

BRFSS STATISTICAL BRIEF

ALCOHOL SCREENING & BRIEF INTERVENTION OPTIONAL MODULE

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Objective

The primary objective of this document is to provide guidance for Behavioral Risk Factor Surveillance System (BRFSS) data users when conducting analyses on the BRFSS Alcohol Screening & Brief Intervention (ASBI) Optional Module data.

Background

Excessive alcohol consumption has been associated with an increased risk of adverse health and pregnancy outcomes, including liver cirrhosis, alcohol poisoning, alcohol use disorder, motor vehicle crashes, violence, various cancers, preterm birth, and fetal alcohol spectrum disorders (FASDs). According to the Centers for Disease Control and Prevention (CDC), patterns of excessive alcohol consumption include binge drinking (five or more drinks per occasion for men; four or more drinks per occasion for women), heavy drinking (15 or more drinks per week for men; eight or more drinks per week for women), and any drinking by pregnant persons or individuals younger than 21 years of age.¹ In the United States, excessive alcohol use resulted in about 140,000 deaths each year between 2015 and 2019.² BRFSS 2018 survey data estimated more than half of the U.S. adult population reported having drunk alcohol in the past 30 days. Within this population, 16% reported binge drinking and 6% reported heavy drinking.³

Alcohol screening and brief intervention (ASBI) plays an important role in reducing or ceasing excessive drinking among nondependent, at-risk populations, including pregnant persons. ASBI is a cost-effective, clinical preventive service that involves using validated screening questions to identify patients' drinking habits and having a short conversation with those who report drinking too much. Previous research has indicated that ASBI is effective in reducing weekly alcohol consumption and instances of binge drinking and in increasing adherence to recommended drinking limits.

Given prior evidence supporting the efficacy of ASBI, the [U.S. Preventive Services Task Force \(USPSTF\)](#) has recommended since 2004 that alcohol screening be implemented in the primary care setting for all U.S. adults (≥18 years) and to conduct brief interventions for those whose screening indicates excessive alcohol use. Furthermore, current [Healthy People 2030 objectives](#) call for decreased excessive alcohol consumption including the following:

- SU-04**— Reduce the proportion of adolescents who drank alcohol in the past month
- SU-09**— Reduce the proportion of people under 21 years who engaged in binge drinking in the past month
- SU-10**— Reduce the proportion of people aged 21 years and over who engaged in binge drinking in the past month
- MICH-09**— Increase abstinence from alcohol among pregnant women

The USPSTF recommendation and several Healthy People 2030 objectives pertaining to ASBI and targeting excessive alcohol use can be monitored through ongoing surveillance efforts developed by [CDC](#) and the [Substance Abuse and Mental Health Services Administration \(SAMHSA\)](#), such as the BRFSS ASBI module and the [National Survey on Drug Use and Health \(NSDUH\)](#).

History and Rationale

Acknowledging the need for state-level public health surveillance data on ASBI, the Alcohol Program in CDC's National Center for Chronic Disease Prevention and Health Promotion, in collaboration with the Prenatal Substance Exposure Surveillance and Research Team in CDC's National Center on Birth Defects and Developmental Disabilities, developed an optional module consisting of five questions on ASBI to be included in the 2014 BRFSS questionnaire [\[Appendix A\]](#). The ASBI module was developed in accordance with USPSTF recommendations as well as several Healthy People 2020 objectives [\[Appendix B\]](#), many of which continued as Healthy People 2030 objectives. The module questions underwent four rounds of cognitive testing and were reviewed and revised by national and international experts on ASBI. Beyond 2014, the ASBI module was subsequently included in the BRFSS questionnaire for 2017 and 2019. The states choosing to utilize the ASBI module varied by year [\[Appendix C\]](#). States had the option to include the ASBI module in their BRFSS questionnaire for the 2022 calendar year, and data should be available in the fall of 2023.

The first three questions of the ASBI module assess whether the respondent had been screened for alcohol use and how the screening was conducted. The fourth and fifth questions of the ASBI module assess whether the respondent was advised about harmful/risky alcohol consumption levels or to reduce their drinking. The data from the BRFSS ASBI module are most useful in assessing the delivery of ASBI in clinical settings, improving the implementation of ASBI, and monitoring the success of ASBI efforts in reducing excessive drinking and alcohol-related harm. Furthermore, the data provide state-level ASBI prevalence estimates and assess how the delivery of ASBI varies by respondents' drinking patterns (e.g., binge drinking, heavy drinking), pregnancy status, and other sociodemographic variables.

