

# **Bigger is not Necessarily Better: An Analysis of Violence Against Women Estimates from the National Crime Victimization Survey and the National Violence Against Women Survey**

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Apparent differences between violence against women estimates from the National Crime Victimization Survey (NCVS) and the National Violence Against Women Survey (NVAWS) continue to generate confusion. How is it that two surveys purporting to measure the nature and extent of violence against women present such seemingly dissimilar estimates? The answer is found in the important, yet often over-looked details of each survey. Our objective is to clarify some of the reasons for apparent disparities between NCVS and NVAWS estimates by first identifying why published estimates are not comparable. Next, we adjust NCVS estimates to make them comparable to NVAWS estimates by restricting NCVS estimates to 1995 and including only persons age 18 or older, and by applying the NVAWS series victimization counting protocol to NCVS estimates. Contrary to findings in the literature, the NVAWS did not produce statistically greater estimates of violence against women compared to the NCVS. Further, incident counting protocols used in the NVAWS and the recalibrated NCVS increased the error, and decreased the reliability of the estimates.

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**KEY WORDS:** NCVS; NVAWS; victimization; violence against women; series victimizations.

## **1. INTRODUCTION**

In 1992, the National Crime Victimization Survey (NCVS) was redesigned to (among other things) better measure violence against women

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(Bachman and Saltzman, 1995; Taylor and Rand, 1995). Between November 1995 and May 1996 the National Violence Against Women Survey (NVAWS) was fielded by the Centers for Disease Control and Prevention and the National Institute of Justice to close gaps in research on violence against women (Tjaden and Thoennes, 1998). Since the release of the NVAWS, these two surveys have been viewed as competing sources of estimates of the extent of violence against women in the United States. The NCVS, as the Nation's largest ongoing survey measuring the extent and characteristics of crime in the United States is often used to benchmark other crime estimates. For example, Tjaden and Thoennes (1998, p. 5) compared NVAWS estimates of the total annual number of rape and physical assault victimizations to those of the NCVS in their initial release of the NVAWS, finding that, "(t)he NVAW Survey estimates of annual physical assaults are greater than the NCVS estimates." Tjaden and Thoennes acknowledged that efforts to compare the estimates from the two surveys are confounded by differences in methodologies, and cited differences in populations studied, screening questions, crime definitions and crime counting protocols. While they offered some possible explanations for the differences in the estimates, they did not attempt to account for them.

Bachman (2000) presented a more comprehensive discussion of the methodological differences between the NCVS and NVAWS and offered a comparison of annual incident rates of rape and physical assault against women after making the data as comparable as possible. From this analysis, she argued that, "...the number of rape victimizations uncovered by the NVAWS is significantly higher than estimates obtained by the NCVS" (Bachman, 2000, p. 851). She also found that there were no significant differences between NCVS and NVAWS estimates of physical assault against women, but that, "the NVAWS has a greater likelihood of capturing incidents of intimate-perpetrated rape and physical assault compared to the NCVS" (Bachman, 2000, pp. 859–860). To date, Bachman's research represents the only published attempt to bridge the methodological differences between the NCVS and NVAWS. Unfortunately her conclusions were based on an erroneous presentation of NVAWS confidence intervals.

Our goal is to build upon Bachman's research, correct the error identified and address two basic questions: To what extent do estimates of violence against women from the NCVS and NVAWS differ? To the extent that the estimates differ, are the higher estimates "better"; that is, more accurate estimates of violence against women occurring in the United States? To address these questions, we review a number of methodological differences between the surveys. While it is not possible to evaluate empirically the impact of many of the methodological differences identified, we focus our investigation on one of the factors that can be studied empirically:

the influence of recurring victimization on the annual incidence estimates from the two surveys. In doing so, we raise questions concerning the construction of annual incidence estimates and the need for more research about the nature of recurring violence. Results demonstrate that methods used to compute the higher estimates can introduce a great deal of error, making them unreliable, thereby challenging the belief that higher estimates are invariably better than lower estimates. Ultimately our goal is to prompt development of more meaningful, reliable estimates of violence against women.

