

To generate standard errors around numbers and estimates from the NCVS, the Census Bureau produced generalized variance function (GVF) parameters for BJS. The GVFs take into account aspects of the NCVS complex sample design and represent the curve fitted to a selection of individual standard errors based on the Jackknife Repeated Replication technique. The GVF parameters were used to generate standard errors for each point estimate (e.g., counts, percentages, and rates) in this report.

BJS conducted tests to determine whether differences in estimated numbers, percentages, and rates in this report were statistically significant once the sampling error was taken into account. Using statistical programs developed specifically for the NCVS, all comparisons in the text were tested for significance. The primary test procedure was the Student's t-statistic, which tests the difference between two sample estimates. Differences described as higher, lower, or different passed a test at the 0.05 level of statistical significance (95% confidence level). Differences described as somewhat, slightly, or marginally different, or with some indication of difference, passed a test at the 0.10 level of statistical significance (90% confidence level). Caution must be taken when comparing estimates not explicitly discussed in this report.

Data users can use the estimates and the standard errors of the estimates provided in this report to generate a confidence interval around the estimate as a measure of the margin of error. The following example illustrates how standard errors can be used to generate confidence intervals:

According to the NCVS, for the period 1995–2013, the rate of rape and sexual assault for female students ages 18 to 24 was 6.1 per 1,000 persons (see table 1). Using the GVFs, it was determined that the estimated victimization rate has a standard error of 0.56 (see appendix table 2). A confidence interval around the estimate was generated by multiplying the standard errors by ± 1.96 (the t-score of a normal, two-tailed

distribution that excludes 2.5% at either end of the distribution). Therefore, the 95% confidence interval around the 6.1 estimate is $6.1 \pm (0.56 \times 1.96)$ or (5.0 to 7.2). In other words, if different samples using the same procedures were taken from the U.S. female student population, 95% of the time the rape and sexual assault rate would fall between 5.0 and 7.2 per 1,000 persons.

In this report, BJS also calculated a coefficient of variation (CV) for all estimates, representing the ratio of the standard error to the estimate. CVs provide a measure of reliability and a means to compare the precision of estimates across measures with differing levels or metrics. In cases in which the CV was greater than 50%, or the unweighted sample had 10 or fewer cases, the estimate was noted with a “!” symbol. (Interpret data with caution. Estimate based on 10 or fewer sample cases, or the coefficient of variation is greater than 50%.)

Methodological changes to the NCVS in 2006

Methodological changes implemented in 2006 may have affected the crime estimates for that year to such an extent that they are not comparable to estimates from other years. Evaluation of 2007 and later data from the NCVS conducted by BJS and the Census Bureau found a high degree of confidence that estimates for 2007 through 2013 are consistent with and comparable to estimates for 2005 and previous years. The reports, *Criminal Victimization, 2006*, NCJ 219413, December 2007; *Criminal Victimization, 2007*, NCJ 224390, December 2008; *Criminal Victimization, 2008*, NCJ 227777, September 2009; *Criminal Victimization, 2009*, NCJ 231327, October 2010; *Criminal Victimization, 2010*, NCJ 235508, September 2011; *Criminal Victimization, 2011*, NCJ 239437, October 2012; *Criminal Victimization, 2012*, NCJ 243389, October 2013; and *Criminal Victimization, 2013*, NCJ 247648, September 2014, are available on the BJS website.

Appendix 1

Differences between the NCVS and other surveys measuring rape and sexual assault in a college-age population

The NCVS is one of several surveys used to study rape and sexual assault in the college-age population. In addition to the NCVS, two recent survey efforts used in research on rape and sexual assault of college students are the National Intimate Partner and Sexual Violence Survey (NISVS) and the Campus Sexual Assault Study (CSA). Each of these surveys has a different purpose and methodological approach than the NCVS. Depending on which of the three data sources are used, researchers will generate different estimates of the prevalence and frequency of rape and sexual assault victimization. Some of these differences include—