Step 1: Analytic Code for ASBI Module Questions

This section introduces each question with the BRFSS ASBI module and provides sample analytic code to recode the variables for each question in preparation for data analysis. Responses were classified as missing in the code below if the respondent omitted information, refused to answer, or responded “don’t know/not sure” to any of the ASBI module questions.

Q1. You told me earlier that your last routine checkup was [within the past year/within the past 2 years]. At that checkup, were you asked in person or on a form if you drink alcohol?

Variable Name: **ASBIALCH**

1 Yes
2 No
7 Don’t know/ not sure
9 Refused

SAS CODE:

```
If ASBIALCH IN (. 7 9) then ASBIALCH_rec =.;*missing/refused/don't know;  
else if ASBIALCH =1 then ASBIALCH_rec=1;*Yes;  
else if ASBIALCH =2 then ASBIALCH_rec=2;*No;
```

R CODE:

```
ASBIALCH_rec<-ifelse(ASBIALCH %in% c(7,9,""), NA,  
                    ifelse (ASBIALCH == 1, 1, 2))
```

Q2. Did the healthcare provider ask you in person or on a form how much you drink?

Variable Name: **ASBIDRNK**

1 Yes
2 No
7 Don’t know/ not sure
9 Refused

SAS CODE:

```
If ASBIDRNK IN (. 7 9) then ASBIDRNK_rec=.;*missing/refused/don't know;  
else if ASBIDRNK=1 then ASBIDRNK_rec=1;*Yes;  
else if ASBIDRNK=2 then ASBIDRNK_rec=2;*No;
```

R CODE:

```
ASBIDRNK_rec <-ifelse(ASBIDRNK %in% c(7,9,""), NA,  
  ifelse (ASBIDRNK == 1, 1, 2))
```

Q3. Did the healthcare provider specifically ask whether you drank [5 FOR MEN /4 FOR WOMEN] or more alcoholic drinks on an occasion?

Variable Name: **ASBIBING**

1 Yes
2 No
7 Don't know/ not sure
9 Refused

SAS CODE:

```
If ASBIBING IN (. 7 9)then ASBIBING_rec=.;*missing/refused/don't know;  
else if ASBIBING=1 then ASBIBING_rec=1;*Yes;  
else if ASBIBING=2 then ASBIBING_rec=2;*No;
```

R CODE:

```
ASBIBING_rec <-ifelse(ASBIBING %in% c(7,9,""), NA,  
  ifelse (ASBIBING == 1, 1, 2))
```

Q4. Were you offered advice about what level of drinking is harmful or risky for your health?

Variable Name: **ASBIADVC**

1 Yes
2 No
7 Don't know/ not sure
9 Refused

SAS CODE:

```
If ASBIADVC IN (. 7 9)then ASBIADVC_rec=.;*missing/refused/don't know;  
else if ASBIADVC=1 then ASBIADVC_rec=1;*Yes;  
else if ASBIADVC=2 then ASBIADVC_rec=2;*No;
```

R CODE:

```
ASBIADVC_rec <-ifelse(ASBIADVC %in% c(7,9,""), NA,  
  ifelse (ASBIADVC == 1, 1, 2))
```

Q5. Healthcare providers may also advise patients to drink less for various reasons. At your last routine checkup, were you advised to reduce or quit your drinking?

Variable Name: **ASBIRDUC**

- 1 Yes
- 2 No
- 7 Don't know/ not sure
- 9 Refused

SAS CODE:

```
If ASBIRDUC IN (. 7 9) then ASBIRDUC_rec =.; *missing/refused/don't know;  
else if ASBIRDUC =1 then ASBIRDUC_rec =1;*Yes;  
else if ASBIRDUC =2 then ASBIRDUC_rec=2;*No;
```

R CODE:

```
ASBIRDUC_rec <-ifelse(ASBIRDUC %in% c(7,9,""), NA,  
                    ifelse (ASBIRDUC == 1, 1, 2))
```