## **2. THE SURVEYS: NCVS AND NVAWS**

The NCVS, an ongoing omnibus crime survey conducted by the Bureau of Justice Statistics (BJS) was first fielded as the National Crime Survey (NCS) in July 1972. The survey was renamed following a major redesign in 1992 that enhanced screening questions and improved estimates of difficult to measure victimizations such as rape, sexual assault and violence by non-strangers. The NCVS produces estimates of seven major types of crime: rape, sexual assault, robbery, assault (aggravated and simple), burglary, theft and motor vehicle theft. Self-report interviews for the NCVS are conducted by the Census Bureau for BJS at a national stratified sample of addresses drawn from each decennial census. Addresses remain in sample for 3 years, and all residents age 12 or older are interviewed at 6 month intervals, for a total of seven interviews. The interview has two components; a screening questionnaire and an incident report form. The screening questionnaire contains a number of questions that ascertain whether the respondent was a victim of a measured offense during the previous 6 months. For every incident uncovered in the screening questionnaire, an incident report form is filled, obtaining a broad range of information about the circumstances, offender and consequences to the victim. On average, interviews are conducted with about 80,000 residents of 45,000 households each 6 months. The primary measures produced by the NCVS are annual incidence, year-to-year change and trend estimates.

The National Violence Against Women Survey, a one time telephone survey conducted from November 1995 through May 1996, was promoted as a state-of-the-art survey designed to improve upon estimates of violence against women, including rape, physical assault, stalking as well as intimate partner rape, intimate physical assault and their combination. It was administered to a national sample of 8000 women and 8000 men drawn by random digit dialing (Tjaden and Thoennes, 1998). Like the NCVS, the NVAWS interview was composed of a screening segment and an incident report. Unlike the NCVS, the NVAWS screener asks about physical violence experienced as a child, and separately about physical violence

experienced as an adult. Therefore for physical violence in the NVAWS, lifetime prevalence estimates include both the childhood assaults by adult caretakers and adult assaults by any perpetrator. The NVAWS also estimated lifetime prevalence of rape and stalking victimizations. Incident reports were completed only for the most recent incident committed by each unique perpetrator. The NVAWS generated lifetime and annual prevalence estimates, and annual incidence estimates.

## 2.1. Comparing Published Estimates

NCVS and NVAWS estimates have been the subject of comparisons (Bachman, 2000; Tjaden and Thoennes, 1998). Because NCVS reports do not measure crime prevalence, (i.e., the number of victims), comparisons between the NCVS and NVAWS have been limited to the annual incidence measure (i.e., the number of incidents of violence occurring during a year), and annual victimization rates (i.e., the number of incidents divided by the population being studied multiplied by 1000).

The NVAWS estimated that there were 9 rapes per 1000 women, and 59 physical assaults per 1000 women during a 1 year period approximating 1995. The published estimates from the 1995 NCVS, a comparable period to the NVAWS, are considerably lower; 2 rapes per 1000 women, and 31 physical assaults per 1000 women (Taylor, 1997).<sup>4</sup> The disparity between the two survey's estimates for this year is greater than it initially appears since the NCVS estimates describe victimizations against people age 12 and older, while the NVAWS estimates characterize victimizations against people age 18 and older (Table I).

## 2.2. Accounting for Differences in Published Estimates

The observation of large differences between NCVS and NVAWS estimates was established with the first publication of data from the NVAWS (Tjaden and Thoennes, 1998). Tjaden and Thoennes (1998, 2000a, b) hypothesized that counting rules (i.e., the exclusion of "series" incidents from the NCVS estimates) contributed to differences between estimates, and that other methodological attributes may have also played a large role. Specifically, they argued that state-of-the-art interviewing techniques and explicit screen questions increased responses to the NVAWS while some of the NCVS procedures and screen questions were less productive in obtaining information about violence that people experienced (e.g., see Tjaden and Thoennes, 2000b, pp. 15–16.)

<sup>4</sup>For an explanation for choosing 1995 as the comparison year, see Section 3 below.