- **Survey context and scope.** In a 2014 report on the measurement of rape and sexual assault in the NCVS and other federal surveys, the National Research Council (NRC) of the National Academies of Sciences described survey context as “a major contributor of differences in the estimates of rape and sexual assault” across different data collections.⁹ Survey context refers to how the survey is described to respondents through notification letters, survey questions, or the interviewer. The NCVS is an omnibus survey designed to collect information on experiences with a broad range of crimes. It is likewise presented to respondents as a survey about criminal victimization. Because victims of rape or sexual assault may not consider their victimization a crime, this context could discourage or suppress recall and reporting of those incidents.¹⁰ Additionally, because the NCVS covers a wide range of criminal victimization, the number of screening questions related to rape and sexual assault are limited.

⁹National Research Council. (2014). *Estimating the incidence of rape and sexual assault*, p. 96.

¹⁰Krebs, C.P., Lindquist, C.H., Warner, T.D., Fisher, B.S., & Martin, S.L. (2007). The Campus Sexual Assault (CSA) study. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/grants/221153.pdf>, p. 15.

In comparison, the NISVS focused on sexual violence, stalking, and intimate partner violence and was presented as a survey collecting data on a range of behaviors that impact public health. This public health perspective may encourage respondents to recall and report on experiences that they may not typically think of as criminal victimization. It also may result in the collection of incidents that may not be considered criminal behavior. Similarly, the CSA study focused specifically on rape and sexual assault, also from a public health and safety perspective.

- **Definitions of rape and sexual assault.** The NCVS, NISVS, and CSA define rape and sexual assault slightly differently. The NCVS definition is shaped from a criminal justice perspective and includes threatened, attempted, and completed rape and sexual assault against males and females (see *Methodology*). Penetration due to coercion is included in the definition of rape, but the survey does not specifically ask about incidents in which the victim was unable to provide consent because of drug or alcohol consumption. Because the NISVS is focused on rape and sexual assault from a public health perspective, the scope of sexual violence included in NISVS is broader than the definitions used in the NCVS. In NISVS, sexual violence includes threatened, attempted, or completed rape, including incidents in which the victim was unable to provide consent due to drug or alcohol use; forced penetration of another person; sexual coercion, which includes nonphysical pressure to engage in sex; unwanted sexual contact, including forcible kissing, fondling, or grabbing; and noncontact unwanted sexual experiences, which do not involve physical contact.¹¹ The CSA definition of rape and sexual assault included unwanted sexual contact due to force and due to incapacitation, but excluded unwanted sexual contact due to verbal or emotional coercion.¹²

¹¹National Research Council. (2014). *Estimating the incidence of rape and sexual assault*, p. 86.

¹²Krebs, C.P., Lindquist, C.H., Warner, T.D., Fisher, B.S., & Martin, S.L. (2007). The Campus Sexual Assault (CSA) study. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/grants/221153.pdf>, p. 1–3.

TABLE 12
Summary of major methodological differences among the NCVS, NISVS, and CSA

	NCVS (2013)	NISVS (2011)	CSA (2007)
Purpose	To gather information on victims of crime both reported and not reported to police in the United States	To gather information related to the public health consequences of intimate partner violence; sexual violence; and related behaviors, such as stalking	To gather data on the prevalence and consequences of rape and sexual assault against college students
Population surveyed	Representative sample of persons age 12 or older residing in households in the United States	Representative sample of adults in the United States	Stratified random sample of students at two large public universities
Survey scope	A range of violent and property crimes	Sexual violence, stalking, and intimate partner violence	Rape and sexual assault
Data collection mode	In-person and telephone interviews	Random digit dialing	Self-administered, web-based
Response rate	88% person; 74% combined	33%	33% to 43% for males and females at each of the two schools
Bounded estimates to control for telescoping	Yes	No	No

- **Longitudinal versus cross-sectional design.** Both the CSA and NISVS were cross-section data collections administered to the sample a single point in time that asked about events that occurred during a specified reference period. The NCVS is a longitudinal survey administered seven times to the same sampled household, with questions asked about events occurring since the last interview. Longitudinal surveys like the NCVS have the advantage of bounding the reference period and ensuring that events occurring outside of that reference period are not included in estimates. Since research has suggested that traumatic events, such as rape and sexual assault, may be particularly prone to telescoping (i.e., the reporting of events occurring outside of a reference period as though they occurred within the specified period), unbounded surveys may have artificially high incident rates due to events occurring outside of the reference period being telescoped in.