STEP 2: Identifying and calculating variables for subpopulations

This section provides analytic guidance for developing variables to identify relevant subpopulations for the ASBI module. To mitigate recall bias, the ASBI Optional Module is limited to respondents who have had a routine checkup within the past 2 years. Appropriate subpopulations for the analysis of the ASBI module would include respondents who report having been screened for alcohol use and those who have received brief intervention in the past two years. Respondents who provided affirmative responses to questions 1, 2, or 3 of the module are identified as those who have been screened for alcohol use, and the data may be subset using the variable **SCRNR**. Among those who have reported being screened, some respondents may have received a brief intervention by being advised regarding risky alcohol use or being advised to reduce their alcohol consumption. The corresponding variable names for these subpopulations are **SCRNADVC** and **SCRNRDUC**, respectively. Additional considerations for analyses would be examining the prevalence of ASBI among **current, binge, and heavy drinking populations**. The analytic code for the recommended subpopulation variables is located in [Appendix D](#).

Recommended variables for defining subpopulations within the ASBI module

Variable Name and Label	Variable Values
Respondents who provided affirmative responses to Questions 1–3 (SCRNR)	1= Yes, affirmative to Q1–Q3 2= No, no answer to any of Q1–Q3
Respondents who were screened and advised on risky alcohol consumption (SCRNADVC)	1= Yes, screened & advised about risky drinking 2= Screened, but not advised about risky drinking 3=No, not screened
Respondents who were screened and advised to reduce alcohol consumption (SCRNRDUC)	1= Yes, screened & advised to reduce drinking 2= Screened, but not advised to reduce drinking 3=No, not screened
Number of people who reported binge drinking who also reported having a checkup in the last 2 years (checkup_binge)	1= Number of people who reported binge drinking who also reported having a checkup in the last 2 years 2= People who reported no binge drinking who reported having a checkup in the last 2 years
Number of people who reported current drinking who also reported having a checkup in the last 2 years (checkup_current)	1= Number of people who reported current drinking who also reported having a checkup in the last 2 years 2= People who reported no current drinking who reported having a checkup in the last 2 years
Number of people who reported heavy drinking who also reported having a checkup in the last 2 years (checkup_heavy)	1= Number of people who reported heavy drinking who also reported having a checkup in the last 2 years 2= People who reported no heavy drinking who reported having a checkup in the last 2 years

STEP 3: Estimating the prevalence of ASBI

The ASBI Optional Module may be used to estimate the prevalence of ASBI for multiple subpopulations in the United States. Individual states have the choice between several data collection methods, questionnaire versions, and optional modules to incorporate in their BRFSS questionnaire. This requires researchers to utilize complex sampling procedures when analyzing the ASBI Optional Module as well as all BRFSS survey data. These procedures include stratifying and weighting the data in accordance with each user's research needs. Researchers should use the variable `_STSTR` for stratification, `_PSU` for cluster in complex sampling analyses, and create a new final weight variable from each of the state data sets that will be combined in the analysis. CDC has developed [documentation](#) that guides users in the preparation of module data for analysis when data collection methods vary by state.

SAMPLE ANALYTIC CODE

Calculate prevalence of respondents advised on levels of drinking among adults who had a routine checkup in past 2 years & were screened:

SAS Code:

```
proc surveyfreq data = ASBI;
weight _finalwt;
strata _ststr;
cluster _psu;
table SCRNR * ASBIADVC_rec /row cl;
run;
```

Use the row percentages from the output to exam ASBIADVC_rec where SCRNR=1.

SUDAAN Code:

```
PROC crosstab DATA=ASBI FILETYPE=SAS DESIGN=WR ;
NEST _STSTR _PSU / missunit;
WEIGHT _finalwt;
subpopn SCRNR=1 ;
SUBGROUP ASBIADVC_rec ;
LEVELS 2 ;
tables ASBIADVC_rec;
title 'Prevalence of respondents advised on levels of drinking among adults
who had a routine checkup in past 2 years & were screened, BRFSS';
rformat ASBIADVC_rec asbiad.;
run;
```

R Code:

```
library(survey)
library(srvyr)
library(tidyverse)

options(survey.lonely.psu = "adjust")

# Create survey design
brfssdsgrn <- svydesign(
```



```

id=~1,
strata = ~ststr,
weights = ~finalwt,
data = asbi)

#Examine the frequencies
brfssdsqn %>%
  as_survey_design() %>%
  filter(SCRNR ==1) %>% #insert subpopulation variables
  filter(ASBIADVC_rec == c(1,2)) %>% #If you have missing values for the
categorical variable, you need to filter them out
  group_by(ASBIADVC_rec) %>%
  summarise(mean = survey_mean())

```

Calculate prevalence of respondents asked to reduce drinking among those who reported binge drinking, had a routine checkup in past 2 years & were screened:

SAS Code:

```

proc surveyfreq data = ASBI;
weight _finalwt;
strata _ststr;
cluster _psu;
table checkup_binge* SCRNR * ASBIRDUC_rec /row cl;
run;

```

Use the row percentages from the output to examine ASBIRDUC_rec where SCRNR=1 controlling for checkup_binge=1.