**Table I.** Published Rates of Annual Incidence of Violence Against Women From the National Crime Victimization Survey (NCVS) and the National Violence Against Women Survey (NVAWS)

Type of violence	NCVS number	1995 rate*	NVAWS number	rate**
Total rape or physical assault	3,612,930	32.4	6,807,117	67.6
Rape	214,780	1.9	876,064	8.7
Physical assault	3,398,150	30.5	5,931,053	58.9

\*rate per 1000 females age 12 and older.  
\*\*rate per 1000 females age 18 and older.  
*Sources:* NCVS: Criminal Victimization in the United States, 1995. Washington DC, U.S. Department of Justice, Bureau of Justice Statistics. NCJ 171129. Excludes NCVS crimes of sexual assault and robbery.  
NVAWS: Tjaden and Thoennes (2000b) Full Report of the Pevalence, Incidence and Consequences of Violence Against Women: Findings from the National Violence Against Women Survey. Washington DC: National Institute of Justice and Centers for Disease Control and Prevention.

Table II summarizes attributes of NCVS and NVAWS methodologies. The NCVS and the NVAWS are each based on a nationally representative sample, and each attempts to measure (among other things) the extent and characteristics of rape and physical assault against females as well as intimate partner rape and physical assault and the combination of the two. Beyond these similarities, methodological differences between the NCVS and NVAWS are extensive and consequential.

While the impact of methodological differences between the two surveys on estimates has been hypothesized, the true influence of these differences is difficult to evaluate. For example, Tjaden and Thoennes argued that explicitly-worded screener questions in the NVAWS increased NVAWS victimizations estimates compared to NCVS. The first NVAWS rape screen question asked: “Has a man or boy ever made you have sex by using force or threatening to harm you or someone close to you? Just so there is no mistake, by sex we mean putting a penis in your vagina.” These questions were designed to “leave little doubt in the respondent’s mind as to the type of information being sought” (Tjaden and Thoennes, 2000b, p. 1).

In lieu of explicit questions, NCVS uses extensive and detailed screen questions which promote recall of a broad range of victimizations across many contexts (Mosher *et al.*, 2002).<sup>5</sup> While the lack of explicitness in NCVS cue questions may result in the failure to pick up some incidents of

<sup>5</sup>The NCVS uses numerous screening and incident based questions to determine the type of victimization. For example, to establish that a physical assault has occurred, 10 screening questions and 17 incident based questions are used. Because of the complex nature of the screener and incident questions used in the NCVS, they are not presented here. For specific information, see the NCVS-1 and NCVS-2 questionnaires at <http://www.ojp.usdoj.gov/bjs/cvict.htm>