- **Question wording.** The language and ordering of questions in a survey may affect whether a respondent indicated that an incident occurred. The three surveys used different approaches to asking about experiences with rape and sexual assault. The NCVS used a two-phased approach to identifying incidents of rape and sexual assault. Initially, a screener was administered, with cues designed to trigger the respondent's recollection of event and ascertain whether the respondent experienced victimization during the reference period. The screener questions directly focused on rape and sexual assault were—

- (Other than any incidents already mentioned), has anyone attacked or threatened you in any of these ways:... (e) any rape, attempted rape, or other type of sexual attack;
- Incidents involving forced or unwanted sexual acts are often difficult to talk about. (Other than any incidents already mentioned), have you been forced or coerced to engage in unwanted sexual activity by (a) someone you didn't know before, (b) a casual acquaintance? OR (c) someone you know well?

Even if the respondent did not respond affirmatively to these specific screeners on rape and unwanted sexual contact, the respondent could still be classified as a rape or sexual assault victim if a rape or unwanted sexual contact was reported during the stage-two incident report.

Unlike the NCVS which used terms like rape and unwanted sexual activity to identify victims of rape and sexual assault, the NISVS and CSA used behaviorally specific questions to ascertain whether the respondent experienced rape or sexual assault. For example, one question on the NISVS survey read:

- When you were drunk, high, drugged, or passed out and unable to consent, how many people ever...

- had vaginal sex with you? By vaginal sex, we mean that {if female: a man or boy put his penis in your vagina} {if male: a women or girl made you put your penis in her vagina}.
- {if male} made you perform anal sex, meaning that they made you put your penis into their anus? made you receive anal sex, meaning they put their penis into your anus?
- made you perform oral sex, meaning that they put their penis in your mouth or made you penetrate their vagina or anus with your mouth?
- made you receive oral sex, meaning that they put their mouth on your {if male: penis} {if female: vagina} or anus?¹³

Questions on the CSA used similar behaviorally specific cues to identify victims of rape and sexual assault.

- **Survey mode.** The NCVS, NISVS, and CSA used different modes of administration. The CSA study was a self-administered web survey sent via email to students at the participating colleges. Self-administered surveys are not subject to interviewer effects, but may result in lower response rates or confusion over question wording that could otherwise be clarified by an interviewer. The NISVS was a random digit dialing telephone survey. Telephone surveys exclude respondents without a phone, may be subject to sampling bias because of multiple phones associated with particular households or individuals, and may be subject to nonresponse bias due to low response rates.¹⁴ The NCVS used a multimode design that begins with an initial in-person interview, followed by telephone follow-ups every 6 months for the 3.5 years the household is in the sample. While respondents can develop rapport with the interviewer and familiarity with the survey questions, the NCVS may be more subject to interviewer effects than the CSA or NISVS.

- **Population surveyed.** The NCVS and NISVS were administered to a national sample of noninstitutionalized persons, meaning that findings are generalizable to the noninstitutionalized U.S. population of persons ages 18 to 24 with some exceptions. The NCVS uses a household-based sample, so persons who are homeless are excluded from the scope. The NISVS was administered using random digit dialing, which excludes persons without a telephone. In comparison, the CSA was administered to a stratified random sample of students at two large public universities.¹⁵ Because of the limited population included

¹³National Research Council. (2014). *Estimating the incidence of rape and sexual assault*, p. 89.

¹⁴National Research Council. (2014). *Estimating the incidence of rape and sexual assault*, p. 102.

¹⁵Krebs, C.P., Lindquist, C.H., Warner, T.D., Fisher, B.S., & Martin, S.L. (2007). The Campus Sexual Assault (CSA) study. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/grants/221153.pdf>, p. 3–11.

in the CSA, it should not be assumed that findings from the survey are representative of the population of persons ages 18 to 24 or even to college students specifically.