SUDAAN Code:

```

PROC crosstab DATA=ASBI FILETYPE=SAS DESIGN=WR ;
NEST STSTR PSU / missunit;
WEIGHT _finalwt;
subpopn checkup_binge=1 and SCRNR=1 ;
SUBGROUP ASBIRDUC_rec ;
LEVELS 2 ;
tables ASBIRDUC_rec ;
title 'Prevalence of respondents advised on levels of drinking among those
who reported binge drinking, had a routine checkup in past 2 years & were
screened, BRFSS';
rformat ASBIRDUC_rec asbird.;
run;

```

R Code:

```

brfssdsqn %>%
  as_survey_design() %>%
  filter(checkup_binge == 1 & SCRNR ==1) %>% #insert subpopulation variables
  filter(ASBIRDUC_rec== c(1,2)) %>% #If you have missing values for the
categorical variable, you need to filter them out
  group_by(ASBIRDUC_rec) %>%
  summarise(mean = survey_mean())

```

APPENDIX A: ASBI Module (2014, 2017, and 2019)

If Core Q3.4 = 1, or 2 (had a checkup within the past 2 years) continue, else go to next module.

Healthcare providers may ask during routine checkups about behaviors like alcohol use, whether you drink or not. We want to know about their questions.

1. You told me earlier that your last routine checkup was [within the past year/within the past 2 years]. At that checkup, were you asked in person or on a form if you drink alcohol? ; ASBIALCH

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

2. Did the healthcare provider ask you in person or on a form how much you drink? ; ASBIDRNK

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

3. Did the healthcare provider specifically ask whether you drank [5 FOR MEN /4 FOR WOMEN] or more alcoholic drinks on an occasion? ; ASBIBING

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

4. Were you offered advice about what level of drinking is harmful or risky for your health? ; ASBIADVVC

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

CATI: If question 1, 2, or 3 = 1 (Yes) continue, else go to next module.

5. Healthcare providers may also advise patients to drink less for various reasons. At your last routine checkup, were you advised to reduce or quit your drinking? ; ASBIRDUC

- 1 Yes
- 2 No
- 7 Don't know / Not sure
- 9 Refused

APPENDIX B: Healthy People 2020 and Healthy People 2030 Objectives

Healthy People 2020 Summary of Objectives

Adolescents

- SA-1 Reduce the proportion of adolescents who report that they rode, during the previous 30 days, with a driver who had been drinking alcohol.
- SA-2 Increase the proportion of adolescents never using substances.
- SA-3 Increase the proportion of adolescents who disapprove of substance abuse.
- SA-4 Increase the proportion of adolescents who perceive great risk associated with substance abuse.

Screening and Treatment

- SA-7 Increase the number of admissions to substance abuse treatment for injection drug use.
- SA-8 Increase the proportion of persons who need alcohol and/or illicit drug treatment and received specialty treatment for abuse or dependence in the past year.
- SA-9 Increase the proportion of persons who are referred for follow-up care for alcohol problems, drug problems after diagnosis, or treatment for one of these conditions in a hospital emergency department (ED).
- SA-10 Increase the number of Level I and Level II trauma centers and primary care settings that implement evidence-based alcohol Screening and Brief Intervention (SBI).

Epidemiology and Surveillance

- SA-11 Reduce cirrhosis deaths.
- SA-13 Reduce past-month use of illicit substances.
- SA-14 Reduce the proportion of persons engaging in binge drinking of alcoholic beverages.
- SA-15 Reduce the proportion of adults who drank excessively in the previous 30 days.
- SA-16 Reduce average annual alcohol consumption.
- SA-17 Decrease the rate of alcohol-impaired driving (.08+ blood alcohol content [BAC]) fatalities.
- SA-20 Reduce the number of deaths attributable to alcohol.
- SA-21 Reduce the proportion of adolescents who use inhalants.