**Table II.** Comparison of NCVS and NVAWS Methodologies

	NCVS	NVAWS
Purpose	<ul style="list-style-type: none"> <li>• Measure the extent, and characteristics of a select set of serious violent and property offenses</li> <li>• Measure crimes not reported to police</li> <li>• Measure changes in the levels and rates of crime</li> </ul>	<ul style="list-style-type: none"> <li>• Produce lifetime and annual measures of violence against women</li> <li>• Provide a measure of stalking</li> </ul>
Sampling frame	<ul style="list-style-type: none"> <li>• National probability sample of addresses</li> </ul>	<ul style="list-style-type: none"> <li>• National probability random digit dial sample</li> </ul>
Exclusions	<ul style="list-style-type: none"> <li>• Institutionalized people</li> <li>• Homeless</li> </ul>	<ul style="list-style-type: none"> <li>• Institutionalized people</li> <li>• Homeless</li> <li>• Persons without telephones</li> </ul>
Interview method	<ul style="list-style-type: none"> <li>• Combination personal visit (40%), computer assisted telephone (30%) and paper and pencil telephone (30%)</li> </ul>	<ul style="list-style-type: none"> <li>• Computer aided telephone interviews (100%)</li> </ul>
Frequency/sample size	<ul style="list-style-type: none"> <li>• Ongoing/ 80,000 persons in 45,000 households each 6 months</li> </ul>	<ul style="list-style-type: none"> <li>• One time/ 8000 females and 8000 males</li> </ul>
Methodological features	<ul style="list-style-type: none"> <li>• Bounded interviews</li> </ul>	<ul style="list-style-type: none"> <li>• Unbounded interviews</li> <li>• Females respondents interviewed by female interviewers</li> <li>• Males interviewed by both males and female interviewers</li> </ul>
Respondent age	<ul style="list-style-type: none"> <li>• 12 years and older</li> </ul>	<ul style="list-style-type: none"> <li>• 18 years and older</li> </ul>
Response rate	<ul style="list-style-type: none"> <li>• 93% of eligible households</li> <li>• 89% of persons in interviewed households</li> </ul>	<ul style="list-style-type: none"> <li>• 72% of females; 69% of males (see text)</li> </ul>
Crimes measured	<ul style="list-style-type: none"> <li>• Rape</li> <li>• Sexual assault</li> <li>• Aggravated assault</li> <li>• Simple assault</li> <li>• Pocket picking/purse snatching</li> <li>• Household burglary</li> <li>• Theft</li> <li>• Motor vehicle theft</li> </ul>	<ul style="list-style-type: none"> <li>• Rape</li> <li>• Sexual assault</li> <li>• Physical assault</li> <li>• Stalking</li> </ul>
Types of estimates	<ul style="list-style-type: none"> <li>• Annual incidence</li> </ul>	<ul style="list-style-type: none"> <li>• Annual incidence</li> <li>• Annual prevalence</li> <li>• Lifetime prevalence</li> </ul>
Incidence estimate construction	<ul style="list-style-type: none"> <li>• Individual incident reports filled for each incident.</li> <li>• Series incidents excluded from annual estimates</li> </ul>	<p>Annual incidence = annual prevalence times number of incidents reported</p>

violence, the research on this question is far from complete. Some researchers (e.g. Biderman and Lynch, 1991; O'Brien, 1985) found that victimization surveys often include many "non-crimes" and "trivial" offenses. Fisher and Cullen summarized the state of knowledge regarding best methods for constructing questions to screen for rape and sexual assault and found that "... we have only a beginning understanding of the validity of the cueing or screen questions used in sexual assault victimization surveys and of how different questions might prompt women to report, at higher or lower levels, their having been sexually victimized" (2000, p. 378).<sup>6</sup>

Further differences between the surveys are found in questions used to screen for physical assaults. To screen for assaults, NVAWS uses a modified Conflict Tactics Scale (CTS) (Straus, 1979, 1992) while the NCVS uses numerous detailed screen questions. Though Conflict Tactic Scales were originally designed to measure a variety of conflict behaviors between family members (Straus and Gelles, 1992), they are frequently used to measure physical and psychological violence among non-family members as well.

Other key methodological differences between the NCVS and the NVAWS include the surveys' purpose/context, the reference periods used and the bounding of incidents. That the NCVS' purpose is to measure crimes of violence and theft both reported and not reported to police is made clear to respondents throughout the survey. The first screening question begins, "I'm going to read some examples that will give you an idea of the kinds of crimes this study covers." The NVAWS was presented to respondents as a survey of personal safety. Respondents were questioned about their fear of violence and how they have accommodated those fears, whether they experienced emotional abuse by current or former spouses/partners and whether they had ever been stalked in addition to whether they had been raped or assaulted as children, or as adults either during their lives or during the previous 12 months. Respondents to the NVAWS, therefore, would be encouraged to report victimizations that might not be reported by respondents to the NCVS.