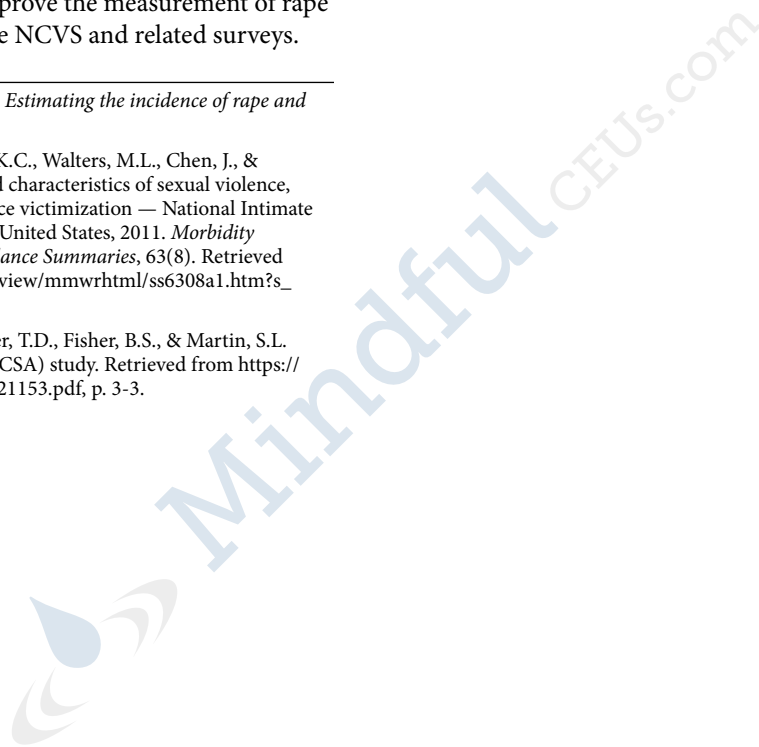
- **Survey response rates and bias.** Surveys with low response rates have an increased potential for nonresponse bias compared to surveys with higher response rates.¹⁶ Nonresponse bias means that those who participated in the survey may differ in important ways from those who did not participate, which could in turn impact the survey findings. In 2013, the NCVS had an 88% response rate for eligible persons and a combined persons and household response rate of 74%, while the 2011 NISVS had an overall response rate of 33.1%, and the CSA response rate was between 33% and 43% for males and females at the two schools.^{17,18}

Measuring rape and sexual assault victimization is an evolving field. BJS is currently engaged in a variety of projects exploring ways to improve the measurement of rape and sexual assault through the NCVS and related surveys.

¹⁶National Research Council. (2014). *Estimating the incidence of rape and sexual assault*, p. 127.

¹⁷Breiding, M.J., Smith, S.G., Basile, K.C., Walters, M.L., Chen, J., & Merrick, M.T. (2014). Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization — National Intimate Partner and Sexual Violence Survey, United States, 2011. *Morbidity and Mortality Weekly Report, Surveillance Summaries*, 63(8). Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6308a1.htm?s_cid=ss6308a1_e.

¹⁸Krebs, C.P., Lindquist, C.H., Warner, T.D., Fisher, B.S., & Martin, S.L. (2007). The Campus Sexual Assault (CSA) study. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/grants/221153.pdf>, p. 3-3.



APPENDIX TABLE 1

Estimates and standard errors for figure 2: Rate of rape or sexual assault for females, by age and post-secondary enrollment status, 1997–2013

