repeat for all states; hier.
State × Race (3 levels) × Gender	9 × 3 × 2	16	15	Coll. (8,2,1) & (8,3,1); conv.
State × Hispanicity × Gender	9 × 2 × 2	8	8	All levels present.
Total		**387**	**345**	

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Appendix D6: Model Group 6: East South Central

(Alabama, Kentucky, Mississippi, and Tennessee)

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Table D.6a 2015 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	0.45	1.06	0.48	1.11990	204	(1.13, 1.20)	(1.13, 1.20)
	1.83	2.65	0.52	1.12787	104	(1.00, 5.00)	(1.00, 5.00)
						(1.10, 1.20)	(N/A, N/A)
res.sdu.ps	1.83	2.65	0.52	1.12788	162	(0.24, 1.10)	(0.24, 1.10)
	1.46	2.65	0.62	1.15866	151	(0.20, 4.66)	(0.20, 4.65)
						(0.90, 1.41)	(0.90, 1.41)
sel.per.ps	2.46	4.93	1.25	1.78733	242	(0.39, 2.50)	(0.39, 2.50)
	0.90	2.60	0.71	1.85853	195	(0.20, 4.52)	(0.20, 4.28)
						(0.90, 4.75)	(0.90, 4.75)
res.per.nr	0.89	2.65	0.74	1.89145	242	(1.00, 2.40)	(1.00, 2.40)
	1.05	2.81	0.60	2.12372	187	(1.00, 5.00)	(1.00, 5.00)
						(1.35, 1.55)	(N/A, N/A)
res.per.ps	1.18	3.16	0.66	2.12372	187	(0.66, 1.80)	(0.66, 1.80)
	0.71	1.54	0.32	2.11858	144	(0.20, 3.04)	(0.20, 3.03)
						(0.90, 1.10)	(N/A, N/A)

[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, 2015.

Table D.6b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	417	0.39	443	0.20	99	1.01	112	0.20	79	0.55	79	0.20	18
1%	419	1.00	465	0.35	358	1.01	374	0.39	268	1.00	268	0.21	143
5%	429	1.01	515	0.79	496	1.01	684	0.71	657	1.00	774	0.75	736
10%	464	1.06	548	0.90	557	1.01	902	0.80	854	1.04	1,017	0.89	1,003
25%	675	1.10	752	0.99	783	1.31	1,290	0.91	1,261	1.14	1,555	0.98	1,539
Median	782	1.16	946	1.07	1,020	2.24	1,970	1.00	1,995	1.30	2,542	1.01	2,553
75%	925	1.22	1,116	1.17	1,248	3.22	3,838	1.10	3,767	1.50	4,933	1.05	4,879
90%	1,246	1.35	1,449	1.29	1,568	6.69	6,559	1.21	6,500	1.77	9,413	1.11	9,331
95%	1,482	1.44	1,603	1.42	1,788	7.03	8,479	1.34	8,391	1.99	12,424	1.18	12,929
99%	1,541	1.89	1,902	2.01	2,251	8.42	12,814	1.86	13,562	2.72	21,905	1.87	22,292
Maximum	3,822	5.00	7,652	4.65	6,743	14.00	26,169	4.86	42,762	5.00	52,179	3.03	43,884
n	8,417	7,113	7,113	7,112	7,112	5,208	5,208	5,208	5,208	3,816	3,816	3,816	3,816
Max/Mean	4.64	-	7.86	-	6.41	-	8.69	-	14.21	-	12.70	-	10.68

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 6 Overview

Dwelling Unit Nonresponse

For the one-factor effects, College Dorm had to be collapsed with Other Group Quarter. Out of 22 proposed variables, 21 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, State × Quarter, State × percent Black or African American, and State × Rent/Housing interactions. Out of 86 proposed variables, 63 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 96 proposed variables, 20 were included in the model.

In the final model, a total of 104 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, 74 were included in the model.

In the final model, a total of 151 variables were included; see Exhibit D6.2.

Selected Person-Level Poststratification

For the one-factor effects, variable collapsing was present in Race, Group Quarter, and percent Hispanic or Latino. Out of 35 proposed variables, 31 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, 108 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender, Age × Hispanicity × Gender, and State × Age × Gender interactions. Out of 85 proposed variables, 56 were included in the model.

In the final model, a total of 195 variables were included; see Exhibit D6.3.

Respondent Person-Level Nonresponse

For the one-factor effects, College Dorm had to be collapsed with Other Group Quarter. Out of 35 proposed variables, 34 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, 107 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Hispanicity × Gender and State × Age × Gender interactions. Out of 85 proposed variables, 46 were included in the model.

In the final model, a total of 187 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 was present in the State × Race interaction. 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 and State × Hispanicity × Gender interactions. Out of 102 proposed variables, 61 were included in the model.

In the final model, a total of 144 variables were included; see Exhibit D6.5.

Exhibit D6.1 Covariates for 2015 NSDUH Person Weights (res.sdu.nr), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**22**	**21**	
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	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		**86**	**63**	
% Owner-Occupied × % Black or African American	3 × 3	4	3	Coll. (3,1) & (3,2); conv.
% Owner-Occupied × % Hispanic or Latino	3 × 3	4	1	Coll. (2,1) & (2,2); sing. Drop all others; zero, conv.
% Owner-Occupied × Rent/Housing	3 × 5	8	6	Drop (3,4); sing. Coll. (3,2) & (3,3); conv.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Coll. (1,1) & (1,2); sing. Coll. (2,1) & (2,2), (3,1) & (3,2), (4,1) & (4,2); conv.
State × Quarter	4 × 4	9	9	All levels present.
State × Population Density	4 × 4	9	8	Drop (1,3); zero.
State × Group Quarter	4 × 3	6	0	Coll. (1,1) & (1,2). Repeat for all states; hier. Drop all levels; conv.
State × % Black or African American	4 × 3	6	6	All levels present.
State × % Hispanic or Latino	4 × 3	6	3	Coll. (2,1) & (2,2), (3,1) & (3,2); zero. Coll. (1,1) & (1,2); sing.
State × % Owner-Occupied	4 × 3	6	3	Coll. (3,3) & (3,2); zero. Coll. (1,3) & (1,2), (2,3) & (2,2); conv.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**96**	**20**	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	0	Drop all levels; hier., zero, conv.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	1	Coll. (2,2,1) & (2,2,2); hier. Drop all others; hier., sing., conv.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	6	Coll. (1,3,3) & (1,2,3), (1,3,4) & (1,2,4), (3,3,3) & (3,2,3), (3,3,4) & (3,2,4); hier. Coll. (1,3,1) & (1,2,1) & (1,3,2) & (1,2,2), (3,3,1) & (3,2,1) & (3,3,2) & (3,2,2); hier., conv. Drop all others; hier., sing., conv.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	11	Coll. (2,1,1) & (2,1,2); zero. Coll. (1,4,1) & (1,4,2), (2,3,1) & (2,3,2), (3,1,1) & (3,1,2); sing. Coll. (1,1,1) & (1,1,2) & (1,2,1) & (1,2,2), (1,3,1) & (1,3,2), (2,2,1) & (2,2,2), (3,2,1) & (3,2,2,), (3,3,1) & (3,3,2); conv. Keep (3,4,1), (3,4,2). Drop all others; zero, sing., conv.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	2	Coll. (1,1,1) & (1,1,2) & (1,2,1) & (1,2,2); hier., sing. Coll. (1,3,1) & (1,3,2); hier. Drop all others; hier., zero, sing., conv.
Total		**204**	**104**	

Exhibit D6.2 Covariates for 2015 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**	**74**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1); zero. Coll. (2,2,1) & (2,3,1), (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	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; zero, 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**	**151**	

Exhibit D6.3 Covariates for 2015 NSDUH Person Weights (sel.per.ps), Model Group 6: East South Central

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**35**	**31**	
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	0	Coll. (1) & (2); zero. Drop (1/2); conv.
% Black or African American	3	2	2	All levels present.
% Hispanic or Latino	3	2	1	Coll. (1) & (2); conv.
% Owner-Occupied	3	2	2	All levels present.
Rent/Housing	5	4	4	All levels present.
Two-Factor Effects		**122**	**108**	
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	Coll. (3,1) & (3,2), (2,1) & (2,2); hier.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,4); sing.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Coll. (1,1) & (1,2). Repeat for all Rent/Housing levels; hier.
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	Coll. (1,1) & (1,2). Repeat for all states; hier.
State × % Owner-Occupied	4 × 3	6	5	Drop (3,2); zero.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**85**	**56**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	2	Coll. (2,2,1) & (2,3,1); conv. Keep (1,2,1). Drop all others; zero, sing., 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	16	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). Repeat for state 2; conv.
State × Age × Hispanicity	4 × 5 × 2	12	9	Drop (1,4,1), (2,4,1), (3,4,1); conv.
State × Age × Gender	4 × 5 × 2	12	12	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	1	Keep (2,3,1). Drop all others; zero, 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		**242**	**195**	

Exhibit D6.4 Covariates for 2015 NSDUH Person Weights (res.per.nr), 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	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	1	Drop (2); zero.
% 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**	**107**	
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); zero. Coll. (2,1) & (2,2); sing.
% Owner-Occupied × Rent/Housing	3 × 5	8	7	Drop (3,4); sing.
Rent/Housing × % Black or African American	3 × 5	8	8	All levels present.
Rent/Housing × % Hispanic or Latino	3 × 5	8	4	Drop (2,1), (3,1), (4,1); zero. Coll. (1,1) & (1,2); 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) & (1,5), (2,3) & (2,4), (3,3) & (3,4); 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 (2,1), (3,1); zero. Drop (1,1); sing.
State × % Owner-Occupied	4 × 3	6	4	Drop (3,3); zero. Coll. (1,3) & (1,2); conv.
State × Rent/Housing	4 × 5	12	12	All levels present.
Three-Factor Effects		**85**	**46**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	3	Coll. (1,2,1) & (1,3,1); zero. Coll. (4,2,1) & (4,3,1); sing. Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1); conv. Drop (4,2/3,1); conv.
Age × Race (3 levels) × Gender	5 × 3 × 2	8	4	Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), (3,2,1) & (3,3,1), (4,2,1) & (4,3,1); conv.
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	11	Coll. (1,4,2) & (1,4,3); sing. Coll. (1,1,2) & (1,1,3), (1,2,2) & (1,2,3), (1,3,2) & (1,3,3); conv. Repeat all coll. for remaining states; conv. Drop (2,3,2/3).
State × Age × Hispanicity	4 × 5 × 2	12	8	Drop (1,4,1), (2,4,1), (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	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		**242**	**187**	

Exhibit D6.5 Covariates for 2015 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	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	10	Coll. (2,3) & (2,4), (3,3) & (3,4); conv.
State × Hispanicity	4 × 2	3	3	All levels present.
State × Gender	4 × 2	3	3	All levels present.
Three-Factor Effects		**102**	**61**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	2	Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1); conv. Drop all others; zero, conv.
Age × Race (3 levels) × Gender	6 × 3 × 2	10	5	Coll. (1,2,1) & (1,3,1). Repeat for all age levels; conv.
Age × Hispanicity × Gender	6 × 2 × 2	5	4	Drop (5,1,1); 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 × 6 × 3	30	15	Coll. (1,5,2) & (1,5,3), (3,5,2) & (3,5,3); sing. Repeat for remaining age levels and states; conv.
State × Age × Hispanicity	4 × 6 × 2	15	9	Drop (1,5,1), (3,5,1); zero. Drop (1,4,1), (2,4,1), (2,5,1), (3,4,1); conv.
State × Age × Gender	4 × 6 × 2	15	15	All levels present.
State × Race (3 levels) × Hispanicity	4 × 3 × 2	6	2	Coll. (1,2,1) & (1,3,1), (3,2,1) & (3,3,1); conv. Drop all others; conv.
State × Race (3 levels) × Gender	4 × 3 × 2	6	5	Coll. (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	4 × 2 × 2	3	3	All levels present.
Total		**187**	**144**	

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Appendix D7: Model Group 7: West South Central

(Arkansas, Louisiana, Oklahoma, and Texas)

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Table D.7a 2015 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	5.65	6.34	0.32	1.27612	204	(1.08, 1.45)	(1.09, 1.44)
	1.19	1.18	0.17	1.26664	154	(1.00, 4.63)	(1.00, 4.56)
						(1.10, 1.80)	(1.10, 1.79)
res.sdu.ps	1.19	1.18	0.17	1.26664	162	(0.61, 1.10)	(0.61, 1.10)
	1.64	3.26	0.58	1.33948	162	(0.27, 3.68)	(0.28, 3.60)
						(0.90, 1.53)	(0.90, 1.53)
sel.per.ps	2.77	6.72	1.49	1.70422	242	(0.20, 2.70)	(0.20, 2.70)
	0.98	2.10	0.42	1.67890	239	(0.20, 3.97)	(0.20, 3.92)
						(0.93, 3.84)	(0.94, 3.84)
res.per.nr	1.09	2.22	0.47	1.69034	242	(1.00, 2.60)	(1.00, 2.60)
	0.93	2.33	0.38	1.84523	237	(1.00, 3.87)	(1.00, 3.86)
						(1.30, 2.79)	(2.79, 2.79)
res.per.ps	0.98	2.35	0.37	1.84523	187	(0.20, 2.00)	(0.20, 2.00)
	0.61	1.59	0.31	1.90461	186	(0.20, 4.06)	(0.20, 4.03)
						(0.30, 5.00)	(N/A, N/A)

[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, 2015.

Table D.7b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	316	0.82	367	0.28	168	1.01	188	0.14	52	0.73	61	0.12	15
1%	436	1.00	478	0.45	336	1.01	467	0.48	390	1.01	431	0.20	281
5%	445	1.03	504	0.70	488	1.01	694	0.76	654	1.05	793	0.36	679
10%	464	1.04	547	0.86	551	1.01	892	0.84	876	1.09	1,080	0.79	940
25%	564	1.10	646	0.99	689	1.26	1,606	0.93	1,586	1.17	2,015	0.99	1,882
Median	910	1.15	1,027	1.09	1,167	2.30	2,630	1.01	2,695	1.29	3,424	1.04	3,403
75%	1,608	1.22	1,824	1.22	1,979	3.08	5,102	1.09	5,199	1.45	6,652	1.09	6,754
90%	1,762	1.27	2,009	1.36	2,355	4.98	7,999	1.20	8,307	1.65	11,331	1.16	11,487
95%	1,814	1.31	2,131	1.51	2,635	6.42	10,039	1.30	10,184	1.80	14,764	1.26	14,896
99%	1,869	1.60	2,318	2.06	3,650	7.98	13,487	1.60	14,095	2.29	22,749	1.67	23,233
Maximum	4,823	4.56	5,420	3.60	6,428	10.41	30,618	4.74	25,534	3.86	44,467	4.03	59,002
n	11,983	10,265	10,265	10,265	10,265	8,342	8,342	8,342	8,342	6,217	6,217	6,217	6,217
Max/Mean	4.54	-	4.37	-	4.66	-	8.19	-	6.74	-	8.74	-	11.60

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 7 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 × Rent/Housing, State × Group Quarter, and State × percent Hispanic or Latino interactions. Out of 86 proposed variables, 80 were included in the model.

Variable dropping was present in all three-factor effects. Out of 96 proposed variables, 52 were included in the model.

In the final model, a total of 154 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.

All 85 proposed three-factor effects were included in the model.

In the final model, a total of 162 variables were included; see Exhibit D7.2.

Selected Person-Level Poststratification

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

For the two-factor effects, variable dropping was present in the percent Owner-Occupied × Rent/Housing and State × percent Hispanic or Latino interactions. Out of 122 proposed variables, 120 were included in the model.

For the three-factor effects, variable collapsing was present in the Age × Race × Hispanicity interaction. Out of 85 proposed variables, 84 were included in the model.

In the final model, a total of 239 variables were included; see Exhibit D7.3.

Respondent Person-Level Nonresponse

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

For the two-factor effects, variable dropping was present in the percent Owner-Occupied × Rent/Housing and State × percent Hispanic or Latino interactions. Out of 122 proposed variables, 120 were included in the model.

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

In the final model, a total of 237 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 the three-factor effects, variable collapsing was present in the Age × Race × Hispanicity interaction. Out of 102 proposed variables, 101 were included in the model.

In the final model, a total of 186 variables were included; see Exhibit D7.5.

Exhibit D7.1 Covariates for 2015 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**	**80**	
% 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	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	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), (3,1/2); zero. Drop (2,1); sing.
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**	**52**	
State × % Owner-Occupied × % Black or African American	4 × 3 × 3	12	8	Drop (3,2,1/2); sing. Drop (3,3/2,1); zero.
State × % Owner-Occupied × % Hispanic or Latino	4 × 3 × 3	12	7	Drop (4,3,1), (2,2/3,1), (3,3,1/2); zero/sing.
State × % Owner-Occupied × Rent/Housing	4 × 3 × 5	24	13	Drop (4,3,1/2), (2,3,1/2/3/4), (3,3,1/2/3/4), (3,2,4); zero/sing.
State × Rent/Housing × % Black or African American	4 × 3 × 5	24	16	Drop (4,3,1), (2,2,1), (2,3/4.1), (3,1/2,1), (3,3/4,1); zero/sing.
State × Rent/Housing × % Hispanic or Latino	4 × 3 × 5	24	8	Drop (4,1/2,1), (4,3/4/1), (2,1,1/2), (2,2,1/2), (2,3,1), (2,4,1/2), (3,1/2,1), (3,3,1), (3,4,1/2); zero/sing.
Total		**204**	**154**	

Exhibit D7.2 Covariates for 2015 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**	**85**	
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	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		**162**	**162**	

Exhibit D7.3 Covariates for 2015 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**	**120**	
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	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	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**	**84**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	7	Coll. (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)	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	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**	**239**	

Exhibit D7.4 Covariates for 2015 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**	**120**	
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	3 × 3	4	4	All levels present.
% 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	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**	**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	21	Coll. (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (2,4,2) & (2,4,3); conv.
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	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**	**237**	

Exhibit D7.5 Covariates for 2015 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**	**101**	
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	30	All levels present.
State × Age × Hispanicity	4 × 6 × 2	15	15	All levels present.
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**	**186**	

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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 2015 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	1.43	3.31	0.28	1.45239	408	(1.00, 1.90)	(1.00, 1.90)
	2.70	5.65	0.65	1.49033	201	(1.00, 4.90)	(1.00, 4.90)
						(1.08, 1.50)	(1.08, 1.08)
res.sdu.ps	2.70	5.65	0.65	1.49033	302	(0.20, 1.10)	(0.20, 1.10)
	1.38	2.55	0.46	1.57143	285	(0.20, 5.00)	(0.20, 5.00)
						(0.90, 2.17)	(0.90, 2.17)
sel.per.ps	2.73	5.80	1.18	2.41154	422	(0.20, 3.00)	(0.20, 2.99)
	1.64	3.89	0.72	2.59854	384	(0.20, 5.00)	(0.20, 4.99)
						(0.90, 1.90)	(0.90, 1.90)
res.per.nr	1.70	4.11	0.77	2.62725	422	(1.00, 3.00)	(1.00, 3.00)
	1.36	4.01	0.91	2.93431	353	(1.00, 5.00)	(1.00, 5.00)
						(1.06, 1.56)	(1.07, 1.54)
res.per.ps	1.40	4.29	1.07	2.93431	347	(0.20, 2.00)	(0.20, 2.00)
	0.77	2.31	0.39	3.04090	328	(0.20, 4.55)	(0.20, 4.51)
						(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, 2015.

Table D.8b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	71	0.89	72	0.09	24	1.01	25	0.13	18	0.34	19	0.08	11
1%	72	1.00	79	0.48	73	1.01	86	0.45	68	1.00	82	0.20	69
5%	83	1.02	90	0.75	97	1.01	163	0.69	153	1.01	198	0.40	169
10%	115	1.04	128	0.87	135	1.01	257	0.78	253	1.04	310	0.70	279
25%	168	1.10	186	1.01	226	1.34	513	0.88	508	1.13	636	0.97	601
Median	384	1.17	458	1.12	479	2.39	1,136	0.99	1,122	1.26	1,355	1.02	1,338
75%	739	1.24	856	1.27	985	3.06	2,346	1.12	2,340	1.45	2,911	1.12	2,930
90%	896	1.34	1,081	1.41	1,326	6.46	3,806	1.25	3,927	1.68	5,426	1.29	5,478
95%	939	1.43	1,205	1.58	1,523	7.88	5,462	1.36	5,747	1.88	8,357	1.46	8,265
99%	1,297	1.70	1,635	2.16	1,980	9.02	10,951	1.73	12,188	2.65	18,577	1.80	18,727
Maximum	1,484	4.90	3,580	5.00	4,579	13.77	22,432	4.99	30,842	5.00	45,858	4.51	43,193
n	16,540	13,888	13,888	13,888	13,888	10,393	10,393	10,393	10,393	7,811	7,811	7,811	7,811
Max/Mean	3.16	-	6.41	-	7.14	-	12.34	-	16.57	-	18.52	-	17.44

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 8 Overview

Dwelling Unit Nonresponse

For the one-factor effects, variable collapsing or dropping was present in Group Quarter and percent Black or African American. Out of 26 proposed variables, 24 were included in the model.

Variable collapsing or dropping was present in all two-factor effects except the percent Owner-Occupied × percent Hispanic or Latino, percent Owner-Occupied × Rent/Housing, Rent/Housing × percent Hispanic or Latino, State × Quarter, and State × Rent/Housing interactions. Out of 158 proposed variables, 117 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 224 proposed variables, 60 were included in the model.

In the final model, a total of 201 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 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 169 proposed variables, 152 were included in the model.

In the final model, a total of 285 variables were included; see Exhibit D8.2.

Selected Person-Level Poststratification

For the one-factor effects, 50-100 percent of Segments That Are Black or African American was dropped because the sample size was zero. Out of 39 proposed variables, 38 were included in the model.

For the 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 214 proposed variables, 192 were included in the model.

For the three-factor effects, variable collapsing or dropping was present in the Age × Race × Hispanicity, State × Age × Race, and State × Race × Hispanicity interactions. Out of 169 proposed variables, 154 were included in the model.

In the final model, a total of 384 variables were included; see Exhibit D8.3.

Respondent Person-Level Nonresponse

For the one-factor effects, 50-100 percent of Segments That Are Black or African American was dropped because the sample size was zero. Out of 39 proposed variables, 38 were included in the model.

For the two-factor effects, variable collapsing or dropping was present in the Race × Gender, 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 214 proposed variables, 191 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender, Age × Hispanicity × Gender, State × Age × Gender, and State × Hispanicity × Gender interactions. Out of 169 proposed variables, 124 were included in the model.

In the final model, a total of 353 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 × Race × Gender, Age × Hispanicity × Gender, Race × Hispanicity × Gender, State × Age × Gender, and State × Hispanicity × Gender interactions. Out of 202 proposed variables, 183 were included in the model.

In the final model, a total of 328 variables were included; see Exhibit D8.5.