Pregnancy and Childbirth

- MICH-11 Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women.
- MICH-11.1 Increase abstinence from alcohol among pregnant women.
- MICH-11.2 Increase abstinence from binge drinking among pregnant women.

- MICH-11.4 Increase abstinence from illicit drugs among pregnant women.
- MICH-16.4 Increase the proportion of women delivering a live birth who did not drink alcohol prior to pregnancy.
- MICH-25 Reduce the occurrence of fetal alcohol syndrome (FAS)

Healthy People 2030 Summary of Objectives

Drug and Alcohol Use

- SU-01 Increase the proportion of people with a substance use disorder who got treatment in the past year
- SU-02 Reduce cirrhosis deaths
- SU-10 Reduce the proportion of people aged 21 years and over who engaged in binge drinking in the past month
- SU-11 Reduce the proportion of motor vehicle crash deaths that involve a drunk driver
- SU-13 Reduce the proportion of people who had alcohol use disorder in the past year
- SU-D02 Increase the proportion of people who get a referral for substance use treatment after an emergency department visit

Adolescents

- SU-04 Reduce the proportion of adolescents who drank alcohol in the past month
- SU-09 Reduce the proportion of people under 21 years who engaged in binge drinking in the past month
- SU-R01 Increase the proportion of adolescents who think substance abuse is risky

Mental Health and Mental Disorders

- MHMD-07 Increase the proportion of people with substance use and mental health disorders who get treatment for both

Maternal, Infant, and Child Health

- MICH-09 Increase abstinence from alcohol among pregnant women

APPENDIX C: States Utilizing Optional ASBI Module by Year

Data Collection Description	2014	2017	2019
Combined Land Line and Cell Phone data	Connecticut, District of Columbia, Hawaii, Kentucky, Minnesota, Montana, New Mexico, Oregon, Texas, Washington, Wisconsin	Alabama, Alaska, Arizona, Arkansas, California, Connecticut, District of Columbia, Nevada, New Hampshire, Tennessee, Wisconsin	California, Georgia, Illinois, Minnesota, Montana, North Carolina, Rhode Island, South Carolina, Utah
Combined Land Line and Cell Phone data, version 1 only	Kansas	Kansas	Maryland
Combined Land Line and Cell Phone data, version 2 only	Indiana, Nebraska, New York	Colorado, Nebraska	Kansas, Nebraska, Oklahoma
Combined Land Line and Cell Phone data, version 3 only	Michigan		
Land Line data, version 2 only	Florida		
Land Line data, version 3 only	Massachusetts		

APPENDIX D: SAS and R Code for Recommended ASBI Subpopulation Variables

SCRNR

SAS Code:

```
IF (ASBIALCH_rec=1 or ASBIDRNK_rec=1 or ASBIBING_rec=1) then SCRNR=1;
  ELSE SCRNR=2;
LABEL SCRNR='Affirmative responses to Questions 1-3';
```

R Code:

```
SCRNR <-ifelse (ASBIALCH_rec ==1 | ASBIDRNK_rec ==1 | ASBIBING_rec ==1, 1, 2)
```

SCRNADVC

SAS Code:

```
IF (ASBIALCH_rec=1 OR ASBIDRNK_rec =1 OR ASBIBING_rec =1) and
ASBIADVC_rec =1 THEN SCRNADVC=1;
ELSE IF (ASBIALCH_rec=1 OR ASBIDRNK_rec =1 OR ASBIBING_rec =1) and
ASBIADVC_rec =2 THEN SCRNADVC=2;
ELSE SCRNADVC=3;
LABEL SCRNADVC='SCREENED & ADVISED ON RISKY INTAKE: 1=YES, 2=SCREENED,
BUT NOT ADVISED TO REDUCE INTAKE, 3=NO';
```

R Code:

```
SCRNADVC<-ifelse((ASBIALCH_rec ==1 | ASBIDRNK_rec ==1 | ASBIBING_rec
==1) & ASBIADVC_rec ==1, 1,
  ifelse((ASBIALCH_rec ==1 | ASBIDRNK_rec ==1 | ASBIBING_rec
==1) & ASBIADVC_rec ==2, 2, 3)
```