	Estimates			Standard errors		
	Students ages 18–24 ^a	Nonstudents ages 18–24 ^b	Non-college-age females ^c	Students ages 18–24 ^a	Nonstudents ages 18–24 ^b	Non-college-age females ^c
1997	9.2	7.9	3.6	2.9	2.0	0.5
1998	7.8	8.9	3.1	2.9	2.3	0.5
1999	6.0	11.2	3.5	2.1	2.3	0.4
2000	7.1	12.2	2.8	2.3	2.5	0.4
2001	8.8	11.2	3.0	2.7	2.3	0.4
2002	8.9	10.0	2.2	2.7	2.2	0.3
2003	7.6	8.8	2.2	2.4	2.1	0.3
2004	6.5	7.0	1.8	2.4	2.0	0.3
2005	4.7	5.6	1.6	1.9	1.6	0.3
2006	5.4	5.5	1.7	2.1	1.7	0.3
2007	5.5	5.4	1.7	1.8	1.5	0.3
2008	5.2	6.7	1.9	2.1	2.0	0.3
2009	3.7	8.3	1.6	1.5	2.1	0.3
2010	4.1 !	8.4	1.6	1.8	2.3	0.3
2011	4.6	7.1	1.4	1.7	1.9	0.3
2012	5.9	4.1	1.3	2.0	1.4	0.3
2013	4.4	4.3	1.4	1.4	1.2	0.2

Note: Estimates based on 3-year rolling averages centered on the most recent year.

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

^aIncludes female victims ages 18 to 24 enrolled part time or full time in a post-secondary institution (i.e., college or university, trade school, or vocational school).

^bIncludes female victims ages 18 to 24 not enrolled in a post-secondary institution.

^cIncludes females ages 12 to 17 and age 25 or older.

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 2

Standard errors for table 1 and figure 3: Rape or sexual assault victimization against females ages 18 to 24, by type of victimization and post-secondary enrollment status, 1995–2013

	Students		Nonstudents	
	Average annual number	Rate	Average annual number	Rate
Total	10,416	0.6	15,603	0.5
Completed rape	5,755	0.3	9,499	0.3
Attempted rape	5,014	0.3	7,230	0.2
Sexual assault	5,599	0.3	7,808	0.2
Threat of rape or sexual assault	3,292	0.2	4,064	0.1

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 3

Standard errors for table 2: Rate of violent victimization among females ages 18 to 24, by type of violence and post-secondary enrollment status, 1995–2013

	Students	Nonstudents
Violent crime	2.5	2.8
Serious violence	1.0	1.1
Rape and sexual assault	0.6	0.5
Robbery	0.5	0.5
Aggravated assault	0.6	0.7
Simple assault	1.8	2.0

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 4

Standard errors for table 3: Rape and sexual assault victimization, by sex of victim and post-secondary enrollment status, 1995–2013

	Students			Nonstudents		
	Average annual number	Percent of victimizations	Rate	Average annual number	Percent of victimizations	Rate
Male	4,557	2.7%	0.3	2,976	1.0%	0.1
Female	10,416	2.9	2.9	15,603	1.2	0.5

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 5

Standard errors for table 4: Location, victim activity, and time of day of the rape/sexual assault victimization among females ages 18 to 24, by post-secondary enrollment status, 1995–2013

	Students	Nonstudents
Location where crime occurred		
At or near victim's home	3.9%	3.0%
At or near home of friend/relative/acquaintance	3.6	2.1
Commercial place/parking lot or garage	2.8	2.0
School	1.5!	0.7!
Open areas/public transportation/other	2.6	2.0
Activity when crime occurred		
Traveling to or from other place/shopping or errands/leisure activity away from home	4.1%	2.6%
Sleeping/other activities at home	3.7	2.9
Working or traveling to work	2.2!	2.0
Attending school or traveling to school	1.7!	0.8!
Other/unknown	1.3!	1.0
Time of day		
Daytime (6 a.m. – 6 p.m.)	3.7%	2.8%
Night (6 a.m. – 6 p.m.)	3.9	2.9
Unknown	1.2!	0.6!