Exhibit D8.1 Covariates for 2015 NSDUH Person Weights (res.sdu.nr), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**26**	**24**	
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	1	Coll. (1) & (2); conv.
% Black or African American	3	2	1	Drop (1); zero.
% 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**	**117**	
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (*,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	3	Drop (*,1), (1,2); zero.
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	14	Drop (2,1), (3,1), (4,3), (5,1), (7,*); zero/sing.
State × Group Quarter	8 × 3	14	2	Coll. (5,1) & (5,2), (6,1) & (6,2); hier. Drop remainder; sing/zero/conv.
State × % Black or African American	8 × 3	14	2	Keep (1,2), (4,2), drop remainder; sing/zero.
State × % Hispanic or Latino	8 × 3	14	12	Drop (3,1), (7,1); zero.
State × % Owner-Occupied	8 × 3	14	13	Drop (7,3); zero.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		**224**	**60**	
State × % Owner-Occupied × % Black or African American	8 × 3 × 3	28	3	Keep (1,*,2). Coll. (4,2,2) & (4,3,2); conv. Drop remainder; zero, sing.
State × % Owner-Occupied × % Hispanic or Latino	8 × 3 × 3	28	7	Coll. (1,2,1) & (1,2,2); conv. Keep (1,*,1), (2,2,2), (4,2,1), (4,2,2), (5,2,*) & (7,2,2). Drop remainder; zero/ sing./conv.
State × % Owner-Occupied × Rent/Housing	8 × 3 × 5	56	28	Keep (1,2,*), (1,3,2), (2,3,2), (2,3,3), (2,2,1), (2,2,2), (2,2,3), (3,2,1), (3,2,2), (3,2,3), (4,3,1), (4,2,*), (5,2,1), (5,2,2), (5,2,3), (6,3,2), (6,2,2), (6,2,3), (6,2,4), (7,2,1), (7,2,2), (7,2,3); drop remainder; zero/sing./conv.
State × Rent/Housing × % Black or African American	8 × 3 × 5	56	4	Keep (1,2,2), (1,3,2), (4,3,2), (4,4,2); drop remainder; zero/sing.
State × Rent/Housing × % Hispanic or Latino	8 × 3 × 5	56	18	Coll. (6,3,2) & (6,4,2), (7,2,1) & (7,2,2); conv. Keep (1,1,1), (1,2,2), (1,3,*), (1,4,2), (2,1,2), (2,2,2), (2,2,3), (4,1,1), (4,2,1), (4,3,1), (4,4,2), (5,1,*), (5,2,1) & (5,3,1); conv. Drop remainder; zero/sing./conv.
Total		**408**	**201**	

Exhibit D8.2 Covariates for 2015 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**	**152**	
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	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	8 × 5 × 3	56	47	Coll. (2,1,2) & (2,1,3); zero. Coll. (2,4,2) & (2,4,3); sing. Coll. (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (3,4,2) & (3,4,3), (7,1,2) & (7,1,3), (7,2,2) & (7,2,3), (7,3,2) & (7,3,3), (7,4,2) & (7,4,3); 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. (2,2,1) & (2,3,1), (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.
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**	**285**	

Exhibit D8.3 Covariates for 2015 NSDUH Person Weights (sel.per.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**39**	**38**	
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	1	Drop (1); zero.
% 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**	**192**	
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 (*,1); zero.
% Owner-Occupied × % Hispanic	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	3	Drop (*,1), (1,2); zero.
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	2	Keep (1,2) & (4,2); drop remainder; zero.
State × % Hispanic or Latino	8 × 3	14	12	Drop (3,1), (7,1); zero.
State × % Owner-Occupied	8 × 3	14	13	Drop (7,3); zero.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		**169**	**154**	
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)	8 × 5 × 3	56	49	Coll. (2,1,2) & (2,1,3), (2,4,2) & (2,4,3), (3,3,2) & (3,3,3), (3,4,2) & (3,4,3), (7,4,2) & (7,4,2); sing/zero. Coll. (2,2,2) & (2,2,3), (2,3,2) & (2,4,3); 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	8	Coll. (2,2,1) & (2,3,1); zero. Coll. (1,2,1) & (1,3,1), (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.
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		**422**	**384**	

Exhibit D8.4 Covariates for 2015 NSDUH Person Weights (res.per.nr), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**39**	**38**	
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	1	Drop (1); zero.
% 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**	**191**	
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	1	Coll. (2,1) & (3,1); conv.
Hispanicity × Gender	2 × 2	1	1	All levels present.
% Owner-Occupied × % Black or African American	3 × 3	4	2	Drop (*,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	3	Drop (*,1), (2,1); zero.
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	2	Keep (1,2), (4,2), drop remainder; zero.
State × % Hispanic or Latino	8 × 3	14	12	Drop (3,1) & (7,1); zero.
State × % Owner-Occupied	8 × 3	14	13	Drop (7,3); zero.
State × Rent/Housing	8 × 5	28	28	All levels present.
Three-Factor Effects		**169**	**124**	
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. (1,2,1) & (1,3,1); hier.
State × Age × Race (3 levels)	8 × 5 × 3	56	34	Coll. (1,3,2) & (1,3,3), (1,4,2) & (1,4,3), (3,1,2) & (3,1,3), (3,2,2) & (3,2,3), (4,1,2) & (4,1,3), (4,2,2) & (4,2,3), (4,3,2) & (4,3,3), (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); conv. Coll. (2,1,2) & (2,1,3), (2,4,2) & (2,4,3), (3,3,2) & (3,3,3), (3,4,2) & (3,4,3); sing./zero. Drop (4,4,*), (7,4,*); conv.
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	2	Coll. (2,2,1) & (2,3,1), (4,2,1) & (4,3,1); hier. Drop remainder; conv.
State × Race (3 levels) × Gender	8 × 3 × 2	14	9	Coll. (2,2,1) & (2,3,1), (3,2,1) & (3,3,1), (4,2,1) & (4,3,1), (6,2,1) & (6,3,1), (7,2,1) & (7,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		**422**	**353**	

Exhibit D8.5 Covariates for 2015 NSDUH Person Weights (res.per.ps), Model Group 8: Mountain

Variables	Levels	Proposed	Final	Comments
One-Factor Effects		**22**	**22**	All levels present.
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**	**183**	
Age × Race (3 levels) × Hispanicity	6 × 3 × 2	10	8	Coll. (4,2,1) & (4,3,1), (5,2,1) & (5,3,1); sing./zero.
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)	8 × 6 × 3	70	63	Coll. (1,5,2) & (1,5,3), (2,4,2) & (2,4,3), (2,5,2) & (2,5,3), (3,5,2) & (3,5,3), (4,4,2) & (4,4,3), (7,4,2) & (7,4,3), (7,5,2) & (7,5,3); sing/zero.
State × Age × Hispanicity	8 × 6 × 2	35	29	Coll. (1,5,1) & (6,5,1), (4,5,1) & (5,5,1), (2,4,1), (3,4,1) & (7,4,1), (2,5,1), (3,5,1) & (7,5,1); zero.
State × Age × Gender	8 × 6 × 2	35	35	All levels present.
State × Race (3 levels) × Hispanicity	8 × 3 × 2	14	11	Coll. (2,2,1) & (2,3,1), (6,2,1) & (6,3,1); conv. Coll. (3,2,1) & (3,3,1); sing.
State × Race (3 levels) × Gender	8 × 3 × 2	14	13	Coll. (2,2,1) & (2,3,1); conv.
State × Hispanicity × Gender	8 × 2 × 2	7	7	All levels present.
Total		**347**	**328**	

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Appendix D9: Model Group 9: Pacific

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

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Table D.9a 2015 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	2.47	1.00	0.01	1.29384	255	(1.05, 2.00)	(1.05, 2.00)
	1.52	1.52	0.13	1.35254	122	(1.00, 3.49)	(1.00, 3.49)
						(1.05, 2.97)	(1.05, 2.95)
res.sdu.ps	1.52	1.52	0.13	1.35243	197	(0.80, 1.40)	(0.81, 1.40)
	1.34	2.56	0.53	1.42029	187	(0.49, 4.41)	(0.51, 4.39)
						(0.90, 1.91)	(0.90, 1.91)
sel.per.ps	2.65	5.66	1.15	1.97453	287	(0.59, 2.35)	(0.60, 2.35)
	1.48	3.36	0.67	1.98068	264	(0.55, 2.63)	(0.55, 2.62)
						(0.60, 1.10)	(0.60, 0.96)
res.per.nr	1.67	4.00	0.75	1.99813	287	(1.00, 2.99)	(1.00, 2.98)
	1.48	4.76	0.73	2.25999	254	(1.00, 3.91)	(1.00, 3.85)
						(1.40, 1.50)	(1.40, 1.41)
res.per.ps	1.70	5.14	0.83	2.25999	227	(0.20, 1.20)	(0.20, 1.20)
	0.69	2.35	0.30	2.39542	198	(0.20, 3.63)	(0.20, 3.59)
						(0.90, 1.50)	(0.90, 1.50)

[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, 2015.

Table D.9b Distribution of Weight Adjustment Factors and Weight Products for the 2015 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]	
	1-8[2]	**9**[3]	**1-9**[3]	**10**[4]	**1-10**[4]	**12**[5]	**1-12**[5]	**13**[5]	**1-13**[5]	**14**[6]	**1-14**[6]	**15**[6]	**1-15**[6]
Minimum	74	0.98	78	0.47	53	1.01	63	0.28	60	0.62	66	0.10	42
1%	78	1.00	91	0.65	92	1.01	127	0.64	125	1.01	167	0.20	151
5%	102	1.06	119	0.80	122	1.01	235	0.79	231	1.08	308	0.22	281
10%	109	1.09	139	0.87	155	1.01	373	0.85	367	1.12	472	0.41	421
25%	218	1.17	367	0.97	437	1.34	1,175	0.92	1,169	1.20	1,452	0.93	1,079
Median	997	1.29	1,270	1.10	1,329	2.74	2,482	1.00	2,518	1.33	3,138	1.04	3,075
75%	1,205	1.42	1,575	1.22	1,743	3.30	4,952	1.08	4,975	1.49	6,610	1.14	6,772
90%	1,300	1.54	1,770	1.37	2,129	5.86	8,966	1.18	8,714	1.69	12,183	1.41	12,597
95%	1,314	1.67	1,907	1.56	2,429	6.94	11,275	1.26	11,332	1.85	16,794	1.51	16,888
99%	1,543	2.12	2,657	2.21	3,414	9.30	15,193	1.61	16,286	2.28	27,053	1.63	28,581
Maximum	2,354	3.49	4,214	4.39	7,313	15.67	40,914	2.62	38,386	3.85	56,238	4.01	67,438
n	19,782	15,085	15,085	15,082	15,082	11,846	11,846	11,846	11,846	8,578	8,578	8,578	8,578
Max/Mean	2.80	-	3.82	-	5.92	-	11.13	-	10.41	-	11.04	-	13.24

Note 1: Weight component 11 and weight products 1-11 are excluded because weight 11 = 1 for all selected dwelling units.
Note 2: Weight component 16 and weight products 1-16 are excluded because weight 16 = 1 for all respondents.
Note 3: Under the generalized exponential model (GEM), nonresponse adjustment factors (weight components #9 and #14) 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 persons.
[6] Based on questionnaire-complete persons.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Model Group 9 Overview

Dwelling Unit Nonresponse

All 23 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, 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 ×Rent/Housing interactions. Out of 104 proposed variables, 75 were included in the model.

Variable collapsing or dropping was present in all three-factor effects. Out of 128 proposed variables, 24 were included in the model.

In the final model, a total of 122 variables were included; see Exhibit D9.1.

Dwelling Unit Poststratification

All 18 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 73 proposed variables, 72 were included in the model.

For the three-factor effects, variable collapsing was present in the Age ×Race × Hispanicity, Race ×Hispanicity ×Gender, and State ×Race ×Hispanicity interactions. Out of 106 proposed variables, 97 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 the 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, State × percent Hispanic or Latino, and State ×Rent/Housing interactions. Out of 145 proposed variables, 132 were included in the model.

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

In the final model, a total of 264 variables were included; see Exhibit D9.3.

Respondent Person-Level Nonresponse

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

For the 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 × Rent/Housing interactions. Out of 145 proposed variables, 132 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender, Age × Hispanicity × Gender, State ×Age ×Hispanicity, State × Age × Gender, and State ×Hispanicity × Gender interactions. Out of 106 proposed variables, 86 were included in the model.

In the final model, a total of 254 variables were included; see Exhibit D9.4.

Respondent Person-Level Poststratification

All 19 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 81 proposed variables, 80 were included in the model.

Variable collapsing or dropping was present in all three-factor effects except the Age × Race × Gender, Age × Hispanicity × Gender, Race × Hispanicity × Gender, State × Age × Gender, State ×Race × Hispanicity, and State × Hispanicity × Gender interactions. Out of 127 proposed variables, 99 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 2015 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**	**75**	
% Owner-Occupied × % Black or African American	3 × 3	4	2	Coll. (3,1) & (3,2), (2,1) & (2,2); 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	4	Coll. (1,1) & (1,2), (2,1) & (2,2), (4,1) & (4,2); zero. Coll. (3,1) & (3,2); 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	3	Coll. (1,1) & (1,2); zero. Keep (5,1), (5,2). Drop all others; zero, sing.
State × Group Quarter	5 × 3	8	1	Coll. (5,1) & (5,2); conv. Drop all others; zero, sing., conv.
State × % Black or African American	5 × 3	8	4	Coll. (1,1) & (1,2). Repeat for all states; zero, sing.
State × % Hispanic or Latino	5 × 3	8	6	Coll. (1,1) & (1,2), (2,1) & (2,2); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	15	Drop (3,4); sing.
Three-Factor Effects		**128**	**24**	
State × % Owner-Occupied × % Black or African American	5 × 3 × 3	16	4	Coll. (1,3,1) & (1,3,2) & (1,2,1) & (1,2,2); hier., sing. Coll. (3,3,1) & (3,3,2) & (3,2,1) & (3,2,2); hier., zero. Coll. (5,3,1) & (5,3,2), (5,2,1) & (5,2,2); hier. Drop all others; hier., zero, sing.
State × % Owner-Occupied × % Hispanic	5 × 3 × 3	16	6	Coll. (1,3,1) & (1,3,2), (1,2,1) & (1,2,2); hier. Coll. (2,3,1) & (2,3,2) & (2,2,1) & (2,2,2); hier., sing. Coll. (3,2,1) & (3,2,2); sing. Coll. (5,3,1) & (5,3,2), (5,2,1) & (5,2,2); conv. Drop all others; hier., sing.
State × % Owner-Occupied × Rent/Housing	5 × 3 × 5	32	7	Coll. (2,3,2) & (2,2,2); zero. Coll. (2,3,1) & (2,2,1), (2,3,3) & (2,2,3), (3,3,1) & (3,2,1), (3,3,2) & (3,2,2); sing. Keep (1,2,1), (1,2,2). Drop all others; hier., zero, sing., conv.
State × Rent/Housing × % Black or African American	5 × 3 × 5	32	1	Coll. (3,1,1) & (3,1,2) & (3,2,1) & (3,2,2); hier., zero. Drop all others; hier., zero, sing., conv.
State × Rent/Housing × % Hispanic or Latino	5 × 3 × 5	32	6	Coll. (1,1,1) & (1,1,2), (2,1,1) & (2,1,2), (2,2,1) & (2,2,2); hier. Coll. (3,1,1) & (3,1,2), (3,2,1) & (3,2,2); zero. Coll. (5,1,1) & (5,1,2); sing. Drop all others; hier., zero, sing., conv.
Total		**255**	**122**	

Exhibit D9.2 Covariates for 2015 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**	**72**	
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	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**	**97**	
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)	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	4	Coll. (1,2,1) & (1,3,1). Repeat for all states; hier.
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 2015 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**	**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	Coll. (3,1) & (3,2), (2,1) & (2,2); 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	4	Coll. (1,1) & (1,2), (2,1) & (2,2), (4,1) & (4,2); zero. Coll. (3,1) & (3,2); 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	Coll. (1,1) & (1,2), (2,1) & (2,2), (3,1) & (3,2); zero. Coll. (5,1) & (5,2); sing.
State × % Hispanic or Latino	5 × 3	8	6	Coll. (1,1) & (1,2), (2,1) & (2,2); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	15	Drop (3,4); sing.
Three-Factor Effects		**106**	**96**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (4,2,1) & (4,3,1); zero. Coll. (1,2,1) & (1,3,1), (2,2,1) & (2,3,1), (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	28	Coll. (2,1,2) & (2,1,3), (2,2,2) & (2,2,3), (2,3,2) & (2,3,3), (2,4,2) & (2,4,3); 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	7	Coll. (2,2,1) & (2,3,1); zero.
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**	**264**	

Exhibit D9.4 Covariates for 2015 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**	**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), (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), (2,1), (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), (2,1), (3,1); zero. Drop (5,1); sing.
State × % Hispanic or Latino	5 × 3	8	6	Drop (1,1), (2,1); zero.
State × % Owner-Occupied	5 × 3	8	8	All levels present.
State × Rent/Housing	5 × 5	16	15	Drop (3,4); sing.
Three-Factor Effects		**106**	**86**	
Age × Race (3 levels) × Hispanicity	5 × 3 × 2	8	4	Coll. (3,2,1) & (3,3,1), (4,2,1) & (4,3,1); zero. Coll. (1,2,1) & (1,3,1), (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	1	Coll. (2,1,1) & (3,1,1); conv.
State × Age × Race (3 levels)	5 × 5 × 3	32	22	Coll. (2,4,2) & (2,4,3); zero. 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), (2,2,2) & (2,2,3), (3,1,2) & (3,1,3), (3,2,2) & (3,2,3), (3,3,2) & (3,3,3), (3,4,2) & (3,4,3); 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. Coll. (3,2,1) & (3,3,1); sing. Coll. (1,2,1) & (1,3,1), (5,2,1) & (5,3,1); conv.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (3,2,1) & (3,3,1); conv.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**287**	**254**	

Exhibit D9.5 Covariates for 2015 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**	**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. (5,3) & (5,4); conv.
State × Hispanicity	5 × 2	4	4	All levels present.
State × Gender	5 × 2	4	4	All levels present.
Three-Factor Effects		**127**	**99**	
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)	5 × 6 × 3	40	16	Coll. (1,1,2) & (1,1,3). Repeat for all states and age levels; zero, sing., conv. Drop (1,5,2/3), (2,5,2/3), (3,5,2/3), (4,5,2/3); conv.
State × Age × Hispanicity	5 × 6 × 2	20	18	Drop (1,5,1), (3,5,1); sing.
State × Age × Gender	5 × 6 × 2	20	20	All levels present.
State × Race (3 levels) × Hispanicity	5 × 3 × 2	8	8	All levels present.
State × Race (3 levels) × Gender	5 × 3 × 2	8	7	Coll. (2,2,1) & (2,3,1); sing.
State × Hispanicity × Gender	5 × 2 × 2	4	4	All levels present.
Total		**227**	**198**	

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Appendix E: Evaluation of Calibration Weights: Response Rates

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Table E.1 2015 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 Persons	Respondents	WT1-12[1]	WT1-13[2]
United States	197,962	165,328	132,210	83.52%	79.69%	94,499	68,073	69.25%	69.15%
Alabama	2,797	2,185	1,831	76.27%	83.26%	1,328	953	67.99%	67.60%
Alaska	3,289	2,381	1,892	70.54%	79.18%	1,373	981	71.59%	70.73%
Arizona	3,022	2,314	1,949	75.63%	84.15%	1,363	996	70.73%	70.61%
Arkansas	2,875	2,344	2,005	81.49%	85.49%	1,343	981	68.96%	69.23%
California	11,282	10,153	7,564	89.74%	73.80%	6,445	4,671	68.69%	68.51%
Colorado	2,637	2,240	1,795	84.50%	80.03%	1,328	994	72.42%	72.40%
Connecticut	2,872	2,518	1,936	87.67%	76.95%	1,411	964	66.21%	66.27%
Delaware	2,701	2,339	1,756	86.46%	75.03%	1,323	945	71.21%	70.79%
District of Columbia	5,177	4,341	3,118	84.31%	71.43%	1,231	924	74.47%	74.78%
Florida	10,530	8,387	6,793	76.81%	80.63%	4,665	3,386	70.07%	69.86%
Georgia	4,015	3,307	2,603	82.30%	78.78%	1,992	1,498	71.79%	72.05%
Hawaii	3,139	2,630	1,959	83.04%	74.23%	1,389	1,020	70.76%	71.06%
Idaho	2,020	1,813	1,530	89.63%	84.44%	1,277	949	72.78%	73.31%
Illinois	7,103	6,286	4,639	87.98%	73.92%	3,592	2,365	63.14%	63.07%
Indiana	2,729	2,292	1,819	83.95%	79.34%	1,376	973	68.00%	68.10%
Iowa	3,068	2,668	2,265	87.02%	84.66%	1,357	962	68.53%	69.49%
Kansas	2,640	2,283	1,962	86.54%	85.92%	1,351	986	71.42%	71.39%
Kentucky	2,469	2,000	1,695	80.99%	84.66%	1,271	938	72.06%	71.97%
Louisiana	2,618	2,170	1,804	82.65%	83.66%	1,282	957	73.03%	73.62%
Maine	4,277	3,140	2,643	69.05%	84.00%	1,400	994	68.79%	69.15%
Maryland	2,308	2,018	1,513	87.02%	75.20%	1,290	946	69.83%	69.90%
Massachusetts	3,366	2,960	2,131	86.00%	72.27%	1,591	948	57.99%	57.86%
Michigan	7,166	5,787	4,853	80.33%	83.66%	3,383	2,441	69.43%	69.68%
Minnesota	2,490	2,149	1,766	86.12%	82.05%	1,286	951	73.16%	72.51%
Mississippi	2,554	2,060	1,741	80.51%	84.80%	1,257	921	70.17%	70.06%

(continued)

Table E.1 2015 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 Persons	Respondents	WT1-12[1]	WT1-13[2]
Missouri	2,582	2,094	1,846	81.27%	88.22%	1,342	986	70.25%	70.37%
Montana	3,195	2,528	2,159	78.91%	85.62%	1,329	977	69.44%	69.92%
Nebraska	2,510	2,156	1,794	85.51%	82.82%	1,301	945	71.21%	71.61%
Nevada	2,676	2,287	1,746	84.89%	76.61%	1,317	997	69.97%	69.22%
New Hampshire	3,324	2,763	2,191	82.92%	79.00%	1,435	995	68.23%	67.70%
New Jersey	4,076	3,647	2,807	89.72%	75.90%	2,247	1,517	65.39%	65.49%
New Mexico	2,568	1,853	1,644	70.05%	88.94%	1,260	959	73.85%	73.52%
New York	12,117	10,496	6,863	86.58%	64.83%	4,963	3,310	63.60%	63.24%
North Carolina	4,251	3,606	2,990	83.35%	82.87%	2,125	1,576	69.99%	69.88%
North Dakota	3,425	2,758	2,484	80.63%	89.86%	1,342	988	72.44%	73.04%
Ohio	7,032	5,899	4,773	83.71%	80.86%	3,458	2,428	68.48%	68.22%
Oklahoma	2,857	2,285	1,918	79.91%	84.37%	1,359	971	67.59%	66.70%
Oregon	2,526	2,195	1,803	86.87%	82.11%	1,333	962	71.04%	71.07%
Pennsylvania	7,429	6,257	5,054	83.87%	80.80%	3,232	2,374	71.72%	71.75%
Rhode Island	2,901	2,461	1,915	84.76%	77.81%	1,354	964	69.45%	68.89%
South Carolina	2,944	2,436	2,040	82.77%	83.70%	1,304	987	72.52%	71.73%
South Dakota	2,354	1,968	1,799	83.80%	91.69%	1,199	904	74.77%	74.98%
Tennessee	2,670	2,172	1,846	81.16%	84.96%	1,352	1,004	69.71%	69.17%
Texas	6,227	5,184	4,538	82.00%	87.56%	4,358	3,308	73.28%	73.06%
Utah	1,506	1,316	1,176	87.49%	89.31%	1,204	968	77.43%	77.27%
Vermont	3,795	3,050	2,525	80.26%	82.82%	1,355	960	68.96%	69.25%
Virginia	3,934	3,410	2,754	86.61%	80.78%	2,113	1,526	69.71%	69.59%
Washington	2,692	2,423	1,867	90.14%	76.82%	1,306	944	69.98%	70.76%
West Virginia	3,250	2,617	2,119	80.65%	80.92%	1,327	947	66.77%	66.10%
Wisconsin	3,170	2,513	2,108	73.54%	84.08%	1,365	961	68.35%	68.19%
Wyoming	2,807	2,189	1,889	76.87%	86.02%	1,315	971	72.26%	72.35%

[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, 2015.