SCRNRDUC

SAS Code:

```
IF (ASBIALCH_rec=1 OR ASBIDRNK_rec=1 OR ASBIBING_rec=1) and
ASBIRDUC_rec=1 THEN SCRNRDUC=1;
ELSE IF (ASBIALCH_rec=1 OR ASBIDRNK_rec=1 OR ASBIBING_rec=1) and
ASBIRDUC_rec=2 THEN SCRNRDUC=2;
ELSE SCRNRDUC=3;
LABEL SCRNRDUC='SCREENED & ADVISED TO REDUCE INTAKE: 1=YES, 2=SCREENED,
BUT NOT ADVISED TO REDUCE DRINKING, 3=NO';
```

R Code:

```
SCRNRDUC <-ifelse((ASBIALCH_rec ==1 | ASBIDRNK_rec ==1 | ASBIBING_rec
==1) & ASBIRDUC_rec ==1, 1,
  ifelse((ASBIALCH_rec ==1 | ASBIDRNK_rec ==1 | ASBIBING_rec
==1) & ASBIRDUC_rec ==2, 2, 3)
```

CHECKUP_BINGE

SAS Code:

```
If checkup1 in (1,2) and _RFBING5=2 then checkup_binge=1;*Number of
people who reported binge drinking who also reported having a checkup
in the last 2 years;
    else if checkup1 in (1,2) and _RFBING5=1 then
checkup_binge=2;*People who reported no binge drinking who reported
having a checkup in the last 2 years;
    else if checkup1 in (7,8,9) or _RFBING5=9 then
checkup_binge=.*missing;
Label checkup_binge='Number of binge drinkers who reported having a
checkup in the last 2 years';
```

R Code:

```
checkup_binge<-ifelse(checkup1 %in% c(7,8,9) | _RFBING5==9, NA,
                      ifelse (checkup1 %in% c(1,2)& _RFBING5==2, 1,
                              ifelse (checkup1 %in% c(1,2)& _RFBING5==1, 2)))
```

CHECKUP_CURRENT

SAS Code:

```
If checkup1 in (1,2) and drnkany5=1 then checkup_current=1;*Number of
people who reported current drinking who also reported having a checkup
in the last 2 years;
    else if checkup1 in (1,2) and drnkany5=2 then
checkup_current=2;*People who reported no current drinking who reported
having a checkup in the last 2 years;

else if checkup1 in (7,8,9) or drnkany5 in (7,9) then
checkup_current=.*missing;
Label checkup_current='Number of current drinkers who reported having a
checkup in the last 2 years';
```

R Code:

```
checkup_current <-ifelse(checkup1 %in% c(7,8,9) | drnkany5 %in% c(7,9), NA,
                        ifelse (checkup1 %in% c(1,2)& drnkany5==1, 1,
                                ifelse (checkup1 %in% c(1,2)& drnkany5==2, 2)))
```

CHECKUP_HEAVY

Please note that the variable `_rfdrhv6` has been used since 2018 but was named differently in prior years. The corresponding variable names include `_rfdrhv5` between 2015 and 2017, and `_rfdrhv4` in 2014.

SAS Code:

```
If checkup1 in (1,2) and _rfdrhv6=2 then checkup_heavy=1;*Number of
people who reported heavy drinking who also reported having a checkup
in the last 2 years;
  else if checkup1 in (1,2) and _rfdrhv6=1 then
checkup_heavy=2;*People who reported no heavy drinking who also
reported having a checkup in the last 2 years;
  else if checkup1 in (7,8,9) or _rfdrhv6=9 then
checkup_heavy=.*missing;
Label checkup_heavy='Number of heavy drinkers who reported having a
checkup in the last 2 years';
```

R Code:

```
checkup_heavy<-ifelse(checkup1 %in% c(7,8,9) | _rfdrhv6==9, NA,
  ifelse (checkup1 %in% c(1,2)& _rfdrhv6==2, 1,
    ifelse (checkup1 %in% c(1,2)& _rfdrhv6==1, 2)))
```


References

1. "Excessive Alcohol Use." Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 6 June 2022, <https://www.cdc.gov/chronicdisease/resources/publications/factsheets/alcohol.htm>
2. Esser MB, Leung G, Sherk A, et al. Estimated Deaths Attributable to Excessive Alcohol Use Among US Adults Aged 20 to 64 Years, 2015 to 2019. JAMA Netw Open. 2022;5(11):e2239485. doi:10.1001/jamanetworkopen.2022.39485
3. "Data on Excessive Drinking." Division of Population Health , National Center for Chronic Disease Prevention and Health Promotion , Centers for Disease Control and Prevention, 28 November 2022, <https://www.cdc.gov/alcohol/data-stats.htm>