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 6

Standard errors for table 5: Presence of weapon and injury to victim in rape or sexual assault victimizations against females ages 18 to 24, by enrollment status, 1995–2013

	Students	Nonstudents
Involving weapons		
No weapon	3.2%	2.2%
Weapon	2.4!	1.8
Don't know	2.0	1.1
Involving injuries		
No injury	4.0%	2.9%
Injury	4.0	2.8
Treatment for injuries		
No treatment	4.0%	2.9%
Any treatment	3.9	2.8

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 7

Standard errors for table 6: Victim–offender relationship in rape or sexual assault victimizations against females ages 18 to 24, by post-secondary enrollment status of victim, 1995–2013

Victim–offender relationship	Students	Nonstudents
Stranger	3.2%	2.3%
Nonstranger	3.4%	2.4%
Intimate partner	3.4	2.7
Relative	0.9!	0.5!
Well-known/casual acquaintance	4.1	2.8

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 8

Standard errors for table 7: Perceived offender characteristics in rape and sexual assault victimizations against females ages 18 to 24, by post-secondary enrollment status, 1995–2013

	Students	Nonstudents
Number of offenders		
One	1.9%	1.7%
Two or more	1.6!	1.1
Unknown	~	1.0!
Age		
18–20	2.9%	1.9%
21–29	4.1	3.0
30 or older	3.3	2.4
Other mixed group	1.0!	0.8
Unknown	1.9	1.3
Sex		
Male	1.4%	1.7%
Female	0.6!	0.9!
Mixed group/unknown	0.9!	1.2!
Race		
White	3.9%	2.9%
Black	3.1	2.4
Other/mixed group	2.3	1.8
Unknown	2.0	1.3
Alcohol/drug use		
Yes	4.0%	2.9%
No	3.4	2.8
Don't know/unknown	3.6	2.4

~Not applicable.

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013

APPENDIX TABLE 9

Standard errors for figure 1 and 8: Rape or sexual assault victimizations against females ages 18 to 24 reported and not reported to police and reasons for not reporting, by post-secondary enrollment status, 1995–2013

	Students	Nonstudents
Reported	3.1%	3.7%
Not reported	2.4%	2.8%
Reason for not reporting		
Reported to different official	1.5!	2.3
Personal matter	3.8	2.9
Not important enough to respondent	2.7	1.4
Police would or could not do anything to help	2.4	2.6
Did not want to get offender in trouble with law	2.6	1.9
Advised not to report	~!	0.6!
Fear of reprisal	3.5	2.7
Other reason	4.1	3.3

~Not applicable.

! Interpret with caution; estimate based on 10 or fewer sample cases, or coefficient of variation is greater than 50%.

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 10

Standard errors for table 9: Receipt of assistance from a victim service agency among female rape or sexual assault victims ages 18 to 24, by post-secondary enrollment status, 1995–2013

	Students	Nonstudents
Received assistance	2.8%	2.2%
Did not receive assistance	3.1	2.3

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 11

Standard errors for table 10: Rate of rape and sexual assault against female victims ages 18 to 24, by demographic characteristics and post-secondary enrollment status, 1995–2013

	Students	Nonstudents
Age		
18–19	1.0	1.0
20–21	0.8	1.0
22–24	0.9	0.6
Race/Hispanic origin		
White	0.7	0.7
Black	1.4	1.0
Hispanic	1.1	0.7
Other	1.2	1.6
Region		
Northeast	1.1	0.8
Midwest	1.2	1.2
South	0.8	0.7
West	1.0	1.0
Location of residence		
Urban	0.8	0.8
Suburban	0.8	0.6
Rural	1.2	1.1

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1995–2013.

APPENDIX TABLE 12

Standard errors for table 11: Number of female students ages 18 to 24 enrolled in post-secondary institutions according to the NCVS and NCES, 1997–2011

Year	National Crime Victimization Survey
1997	204,417
1998	185,721
1999	237,939
2000	205,519
2001	245,489
2002	294,786
2003	235,086
2004	269,608
2005	272,300
2006	260,057
2007	240,618
2008	234,551
2009	233,346
2010	243,656
2011	259,479

Source: Bureau of Justice Statistics, National Crime Victimization Survey, 1997–2011.



“This course was developed from the public domain document: Rape and Sexual Assault: A Renewed Call to Action: The White House Council on Women and Girls – The White House (2014).”

“This course was developed from the public domain document: Rape and Sexual Assault Victimization Among College-Age Females, 1995-2013 U.S Department of Justice, Office of Justice Programs (2014).”