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

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Table F.1 2015 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*...*WT8)			After nr[1] & Before ps[2] (WT1*...*WT9)			After ps[2] (WT1*...*WT10)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
United States	132,210	2.99%	3.45%	0.34%	1.81%	2.64%	0.46%	1.51%	2.74%	0.65%
Alabama	1,831	1.04%	3.51%	1.85%	5.02%	6.54%	1.03%	2.57%	3.81%	0.96%
Alaska	1,892	2.01%	2.05%	0.22%	1.37%	3.84%	1.37%	2.85%	6.73%	1.43%
Arizona	1,949	5.75%	7.93%	0.67%	10.01%	13.11%	1.36%	1.54%	2.34%	0.49%
Arkansas	2,005	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.75%	2.57%	0.39%
California	7,564	0.01%	0.03%	0.01%	0.74%	1.00%	0.12%	1.12%	2.46%	0.52%
Colorado	1,795	0.56%	0.47%	0.08%	0.89%	1.78%	0.67%	1.28%	2.02%	0.41%
Connecticut	1,936	0.15%	0.11%	0.00%	0.77%	1.18%	0.15%	1.50%	4.09%	1.47%
Delaware	1,756	2.11%	2.22%	0.02%	0.57%	1.17%	0.36%	1.14%	1.77%	0.31%
District of Columbia	3,118	12.86%	19.41%	5.06%	1.15%	3.29%	1.52%	0.77%	1.75%	0.23%
Florida	6,793	1.63%	3.11%	0.63%	1.35%	2.34%	0.51%	0.63%	1.10%	0.13%
Georgia	2,603	3.46%	3.86%	0.09%	1.15%	3.64%	1.97%	0.46%	0.83%	0.09%
Hawaii	1,959	11.38%	15.45%	1.57%	3.62%	4.17%	1.06%	1.53%	3.67%	0.80%
Idaho	1,530	0.00%	0.00%	0.00%	3.01%	3.18%	0.44%	3.53%	4.51%	1.32%
Illinois	4,639	4.91%	5.73%	0.71%	2.28%	4.30%	0.96%	0.95%	2.06%	0.42%
Indiana	1,819	0.00%	0.00%	0.00%	0.71%	1.25%	0.24%	1.59%	2.59%	0.99%
Iowa	2,265	11.83%	14.14%	0.51%	1.77%	2.75%	0.56%	2.03%	3.61%	0.71%
Kansas	1,962	12.13%	14.04%	0.96%	1.73%	1.99%	0.04%	2.60%	3.87%	0.71%
Kentucky	1,695	0.00%	0.00%	0.00%	0.18%	0.88%	0.56%	0.59%	0.84%	0.16%
Louisiana	1,804	0.00%	0.00%	0.00%	2.05%	3.19%	0.88%	0.44%	0.99%	0.16%
Maine	2,643	0.26%	0.72%	0.03%	1.51%	6.28%	2.86%	0.57%	1.38%	0.24%
Maryland	1,513	0.00%	0.00%	0.00%	4.89%	7.27%	0.72%	0.53%	1.32%	0.30%
Massachusetts	2,131	8.35%	11.91%	0.96%	12.34%	18.06%	2.40%	2.11%	5.00%	1.44%
Michigan	4,853	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.34%	2.32%	0.30%
Minnesota	1,766	1.81%	1.59%	0.13%	0.00%	0.00%	0.00%	0.91%	1.45%	0.25%
Mississippi	1,741	0.75%	0.98%	0.00%	1.55%	2.41%	0.29%	1.61%	3.75%	0.83%

(continued)

Table F.1 2015 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*...*WT8)			After nr[1] & Before ps[2] (WT1*...*WT9)			After ps[2] (WT1*...*WT10)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
Missouri	1,846	0.00%	0.00%	0.00%	0.05%	0.11%	0.01%	0.65%	1.35%	0.31%
Montana	2,159	0.00%	0.00%	0.00%	0.23%	0.62%	0.21%	0.37%	0.79%	0.11%
Nebraska	1,794	1.51%	0.41%	0.04%	0.84%	1.36%	0.05%	0.45%	1.45%	0.55%
Nevada	1,746	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.09%	2.86%	0.62%
New Hampshire	2,191	0.32%	0.69%	0.18%	4.97%	9.38%	2.61%	0.87%	2.01%	0.51%
New Jersey	2,807	0.93%	1.91%	0.21%	0.93%	2.01%	0.27%	1.32%	3.55%	1.15%
New Mexico	1,644	1.09%	2.54%	0.58%	0.00%	0.00%	0.00%	1.52%	3.98%	1.07%
New York	6,863	0.00%	0.00%	0.00%	1.68%	1.80%	0.16%	1.60%	4.14%	1.29%
North Carolina	2,990	8.76%	11.32%	0.62%	0.87%	1.33%	0.10%	0.50%	1.53%	0.60%
North Dakota	2,484	8.37%	8.87%	0.84%	5.96%	7.87%	0.63%	1.01%	1.88%	0.36%
Ohio	4,773	4.32%	4.57%	0.22%	1.36%	2.35%	0.50%	0.50%	0.81%	0.11%
Oklahoma	1,918	15.07%	17.94%	2.00%	4.01%	5.68%	0.49%	1.72%	4.04%	0.76%
Oregon	1,803	6.16%	5.85%	0.49%	1.28%	0.99%	0.07%	0.39%	0.77%	0.19%
Pennsylvania	5,054	0.47%	0.78%	0.25%	1.76%	2.32%	0.62%	2.33%	3.21%	0.59%
Rhode Island	1,915	0.00%	0.00%	0.00%	1.72%	3.72%	1.01%	2.72%	6.50%	2.36%
South Carolina	2,040	3.77%	4.04%	0.10%	4.95%	6.51%	0.47%	3.63%	5.96%	1.14%
South Dakota	1,799	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.67%	3.48%	1.04%
Tennessee	1,846	0.00%	0.00%	0.00%	0.43%	1.03%	0.26%	1.08%	2.56%	0.79%
Texas	4,538	6.41%	6.52%	0.44%	0.18%	0.20%	0.01%	2.03%	3.65%	0.71%
Utah	1,176	4.93%	5.63%	0.37%	8.50%	10.78%	1.34%	1.87%	2.57%	0.40%
Vermont	2,525	0.08%	0.07%	0.00%	0.00%	0.00%	0.00%	7.33%	9.43%	1.95%
Virginia	2,754	0.00%	0.00%	0.00%	0.22%	0.41%	0.13%	1.63%	2.48%	0.79%
Washington	1,867	0.00%	0.00%	0.00%	2.84%	3.52%	0.07%	1.55%	3.48%	0.63%
West Virginia	2,119	7.36%	7.18%	0.24%	2.17%	3.41%	0.56%	1.75%	3.03%	0.94%
Wisconsin	2,108	8.68%	12.00%	1.81%	0.00%	0.00%	0.00%	4.46%	9.34%	2.51%
Wyoming	1,889	0.00%	0.00%	0.00%	0.69%	1.60%	0.29%	0.53%	1.43%	0.22%

[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, 2015.

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

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Table G.1 2015 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*...*WT12)			After sel.per.ps[1] (WT1*...*WT13)		
		% Unweighted	% Weighted[2]	% Outwinsor[3]	% Unweighted	% Weighted[2]	% Outwinsor[3]
United States	94,499	2.75%	5.97%	1.39%	1.58%	3.56%	0.73%
Alabama	1,328	2.18%	3.68%	0.90%	1.73%	3.82%	0.74%
Alaska	1,373	4.15%	9.33%	2.35%	3.06%	5.93%	0.94%
Arizona	1,363	2.64%	5.10%	1.06%	1.61%	4.18%	0.79%
Arkansas	1,343	2.31%	4.51%	0.74%	0.74%	1.52%	0.16%
California	6,445	2.51%	6.65%	1.47%	1.60%	4.61%	0.86%
Colorado	1,328	2.26%	4.34%	0.58%	0.98%	3.04%	0.50%
Connecticut	1,411	4.04%	8.26%	2.23%	1.77%	4.24%	1.10%
Delaware	1,323	1.74%	3.45%	0.76%	0.30%	0.57%	0.11%
District of Columbia	1,231	2.27%	4.66%	0.44%	1.06%	3.13%	0.51%
Florida	4,665	2.42%	4.14%	0.62%	1.46%	2.69%	0.38%
Georgia	1,992	1.86%	3.15%	0.73%	0.95%	1.60%	0.20%
Hawaii	1,389	2.30%	6.39%	1.61%	1.22%	3.43%	0.65%
Idaho	1,277	5.48%	9.51%	3.12%	2.27%	4.33%	1.17%
Illinois	3,592	2.78%	7.48%	1.57%	1.70%	3.78%	0.62%
Indiana	1,376	3.78%	7.56%	2.19%	1.16%	2.21%	0.44%
Iowa	1,357	4.35%	7.49%	1.79%	1.77%	4.63%	1.33%
Kansas	1,351	2.29%	4.81%	0.86%	1.26%	4.01%	1.52%
Kentucky	1,271	1.49%	2.50%	0.50%	0.16%	0.74%	0.20%
Louisiana	1,282	1.01%	1.73%	0.25%	0.70%	1.09%	0.20%
Maine	1,400	1.36%	3.07%	0.64%	1.07%	2.17%	0.42%
Maryland	1,290	1.78%	2.67%	0.65%	1.32%	2.37%	0.42%
Massachusetts	1,591	4.46%	10.82%	2.47%	3.27%	9.92%	2.12%
Michigan	3,383	2.22%	4.31%	0.77%	1.54%	2.50%	0.29%
Minnesota	1,286	3.42%	5.53%	1.14%	2.64%	6.11%	1.95%
Mississippi	1,257	3.74%	9.65%	2.42%	0.88%	2.37%	0.65%

(continued)

Table G.1 2015 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*...*WT12)			After sel.per.ps[1] (WT1*...*WT13)		
		% Unweighted	% Weighted[2]	% Outwinsor[3]	% Unweighted	% Weighted[2]	% Outwinsor[3]
Missouri	1,342	2.09%	3.32%	0.81%	0.82%	1.39%	0.32%
Montana	1,329	1.35%	2.58%	0.61%	0.83%	1.37%	0.26%
Nebraska	1,301	1.77%	5.14%	1.41%	1.92%	5.38%	1.48%
Nevada	1,317	2.66%	7.38%	1.89%	1.37%	4.82%	1.30%
New Hampshire	1,435	2.02%	3.97%	1.09%	1.11%	2.32%	0.61%
New Jersey	2,247	3.03%	8.54%	2.29%	1.91%	4.20%	0.75%
New Mexico	1,260	3.10%	8.14%	1.91%	2.14%	4.25%	0.78%
New York	4,963	2.46%	6.38%	1.71%	1.13%	3.09%	0.64%
North Carolina	2,125	1.74%	4.07%	1.44%	1.69%	3.11%	0.67%
North Dakota	1,342	2.01%	3.80%	0.74%	1.42%	4.43%	1.61%
Ohio	3,458	2.46%	4.06%	1.04%	0.87%	1.70%	0.33%
Oklahoma	1,359	3.61%	7.64%	1.32%	1.91%	3.66%	0.72%
Oregon	1,333	1.20%	2.29%	0.36%	0.30%	0.82%	0.12%
Pennsylvania	3,232	4.39%	7.44%	1.62%	3.99%	7.42%	1.32%
Rhode Island	1,354	3.55%	6.83%	2.43%	2.81%	7.76%	2.35%
South Carolina	1,304	2.91%	6.35%	1.32%	2.07%	5.61%	1.43%
South Dakota	1,199	3.67%	6.63%	1.71%	1.58%	3.99%	1.27%
Tennessee	1,352	2.44%	5.45%	1.49%	1.33%	3.52%	1.13%
Texas	4,358	3.01%	7.69%	1.81%	1.26%	2.66%	0.48%
Utah	1,204	4.40%	8.36%	1.63%	1.58%	3.52%	0.84%
Vermont	1,355	5.39%	7.99%	1.86%	1.70%	4.30%	0.73%
Virginia	2,113	1.85%	3.87%	1.01%	0.80%	1.52%	0.32%
Washington	1,306	2.68%	7.15%	1.39%	1.30%	3.24%	0.98%
West Virginia	1,327	3.01%	5.61%	1.54%	2.49%	4.72%	1.01%
Wisconsin	1,365	4.62%	11.71%	3.34%	2.12%	5.43%	1.27%
Wyoming	1,315	2.13%	3.90%	1.07%	3.50%	8.89%	1.33%

[1] Before sel.per.ps (WT1*...*WT12) and after sel.per.ps (WT1*...*WT13) used demographic variables from screener data for all selected persons; 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, 2015.

Table G.2 2015 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*…*WT13)			After res.per.nr[1] (WT1*…*WT14)			Before res.per.ps[2] (WT1*…*WT14)			After res.per.ps[2] (WT1*…*WT15)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
United States	68,073	1.65%	3.78%	0.78%	1.35%	3.69%	0.64%	1.41%	3.86%	0.69%	0.77%	2.34%	0.44%
Alabama	953	1.68%	3.07%	0.39%	2.10%	5.25%	1.37%	2.31%	6.28%	1.56%	1.05%	2.31%	0.30%
Alaska	981	2.75%	5.97%	0.86%	1.94%	4.79%	0.78%	2.34%	5.52%	0.94%	0.71%	2.14%	0.18%
Arizona	996	1.71%	5.15%	1.11%	2.01%	4.67%	0.88%	2.01%	5.15%	1.26%	0.40%	0.93%	0.08%
Arkansas	981	0.71%	1.28%	0.18%	0.92%	1.74%	0.30%	1.02%	2.04%	0.38%	1.53%	3.36%	0.54%
California	4,671	1.71%	4.88%	0.93%	1.65%	5.38%	0.78%	1.67%	5.52%	0.85%	0.54%	2.88%	0.46%
Colorado	994	1.01%	3.54%	0.45%	0.91%	2.98%	0.60%	1.01%	3.37%	0.78%	1.41%	3.99%	0.59%
Connecticut	964	2.39%	5.30%	1.42%	2.07%	6.63%	1.43%	2.07%	6.63%	1.44%	1.14%	7.07%	2.56%
Delaware	945	0.32%	0.69%	0.16%	0.42%	0.57%	0.06%	0.53%	0.67%	0.07%	0.32%	1.03%	0.39%
District of Columbia	924	1.08%	3.01%	0.54%	1.62%	4.02%	0.47%	1.73%	4.10%	0.48%	1.30%	4.92%	0.74%
Florida	3,386	1.86%	3.38%	0.45%	1.00%	2.09%	0.23%	1.09%	2.21%	0.26%	0.27%	0.42%	0.03%
Georgia	1,498	1.13%	1.98%	0.23%	0.73%	1.54%	0.22%	0.80%	1.80%	0.39%	0.73%	1.72%	0.18%
Hawaii	1,020	1.37%	4.09%	0.79%	1.08%	2.87%	0.74%	1.08%	2.92%	0.76%	0.69%	1.48%	0.41%
Idaho	949	2.53%	4.55%	1.16%	2.32%	4.73%	1.02%	2.32%	5.06%	1.19%	1.79%	2.86%	0.46%
Illinois	2,365	1.86%	3.89%	0.77%	0.68%	2.22%	0.23%	0.72%	2.30%	0.25%	0.89%	4.05%	0.97%
Indiana	973	1.03%	2.36%	0.52%	1.23%	2.37%	0.21%	1.23%	2.37%	0.20%	0.41%	1.13%	0.07%
Iowa	962	1.56%	4.35%	1.68%	2.08%	6.18%	1.79%	2.08%	6.18%	1.73%	1.35%	2.87%	0.36%
Kansas	986	1.22%	4.34%	1.92%	1.52%	5.34%	1.67%	1.52%	5.34%	1.64%	0.91%	2.95%	0.76%
Kentucky	938	0.11%	0.52%	0.03%	0.00%	0.00%	0.00%	0.11%	0.14%	0.00%	0.11%	0.16%	0.02%
Louisiana	957	0.84%	1.56%	0.27%	1.57%	2.16%	0.20%	1.67%	2.58%	0.28%	0.21%	0.27%	0.04%
Maine	994	0.91%	1.44%	0.32%	1.61%	4.79%	0.50%	1.71%	4.86%	0.51%	0.60%	3.70%	0.89%
Maryland	946	1.37%	2.46%	0.35%	1.06%	1.98%	0.56%	1.27%	2.73%	0.98%	0.74%	2.10%	0.37%
Massachusetts	948	3.48%	10.98%	2.10%	2.00%	6.25%	1.35%	2.22%	6.79%	1.44%	0.63%	1.79%	0.27%
Michigan	2,441	1.43%	2.36%	0.27%	0.78%	1.43%	0.08%	0.82%	1.47%	0.08%	0.29%	1.11%	0.15%
Minnesota	951	2.63%	5.59%	1.63%	1.89%	5.90%	1.91%	1.79%	5.78%	1.85%	1.37%	4.85%	1.19%
Mississippi	921	0.98%	2.78%	0.76%	0.87%	1.63%	0.39%	0.98%	1.78%	0.40%	0.98%	2.35%	0.64%

(continued)

Table G.2 2015 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*…*WT13)			After res.per.nr[1] (WT1*…*WT14)			Before res.per.ps[2] (WT1*…*WT14)			After res.per.ps[2] (WT1*…*WT15)		
		% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]	% Unweighted	% Weighted[3]	% Outwinsor[4]
Missouri	986	0.51%	0.90%	0.27%	1.62%	3.60%	0.69%	1.72%	3.75%	0.77%	0.81%	2.68%	0.44%
Montana	977	0.82%	1.48%	0.30%	0.82%	1.61%	0.37%	0.82%	1.61%	0.37%	0.72%	1.83%	0.61%
Nebraska	945	1.69%	5.54%	1.92%	2.65%	7.92%	1.49%	2.65%	7.92%	1.56%	0.85%	4.68%	0.82%
Nevada	997	1.30%	3.47%	0.96%	2.01%	7.91%	2.72%	1.91%	7.46%	2.52%	0.90%	4.77%	1.21%
New Hampshire	995	1.01%	2.06%	0.65%	1.61%	3.46%	0.92%	1.41%	3.02%	0.89%	0.60%	1.06%	0.12%
New Jersey	1,517	1.52%	2.99%	0.68%	1.45%	3.47%	0.53%	1.45%	3.47%	0.57%	1.25%	4.85%	0.96%
New Mexico	959	2.29%	4.75%	0.88%	0.94%	1.78%	0.24%	0.94%	2.04%	0.39%	0.31%	0.45%	0.05%
New York	3,310	1.66%	4.65%	0.97%	1.96%	6.30%	0.81%	1.96%	6.48%	0.86%	0.79%	2.91%	0.55%
North Carolina	1,576	1.71%	3.25%	0.76%	1.21%	3.35%	0.54%	1.40%	3.72%	0.56%	1.02%	3.05%	0.65%
North Dakota	988	1.62%	4.70%	1.61%	1.82%	6.88%	2.21%	1.92%	7.12%	2.22%	1.52%	3.11%	0.80%
Ohio	2,428	0.82%	1.43%	0.22%	0.91%	2.23%	0.33%	0.95%	2.37%	0.37%	0.54%	0.73%	0.07%
Oklahoma	971	1.75%	2.83%	0.39%	0.62%	2.47%	0.28%	0.72%	2.65%	0.32%	0.72%	2.91%	0.61%
Oregon	962	0.42%	1.16%	0.17%	1.04%	2.71%	0.36%	1.25%	3.23%	0.46%	0.10%	0.67%	0.04%
Pennsylvania	2,374	4.25%	8.44%	1.53%	1.31%	3.27%	0.45%	1.35%	3.31%	0.47%	0.59%	1.55%	0.13%
Rhode Island	964	2.80%	8.00%	2.57%	1.66%	5.64%	1.88%	1.76%	5.78%	1.93%	1.45%	8.14%	3.24%
South Carolina	987	2.63%	6.31%	1.43%	2.43%	6.78%	1.72%	2.53%	6.97%	1.71%	0.81%	1.06%	0.20%
South Dakota	904	1.77%	4.39%	1.26%	1.22%	5.96%	1.74%	1.22%	5.96%	1.74%	1.66%	6.28%	1.13%
Tennessee	1,004	1.20%	4.18%	1.51%	1.10%	3.33%	0.53%	1.10%	3.33%	0.53%	0.50%	1.40%	0.38%
Texas	3,308	1.15%	2.56%	0.58%	0.91%	2.59%	0.44%	0.94%	2.55%	0.39%	0.48%	1.64%	0.29%
Utah	968	1.24%	2.68%	0.55%	1.24%	3.23%	0.57%	1.34%	3.50%	0.59%	0.52%	1.49%	0.25%
Vermont	960	2.19%	5.32%	0.99%	0.73%	1.95%	0.23%	0.73%	1.95%	0.21%	0.63%	3.87%	1.41%
Virginia	1,526	0.66%	1.35%	0.28%	1.31%	2.57%	0.27%	1.25%	2.51%	0.27%	1.51%	3.43%	0.63%
Washington	944	1.69%	4.73%	1.16%	1.59%	4.95%	0.94%	1.91%	5.35%	1.11%	1.27%	3.34%	0.30%
West Virginia	947	2.85%	4.63%	0.94%	2.96%	4.94%	1.39%	2.96%	4.96%	1.43%	1.48%	2.12%	0.51%
Wisconsin	961	1.98%	4.71%	0.99%	1.25%	4.28%	0.44%	1.46%	4.62%	0.50%	0.42%	2.28%	0.65%
Wyoming	971	4.02%	10.98%	1.66%	0.82%	2.87%	0.54%	0.93%	3.21%	0.56%	0.62%	2.17%	0.25%

[1] Before res.per.nr (WT1*...*WT13) and after res.per.nr (WT1*...*WT14) used demographic variables from screener data for all respondents; nr = nonresponse adjustment.
[2] Before res.per.ps (WT1*...*WT14) and after res.per.ps (WT1*...*WT15) 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, 2015.

Appendix H: Evaluation of Calibration Weights: Slippage Rates

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Table H.1 2015 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		68,073	267,694,489	267,694,489	267,694,489	0.00	0.00
Quarter	**Quarter 1**	15,446	66,686,526	66,686,526	66,686,526	0.00	0.00
	Quarter 2	18,043	66,832,863	66,832,863	66,832,863	0.00	0.00
	Quarter 3	17,625	67,004,597	67,004,597	67,004,597	0.00	0.00
	Quarter 4	16,959	67,170,503	67,170,503	67,170,503	0.00	0.00
Age Group	**12-17**	16,911	24,844,532	24,893,417	24,893,417	-0.20	0.00
	18-25	17,097	34,866,586	34,907,162	34,907,162	-0.12	0.00
	26-34	10,446	38,348,403	38,323,068	38,323,068	0.07	0.00
	35-49	13,304	60,087,497	60,318,098	60,318,098	-0.38	0.00
	50-64	6,055	64,756,738	62,733,129	62,733,129	3.23	0.00
	65+	4,260	44,790,733	46,519,616	46,519,616	-3.72	0.00
Race	**White**	48,956	197,938,580	209,183,721	209,183,721	-5.38	0.00
	Black or African American	9,129	34,667,937	33,928,597	33,928,597	2.18	0.00
	American Indian/Alaska Native	3,119	9,902,199	3,155,515	3,155,514	213.81	0.00
	Asian	3,719	17,474,218	15,970,865	15,970,865	9.41	0.00
	Two or More Races	3,150	7,711,556	5,455,791	5,455,791	41.35	0.00
Hispanicity	**Hispanic or Latino**	12,591	44,678,815	43,562,963	43,562,963	2.56	0.00
	Non-Hispanic or Latino	55,482	223,015,674	224,131,526	224,131,526	-0.50	0.00
Gender	**Male**	32,471	129,671,329	129,733,913	129,733,913	-0.05	0.00
	Female	35,602	138,023,161	137,960,576	137,960,576	0.05	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.2 2015 NSDUH Slippage Rates: ALABAMA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		953	4,056,416	4,056,416	4,056,416	0.00	0.00
Quarter	**Quarter 1**	232	1,012,572	1,012,572	1,012,572	-0.00	0.00
	Quarter 2	247	1,013,344	1,013,344	1,013,344	0.00	0.00
	Quarter 3	221	1,014,608	1,014,608	1,014,608	0.00	0.00
	Quarter 4	253	1,015,892	1,015,892	1,015,892	0.00	0.00
Age Group	**12-17**	229	379,490	380,027	380,027	-0.14	0.00
	18-25	250	532,636	527,315	527,315	1.01	0.00
	26-34	141	538,732	543,902	543,902	-0.95	0.00
	35-49	184	897,309	890,422	890,422	0.77	0.00
	50-64	80	907,078	969,806	969,806	-6.47	0.00
	65+	69	801,171	744,944	744,944	7.55	0.00
Race	**White**	622	2,783,739	2,865,746	2,865,746	-2.86	0.00
	Black or African American	280	1,078,642	1,051,421	1,051,421	2.59	-0.00
	American Indian/Alaska Native	5	46,456	28,760	28,760	61.53	0.00
	Asian	18	92,230	60,409	60,409	52.67	0.00
	Two or More Races	28	55,349	50,081	50,081	10.52	0.00
Hispanicity	**Hispanic or Latino**	37	149,329	142,330	142,330	4.92	0.00
	Non-Hispanic or Latino	916	3,907,088	3,914,086	3,914,086	-0.18	0.00
Gender	**Male**	436	1,929,225	1,929,225	1,929,225	0.00	0.00
	Female	517	2,127,191	2,127,191	2,127,191	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.3 2015 NSDUH Slippage Rates: ALASKA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		981	581,652	581,652	581,652	-0.00	0.00
Quarter	**Quarter 1**	200	145,331	145,331	145,331	-0.00	-0.00
	Quarter 2	260	145,402	145,402	145,402	-0.00	0.00
	Quarter 3	292	145,464	145,464	145,464	-0.00	0.00
	Quarter 4	229	145,454	145,454	145,454	-0.00	0.00
Age Group	**12-17**	226	58,559	58,808	58,808	-0.42	-0.00
	18-25	245	81,929	82,845	82,845	-1.11	-0.00
	26-34	157	98,222	97,229	97,229	1.02	-0.00
	35-49	204	126,539	128,371	128,371	-1.43	0.00
	50-64	103	145,004	142,700	142,700	1.61	0.00
	65+	46	71,398	71,699	71,699	-0.42	0.00
Race	**White**	656	384,630	399,232	399,232	-3.66	0.00
	Black or African American	23	17,287	20,686	20,686	-16.43	0.00
	American Indian/Alaska Native	116	78,426	82,436	82,436	-4.86	-0.00
	Asian	59	44,319	45,467	45,467	-2.53	-0.00
	Two or More Races	127	56,990	33,831	33,831	68.45	-0.00
Hispanicity	**Hispanic or Latino**	70	42,623	36,732	36,732	16.04	-0.00
	Non-Hispanic or Latino	911	539,029	544,920	544,920	-1.08	0.00
Gender	**Male**	478	298,951	298,671	298,671	0.09	0.00
	Female	503	282,700	282,981	282,981	-0.10	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.4 2015 NSDUH Slippage Rates: ARIZONA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		996	5,645,911	5,645,911	5,645,911	-0.00	-0.00
Quarter	**Quarter 1**	174	1,402,600	1,402,600	1,402,600	0.00	-0.00
	Quarter 2	275	1,408,614	1,408,614	1,408,614	-0.00	0.00
	Quarter 3	281	1,414,657	1,414,657	1,414,657	-0.00	0.00
	Quarter 4	266	1,420,040	1,420,040	1,420,040	-0.00	-0.00
Age Group	**12-17**	241	553,254	547,813	547,813	0.99	0.00
	18-25	242	728,915	745,197	745,197	-2.18	-0.00
	26-34	155	825,206	784,032	784,032	5.25	0.00
	35-49	217	1,231,279	1,226,520	1,226,520	0.39	-0.00
	50-64	71	1,127,157	1,235,478	1,235,478	-8.77	0.00
	65+	70	1,180,100	1,106,870	1,106,871	6.62	-0.00
Race	**White**	750	4,518,421	4,782,645	4,782,645	-5.52	-0.00
	Black or African American	65	259,902	255,038	255,038	1.91	0.00
	American Indian/Alaska Native	94	508,281	275,719	275,719	84.35	0.00
	Asian	43	226,517	209,517	209,517	8.11	-0.00
	Two or More Races	44	132,790	122,992	122,992	7.97	-0.00
Hispanicity	**Hispanic or Latino**	352	1,605,434	1,593,947	1,593,947	0.72	-0.00
	Non-Hispanic or Latino	644	4,040,477	4,051,963	4,051,963	-0.28	-0.00
Gender	**Male**	508	2,754,579	2,754,579	2,754,579	0.00	0.00
	Female	488	2,891,331	2,891,331	2,891,331	-0.00	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.5 2015 NSDUH Slippage Rates: ARKANSAS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		981	2,457,367	2,457,367	2,457,367	-0.00	0.00
Quarter	**Quarter 1**	210	612,980	612,980	612,980	-0.00	0.00
	Quarter 2	250	613,692	613,692	613,692	0.00	0.00
	Quarter 3	246	614,783	614,783	614,783	0.00	0.00
	Quarter 4	275	615,911	615,911	615,911	0.00	-0.00
Age Group	**12-17**	256	236,353	236,353	236,353	0.00	-0.00
	18-25	242	314,953	318,810	318,810	-1.21	0.00
	26-34	158	340,882	335,614	335,614	1.57	0.00
	35-49	203	535,309	534,918	534,919	0.07	-0.00
	50-64	70	593,562	569,818	569,818	4.17	-0.00
	65+	52	436,308	461,854	461,854	-5.53	-0.00
Race	**White**	735	1,952,725	1,986,628	1,986,628	-1.71	-0.00
	Black or African American	169	366,849	363,846	363,847	0.83	-0.00
	American Indian/Alaska Native	21	41,554	23,568	23,568	76.32	0.00
	Asian	25	48,730	45,199	45,199	7.81	0.00
	Two or More Races	31	47,509	38,126	38,126	24.61	0.00
Hispanicity	**Hispanic or Latino**	80	156,346	153,714	153,714	1.71	0.00
	Non-Hispanic or Latino	901	2,301,020	2,303,653	2,303,653	-0.11	-0.00
Gender	**Male**	467	1,185,548	1,186,815	1,186,815	-0.11	0.00
	Female	514	1,271,819	1,270,552	1,270,552	0.10	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.6 2015 NSDUH Slippage Rates: CALIFORNIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		4,671	32,556,837	32,556,837	32,556,837	-0.00	0.00
Quarter	**Quarter 1**	1,057	8,107,139	8,107,139	8,107,140	-0.00	-0.00
	Quarter 2	1,247	8,127,651	8,127,651	8,127,651	-0.00	-0.00
	Quarter 3	1,126	8,150,263	8,150,263	8,150,263	-0.00	0.00
	Quarter 4	1,241	8,171,784	8,171,784	8,171,784	-0.00	-0.00
Age Group	**12-17**	1,138	3,019,305	3,044,310	3,044,310	-0.82	-0.00
	18-25	1,220	4,474,656	4,441,882	4,441,883	0.74	-0.00
	26-34	709	4,988,300	5,080,212	5,080,212	-1.81	-0.00
	35-49	889	7,680,258	7,671,421	7,671,421	0.12	-0.00
	50-64	444	7,780,521	7,221,987	7,221,987	7.73	-0.00
	65+	271	4,613,797	5,097,025	5,097,025	-9.48	0.00
Race	**White**	2,858	20,516,745	23,792,341	23,792,341	-13.77	0.00
	Black or African American	336	2,157,162	2,060,951	2,060,951	4.67	0.00
	American Indian/Alaska Native	495	2,765,074	579,637	526,380	425.30	10.12
	Asian	693	5,647,331	5,098,965	5,152,222	9.61	-1.03
	Two or More Races	289	1,470,525	1,024,943	1,024,943	43.47	0.00
Hispanicity	**Hispanic or Latino**	2,228	12,188,629	11,845,385	11,845,385	2.90	-0.00
	Non-Hispanic or Latino	2,443	20,368,208	20,711,452	20,711,452	-1.66	0.00
Gender	**Male**	2,272	15,930,647	15,939,172	15,939,172	-0.05	-0.00
	Female	2,399	16,626,190	16,617,665	16,617,665	0.05	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.7 2015 NSDUH Slippage Rates: COLORADO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		994	4,526,726	4,526,726	4,526,726	-0.00	-0.00
Quarter	**Quarter 1**	249	1,122,653	1,122,653	1,122,653	0.00	0.00
	Quarter 2	231	1,128,693	1,128,693	1,128,693	0.00	0.00
	Quarter 3	226	1,134,851	1,134,851	1,134,851	0.00	0.00
	Quarter 4	288	1,140,528	1,140,528	1,140,529	-0.00	-0.00
Age Group	**12-17**	269	422,300	419,211	419,211	0.74	-0.00
	18-25	234	572,055	593,941	593,941	-3.68	-0.00
	26-34	148	729,376	713,233	713,233	2.26	-0.00
	35-49	225	1,085,627	1,060,209	1,060,209	2.40	0.00
	50-64	67	1,022,596	1,044,081	1,044,081	-2.06	-0.00
	65+	51	694,772	696,051	696,051	-0.18	-0.00
Race	**White**	763	3,711,249	4,004,479	4,004,479	-7.32	-0.00
	Black or African American	46	179,771	188,757	188,757	-4.76	0.00
	American Indian/Alaska Native	94	328,847	68,172	68,172	382.38	0.00
	Asian	30	163,940	157,037	157,037	4.40	0.00
	Two or More Races	61	142,918	108,281	108,281	31.99	-0.00
Hispanicity	**Hispanic or Latino**	268	924,069	879,825	879,825	5.03	-0.00
	Non-Hispanic or Latino	726	3,602,657	3,646,901	3,646,901	-1.21	-0.00
Gender	**Male**	472	2,223,014	2,242,623	2,242,623	-0.87	-0.00
	Female	522	2,303,712	2,284,102	2,284,102	0.86	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.8 2015 NSDUH Slippage Rates: CONNECTICUT

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		964	3,058,139	3,058,139	3,058,139	-0.00	0.00
Quarter	**Quarter 1**	210	763,989	763,989	763,989	0.00	0.00
	Quarter 2	252	764,084	764,084	764,084	-0.00	0.00
	Quarter 3	267	764,675	764,675	764,675	-0.00	0.00
	Quarter 4	235	765,390	765,390	765,390	0.00	0.00
Age Group	**12-17**	241	282,385	281,090	281,090	0.46	0.00
	18-25	223	382,315	387,506	387,506	-1.34	0.00
	26-34	171	387,101	389,824	389,824	-0.70	0.00
	35-49	169	676,877	678,860	678,860	-0.29	0.00
	50-64	90	769,410	773,733	773,733	-0.56	0.00
	65+	70	560,050	547,125	547,126	2.36	-0.00
Race	**White**	676	2,294,784	2,509,305	2,509,305	-8.55	0.00
	Black or African American	139	384,550	337,811	337,811	13.84	-0.00
	American Indian/Alaska Native	37	86,194	21,017	15,334	462.12	37.07
	Asian	58	162,493	100,922	142,601	13.95	-29.23
	Two or More Races	54	130,118	89,084	53,088	145.10	67.80
Hispanicity	**Hispanic or Latino**	188	454,386	428,805	428,805	5.97	0.00
	Non-Hispanic or Latino	776	2,603,753	2,629,333	2,629,333	-0.97	-0.00
Gender	**Male**	470	1,474,841	1,474,938	1,474,938	-0.01	-0.00
	Female	494	1,583,297	1,583,201	1,583,201	0.01	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.9 2015 NSDUH Slippage Rates: DELAWARE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		945	795,351	795,351	795,351	0.00	0.00
Quarter	**Quarter 1**	217	197,923	197,923	197,923	0.00	0.00
	Quarter 2	237	198,532	198,532	198,532	0.00	0.00
	Quarter 3	272	199,165	199,165	199,165	0.00	0.00
	Quarter 4	219	199,731	199,731	199,731	0.00	0.00
Age Group	**12-17**	240	70,026	68,905	68,905	1.63	0.00
	18-25	217	96,609	98,641	98,641	-2.06	0.00
	26-34	167	109,015	108,669	108,669	0.32	0.00
	35-49	179	166,667	168,321	168,321	-0.98	0.00
	50-64	73	176,271	194,282	194,282	-9.27	0.00
	65+	69	176,762	156,533	156,533	12.92	-0.00
Race	**White**	556	540,478	573,237	573,237	-5.71	-0.00
	Black or African American	234	174,486	170,270	170,270	2.48	-0.00
	American Indian/Alaska Native	62	28,437	7,069	4,997	469.03	41.46
	Asian	48	35,226	29,833	31,904	10.41	-6.49
	Two or More Races	45	16,725	14,943	14,943	11.92	-0.00
Hispanicity	**Hispanic or Latino**	133	66,794	63,542	63,542	5.12	0.00
	Non-Hispanic or Latino	812	728,557	731,810	731,810	-0.44	0.00
Gender	**Male**	445	378,657	378,206	378,206	0.12	0.00
	Female	500	416,695	417,145	417,145	-0.11	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.10 2015 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		924	574,552	574,552	574,552	0.00	0.00
Quarter	**Quarter 1**	217	142,736	142,736	142,736	0.00	0.00
	Quarter 2	246	143,294	143,294	143,294	0.00	0.00
	Quarter 3	242	143,931	143,931	143,931	0.00	0.00
	Quarter 4	219	144,591	144,591	144,591	0.00	0.00
Age Group	**12-17**	208	30,655	30,686	30,686	-0.10	0.00
	18-25	192	94,656	94,114	94,114	0.58	0.00
	26-34	158	135,779	135,879	135,879	-0.07	0.00
	35-49	206	131,090	131,855	131,855	-0.58	0.00
	50-64	97	113,011	107,553	107,553	5.07	0.00
	65+	63	69,361	74,466	74,466	-6.86	0.00
Race	**White**	343	240,204	262,417	262,417	-8.46	0.00
	Black or African American	467	271,660	269,560	269,560	0.78	-0.00
	American Indian/Alaska Native	45	15,274	3,305	3,011	407.32	9.76
	Asian	30	26,175	26,049	26,343	-0.64	-1.12
	Two or More Races	39	21,238	13,222	13,222	60.63	0.00
Hispanicity	**Hispanic or Latino**	116	62,815	56,828	56,828	10.54	0.00
	Non-Hispanic or Latino	808	511,736	517,724	517,724	-1.16	0.00
Gender	**Male**	444	267,227	267,227	267,227	0.00	0.00
	Female	480	307,325	307,325	307,325	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.11 2015 NSDUH Slippage Rates: FLORIDA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,386	17,257,952	17,257,952	17,257,952	0.00	0.00
Quarter	**Quarter 1**	816	4,284,053	4,284,053	4,284,053	0.00	0.00
	Quarter 2	909	4,303,747	4,303,747	4,303,747	0.00	0.00
	Quarter 3	852	4,324,898	4,324,898	4,324,898	0.00	0.00
	Quarter 4	809	4,345,254	4,345,254	4,345,254	0.00	0.00
Age Group	**12-17**	842	1,403,310	1,406,795	1,406,795	-0.25	0.00
	18-25	877	1,977,903	1,981,426	1,981,426	-0.18	0.00
	26-34	506	2,236,691	2,251,841	2,251,841	-0.67	0.00
	35-49	622	3,659,510	3,679,880	3,679,880	-0.55	0.00
	50-64	292	4,148,310	4,059,928	4,059,928	2.18	0.00
	65+	247	3,832,228	3,878,083	3,878,083	-1.18	0.00
Race	**White**	2,303	12,831,633	13,684,875	13,684,875	-6.23	0.00
	Black or African American	707	2,817,116	2,697,442	2,697,442	4.44	0.00
	American Indian/Alaska Native	110	458,329	111,756	84,152	444.64	32.80
	Asian	116	624,160	488,710	516,314	20.89	-5.35
	Two or More Races	150	526,713	275,169	275,169	91.41	0.00
Hispanicity	**Hispanic or Latino**	1,099	4,153,977	4,109,130	4,109,130	1.09	0.00
	Non-Hispanic or Latino	2,287	13,103,974	13,148,822	13,148,822	-0.34	0.00
Gender	**Male**	1,603	8,286,513	8,285,144	8,285,144	0.02	0.00
	Female	1,783	8,971,438	8,972,808	8,972,808	-0.02	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.12 2015 NSDUH Slippage Rates: GEORGIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		1,498	8,359,362	8,359,362	8,359,362	0.00	0.00
Quarter	**Quarter 1**	364	2,079,160	2,079,160	2,079,160	0.00	0.00
	Quarter 2	400	2,086,271	2,086,271	2,086,271	0.00	0.00
	Quarter 3	350	2,093,547	2,093,547	2,093,547	0.00	0.00
	Quarter 4	384	2,100,384	2,100,384	2,100,384	0.00	-0.00
Age Group	**12-17**	417	844,686	851,391	851,391	-0.79	0.00
	18-25	361	1,133,332	1,116,369	1,116,369	1.52	0.00
	26-34	198	1,207,561	1,198,584	1,198,584	0.75	0.00
	35-49	319	2,024,207	2,017,595	2,017,595	0.33	0.00
	50-64	123	1,927,068	1,901,472	1,901,472	1.35	-0.00
	65+	80	1,222,508	1,273,951	1,273,951	-4.04	-0.00
Race	**White**	768	4,988,308	5,259,294	5,259,294	-5.15	-0.00
	Black or African American	588	2,614,441	2,579,931	2,579,931	1.34	0.00
	American Indian/Alaska Native	33	165,626	40,176	40,360	310.37	-0.46
	Asian	50	394,199	350,207	350,022	12.62	0.05
	Two or More Races	59	196,788	129,755	129,755	51.66	-0.00
Hispanicity	**Hispanic or Latino**	156	713,171	690,323	690,323	3.31	0.00
	Non-Hispanic or Latino	1,342	7,646,191	7,669,040	7,669,040	-0.30	0.00
Gender	**Male**	706	3,989,441	3,977,500	3,977,500	0.30	0.00
	Female	792	4,369,921	4,381,863	4,381,863	-0.27	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.13 2015 NSDUH Slippage Rates: HAWAII

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		1,020	1,158,550	1,158,550	1,158,550	0.00	0.00
Quarter	**Quarter 1**	207	288,819	288,819	288,819	0.00	0.00
	Quarter 2	291	289,303	289,303	289,303	0.00	0.00
	Quarter 3	257	289,919	289,919	289,919	0.00	0.00
	Quarter 4	265	290,509	290,509	290,509	0.00	0.00
Age Group	**12-17**	224	95,471	97,117	97,117	-1.70	-0.00
	18-25	275	141,962	139,707	139,707	1.61	-0.00
	26-34	160	171,255	172,925	172,925	-0.97	0.00
	35-49	192	245,039	248,697	248,697	-1.47	0.00
	50-64	100	294,134	267,203	267,203	10.08	0.00
	65+	69	210,689	232,901	232,901	-9.54	0.00
Race	**White**	203	267,282	306,036	306,036	-12.66	0.00
	Black or African American	7	20,092	22,577	22,577	-11.01	0.00
	American Indian/Alaska Native	17	14,524	4,750	4,750	205.77	0.00
	Asian	511	599,991	585,944	585,944	2.40	-0.00
	Two or More Races	282	256,662	239,244	239,244	7.28	0.00
Hispanicity	**Hispanic or Latino**	168	112,779	100,527	100,527	12.19	0.00
	Non-Hispanic or Latino	852	1,045,772	1,058,024	1,058,024	-1.16	0.00
Gender	**Male**	495	568,190	568,190	568,190	0.00	-0.00
	Female	525	590,360	590,360	590,360	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.14 2015 NSDUH Slippage Rates: IDAHO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		949	1,347,084	1,347,084	1,347,084	0.00	-0.00
Quarter	**Quarter 1**	237	334,937	334,937	334,937	0.00	-0.00
	Quarter 2	242	336,159	336,159	336,159	0.00	0.00
	Quarter 3	220	337,427	337,427	337,427	0.00	-0.00
	Quarter 4	250	338,561	338,561	338,561	-0.00	-0.00
Age Group	**12-17**	220	145,991	145,770	145,770	0.15	-0.00
	18-25	261	175,685	174,661	174,661	0.59	0.00
	26-34	148	188,035	189,642	189,642	-0.85	0.00
	35-49	169	292,933	293,442	293,442	-0.17	-0.00
	50-64	82	292,859	304,385	304,385	-3.79	-0.00
	65+	69	251,581	239,185	239,185	5.18	-0.00
Race	**White**	858	1,247,292	1,266,155	1,266,155	-1.49	-0.00
	Black or African American	7	13,069	10,054	10,054	29.99	0.00
	American Indian/Alaska Native	35	39,951	21,848	21,849	82.86	-0.00
	Asian	18	23,491	23,148	23,148	1.48	0.00
	Two or More Races	31	23,280	25,879	25,879	-10.04	0.00
Hispanicity	**Hispanic or Latino**	134	150,817	146,242	146,242	3.13	-0.00
	Non-Hispanic or Latino	815	1,196,267	1,200,841	1,200,841	-0.38	-0.00
Gender	**Male**	462	666,713	666,713	666,713	0.00	0.00
	Female	487	680,370	680,370	680,370	0.00	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.15 2015 NSDUH Slippage Rates: ILLINOIS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		2,365	10,737,272	10,737,272	10,737,272	-0.00	0.00
Quarter	**Quarter 1**	566	2,683,754	2,683,754	2,683,754	-0.00	0.00
	Quarter 2	668	2,683,360	2,683,360	2,683,360	-0.00	0.00
	Quarter 3	575	2,684,396	2,684,396	2,684,396	-0.00	0.00
	Quarter 4	556	2,685,762	2,685,762	2,685,762	0.00	0.00
Age Group	**12-17**	649	1,022,691	1,018,545	1,018,545	0.41	0.00
	18-25	555	1,374,493	1,382,295	1,382,295	-0.56	0.00
	26-34	328	1,562,482	1,561,758	1,561,758	0.05	0.00
	35-49	464	2,466,694	2,478,644	2,478,644	-0.48	0.00
	50-64	206	2,396,276	2,524,576	2,524,576	-5.08	0.00
	65+	163	1,914,637	1,771,454	1,771,454	8.08	0.00
Race	**White**	1,724	7,980,069	8,400,770	8,400,770	-5.01	0.00
	Black or African American	341	1,522,166	1,513,220	1,513,220	0.59	0.00
	American Indian/Alaska Native	111	368,201	74,870	60,762	505.97	23.22
	Asian	130	668,149	593,921	608,028	9.89	-2.32
	Two or More Races	59	198,687	154,493	154,493	28.61	0.00
Hispanicity	**Hispanic or Latino**	473	1,721,376	1,672,591	1,672,591	2.92	0.00
	Non-Hispanic or Latino	1,892	9,015,897	9,064,681	9,064,681	-0.54	0.00
Gender	**Male**	1,106	5,217,126	5,205,421	5,205,421	0.22	0.00
	Female	1,259	5,520,146	5,531,852	5,531,852	-0.21	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.16 2015 NSDUH Slippage Rates: INDIANA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		973	5,486,199	5,486,199	5,486,199	-0.00	0.00
Quarter	**Quarter 1**	188	1,368,870	1,368,871	1,368,871	-0.00	0.00
	Quarter 2	250	1,370,290	1,370,290	1,370,290	0.00	0.00
	Quarter 3	272	1,372,429	1,372,429	1,372,429	0.00	0.00
	Quarter 4	263	1,374,609	1,374,609	1,374,609	-0.00	0.00
Age Group	**12-17**	242	540,488	540,488	540,488	-0.00	0.00
	18-25	256	747,261	743,142	743,142	0.55	0.00
	26-34	139	731,866	742,844	742,844	-1.48	0.00
	35-49	190	1,220,042	1,221,954	1,221,954	-0.16	0.00
	50-64	99	1,557,083	1,305,934	1,305,934	19.23	0.00
	65+	47	689,459	931,837	931,837	-26.01	0.00
Race	**White**	768	4,686,732	4,770,478	4,770,478	-1.76	0.00
	Black or African American	136	494,532	492,947	492,947	0.32	0.00
	American Indian/Alaska Native	16	35,551	7,660	21,767	63.33	-64.81
	Asian	19	150,251	135,880	121,772	23.39	11.59
	Two or More Races	34	119,133	79,235	79,235	50.35	0.00
Hispanicity	**Hispanic or Latino**	99	309,169	321,893	321,893	-3.95	0.00
	Non-Hispanic or Latino	874	5,177,029	5,164,306	5,164,306	0.25	0.00
Gender	**Male**	483	2,673,980	2,668,994	2,668,994	0.19	0.00
	Female	490	2,812,218	2,817,205	2,817,205	-0.18	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.17 2015 NSDUH Slippage Rates: IOWA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		962	2,597,548	2,597,548	2,597,548	0.00	0.00
Quarter	**Quarter 1**	221	647,908	647,908	647,908	0.00	0.00
	Quarter 2	243	648,690	648,690	648,690	0.00	0.00
	Quarter 3	282	649,864	649,864	649,864	0.00	0.00
	Quarter 4	216	651,086	651,086	651,086	0.00	0.00
Age Group	**12-17**	252	242,015	243,085	243,085	-0.44	0.00
	18-25	246	352,273	358,657	358,657	-1.78	0.00
	26-34	139	352,452	346,340	346,340	1.76	0.00
	35-49	170	554,643	547,342	547,342	1.33	0.00
	50-64	87	618,093	621,343	621,343	-0.52	0.00
	65+	68	478,072	480,782	480,782	-0.56	0.00
Race	**White**	850	2,351,998	2,408,916	2,408,916	-2.36	0.00
	Black or African American	39	83,403	81,249	81,249	2.65	0.00
	American Indian/Alaska Native	19	56,269	11,561	11,561	386.73	0.00
	Asian	17	72,552	63,226	63,226	14.75	0.00
	Two or More Races	37	33,326	32,596	32,596	2.24	0.00
Hispanicity	**Hispanic or Latino**	79	135,477	127,468	127,468	6.28	0.00
	Non-Hispanic or Latino	883	2,462,072	2,470,080	2,470,080	-0.32	0.00
Gender	**Male**	480	1,286,014	1,282,063	1,282,063	0.31	0.00
	Female	482	1,311,534	1,315,485	1,315,485	-0.30	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.18 2015 NSDUH Slippage Rates: KANSAS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		986	2,367,256	2,367,256	2,367,256	0.00	0.00
Quarter	**Quarter 1**	229	590,714	590,714	590,714	0.00	0.00
	Quarter 2	246	591,283	591,283	591,283	0.00	-0.00
	Quarter 3	246	592,182	592,182	592,182	0.00	0.00
	Quarter 4	265	593,077	593,077	593,077	0.00	0.00
Age Group	**12-17**	252	238,490	237,829	237,829	0.28	0.00
	18-25	237	326,964	329,951	329,951	-0.91	0.00
	26-34	157	344,848	333,595	333,595	3.37	0.00
	35-49	189	487,251	502,212	502,212	-2.98	0.00
	50-64	92	607,328	554,922	554,922	9.44	-0.00
	65+	59	362,375	408,747	408,747	-11.34	0.00
Race	**White**	823	2,055,496	2,077,982	2,077,982	-1.08	-0.00
	Black or African American	77	138,970	136,831	136,831	1.56	0.00
	American Indian/Alaska Native	23	57,588	27,597	27,597	108.67	0.00
	Asian	32	54,717	72,430	72,430	-24.46	0.00
	Two or More Races	31	60,485	52,416	52,416	15.40	0.00
Hispanicity	**Hispanic or Latino**	163	216,718	240,678	240,678	-9.96	0.00
	Non-Hispanic or Latino	823	2,150,538	2,126,578	2,126,578	1.13	0.00
Gender	**Male**	476	1,163,685	1,162,401	1,162,401	0.11	-0.00
	Female	510	1,203,571	1,204,855	1,204,855	-0.11	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.19 2015 NSDUH Slippage Rates: KENTUCKY

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		938	3,667,827	3,667,827	3,667,827	0.00	0.00
Quarter	**Quarter 1**	219	915,410	915,410	915,410	0.00	0.00
	Quarter 2	287	916,233	916,233	916,233	0.00	0.00
	Quarter 3	189	917,485	917,485	917,485	0.00	0.00
	Quarter 4	243	918,699	918,699	918,699	0.00	-0.00
Age Group	**12-17**	229	335,870	339,561	339,561	-1.09	0.00
	18-25	225	474,324	471,843	471,843	0.53	0.00
	26-34	155	489,287	484,774	484,774	0.93	0.00
	35-49	166	823,769	827,071	827,071	-0.40	0.00
	50-64	98	902,050	893,596	893,596	0.95	0.00
	65+	65	642,527	650,981	650,981	-1.30	-0.00
Race	**White**	755	3,232,205	3,270,806	3,270,806	-1.18	0.00
	Black or African American	123	296,177	283,465	283,465	4.48	0.00
	American Indian/Alaska Native	12	40,876	25,321	10,655	283.62	137.63
	Asian	17	45,968	39,897	54,563	-15.75	-26.88
	Two or More Races	31	52,600	48,338	48,338	8.82	0.00
Hispanicity	**Hispanic or Latino**	39	108,390	105,589	105,589	2.65	0.00
	Non-Hispanic or Latino	899	3,559,437	3,562,238	3,562,238	-0.08	0.00
Gender	**Male**	436	1,774,148	1,775,092	1,775,092	-0.05	0.00
	Female	502	1,893,679	1,892,734	1,892,735	0.05	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.20 2015 NSDUH Slippage Rates: LOUISIANA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		957	3,819,762	3,819,762	3,819,762	0.00	0.00
Quarter	**Quarter 1**	196	952,867	952,867	952,867	0.00	0.00
	Quarter 2	239	954,098	954,098	954,098	0.00	0.00
	Quarter 3	302	955,671	955,671	955,671	-0.00	0.00
	Quarter 4	220	957,126	957,126	957,126	0.00	0.00
Age Group	**12-17**	244	367,608	367,609	367,609	-0.00	0.00
	18-25	233	516,023	509,882	509,882	1.20	0.00
	26-34	153	584,483	576,281	576,281	1.42	0.00
	35-49	183	809,401	829,338	829,338	-2.40	0.00
	50-64	88	903,456	903,283	903,283	0.02	0.00
	65+	56	638,791	633,370	633,370	0.86	0.00
Race	**White**	505	2,400,249	2,485,334	2,485,334	-3.42	0.00
	Black or African American	377	1,178,564	1,184,712	1,184,712	-0.52	0.00
	American Indian/Alaska Native	26	65,784	28,966	28,966	127.11	0.00
	Asian	20	94,130	74,716	74,716	25.98	0.00
	Two or More Races	29	81,035	46,034	46,034	76.03	0.00
Hispanicity	**Hispanic or Latino**	93	225,237	176,970	176,970	27.27	0.00
	Non-Hispanic or Latino	864	3,594,525	3,642,792	3,642,792	-1.32	0.00
Gender	**Male**	423	1,816,145	1,821,171	1,821,171	-0.28	0.00
	Female	534	2,003,617	1,998,591	1,998,591	0.25	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.21 2015 NSDUH Slippage Rates: MAINE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		994	1,151,684	1,151,684	1,151,684	-0.00	-0.00
Quarter	**Quarter 1**	211	287,800	287,800	287,800	0.00	-0.00
	Quarter 2	234	287,802	287,802	287,802	0.00	0.00
	Quarter 3	334	287,958	287,958	287,958	0.00	0.00
	Quarter 4	215	288,124	288,124	288,124	-0.00	0.00
Age Group	**12-17**	292	92,287	91,980	91,980	0.33	0.00
	18-25	217	124,840	125,074	125,074	-0.19	0.00
	26-34	137	136,981	137,055	137,055	-0.05	0.00
	35-49	194	241,143	241,143	241,143	0.00	0.00
	50-64	85	312,392	312,781	312,781	-0.12	0.00
	65+	69	244,041	243,652	243,652	0.16	-0.00
Race	**White**	934	1,093,069	1,100,295	1,100,295	-0.66	-0.00
	Black or African American	13	17,130	14,175	14,175	20.84	-0.00
	American Indian/Alaska Native	9	8,975	1,595	7,569	18.57	-78.93
	Asian	16	15,635	13,066	14,455	8.17	-9.61
	Two or More Races	22	16,875	22,553	15,189	11.10	48.48
Hispanicity	**Hispanic or Latino**	23	16,633	16,044	16,044	3.67	0.00
	Non-Hispanic or Latino	971	1,135,051	1,135,640	1,135,640	-0.05	-0.00
Gender	**Male**	466	552,979	559,588	559,588	-1.18	-0.00
	Female	528	598,705	592,096	592,096	1.12	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.22 2015 NSDUH Slippage Rates: MARYLAND

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		946	5,018,659	5,018,659	5,018,659	-0.00	0.00
Quarter	**Quarter 1**	263	1,251,821	1,251,821	1,251,821	0.00	0.00
	Quarter 2	233	1,253,467	1,253,467	1,253,467	0.00	0.00
	Quarter 3	214	1,255,647	1,255,647	1,255,647	-0.00	0.00
	Quarter 4	236	1,257,724	1,257,724	1,257,724	0.00	0.00
Age Group	**12-17**	237	460,237	453,696	453,696	1.44	0.00
	18-25	244	609,740	622,611	622,611	-2.07	0.00
	26-34	125	732,013	730,158	730,158	0.25	0.00
	35-49	195	1,182,795	1,160,081	1,160,081	1.96	0.00
	50-64	88	1,220,843	1,224,756	1,224,756	-0.32	0.00
	65+	57	813,032	827,357	827,357	-1.73	0.00
Race	**White**	564	2,909,441	3,049,252	3,049,252	-4.59	0.00
	Black or African American	233	1,431,357	1,499,433	1,499,433	-4.54	-0.00
	American Indian/Alaska Native	22	126,915	32,499	27,032	369.51	20.23
	Asian	82	405,479	331,902	337,370	20.19	-1.62
	Two or More Races	45	145,466	105,574	105,574	37.79	0.00
Hispanicity	**Hispanic or Latino**	89	453,327	430,719	430,719	5.25	0.00
	Non-Hispanic or Latino	857	4,565,332	4,587,940	4,587,940	-0.49	0.00
Gender	**Male**	434	2,369,244	2,387,978	2,387,978	-0.78	0.00
	Female	512	2,649,415	2,630,681	2,630,681	0.71	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.23 2015 NSDUH Slippage Rates: MASSACHUSETTS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		948	5,822,666	5,822,667	5,822,667	-0.00	0.00
Quarter	**Quarter 1**	183	1,451,464	1,451,464	1,451,464	-0.00	0.00
	Quarter 2	254	1,453,958	1,453,958	1,453,958	-0.00	0.00
	Quarter 3	244	1,457,091	1,457,091	1,457,091	-0.00	0.00
	Quarter 4	267	1,460,154	1,460,154	1,460,154	-0.00	0.00
Age Group	**12-17**	228	487,806	487,806	487,806	0.00	0.00
	18-25	218	785,172	791,046	791,046	-0.74	0.00
	26-34	160	817,811	836,441	836,441	-2.23	0.00
	35-49	178	1,305,592	1,291,516	1,291,516	1.09	0.00
	50-64	112	1,709,992	1,406,423	1,406,423	21.58	0.00
	65+	52	716,292	1,009,434	1,009,434	-29.04	0.00
Race	**White**	717	4,571,332	4,839,835	4,839,835	-5.55	0.00
	Black or African American	100	547,785	464,289	464,290	17.98	-0.00
	American Indian/Alaska Native	29	136,749	24,735	26,818	409.92	-7.76
	Asian	68	439,753	429,168	387,160	13.58	10.85
	Two or More Races	34	127,048	64,639	104,564	21.50	-38.18
Hispanicity	**Hispanic or Latino**	174	631,520	586,415	586,415	7.69	0.00
	Non-Hispanic or Latino	774	5,191,146	5,236,252	5,236,252	-0.86	0.00
Gender	**Male**	454	2,806,676	2,795,875	2,795,875	0.39	0.00
	Female	494	3,015,991	3,026,791	3,026,791	-0.36	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.24 2015 NSDUH Slippage Rates: MICHIGAN

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		2,441	8,392,983	8,392,983	8,392,983	-0.00	0.00
Quarter	**Quarter 1**	490	2,096,375	2,096,375	2,096,375	-0.00	0.00
	Quarter 2	681	2,097,078	2,097,078	2,097,078	0.00	0.00
	Quarter 3	671	2,098,861	2,098,861	2,098,861	0.00	0.00
	Quarter 4	599	2,100,670	2,100,670	2,100,670	0.00	0.00
Age Group	**12-17**	603	788,656	784,266	784,266	0.56	0.00
	18-25	646	1,105,191	1,112,424	1,112,424	-0.65	0.00
	26-34	374	1,070,256	1,063,946	1,063,946	0.59	0.00
	35-49	440	1,792,099	1,803,326	1,803,326	-0.62	0.00
	50-64	217	2,065,783	2,093,386	2,093,386	-1.32	0.00
	65+	161	1,570,998	1,535,634	1,535,634	2.30	0.00
Race	**White**	1,864	6,673,554	6,798,567	6,798,567	-1.84	0.00
	Black or African American	353	1,147,682	1,130,164	1,130,164	1.55	0.00
	American Indian/Alaska Native	42	129,868	58,791	58,791	120.90	0.00
	Asian	79	228,332	254,165	254,165	-10.16	0.00
	Two or More Races	103	213,546	151,296	151,296	41.14	0.00
Hispanicity	**Hispanic or Latino**	197	407,928	361,332	361,332	12.90	0.00
	Non-Hispanic or Latino	2,244	7,985,055	8,031,651	8,031,651	-0.58	0.00
Gender	**Male**	1,176	4,066,378	4,074,586	4,074,586	-0.20	0.00
	Female	1,265	4,326,605	4,318,397	4,318,397	0.19	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.25 2015 NSDUH Slippage Rates: MINNESOTA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		951	4,575,592	4,575,592	4,575,592	0.00	0.00
Quarter	**Quarter 1**	231	1,140,763	1,140,763	1,140,763	0.00	0.00
	Quarter 2	217	1,142,651	1,142,651	1,142,651	0.00	0.00
	Quarter 3	289	1,144,991	1,144,991	1,144,991	0.00	0.00
	Quarter 4	214	1,147,187	1,147,187	1,147,187	0.00	0.00
Age Group	**12-17**	247	426,829	426,424	426,424	0.09	0.00
	18-25	227	562,115	571,849	571,849	-1.70	0.00
	26-34	153	679,829	667,970	667,970	1.78	0.00
	35-49	188	1,011,829	1,014,359	1,014,359	-0.25	0.00
	50-64	80	1,108,081	1,118,466	1,118,466	-0.93	0.00
	65+	56	786,909	776,524	776,524	1.34	0.00
Race	**White**	787	3,908,839	3,982,736	3,982,736	-1.86	0.00
	Black or African American	62	237,811	242,448	242,448	-1.91	0.00
	American Indian/Alaska Native	18	70,431	53,163	53,163	32.48	0.00
	Asian	48	259,251	217,104	217,104	19.41	0.00
	Two or More Races	36	99,260	80,140	80,140	23.86	0.00
Hispanicity	**Hispanic or Latino**	66	207,266	203,486	203,486	1.86	0.00
	Non-Hispanic or Latino	885	4,368,325	4,372,106	4,372,106	-0.09	0.00
Gender	**Male**	444	2,260,702	2,260,702	2,260,702	0.00	0.00
	Female	507	2,314,890	2,314,890	2,314,890	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.26 2015 NSDUH Slippage Rates: MISSISSIPPI

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		921	2,443,849	2,443,849	2,443,849	-0.00	0.00
Quarter	**Quarter 1**	203	610,422	610,422	610,422	-0.00	0.00
	Quarter 2	260	610,615	610,615	610,615	0.00	0.00
	Quarter 3	249	611,128	611,128	611,128	0.00	0.00
	Quarter 4	209	611,685	611,685	611,685	-0.00	0.00
Age Group	**12-17**	231	244,034	244,034	244,034	0.00	0.00
	18-25	223	332,996	335,131	335,131	-0.64	0.00
	26-34	146	326,494	331,579	331,579	-1.53	0.00
	35-49	183	537,075	534,494	534,494	0.48	0.00
	50-64	85	641,826	572,046	572,046	12.20	0.00
	65+	53	361,425	426,566	426,566	-15.27	-0.00
Race	**White**	545	1,457,664	1,491,881	1,491,881	-2.29	-0.00
	Black or African American	325	881,440	888,958	888,958	-0.85	0.00
	American Indian/Alaska Native	23	26,295	14,090	13,502	94.75	4.35
	Asian	4	16,750	27,208	27,795	-39.74	-2.11
	Two or More Races	24	61,700	21,712	21,712	184.17	0.00
Hispanicity	**Hispanic or Latino**	21	59,640	63,620	63,620	-6.26	0.00
	Non-Hispanic or Latino	900	2,384,209	2,380,230	2,380,230	0.17	0.00
Gender	**Male**	424	1,154,388	1,155,094	1,155,094	-0.06	0.00
	Female	497	1,289,461	1,288,755	1,288,755	0.05	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.27 2015 NSDUH Slippage Rates: MISSOURI

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		986	5,057,574	5,057,574	5,057,574	0.00	0.00
Quarter	**Quarter 1**	251	1,261,846	1,261,846	1,261,846	0.00	0.00
	Quarter 2	213	1,263,220	1,263,220	1,263,220	0.00	0.00
	Quarter 3	264	1,265,227	1,265,227	1,265,227	0.00	0.00
	Quarter 4	258	1,267,281	1,267,281	1,267,281	0.00	0.00
Age Group	**12-17**	242	468,169	470,294	470,294	-0.45	0.00
	18-25	292	654,366	655,956	655,956	-0.24	0.00
	26-34	138	716,997	702,156	702,156	2.11	0.00
	35-49	186	1,060,239	1,085,312	1,085,312	-2.31	0.00
	50-64	72	1,166,246	1,224,308	1,224,308	-4.74	0.00
	65+	56	991,559	919,549	919,549	7.83	0.00
Race	**White**	778	4,235,180	4,272,896	4,272,896	-0.88	0.00
	Black or African American	154	579,991	564,140	564,140	2.81	0.00
	American Indian/Alaska Native	8	29,700	27,473	27,473	8.11	0.00
	Asian	18	133,742	108,637	108,637	23.11	0.00
	Two or More Races	28	78,962	84,428	84,428	-6.47	0.00
Hispanicity	**Hispanic or Latino**	67	222,954	179,956	179,956	23.89	0.00
	Non-Hispanic or Latino	919	4,834,621	4,877,618	4,877,618	-0.88	0.00
Gender	**Male**	467	2,442,809	2,445,476	2,445,476	-0.11	0.00
	Female	519	2,614,765	2,612,098	2,612,098	0.10	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.28 2015 NSDUH Slippage Rates: MONTANA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		977	866,257	866,257	866,257	0.00	0.00
Quarter	**Quarter 1**	200	215,764	215,764	215,764	0.00	0.00
	Quarter 2	292	216,290	216,290	216,290	0.00	-0.00
	Quarter 3	219	216,854	216,854	216,854	0.00	0.00
	Quarter 4	266	217,350	217,350	217,350	0.00	0.00
Age Group	**12-17**	228	73,773	74,532	74,532	-1.02	0.00
	18-25	231	113,137	111,838	111,838	1.16	0.00
	26-34	158	113,568	114,109	114,109	-0.47	0.00
	35-49	208	173,079	172,706	172,706	0.22	-0.00
	50-64	89	224,725	219,698	219,698	2.29	0.00
	65+	63	167,976	173,375	173,375	-3.11	0.00
Race	**White**	799	772,775	785,394	785,394	-1.61	0.00
	Black or African American	7	8,777	4,526	4,526	93.91	0.00
	American Indian/Alaska Native	116	50,611	49,355	49,355	2.55	-0.00
	Asian	11	7,906	8,132	8,132	-2.77	0.00
	Two or More Races	44	26,188	18,851	18,851	38.92	0.00
Hispanicity	**Hispanic or Latino**	35	26,526	27,338	27,338	-2.97	-0.00
	Non-Hispanic or Latino	942	839,731	838,919	838,919	0.10	0.00
Gender	**Male**	508	434,535	431,822	431,822	0.63	-0.00
	Female	469	431,722	434,435	434,435	-0.62	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.29 2015 NSDUH Slippage Rates: NEBRASKA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		945	1,548,885	1,548,885	1,548,885	-0.00	0.00
Quarter	**Quarter 1**	275	386,005	386,005	386,005	-0.00	0.00
	Quarter 2	174	386,715	386,715	386,715	0.00	0.00
	Quarter 3	252	387,631	387,631	387,631	0.00	0.00
	Quarter 4	244	388,534	388,534	388,534	-0.00	0.00
Age Group	**12-17**	217	149,678	152,144	152,144	-1.62	0.00
	18-25	245	209,609	212,640	212,640	-1.43	0.00
	26-34	167	232,961	222,419	222,419	4.74	0.00
	35-49	183	324,756	333,026	333,026	-2.48	0.00
	50-64	86	414,203	361,237	361,237	14.66	0.00
	65+	47	217,677	267,419	267,419	-18.60	0.00
Race	**White**	827	1,367,942	1,399,122	1,399,122	-2.23	0.00
	Black or African American	37	73,877	69,839	69,839	5.78	0.00
	American Indian/Alaska Native	25	47,462	18,416	18,416	157.72	0.00
	Asian	27	24,805	38,313	38,313	-35.26	0.00
	Two or More Races	29	34,799	23,195	23,195	50.03	0.00
Hispanicity	**Hispanic or Latino**	137	147,729	139,401	139,401	5.97	0.00
	Non-Hispanic or Latino	808	1,401,156	1,409,484	1,409,484	-0.59	0.00
Gender	**Male**	447	764,373	763,692	763,692	0.09	0.00
	Female	498	784,512	785,193	785,193	-0.09	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.30 2015 NSDUH Slippage Rates: NEVADA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		997	2,408,267	2,408,267	2,408,267	0.00	0.00
Quarter	**Quarter 1**	200	597,653	597,653	597,653	-0.00	0.00
	Quarter 2	305	600,595	600,595	600,595	0.00	-0.00
	Quarter 3	201	603,612	603,612	603,612	0.00	0.00
	Quarter 4	291	606,407	606,407	606,407	0.00	-0.00
Age Group	**12-17**	273	225,286	223,603	223,603	0.75	-0.00
	18-25	249	283,143	288,923	288,923	-2.00	0.00
	26-34	163	377,574	362,493	362,493	4.16	-0.00
	35-49	199	538,525	569,210	569,210	-5.39	-0.00
	50-64	61	546,469	546,727	546,727	-0.05	-0.00
	65+	52	437,270	417,310	417,310	4.78	-0.00
Race	**White**	657	1,702,704	1,841,910	1,841,910	-7.56	-0.00
	Black or African American	103	218,105	213,234	213,234	2.28	-0.00
	American Indian/Alaska Native	100	143,409	38,177	38,177	275.64	-0.00
	Asian	63	256,319	235,910	235,910	8.65	0.00
	Two or More Races	74	87,730	79,036	79,036	11.00	0.00
Hispanicity	**Hispanic or Latino**	431	606,144	623,721	623,721	-2.82	0.00
	Non-Hispanic or Latino	566	1,802,122	1,784,545	1,784,545	0.98	-0.00
Gender	**Male**	485	1,195,379	1,193,595	1,193,595	0.15	0.00
	Female	512	1,212,887	1,214,671	1,214,671	-0.15	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.31 2015 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		995	1,148,726	1,148,726	1,148,726	0.00	0.00
Quarter	**Quarter 1**	172	286,745	286,745	286,745	0.00	0.00
	Quarter 2	254	287,000	287,000	287,000	0.00	0.00
	Quarter 3	321	287,342	287,342	287,342	0.00	0.00
	Quarter 4	248	287,640	287,640	287,640	0.00	0.00
Age Group	**12-17**	237	97,096	97,633	97,633	-0.55	0.00
	18-25	235	142,573	143,062	143,062	-0.34	0.00
	26-34	142	135,382	138,305	138,305	-2.11	0.00
	35-49	215	250,492	248,292	248,292	0.89	0.00
	50-64	85	259,466	310,747	310,747	-16.50	0.00
	65+	81	263,718	210,687	210,687	25.17	-0.00
Race	**White**	910	1,063,107	1,085,355	1,085,355	-2.05	-0.00
	Black or African American	20	17,848	15,616	15,616	14.29	-0.00
	American Indian/Alaska Native	11	10,495	2,215	3,283	219.67	-32.53
	Asian	25	32,606	31,996	29,670	9.90	7.84
	Two or More Races	29	24,670	13,544	14,803	66.66	-8.50
Hispanicity	**Hispanic or Latino**	48	32,726	34,730	34,730	-5.77	0.00
	Non-Hispanic or Latino	947	1,116,001	1,113,996	1,113,996	0.18	0.00
Gender	**Male**	481	564,804	564,515	564,515	0.05	0.00
	Female	514	583,923	584,211	584,211	-0.05	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.32 2015 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		1,517	7,552,211	7,552,211	7,552,211	0.00	0.00
Quarter	**Quarter 1**	349	1,884,874	1,884,874	1,884,874	0.00	0.00
	Quarter 2	420	1,886,371	1,886,371	1,886,371	0.00	0.00
	Quarter 3	421	1,889,025	1,889,025	1,889,025	0.00	0.00
	Quarter 4	327	1,891,941	1,891,941	1,891,941	0.00	0.00
Age Group	**12-17**	385	692,178	695,324	695,324	-0.45	0.00
	18-25	409	891,989	894,807	894,807	-0.31	0.00
	26-34	224	1,014,319	1,021,461	1,021,461	-0.70	0.00
	35-49	275	1,784,078	1,782,752	1,782,752	0.07	0.00
	50-64	159	2,178,920	1,851,284	1,851,284	17.70	0.00
	65+	65	990,727	1,306,584	1,306,584	-24.17	0.00
Race	**White**	989	5,120,211	5,562,261	5,562,261	-7.95	0.00
	Black or African American	212	1,189,791	1,077,300	1,077,300	10.44	-0.00
	American Indian/Alaska Native	68	281,303	60,369	43,637	544.64	38.34
	Asian	203	826,248	725,252	741,984	11.36	-2.25
	Two or More Races	45	134,658	127,029	127,029	6.01	0.00
Hispanicity	**Hispanic or Latino**	361	1,446,919	1,391,607	1,391,607	3.97	0.00
	Non-Hispanic or Latino	1,156	6,105,292	6,160,605	6,160,605	-0.90	0.00
Gender	**Male**	732	3,639,113	3,639,887	3,639,887	-0.02	0.00
	Female	785	3,913,098	3,912,325	3,912,325	0.02	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.33 2015 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		959	1,717,549	1,717,549	1,717,549	0.00	-0.00
Quarter	**Quarter 1**	242	429,058	429,058	429,058	0.00	-0.00
	Quarter 2	242	429,212	429,212	429,212	0.00	-0.00
	Quarter 3	207	429,519	429,519	429,519	0.00	0.00
	Quarter 4	268	429,761	429,761	429,761	0.00	0.00
Age Group	**12-17**	214	163,427	164,982	164,982	-0.94	0.00
	18-25	237	229,078	226,226	226,226	1.26	0.00
	26-34	159	242,648	239,371	239,371	1.37	0.00
	35-49	202	348,581	354,787	354,787	-1.75	-0.00
	50-64	77	386,837	406,770	406,770	-4.90	-0.00
	65+	70	346,977	325,413	325,413	6.63	-0.00
Race	**White**	690	1,340,374	1,436,806	1,436,806	-6.71	-0.00
	Black or African American	28	43,113	40,811	40,811	5.64	0.00
	American Indian/Alaska Native	174	233,070	171,033	171,033	36.27	-0.00
	Asian	21	44,874	33,446	33,446	34.17	0.00
	Two or More Races	46	56,118	35,452	35,452	58.29	0.00
Hispanicity	**Hispanic or Latino**	522	801,830	791,282	791,282	1.33	-0.00
	Non-Hispanic or Latino	437	915,719	926,267	926,267	-1.14	-0.00
Gender	**Male**	462	831,845	836,313	836,313	-0.53	-0.00
	Female	497	885,704	881,236	881,236	0.51	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.34 2015 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		3,310	16,779,910	16,779,910	16,779,910	-0.00	0.00
Quarter	**Quarter 1**	674	4,189,029	4,189,030	4,189,030	-0.00	0.00
	Quarter 2	1,006	4,191,634	4,191,634	4,191,634	-0.00	0.00
	Quarter 3	865	4,196,765	4,196,765	4,196,765	-0.00	0.00
	Quarter 4	765	4,202,481	4,202,482	4,202,482	-0.00	0.00
Age Group	**12-17**	768	1,423,853	1,421,217	1,421,217	0.19	0.00
	18-25	890	2,190,493	2,218,443	2,218,443	-1.26	0.00
	26-34	538	2,543,774	2,532,548	2,532,548	0.44	0.00
	35-49	607	3,789,134	3,787,620	3,787,620	0.04	0.00
	50-64	305	4,114,305	3,942,446	3,942,446	4.36	0.00
	65+	202	2,718,352	2,877,636	2,877,636	-5.54	0.00
Race	**White**	2,063	10,929,427	11,903,450	11,903,450	-8.18	0.00
	Black or African American	656	3,011,791	2,863,659	2,863,659	5.17	-0.00
	American Indian/Alaska Native	213	753,344	156,543	156,543	381.24	0.00
	Asian	256	1,675,600	1,522,475	1,522,475	10.06	-0.00
	Two or More Races	122	409,747	333,784	333,784	22.76	0.00
Hispanicity	**Hispanic or Latino**	831	3,115,132	2,990,408	2,990,408	4.17	0.00
	Non-Hispanic or Latino	2,479	13,664,778	13,789,502	13,789,502	-0.90	0.00
Gender	**Male**	1,543	8,035,626	8,037,597	8,037,597	-0.02	0.00
	Female	1,767	8,744,284	8,742,313	8,742,313	0.02	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.35 2015 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		1,576	8,320,518	8,320,518	8,320,518	0.00	0.00
Quarter	**Quarter 1**	341	2,070,409	2,070,409	2,070,409	0.00	0.00
	Quarter 2	459	2,076,669	2,076,669	2,076,669	0.00	0.00
	Quarter 3	303	2,083,519	2,083,519	2,083,519	-0.00	0.00
	Quarter 4	473	2,089,921	2,089,921	2,089,921	0.00	0.00
Age Group	**12-17**	439	781,683	780,506	780,506	0.15	0.00
	18-25	389	1,060,404	1,065,839	1,065,839	-0.51	0.00
	26-34	250	1,146,721	1,115,087	1,115,087	2.84	0.00
	35-49	264	1,886,848	1,926,607	1,926,607	-2.06	0.00
	50-64	138	1,974,043	1,955,224	1,955,224	0.96	0.00
	65+	96	1,470,818	1,477,256	1,477,256	-0.44	0.00
Race	**White**	974	5,769,971	6,033,361	6,033,361	-4.37	-0.00
	Black or African American	391	1,829,504	1,791,875	1,791,875	2.10	0.00
	American Indian/Alaska Native	124	328,568	79,052	123,461	166.13	-35.97
	Asian	33	240,479	284,063	239,654	0.34	18.53
	Two or More Races	54	151,996	132,167	132,167	15.00	0.00
Hispanicity	**Hispanic or Latino**	230	682,227	647,172	647,172	5.42	0.00
	Non-Hispanic or Latino	1,346	7,638,290	7,673,346	7,673,346	-0.46	0.00
Gender	**Male**	731	3,965,414	3,957,403	3,957,403	0.20	0.00
	Female	845	4,355,103	4,363,114	4,363,114	-0.18	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.36 2015 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		988	618,680	618,680	618,680	-0.00	-0.00
Quarter	**Quarter 1**	232	153,450	153,450	153,450	0.00	0.00
	Quarter 2	238	154,192	154,193	154,193	-0.00	0.00
	Quarter 3	261	155,066	155,066	155,066	-0.00	0.00
	Quarter 4	257	155,971	155,971	155,971	-0.00	-0.00
Age Group	**12-17**	230	52,083	52,164	52,164	-0.15	0.00
	18-25	259	104,186	104,459	104,459	-0.26	0.00
	26-34	143	96,336	95,983	95,983	0.37	-0.00
	35-49	207	124,558	123,083	123,084	1.20	-0.00
	50-64	84	146,531	141,409	141,409	3.62	0.00
	65+	65	94,985	101,582	101,582	-6.49	0.00
Race	**White**	877	548,883	557,160	557,160	-1.49	-0.00
	Black or African American	26	17,068	13,489	13,489	26.54	0.00
	American Indian/Alaska Native	41	30,705	29,195	29,195	5.17	-0.00
	Asian	18	11,817	9,363	9,363	26.21	0.00
	Two or More Races	26	10,206	9,473	9,473	7.74	0.00
Hispanicity	**Hispanic or Latino**	37	20,921	18,801	18,801	11.28	-0.00
	Non-Hispanic or Latino	951	597,759	599,879	599,879	-0.35	0.00
Gender	**Male**	481	315,961	315,961	315,961	-0.00	0.00
	Female	507	302,719	302,719	302,719	-0.00	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.37 2015 NSDUH Slippage Rates: OHIO

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		2,428	9,732,558	9,732,558	9,732,558	0.00	0.00
Quarter	**Quarter 1**	481	2,430,242	2,430,242	2,430,242	0.00	0.00
	Quarter 2	612	2,431,444	2,431,444	2,431,444	0.00	0.00
	Quarter 3	693	2,434,055	2,434,055	2,434,055	0.00	0.00
	Quarter 4	642	2,436,818	2,436,818	2,436,818	0.00	0.00
Age Group	**12-17**	588	914,290	914,823	914,823	-0.06	0.00
	18-25	592	1,216,515	1,225,255	1,225,255	-0.71	0.00
	26-34	333	1,296,402	1,298,755	1,298,755	-0.18	0.00
	35-49	519	2,117,539	2,114,669	2,114,669	0.14	0.00
	50-64	229	2,409,627	2,401,227	2,401,227	0.35	0.00
	65+	167	1,778,185	1,777,830	1,777,831	0.02	-0.00
Race	**White**	1,914	8,085,371	8,178,975	8,178,975	-1.14	0.00
	Black or African American	344	1,158,717	1,160,945	1,160,945	-0.19	0.00
	American Indian/Alaska Native	17	62,328	26,369	26,369	136.37	0.00
	Asian	56	218,742	210,923	210,923	3.71	0.00
	Two or More Races	97	207,400	155,346	155,346	33.51	0.00
Hispanicity	**Hispanic or Latino**	114	299,169	303,355	303,355	-1.38	0.00
	Non-Hispanic or Latino	2,314	9,433,389	9,429,203	9,429,203	0.04	0.00
Gender	**Male**	1,155	4,715,785	4,707,369	4,707,369	0.18	0.00
	Female	1,273	5,016,774	5,025,190	5,025,190	-0.17	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.38 2015 NSDUH Slippage Rates: OKLAHOMA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		971	3,185,569	3,185,569	3,185,569	0.00	-0.00
Quarter	**Quarter 1**	232	793,499	793,499	793,499	0.00	0.00
	Quarter 2	267	795,218	795,218	795,218	0.00	-0.00
	Quarter 3	260	797,334	797,334	797,334	0.00	0.00
	Quarter 4	212	799,518	799,518	799,518	0.00	0.00
Age Group	**12-17**	261	315,034	313,866	313,866	0.37	0.00
	18-25	215	434,056	431,841	431,841	0.51	0.00
	26-34	149	467,679	463,353	463,353	0.93	0.00
	35-49	201	669,481	685,538	685,538	-2.34	0.00
	50-64	75	670,481	731,746	731,746	-8.37	0.00
	65+	70	628,839	559,225	559,225	12.45	-0.00
Race	**White**	679	2,330,612	2,440,178	2,440,178	-4.49	0.00
	Black or African American	79	231,602	232,401	232,401	-0.34	0.00
	American Indian/Alaska Native	82	290,045	277,310	277,310	4.59	-0.00
	Asian	13	77,793	76,404	76,404	1.82	0.00
	Two or More Races	118	255,516	159,276	159,276	60.42	0.00
Hispanicity	**Hispanic or Latino**	149	285,556	278,636	278,636	2.48	0.00
	Non-Hispanic or Latino	822	2,900,012	2,906,932	2,906,932	-0.24	-0.00
Gender	**Male**	481	1,550,442	1,549,045	1,549,045	0.09	0.00
	Female	490	1,635,127	1,636,524	1,636,524	-0.09	-0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.39 2015 NSDUH Slippage Rates: OREGON

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		962	3,420,080	3,420,080	3,420,080	0.00	0.00
Quarter	**Quarter 1**	214	850,029	850,029	850,029	0.00	0.00
	Quarter 2	273	853,323	853,323	853,323	0.00	0.00
	Quarter 3	220	856,778	856,778	856,778	0.00	0.00
	Quarter 4	255	859,950	859,950	859,950	-0.00	0.00
Age Group	**12-17**	211	289,022	291,606	291,606	-0.89	0.00
	18-25	247	421,622	415,899	415,900	1.38	-0.00
	26-34	157	499,550	491,073	491,073	1.73	0.00
	35-49	187	761,685	767,278	767,278	-0.73	0.00
	50-64	93	869,078	803,492	803,492	8.16	0.00
	65+	67	579,123	650,733	650,733	-11.00	-0.00
Race	**White**	797	2,889,665	3,024,204	3,024,204	-4.45	0.00
	Black or African American	26	72,072	65,829	65,829	9.48	0.00
	American Indian/Alaska Native	40	115,265	57,349	57,349	100.99	0.00
	Asian	51	183,783	168,001	168,001	9.39	0.00
	Two or More Races	48	159,294	104,698	104,698	52.15	0.00
Hispanicity	**Hispanic or Latino**	178	421,897	378,732	378,732	11.40	0.00
	Non-Hispanic or Latino	784	2,998,183	3,041,349	3,041,349	-1.42	0.00
Gender	**Male**	467	1,673,506	1,673,506	1,673,506	0.00	0.00
	Female	495	1,746,574	1,746,574	1,746,574	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.40 2015 NSDUH Slippage Rates: PENNSYLVANIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		2,374	10,849,493	10,849,493	10,849,493	0.00	0.00
Quarter	**Quarter 1**	618	2,710,069	2,710,069	2,710,069	0.00	0.00
	Quarter 2	580	2,710,601	2,710,601	2,710,601	0.00	0.00
	Quarter 3	580	2,713,000	2,713,000	2,713,000	0.00	0.00
	Quarter 4	596	2,715,823	2,715,823	2,715,823	0.00	0.00
Age Group	**12-17**	572	929,747	931,284	931,284	-0.17	0.00
	18-25	598	1,361,513	1,354,815	1,354,815	0.49	0.00
	26-34	374	1,438,509	1,453,491	1,453,491	-1.03	0.00
	35-49	447	2,290,658	2,300,965	2,300,965	-0.45	0.00
	50-64	227	2,863,568	2,702,968	2,702,968	5.94	0.00
	65+	156	1,965,499	2,105,969	2,105,969	-6.67	-0.00
Race	**White**	1,901	8,892,198	9,118,010	9,118,010	-2.48	-0.00
	Black or African American	259	1,166,949	1,170,206	1,170,206	-0.28	0.00
	American Indian/Alaska Native	34	87,719	18,608	35,339	148.22	-47.35
	Asian	93	460,048	390,204	373,472	23.18	4.48
	Two or More Races	87	242,578	152,465	152,465	59.10	0.00
Hispanicity	**Hispanic or Latino**	199	660,234	645,658	645,658	2.26	0.00
	Non-Hispanic or Latino	2,175	10,189,259	10,203,835	10,203,835	-0.14	0.00
Gender	**Male**	1,113	5,226,650	5,237,484	5,237,484	-0.21	0.00
	Female	1,261	5,622,842	5,612,009	5,612,009	0.19	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.41 2015 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		964	903,886	903,886	903,886	0.00	-0.00
Quarter	**Quarter 1**	207	225,704	225,704	225,704	0.00	0.00
	Quarter 2	268	225,797	225,797	225,797	0.00	0.00
	Quarter 3	232	226,048	226,048	226,048	0.00	0.00
	Quarter 4	257	226,338	226,338	226,338	0.00	-0.00
Age Group	**12-17**	229	76,349	74,717	74,717	2.18	0.00
	18-25	233	128,074	128,339	128,339	-0.21	0.00
	26-34	144	124,106	123,712	123,712	0.32	0.00
	35-49	213	189,206	192,274	192,274	-1.60	0.00
	50-64	85	233,907	222,046	222,046	5.34	0.00
	65+	60	152,243	162,798	162,798	-6.48	-0.00
Race	**White**	744	723,512	777,850	777,850	-6.99	0.00
	Black or African American	65	70,450	65,867	65,867	6.96	-0.00
	American Indian/Alaska Native	41	30,855	12,929	7,696	300.93	68.01
	Asian	66	41,726	39,716	33,471	24.67	18.66
	Two or More Races	48	37,342	7,522	19,002	96.52	-60.41
Hispanicity	**Hispanic or Latino**	160	121,816	116,697	116,697	4.39	0.00
	Non-Hispanic or Latino	804	782,069	787,189	787,189	-0.65	-0.00
Gender	**Male**	464	431,936	432,986	432,986	-0.24	-0.00
	Female	500	471,950	470,900	470,900	0.22	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.42 2015 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		987	4,070,523	4,070,523	4,070,523	0.00	0.00
Quarter	**Quarter 1**	247	1,011,779	1,011,779	1,011,779	0.00	0.00
	Quarter 2	213	1,015,771	1,015,771	1,015,771	0.00	0.00
	Quarter 3	267	1,019,658	1,019,658	1,019,658	0.00	0.00
	Quarter 4	260	1,023,315	1,023,315	1,023,315	0.00	0.00
Age Group	**12-17**	280	364,900	366,745	366,745	-0.50	0.00
	18-25	218	514,399	519,107	519,107	-0.91	0.00
	26-34	161	538,766	543,818	543,818	-0.93	0.00
	35-49	173	893,764	887,206	887,206	0.74	0.00
	50-64	84	953,949	975,672	975,672	-2.23	0.00
	65+	71	804,744	777,976	777,976	3.44	0.00
Race	**White**	635	2,763,643	2,845,586	2,845,586	-2.88	0.00
	Black or African American	278	1,067,386	1,083,745	1,083,745	-1.51	0.00
	American Indian/Alaska Native	25	67,697	15,182	20,880	224.23	-27.29
	Asian	18	78,980	73,985	68,288	15.66	8.34
	Two or More Races	31	92,817	52,025	52,025	78.41	-0.00
Hispanicity	**Hispanic or Latino**	86	202,205	191,994	191,994	5.32	0.00
	Non-Hispanic or Latino	901	3,868,318	3,878,529	3,878,529	-0.26	0.00
Gender	**Male**	441	1,932,196	1,932,196	1,932,196	-0.00	0.00
	Female	546	2,138,327	2,138,327	2,138,327	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.43 2015 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		904	695,959	695,959	695,959	-0.00	0.00
Quarter	**Quarter 1**	234	173,542	173,543	173,543	-0.00	0.00
	Quarter 2	220	173,812	173,812	173,812	0.00	0.00
	Quarter 3	273	174,148	174,148	174,148	0.00	0.00
	Quarter 4	177	174,457	174,457	174,457	0.00	0.00
Age Group	**12-17**	229	65,213	65,584	65,584	-0.56	0.00
	18-25	234	93,373	93,003	93,003	0.40	-0.00
	26-34	125	95,466	97,705	97,705	-2.29	0.00
	35-49	162	142,072	141,584	141,584	0.34	0.00
	50-64	95	176,193	169,905	169,905	3.70	-0.00
	65+	59	123,642	128,179	128,179	-3.54	0.00
Race	**White**	751	600,703	610,237	610,237	-1.56	0.00
	Black or African American	8	10,427	11,132	11,132	-6.33	-0.00
	American Indian/Alaska Native	91	63,721	52,989	52,989	20.25	0.00
	Asian	17	11,496	10,202	10,202	12.69	0.00
	Two or More Races	37	9,612	11,400	11,400	-15.69	0.00
Hispanicity	**Hispanic or Latino**	44	22,093	21,182	21,182	4.30	0.00
	Non-Hispanic or Latino	860	673,866	674,777	674,777	-0.14	0.00
Gender	**Male**	458	347,133	346,420	346,420	0.21	0.00
	Female	446	348,826	349,540	349,540	-0.20	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.44 2015 NSDUH Slippage Rates: TENNESSEE

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		1,004	5,507,974	5,507,975	5,507,975	-0.00	0.00
Quarter	**Quarter 1**	216	1,372,055	1,372,055	1,372,055	0.00	0.00
	Quarter 2	216	1,375,050	1,375,050	1,375,050	-0.00	0.00
	Quarter 3	312	1,378,660	1,378,661	1,378,661	-0.00	0.00
	Quarter 4	260	1,382,209	1,382,209	1,382,209	0.00	0.00
Age Group	**12-17**	229	507,315	508,351	508,351	-0.20	0.00
	18-25	316	703,760	703,173	703,173	0.08	0.00
	26-34	145	759,376	752,450	752,450	0.92	0.00
	35-49	191	1,235,873	1,246,376	1,246,376	-0.84	0.00
	50-64	71	1,261,431	1,308,865	1,308,865	-3.62	0.00
	65+	52	1,040,220	988,759	988,759	5.20	0.00
Race	**White**	702	4,308,743	4,409,806	4,409,806	-2.29	0.00
	Black or African American	249	932,525	898,413	898,413	3.80	0.00
	American Indian/Alaska Native	12	41,817	8,474	23,727	76.24	-64.28
	Asian	10	97,790	116,947	101,694	-3.84	15.00
	Two or More Races	31	127,100	74,335	74,335	70.98	0.00
Hispanicity	**Hispanic or Latino**	80	212,895	238,812	238,812	-10.85	0.00
	Non-Hispanic or Latino	924	5,295,080	5,269,163	5,269,163	0.49	0.00
Gender	**Male**	457	2,641,648	2,641,648	2,641,648	-0.00	0.00
	Female	547	2,866,326	2,866,326	2,866,326	-0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.45 2015 NSDUH Slippage Rates: TEXAS

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		3,308	22,151,524	22,151,524	22,151,524	0.00	0.00
Quarter	**Quarter 1**	859	5,496,784	5,496,784	5,496,784	0.00	0.00
	Quarter 2	859	5,523,719	5,523,719	5,523,719	0.00	0.00
	Quarter 3	881	5,551,937	5,551,937	5,551,937	0.00	0.00
	Quarter 4	709	5,579,085	5,579,085	5,579,085	0.00	0.00
Age Group	**12-17**	774	2,366,749	2,380,293	2,380,293	-0.57	0.00
	18-25	848	3,100,443	3,080,905	3,080,905	0.63	0.00
	26-34	524	3,484,848	3,475,662	3,475,662	0.26	0.00
	35-49	660	5,213,361	5,308,584	5,308,584	-1.79	0.00
	50-64	301	4,748,826	4,766,627	4,766,627	-0.37	0.00
	65+	201	3,237,296	3,139,453	3,139,453	3.12	-0.00
Race	**White**	2,459	16,708,524	17,776,893	17,776,893	-6.01	0.00
	Black or African American	395	2,701,115	2,699,896	2,699,896	0.05	0.00
	American Indian/Alaska Native	183	979,439	225,943	225,943	333.49	0.00
	Asian	140	1,167,408	1,114,483	1,114,483	4.75	0.00
	Two or More Races	131	595,037	334,309	334,309	77.99	0.00
Hispanicity	**Hispanic or Latino**	1,561	8,169,160	8,137,930	8,137,930	0.38	0.00
	Non-Hispanic or Latino	1,747	13,982,365	14,013,594	14,013,594	-0.22	-0.00
Gender	**Male**	1,549	10,762,839	10,800,512	10,800,512	-0.35	-0.00
	Female	1,759	11,388,686	11,351,013	11,351,013	0.33	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.46 2015 NSDUH Slippage Rates: UTAH

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		968	2,350,775	2,350,775	2,350,775	0.00	-0.00
Quarter	**Quarter 1**	218	583,024	583,024	583,024	0.00	0.00
	Quarter 2	277	586,170	586,170	586,170	0.00	0.00
	Quarter 3	237	589,346	589,346	589,346	0.00	0.00
	Quarter 4	236	592,236	592,236	592,236	0.00	0.00
Age Group	**12-17**	262	292,037	292,037	292,037	0.00	-0.00
	18-25	247	377,005	383,514	383,514	-1.70	-0.00
	26-34	127	394,389	387,031	387,031	1.90	0.00
	35-49	210	554,350	548,984	548,984	0.98	0.00
	50-64	68	403,156	435,892	435,892	-7.51	0.00
	65+	54	329,838	303,317	303,317	8.74	0.00
Race	**White**	862	2,144,482	2,157,451	2,157,451	-0.60	0.00
	Black or African American	23	30,367	28,981	28,981	4.78	0.00
	American Indian/Alaska Native	22	57,752	34,005	34,005	69.83	0.00
	Asian	35	95,504	85,534	85,534	11.66	0.00
	Two or More Races	26	22,670	44,804	44,804	-49.40	0.00
Hispanicity	**Hispanic or Latino**	175	317,915	297,739	297,739	6.78	0.00
	Non-Hispanic or Latino	793	2,032,860	2,053,037	2,053,037	-0.98	0.00
Gender	**Male**	463	1,170,718	1,169,772	1,169,772	0.08	0.00
	Female	505	1,180,057	1,181,003	1,181,003	-0.08	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.47 2015 NSDUH Slippage Rates: VERMONT

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		960	543,548	543,548	543,548	0.00	0.00
Quarter	**Quarter 1**	208	135,867	135,867	135,867	0.00	0.00
	Quarter 2	245	135,871	135,871	135,871	0.00	0.00
	Quarter 3	243	135,904	135,904	135,904	0.00	0.00
	Quarter 4	264	135,906	135,906	135,906	0.00	0.00
Age Group	**12-17**	273	43,364	43,364	43,364	0.00	0.00
	18-25	180	74,009	74,485	74,485	-0.64	0.00
	26-34	142	64,691	63,912	63,912	1.22	0.00
	35-49	198	109,244	110,794	110,794	-1.40	0.00
	50-64	88	134,946	144,442	144,442	-6.57	0.00
	65+	79	117,294	106,551	106,551	10.08	-0.00
Race	**White**	889	514,702	517,899	517,899	-0.62	-0.00
	Black or African American	20	6,048	6,353	6,353	-4.81	-0.00
	American Indian/Alaska Native	6	1,342	268	2,061	-34.88	-86.97
	Asian	18	7,642	1,557	9,069	-15.74	-82.83
	Two or More Races	27	13,814	17,470	8,166	69.16	113.93
Hispanicity	**Hispanic or Latino**	27	9,909	9,337	9,337	6.12	0.00
	Non-Hispanic or Latino	933	533,639	534,211	534,211	-0.11	0.00
Gender	**Male**	483	265,834	265,834	265,834	0.00	0.00
	Female	477	277,714	277,714	277,714	0.00	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.48 2015 NSDUH Slippage Rates: VIRGINIA

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		1,526	6,928,628	6,928,628	6,928,628	0.00	0.00
Quarter	**Quarter 1**	317	1,727,050	1,727,050	1,727,050	0.00	0.00
	Quarter 2	449	1,730,299	1,730,299	1,730,299	0.00	0.00
	Quarter 3	347	1,734,019	1,734,019	1,734,019	0.00	0.00
	Quarter 4	413	1,737,260	1,737,260	1,737,260	0.00	0.00
Age Group	**12-17**	388	616,720	625,315	625,315	-1.37	0.00
	18-25	360	900,681	895,251	895,251	0.61	0.00
	26-34	226	976,665	1,000,907	1,000,907	-2.42	0.00
	35-49	318	1,621,296	1,593,889	1,593,889	1.72	0.00
	50-64	149	1,879,011	1,651,311	1,651,311	13.79	0.00
	65+	85	934,255	1,161,955	1,161,955	-19.60	0.00
Race	**White**	897	4,662,353	4,957,073	4,957,073	-5.95	0.00
	Black or African American	360	1,313,659	1,319,057	1,319,057	-0.41	0.00
	American Indian/Alaska Native	66	220,840	51,681	35,946	514.36	43.77
	Asian	123	480,333	449,491	465,226	3.25	-3.38
	Two or More Races	80	251,443	151,326	151,326	66.16	0.00
Hispanicity	**Hispanic or Latino**	162	580,204	566,471	566,471	2.42	0.00
	Non-Hispanic or Latino	1,364	6,348,424	6,362,157	6,362,157	-0.22	0.00
Gender	**Male**	692	3,339,759	3,329,867	3,329,867	0.30	0.00
	Female	834	3,588,869	3,598,761	3,598,761	-0.27	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.49 2015 NSDUH Slippage Rates: WASHINGTON

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		944	5,978,195	5,978,195	5,978,195	0.00	0.00
Quarter	**Quarter 1**	231	1,485,731	1,485,731	1,485,731	0.00	0.00
	Quarter 2	248	1,491,559	1,491,559	1,491,559	0.00	0.00
	Quarter 3	251	1,497,662	1,497,662	1,497,662	0.00	0.00
	Quarter 4	214	1,503,243	1,503,243	1,503,243	0.00	0.00
Age Group	**12-17**	225	527,016	530,641	530,641	-0.68	-0.00
	18-25	252	767,067	747,302	747,302	2.64	0.00
	26-34	159	896,448	910,878	910,878	-1.58	0.00
	35-49	183	1,353,446	1,364,831	1,364,831	-0.83	0.00
	50-64	89	1,785,304	1,407,621	1,407,621	26.83	0.00
	65+	36	648,915	1,016,922	1,016,922	-36.19	0.00
Race	**White**	702	4,682,800	4,870,931	4,870,931	-3.86	0.00
	Black or African American	40	244,479	227,427	227,427	7.50	0.00
	American Indian/Alaska Native	44	197,692	49,932	103,189	91.58	-51.61
	Asian	99	601,702	611,408	558,151	7.80	9.54
	Two or More Races	59	251,521	218,497	218,497	15.11	-0.00
Hispanicity	**Hispanic or Latino**	173	658,488	638,109	638,109	3.19	-0.00
	Non-Hispanic or Latino	771	5,319,707	5,340,086	5,340,086	-0.38	0.00
Gender	**Male**	449	2,945,181	2,947,161	2,947,161	-0.07	0.00
	Female	495	3,033,014	3,031,034	3,031,034	0.07	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.50 2015 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		947	1,566,577	1,566,577	1,566,577	-0.00	-0.00
Quarter	**Quarter 1**	218	391,854	391,854	391,855	-0.00	-0.00
	Quarter 2	229	391,572	391,572	391,572	-0.00	-0.00
	Quarter 3	257	391,555	391,555	391,555	0.00	0.00
	Quarter 4	243	391,595	391,595	391,595	0.00	-0.00
Age Group	**12-17**	244	129,959	129,191	129,191	0.59	-0.00
	18-25	237	188,968	187,125	187,125	0.98	-0.00
	26-34	149	183,919	188,354	188,354	-2.35	0.00
	35-49	211	338,708	339,216	339,216	-0.15	0.00
	50-64	62	399,059	394,562	394,562	1.14	0.00
	65+	44	325,965	328,129	328,129	-0.66	0.00
Race	**White**	866	1,452,102	1,477,774	1,477,774	-1.74	-0.00
	Black or African American	26	59,116	52,031	52,031	13.62	0.00
	American Indian/Alaska Native	13	16,267	2,886	3,768	331.67	-23.40
	Asian	15	18,652	14,879	13,997	33.26	6.30
	Two or More Races	27	20,439	19,007	19,007	7.54	0.00
Hispanicity	**Hispanic or Latino**	19	21,307	20,776	20,776	2.56	-0.00
	Non-Hispanic or Latino	928	1,545,269	1,545,801	1,545,801	-0.03	0.00
Gender	**Male**	439	764,170	765,182	765,182	-0.13	-0.00
	Female	508	802,406	801,395	801,395	0.13	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.51 2015 NSDUH Slippage Rates: WISCONSIN

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		961	4,851,828	4,851,828	4,851,828	0.00	0.00
Quarter	**Quarter 1**	226	1,211,148	1,211,148	1,211,148	0.00	0.00
	Quarter 2	240	1,212,115	1,212,115	1,212,115	0.00	-0.00
	Quarter 3	259	1,213,591	1,213,591	1,213,591	-0.00	0.00
	Quarter 4	236	1,214,973	1,214,973	1,214,973	0.00	0.00
Age Group	**12-17**	199	446,996	445,668	445,668	0.30	0.00
	18-25	281	625,012	625,624	625,624	-0.10	0.00
	26-34	156	650,384	641,860	641,860	1.33	0.00
	35-49	181	1,029,036	1,048,938	1,048,938	-1.90	0.00
	50-64	76	1,100,613	1,214,018	1,214,018	-9.34	-0.00
	65+	68	999,787	875,721	875,721	14.17	0.00
Race	**White**	807	4,291,080	4,323,615	4,323,615	-0.75	0.00
	Black or African American	60	272,293	285,235	285,235	-4.54	-0.00
	American Indian/Alaska Native	11	43,639	49,158	49,158	-11.23	0.00
	Asian	43	133,898	129,797	129,797	3.16	-0.00
	Two or More Races	40	110,917	64,024	64,024	73.24	0.00
Hispanicity	**Hispanic or Latino**	91	273,165	275,880	275,880	-0.98	0.00
	Non-Hispanic or Latino	870	4,578,664	4,575,948	4,575,948	0.06	-0.00
Gender	**Male**	488	2,376,197	2,386,997	2,386,997	-0.45	0.00
	Female	473	2,475,631	2,464,832	2,464,832	0.44	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Table H.52 2015 NSDUH Slippage Rates: WYOMING

Domain		*n*	Initial Total (I)[1]	Final Total (F)[2]	Census Total (C)	(I-C)/C%	(F-C)/C%
Total		971	481,602	481,602	481,602	0.00	0.00
Quarter	**Quarter 1**	194	120,254	120,254	120,254	0.00	-0.00
	Quarter 2	345	120,338	120,338	120,338	-0.00	0.00
	Quarter 3	280	120,453	120,453	120,453	0.00	-0.00
	Quarter 4	152	120,557	120,557	120,557	0.00	0.00
Age Group	**12-17**	257	43,798	43,939	43,939	-0.32	0.00
	18-25	237	62,113	63,010	63,010	-1.42	0.00
	26-34	151	71,970	71,855	71,855	0.16	0.00
	35-49	186	102,511	101,588	101,588	0.91	0.00
	50-64	78	115,660	118,949	118,949	-2.77	0.00
	65+	62	85,550	82,261	82,261	4.00	0.00
Race	**White**	860	439,378	450,286	450,286	-2.42	-0.00
	Black or African American	16	8,819	6,355	6,355	38.78	0.00
	American Indian/Alaska Native	38	16,637	11,545	11,545	44.11	-0.00
	Asian	16	4,556	5,660	5,660	-19.51	-0.00
	Two or More Races	41	12,212	7,756	7,756	57.45	-0.00
Hispanicity	**Hispanic or Latino**	129	45,843	43,105	43,105	6.35	-0.00
	Non-Hispanic or Latino	842	435,758	438,497	438,497	-0.62	0.00
Gender	**Male**	475	242,464	243,705	243,705	-0.51	0.00
	Female	496	239,137	237,897	237,897	0.52	0.00

[1] WT1*...*WT14 (before person poststratification).
[2] WT1*...*WT15 (after person poststratification).

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2015.

Appendix I: Evaluation of Calibration Weights: Weight Summary Statistics

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Table I.1 2015 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	*n*	Before res.du.nr (WT1*...*WT8)[1]						After res.du.nr & Before res.du.ps (WT1*...*WT9)[1]						After res.du.ps (WT1*...*WT10)[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	132,210	4	413	721	906	4,823	1.34	52	461	886	1,130	7,652	1.36	12	451	928	1,249	7,313	1.43
Alaska	1,892	77	79	103	107	185	1.02	78	102	123	138	372	1.08	53	112	134	160	614	1.14
Alabama	1,831	723	751	794	832	3,822	1.08	733	890	954	1,064	3,872	1.03	161	906	1,019	1,138	3,613	1.07
Arkansas	2,005	316	445	463	483	503	1.00	367	503	545	576	671	1.01	168	534	588	646	1,437	1.03
Arizona	1,949	737	821	923	966	1,388	1.04	751	947	1,052	1,211	2,347	1.06	219	1,089	1,271	1,530	4,579	1.09
California	7,564	916	1,012	1,132	1,228	2,354	1.01	974	1,363	1,534	1,726	4,214	1.05	634	1,433	1,687	1,996	7,313	1.10
Colorado	1,795	345	744	785	887	1,484	1.01	588	892	1,012	1,101	3,580	1.04	245	1,023	1,175	1,342	4,179	1.06
Connecticut	1,936	366	449	514	556	604	1.01	533	592	664	725	1,024	1.02	119	583	686	793	3,906	1.12
District of Columbia	3,118	4	52	55	59	112	1.07	52	70	79	98	315	1.15	12	76	94	114	348	1.13
Delaware	1,756	139	145	147	152	164	1.00	151	181	197	215	468	1.02	55	184	208	237	740	1.05
Florida	6,793	700	749	859	896	2,011	1.05	770	919	1,013	1,127	2,556	1.06	245	990	1,132	1,321	3,485	1.08
Georgia	2,603	939	966	1,005	1,032	1,168	1.00	994	1,141	1,261	1,355	4,302	1.07	492	1,243	1,421	1,620	3,893	1.05
Hawaii	1,959	74	141	152	157	224	1.04	91	182	199	232	379	1.06	77	197	227	279	1,411	1.14
Iowa	2,265	396	423	436	458	564	1.01	443	479	501	567	1,104	1.03	92	496	545	639	2,068	1.07
Idaho	1,530	258	288	314	331	356	1.01	258	345	379	391	1,184	1.01	88	360	397	430	1,721	1.06
Illinois	4,639	627	694	759	782	1,779	1.02	736	864	947	1,103	2,966	1.06	268	872	987	1,170	5,019	1.09
Indiana	1,819	963	998	1,048	1,105	1,184	1.00	1,046	1,232	1,297	1,410	2,328	1.02	310	1,237	1,419	1,618	6,185	1.10
Kansas	1,962	224	426	436	448	533	1.01	237	480	511	562	715	1.01	91	502	556	620	2,434	1.06
Kentucky	1,695	668	701	763	921	958	1.02	696	829	933	1,073	4,764	1.05	197	896	1,039	1,197	2,996	1.06
Louisiana	1,804	618	658	715	923	976	1.03	674	767	951	1,033	2,892	1.06	207	814	987	1,201	2,904	1.09
Massachusetts	2,131	679	699	747	831	1,805	1.04	694	986	1,041	1,112	4,110	1.09	282	1,006	1,103	1,355	5,787	1.15
Maryland	1,513	779	923	952	1,058	1,217	1.01	960	1,210	1,276	1,449	3,789	1.04	484	1,185	1,424	1,644	5,241	1.08
Maine	2,643	115	118	172	206	460	1.06	117	142	209	218	1,030	1.21	39	151	217	251	977	1.11
Michigan	4,853	540	561	581	699	991	1.02	586	661	707	859	1,130	1.03	197	706	775	909	3,398	1.05
Minnesota	1,766	791	821	956	976	1,001	1.01	849	983	1,128	1,238	1,608	1.02	188	1,074	1,233	1,393	3,437	1.05
Missouri	1,846	879	921	1,016	1,132	1,279	1.01	895	1,019	1,176	1,360	2,518	1.02	373	1,151	1,329	1,513	4,442	1.06

(continued)

Table I.1 2015 NSDUH Dwelling Unit–Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before res.du.nr (WT1*...*WT8)[1]						After res.du.nr & Before res.du.ps (WT1*...*WT9)[1]						After res.du.ps (WT1*...*WT10)[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	1,741	417	431	468	535	678	1.03	443	518	561	686	2,315	1.04	99	530	616	732	2,747	1.10
Montana	2,159	115	119	128	167	175	1.03	118	143	167	186	496	1.05	33	167	198	228	587	1.07
North Carolina	2,990	833	909	927	1,022	2,250	1.02	921	1,050	1,136	1,363	2,272	1.03	338	1,114	1,281	1,536	6,516	1.09
North Dakota	2,484	84	86	96	99	128	1.02	85	99	105	114	165	1.03	37	109	120	137	552	1.04
Nebraska	1,794	90	293	297	362	451	1.04	188	340	359	445	700	1.05	101	334	394	491	2,416	1.11
New Hampshire	2,191	151	155	167	198	394	1.03	153	188	212	246	1,167	1.12	40	197	231	273	867	1.08
New Jersey	2,807	737	756	779	918	1,749	1.02	772	932	1,042	1,266	2,455	1.05	438	964	1,114	1,305	5,244	1.10
New Mexico	1,644	307	324	376	432	906	1.04	323	381	439	476	966	1.03	86	389	453	545	1,898	1.12
Nevada	1,746	331	348	425	515	556	1.03	344	476	535	654	948	1.05	193	484	592	776	3,204	1.15
New York	6,863	530	542	657	748	1,270	1.03	635	846	984	1,194	2,771	1.07	402	860	1,023	1,272	5,559	1.13
Ohio	4,773	655	671	721	737	858	1.01	744	808	886	980	2,982	1.03	402	851	953	1,079	2,746	1.03
Oklahoma	1,918	488	510	576	594	849	1.03	547	633	686	734	1,280	1.03	186	642	762	895	2,700	1.12
Oregon	1,803	538	583	694	719	792	1.01	620	710	846	910	1,204	1.02	378	779	895	989	3,458	1.04
Pennsylvania	5,054	710	733	745	773	1,240	1.00	752	871	915	954	3,480	1.02	508	931	992	1,064	3,905	1.03
Rhode Island	1,915	144	148	156	172	198	1.01	147	188	203	231	956	1.05	30	188	207	240	1,408	1.15
South Carolina	2,040	322	707	723	748	828	1.00	737	813	863	919	2,392	1.02	281	870	958	1,057	3,429	1.06
South Dakota	1,799	116	122	158	175	190	1.02	125	141	178	190	205	1.02	35	164	191	213	813	1.08
Tennessee	1,846	879	906	984	1,271	1,562	1.04	904	1,084	1,179	1,509	7,652	1.07	217	1,167	1,343	1,650	6,743	1.10
Texas	4,538	1,431	1,552	1,620	1,742	4,823	1.03	1,450	1,724	1,851	1,983	5,420	1.03	447	1,786	2,042	2,307	6,428	1.08
Utah	1,176	546	615	632	661	773	1.01	590	657	703	770	1,598	1.02	131	704	808	905	2,504	1.06
Virginia	2,754	685	715	798	891	935	1.01	714	917	1,002	1,079	1,912	1.02	143	984	1,140	1,288	4,564	1.08
Vermont	2,525	71	73	86	89	91	1.01	85	90	104	106	113	1.01	21	95	101	105	447	1.05
Washington	1,867	956	981	1,007	1,175	1,293	1.01	1,016	1,206	1,314	1,527	2,740	1.05	661	1,215	1,427	1,667	5,344	1.11
Wisconsin	2,108	783	817	856	922	2,422	1.05	860	950	1,035	1,112	2,205	1.03	338	947	1,039	1,207	4,678	1.11
West Virginia	2,119	248	257	280	285	307	1.00	286	319	335	359	631	1.01	81	325	354	400	1,356	1.06
Wyoming	1,889	71	72	84	115	176	1.07	72	85	99	133	434	1.10	24	90	115	156	405	1.15

[1] WT1*…*WT8 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, 2015.

Table I.2 2015 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	*n*	Before sel.per.ps (WT1*...*WT12)[1]						After sel.per.ps (WT1*...*WT13)[1]					
		Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]
United States	94,499	12	963	1,819	3,538	44,937	2.07	4	942	1,831	3,601	42,762	2.07
Alaska	1,373	63	194	345	513	2,488	1.60	60	195	346	498	2,097	1.56
Alabama	1,328	221	1,364	2,176	3,691	13,694	1.55	163	1,360	2,197	3,959	17,329	1.59
Arkansas	1,343	204	802	1,343	1,930	9,695	1.65	52	785	1,266	1,976	9,343	1.76
Arizona	1,363	327	1,883	2,980	4,349	22,432	1.71	314	1,904	2,912	4,577	30,842	1.79
California	6,445	726	2,309	3,938	6,345	40,914	1.55	701	2,368	3,989	6,433	38,386	1.54
Colorado	1,328	265	1,492	2,505	3,470	18,180	1.67	157	1,461	2,446	3,846	27,020	1.81
Connecticut	1,411	137	924	1,426	2,555	13,600	1.72	39	918	1,451	2,652	15,736	1.76
District of Columbia	1,231	12	227	434	664	2,515	1.46	4	217	417	631	2,550	1.50
Delaware	1,323	65	264	407	623	4,573	1.85	64	255	387	654	3,098	1.89
Florida	4,665	273	1,467	2,648	3,968	25,705	1.88	94	1,466	2,578	4,119	27,268	1.86
Georgia	1,992	594	1,813	3,192	4,865	21,452	1.53	337	1,889	3,266	5,100	18,627	1.59
Hawaii	1,389	100	327	576	987	5,208	1.80	99	331	577	1,016	5,630	1.78
Iowa	1,357	99	803	1,327	2,228	21,247	1.74	77	791	1,312	2,310	17,331	1.72
Idaho	1,277	93	452	815	1,215	4,815	1.55	69	461	796	1,250	7,424	1.62
Illinois	3,592	309	1,325	2,279	3,411	22,455	1.65	288	1,339	2,282	3,579	18,056	1.60
Indiana	1,376	328	1,791	3,093	4,570	25,542	1.67	376	1,766	2,862	4,739	21,449	1.68
Kansas	1,351	138	836	1,360	2,003	8,567	1.56	43	807	1,359	2,063	16,396	1.68
Kentucky	1,271	233	1,311	2,078	3,677	11,725	1.58	79	1,323	2,152	3,680	13,810	1.58
Louisiana	1,282	282	1,288	2,064	3,578	14,780	1.57	83	1,252	1,997	3,883	13,766	1.71
Massachusetts	1,591	341	1,629	2,706	4,416	32,548	1.68	182	1,557	2,737	4,771	28,356	1.71
Maryland	1,290	540	1,486	3,080	4,910	22,048	1.75	611	1,515	2,961	5,030	18,844	1.65
Maine	1,400	47	288	534	889	6,362	1.99	45	286	539	882	5,808	2.04
Michigan	3,383	323	1,069	1,764	2,783	15,308	1.67	224	1,085	1,750	2,851	12,627	1.65
Minnesota	1,286	229	1,490	2,656	3,850	24,274	1.70	61	1,492	2,452	3,958	38,342	1.89
Missouri	1,342	467	1,528	2,555	4,377	34,554	1.77	363	1,517	2,446	4,231	21,194	1.88

(continued)

Table I.2 2015 NSDUH Selected Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before sel.per.ps (WT1*...*WT12)[1]						After sel.per.ps (WT1*...*WT13)[1]					
		Min	Q1[2]	Med	Q3[2]	Max	UWE[3]	Min	Q1[2]	Med	Q3[2]	Max	UWE[3]
Mississippi	1,257	112	927	1,424	2,502	16,265	1.63	128	910	1,435	2,538	11,246	1.53
Montana	1,329	34	288	497	721	3,731	1.72	23	289	471	708	3,495	1.74
North Carolina	2,125	384	1,612	2,622	5,159	24,998	1.78	268	1,589	2,601	5,188	18,839	1.71
North Dakota	1,342	79	250	353	495	2,382	1.53	32	226	350	507	3,987	1.67
Nebraska	1,301	186	555	911	1,306	8,071	1.70	52	501	820	1,306	12,232	1.89
New Hampshire	1,435	41	331	563	880	7,140	1.76	39	337	547	882	4,972	1.78
New Jersey	2,247	578	1,261	2,199	3,904	38,682	1.94	457	1,303	2,249	3,947	18,761	1.81
New Mexico	1,260	119	615	1,022	1,595	13,933	1.80	24	624	986	1,537	7,944	1.71
Nevada	1,317	195	674	1,193	2,026	19,404	1.85	106	656	1,185	2,092	24,569	2.20
New York	4,963	486	1,426	2,395	3,989	44,937	1.76	383	1,430	2,390	4,166	28,437	1.75
Ohio	3,458	414	1,200	2,226	3,140	17,398	1.61	438	1,259	2,125	3,198	19,604	1.61
Oklahoma	1,359	188	1,039	1,770	2,723	14,893	1.61	169	994	1,735	2,988	16,011	1.65
Oregon	1,333	382	1,097	1,897	3,084	13,104	1.62	235	1,116	1,924	3,167	15,364	1.63
Pennsylvania	3,232	559	1,421	2,472	3,498	33,883	1.68	478	1,411	2,370	3,768	19,290	1.68
Rhode Island	1,354	30	318	508	701	7,091	1.67	8	295	465	723	7,178	1.82
South Carolina	1,304	324	1,302	2,363	3,565	21,024	1.74	105	1,300	2,210	3,806	20,233	1.69
South Dakota	1,199	46	243	397	621	2,353	1.63	37	238	428	691	5,448	1.73
Tennessee	1,352	251	1,591	2,722	4,871	26,169	1.80	203	1,565	2,472	4,961	42,762	1.96
Texas	4,358	535	2,435	4,275	6,425	30,618	1.47	256	2,470	4,254	6,501	25,534	1.43
Utah	1,204	200	993	1,695	2,542	10,016	1.40	154	1,011	1,613	2,551	11,991	1.41
Virginia	2,113	148	1,407	2,337	4,000	28,862	1.65	57	1,378	2,461	4,189	14,259	1.63
Vermont	1,355	25	156	298	396	2,735	1.73	38	155	296	451	2,061	1.72
Washington	1,306	738	1,802	3,257	5,260	32,932	1.72	480	1,819	3,018	5,387	33,302	1.78
Wisconsin	1,365	405	1,457	2,536	3,589	32,352	1.77	206	1,512	2,384	3,967	29,477	1.83
West Virginia	1,327	89	455	694	1,137	8,148	1.95	77	459	726	1,140	11,289	2.14
Wyoming	1,315	25	145	245	450	2,293	1.86	18	129	243	450	2,843	2.06

[1] WT1*...*WT12 and WT1*...*WT13 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, 2015.

Table I.3 2015 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States

Domain	*n*	Before res.per.nr (WT1*...*WT13)[1]						After res.per.nr (WT1*...*WT14)[1]						Before res.per.ps (WT1*...*WT14)[2]						Final Weight After res.per.ps (WT1*...*WT15)[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	68,073	4	914	1,752	3,428	42,762	2.10	4	1,176	2,339	4,869	56,238	2.31	4	1,176	2,339	4,869	56,238	2.31	1	1,094	2,314	4,878	67,438	2.39
Alaska	981	65	190	335	494	2,097	1.58	66	264	448	695	3,638	1.65	66	264	448	695	3,638	1.65	64	261	460	724	3,309	1.68
Alabama	953	163	1,338	2,090	3,697	13,977	1.56	166	1,662	2,779	4,954	24,324	1.87	166	1,662	2,779	4,954	24,324	1.87	174	1,720	2,751	4,879	24,446	1.87
Arkansas	981	52	772	1,222	1,879	9,343	1.77	61	999	1,665	2,611	15,727	2.04	61	999	1,665	2,611	15,727	2.04	15	1,000	1,651	2,641	20,211	2.07
Arizona	996	314	1,792	2,817	4,415	30,842	1.84	342	2,255	3,653	6,338	45,858	2.01	342	2,255	3,653	6,338	45,858	2.01	144	2,267	3,780	6,466	38,549	2.01
California	4,671	701	2,242	3,728	6,017	36,716	1.56	743	2,828	4,992	9,022	56,238	1.78	743	2,828	4,992	9,022	56,238	1.78	200	2,652	4,915	9,289	67,438	1.88
Colorado	994	157	1,416	2,342	3,693	27,020	1.86	157	1,705	3,001	5,332	39,376	1.98	157	1,705	3,001	5,332	39,376	1.98	84	1,575	3,105	5,429	43,193	2.14
Connecticut	964	39	875	1,360	2,592	13,697	1.79	40	1,169	2,011	4,048	30,722	1.94	40	1,169	2,011	4,048	30,722	1.94	17	1,129	1,988	4,135	54,255	2.29
District of Columbia	924	4	209	413	621	2,550	1.52	4	285	542	824	3,382	1.54	4	285	542	824	3,382	1.54	1	250	539	834	3,792	1.64
Delaware	945	64	248	372	654	3,098	1.91	73	340	540	954	4,137	1.93	73	340	540	954	4,137	1.93	25	311	539	1,001	6,081	2.03
Florida	3,386	100	1,422	2,410	3,898	27,268	1.91	100	1,830	3,101	5,988	34,509	2.00	100	1,830	3,101	5,988	34,509	2.00	42	1,818	2,990	6,156	32,997	2.04
Georgia	1,498	337	1,857	3,045	4,856	18,336	1.61	373	2,179	3,944	6,659	35,802	1.76	373	2,179	3,944	6,659	35,802	1.76	161	2,101	3,941	6,751	34,740	1.81
Hawaii	1,020	99	319	528	1,002	5,630	1.81	118	414	729	1,394	11,143	1.89	118	414	729	1,394	11,143	1.89	42	410	724	1,380	7,450	1.96
Iowa	962	77	773	1,311	2,270	17,331	1.73	77	1,046	1,789	3,342	23,490	1.82	77	1,046	1,789	3,342	23,490	1.82	76	1,048	1,799	3,324	16,428	1.76
Idaho	949	69	456	784	1,222	7,424	1.63	73	586	1,013	1,670	6,372	1.69	73	586	1,013	1,670	6,372	1.69	72	585	1,040	1,685	6,172	1.68
Illinois	2,365	288	1,265	2,111	3,333	14,520	1.64	403	1,759	3,133	5,885	28,649	1.76	403	1,759	3,133	5,885	28,649	1.76	86	1,739	3,134	5,752	56,323	1.89
Indiana	973	376	1,715	2,686	4,590	18,920	1.69	431	2,217	3,616	6,908	35,310	1.88	431	2,217	3,616	6,908	35,310	1.88	112	2,270	3,695	6,744	42,902	1.96
Kansas	986	43	782	1,321	2,012	16,396	1.74	45	1,000	1,656	2,965	20,286	1.82	45	1,000	1,656	2,965	20,286	1.82	37	1,014	1,710	3,048	19,412	1.77
Kentucky	938	79	1,289	2,072	3,561	13,810	1.61	79	1,676	2,783	5,127	17,827	1.67	79	1,676	2,783	5,127	17,827	1.67	18	1,715	2,752	5,205	17,990	1.69
Louisiana	957	83	1,268	2,007	3,771	13,766	1.69	95	1,619	2,618	5,089	24,627	1.84	95	1,619	2,618	5,089	24,627	1.84	22	1,638	2,541	4,899	24,665	1.90
Massachusetts	948	182	1,466	2,670	4,444	28,356	1.73	251	2,231	4,234	8,059	46,831	1.84	251	2,231	4,234	8,059	46,831	1.84	82	2,294	4,403	7,993	33,808	1.81
Maryland	946	611	1,496	2,818	4,750	18,844	1.65	628	1,926	3,770	6,798	30,174	1.80	628	1,926	3,770	6,798	30,174	1.80	227	1,906	3,713	6,794	32,724	1.84
Maine	994	52	276	514	860	4,694	2.07	52	358	702	1,364	8,521	2.16	52	358	702	1,364	8,521	2.16	11	364	709	1,346	15,026	2.25
Michigan	2,441	224	1,069	1,697	2,762	11,437	1.66	227	1,393	2,230	3,967	18,842	1.80	227	1,393	2,230	3,967	18,842	1.80	68	1,410	2,294	3,991	27,340	1.82
Minnesota	951	61	1,472	2,381	3,931	33,971	1.87	80	1,930	3,061	5,677	50,296	2.00	80	1,930	3,061	5,677	50,296	2.00	25	1,862	3,200	5,660	47,524	1.99
Missouri	986	363	1,472	2,307	4,029	21,194	1.91	363	1,859	3,026	5,866	39,456	2.10	363	1,859	3,026	5,866	39,456	2.10	170	1,867	3,108	5,971	49,584	2.13

(continued)

Table I.3 2015 NSDUH Respondent Person-Level Weight Summary Statistics: United States, District of Columbia, and the 50 States (continued)

Domain	*n*	Before res.per.nr (WT1*...*WT13)[1]						After res.per.nr (WT1*...*WT14)[1]						Before res.per.ps (WT1*...*WT14)[2]						Final Weight After res.per.ps (WT1*...*WT15)[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	921	128	896	1,350	2,348	11,246	1.58	179	1,178	1,808	3,005	14,066	1.79	179	1,178	1,808	3,005	14,066	1.79	36	1,138	1,772	3,171	13,687	1.83
Montana	977	23	281	448	665	3,495	1.75	77	358	586	933	5,601	1.98	77	358	586	933	5,601	1.98	27	355	589	922	5,853	2.02
North Carolina	1,576	268	1,500	2,473	4,757	18,795	1.73	268	1,830	3,214	6,784	35,818	1.99	268	1,830	3,214	6,784	35,818	1.99	69	1,763	3,126	6,862	35,496	2.09
North Dakota	988	32	227	350	497	3,987	1.69	32	290	443	737	5,671	1.82	32	290	443	737	5,671	1.82	7	301	463	709	3,111	1.67
Nebraska	945	52	494	789	1,260	12,232	1.94	52	647	1,084	1,813	17,036	2.10	52	647	1,084	1,813	17,036	2.10	26	635	1,114	1,862	16,132	2.12
New Hampshire	995	39	326	536	845	4,139	1.81	39	432	775	1,352	11,766	1.93	39	432	775	1,352	11,766	1.93	20	427	781	1,341	6,878	1.95
New Jersey	1,517	457	1,272	2,075	3,705	17,591	1.87	564	1,800	2,991	6,106	43,637	1.95	564	1,800	2,991	6,106	43,637	1.95	163	1,850	3,032	6,099	57,795	2.14
New Mexico	959	24	611	961	1,478	7,944	1.74	29	756	1,204	1,993	11,626	1.91	29	756	1,204	1,993	11,626	1.91	11	737	1,205	1,942	16,504	2.30
Nevada	997	106	636	1,116	1,829	11,756	2.08	106	798	1,334	2,502	37,849	2.68	106	798	1,334	2,502	37,849	2.68	40	787	1,446	2,763	36,692	2.71
New York	3,310	383	1,338	2,211	3,814	28,437	1.81	469	1,815	3,225	6,509	43,067	2.04	469	1,815	3,225	6,509	43,067	2.04	149	1,764	3,208	6,704	62,430	2.07
Ohio	2,428	438	1,226	2,043	3,090	15,297	1.61	470	1,708	2,848	4,674	25,296	1.70	470	1,708	2,848	4,674	25,296	1.70	171	1,713	2,879	4,699	19,040	1.70
Oklahoma	971	169	957	1,640	2,767	10,484	1.62	190	1,230	2,311	4,097	24,523	1.91	190	1,230	2,311	4,097	24,523	1.91	46	1,155	2,338	4,144	37,319	2.01
Oregon	962	307	1,102	1,878	3,058	15,364	1.65	313	1,427	2,592	4,235	22,923	1.73	313	1,427	2,592	4,235	22,923	1.73	187	1,429	2,593	4,146	22,945	1.81
Pennsylvania	2,374	498	1,382	2,313	3,702	19,290	1.70	574	1,749	3,019	5,332	30,920	1.80	574	1,749	3,019	5,332	30,920	1.80	147	1,736	3,127	5,408	28,647	1.82
Rhode Island	964	8	282	459	720	7,178	1.84	8	355	623	1,122	14,672	2.17	8	355	623	1,122	14,672	2.17	2	307	610	1,155	25,750	2.74
South Carolina	987	105	1,244	2,051	3,660	18,992	1.69	212	1,502	2,758	5,161	31,695	1.88	212	1,502	2,758	5,161	31,695	1.88	79	1,507	2,807	5,251	19,643	1.81
South Dakota	904	37	238	423	676	5,448	1.76	37	295	531	1,006	7,142	1.85	37	295	531	1,006	7,142	1.85	20	308	531	993	5,655	1.79
Tennessee	1,004	203	1,491	2,317	4,572	42,762	2.05	203	1,850	3,086	6,389	52,179	2.28	203	1,850	3,086	6,389	52,179	2.28	87	1,907	3,014	6,246	43,884	2.25
Texas	3,308	256	2,392	4,077	6,103	25,534	1.45	325	2,999	5,207	8,371	44,467	1.59	325	2,999	5,207	8,371	44,467	1.59	174	3,004	5,135	8,619	59,002	1.64
Utah	968	154	1,004	1,543	2,434	10,107	1.40	206	1,144	1,874	3,088	17,681	1.56	206	1,144	1,874	3,088	17,681	1.56	184	1,178	1,854	3,086	18,099	1.59
Virginia	1,526	57	1,333	2,367	3,958	14,259	1.64	58	1,776	3,161	5,646	26,841	1.81	58	1,776	3,161	5,646	26,841	1.81	16	1,701	3,053	5,692	33,335	1.93
Vermont	960	38	146	281	448	2,061	1.76	41	194	412	681	3,036	1.82	41	194	412	681	3,036	1.82	9	179	411	665	7,876	2.23
Washington	944	480	1,804	2,940	5,323	33,302	1.82	522	2,438	3,886	7,421	48,766	1.96	522	2,438	3,886	7,421	48,766	1.96	139	2,467	3,983	7,411	59,672	2.13
Wisconsin	961	206	1,456	2,323	3,920	27,035	1.82	207	2,063	3,458	5,523	38,981	1.90	207	2,063	3,458	5,523	38,981	1.90	69	2,053	3,444	5,802	43,113	1.95
West Virginia	947	77	444	692	1,123	11,289	2.14	98	547	927	1,573	12,184	2.52	98	547	927	1,573	12,184	2.52	86	543	957	1,611	15,688	2.60
Wyoming	971	18	124	234	457	2,843	2.07	19	157	304	624	3,992	2.19	19	157	304	624	3,992	2.19	13	150	302	625	5,070	2.26

[1] WT1*...*WT13 and WT1*...*WT14 used demographic variables from screener data; nr = nonresponse adjustment.
[2] WT1*...*WT14 and WT1*...*WT15 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, 2015.