Surveys that use a retrospective reference period tend to offer inflated estimates due to telescoping (i.e., respondents recall events as occurring more recently than they actually occurred) (Mosher et al., 2002). Such recall problems have been found to increase greatly for periods greater than 6 months; this is the reason the NCVS uses a 6 month reference period (Cantor and Lynch, 2000). Inflation of estimates due to telescoping is minimized in the NCVS by bounding. Bounding is accomplished by using

<sup>6</sup> In the NCVS, the respondent is encouraged to provide information on events "even if they do not believe it is a crime." Any non-crimes are removed during data processing at the Census Bureau and do not appear on public-use data files.

previous respondent interviews to establish a baseline for subsequent interviews. In other words, bounding firmly establishes that the incident occurred during the 6 months prior to the interview. It was estimated that a failure to bound incidents in the pre-redesigned NCS would have inflated estimates of victimization by about 50% (Biderman and Cantor, 1984). Using 1999 data on adolescents, Planty (2003) found estimates based on bounded data revealed 30% fewer total victimizations, violent victimizations, and theft compared to estimates based on unbounded data. Because each respondent was interviewed one time, the NVAWS could not utilize a bounding strategy, suggesting that estimates are likely inflated to some unknown degree.

The influence of most of the methodological differences identified in Table II is difficult or impossible to calculate. Some features of each survey tend to make estimates more accurate while other features may introduce error. For example, the NCVS bounding procedures minimize the inclusion of incidents that actually occurred outside the reference period. The NVAWS annual estimate may include such out of scope incidents because it cannot utilize such a bounding protocol. The shorter reference period used in the NCVS also fosters more accurate estimates (Skogan, 1981, p. 19). Conversely, the behaviorally specific screening used in the NVAWS may increase the reporting of sensitive offenses such as rape and intimate partner violence. The impact of these and other methodological differences may be substantial, although some may offset others to some extent. Nonetheless, because the methodological differences are so numerous, it is not possible to isolate the influence of each factor. While it is beyond the scope of this paper to detail the consequence of every methodological difference, one difference that can be assessed is the way the two surveys treat recurring victimizations in the construction of annual incidence estimates.

### **2.3. Recurring Victimization**

Recurring violence presents difficulties for all victimization survey researchers. Asking for detailed information about every incident from people who suffer multiple victimizations over time can invoke serious time and emotional burdens upon respondents and substantially increase survey costs. Aside from the differing screening strategies, the way the NCVS and NVAWS treat recurring victimization is perhaps the most significant source of differences between the respective estimates.

The NCVS deals with recurring victimization through its "series" victimization protocol. The NCVS defines series victimizations as those that occurred six or more times during the 6-month reference period, that were



similar in nature, and for which the victim cannot recall sufficient detail about each incident.<sup>7</sup> For series victimizations, the interviewer obtains detailed information about the most recent incident in the series, as well as some general information about the overall nature of the series.

BJS publications using the NCVS exclude series victimizations from annual estimates (e.g., Rennison, 1999, 2000, 2001a, 2002a; Rennison and Rand, 2003). This is done because it is “not obvious how or whether they should be combined with the vast majority of crime incidents that are separately reported” (Dodge, 1987). A primary factor in their exclusion is the inability to classify all the incidents in the series using the NCVS complex crime classification procedures. To classify each incident requires information about the nature of the threat or attack, whether and how seriously a victim was injured and how the offender used a weapon if present. For series victimizations, this information is obtained only for the most recent incident in the series, and therefore, it is not possible to accurately classify every incident within the series.

In 1995, series victimizations (counted as one crime, not the number of incidents within the series) represented about 6% of all violent victimizations, with some variation across crime types and victim characteristics (Bureau of Justice Statistics, 2000).<sup>8</sup> Since the redesign, series victimizations represent about 10% of all intimate partner victimizations against women, and 9% of the victimizations against men.<sup>9</sup> While excluded entirely from annual estimates, many BJS NCVS-based reports that aggregate data across years have included series victimizations—counted as one victimization—in the estimates (see e.g., Hart and Rennison, 2003; Klaus and Rennison, 2002; Rennison, 2001b, 2002b). For reasons discussed later in the paper, no BJS report has ever included estimates that reflect the counting of the number of incidents in series victimizations.

<sup>7</sup> Originally the NCS defined series as three or more similar incidents. This was changed to six or more in the survey redesign after research suggested that respondents could generally remember the details of less than six victimizations (Dodge, 1987). The change in the definition of series crimes from three to six increased the rate of crime by an estimated 1 to 5%. For assaults, intimate partner violence and some types of theft, it is estimated that rates increased 10 to 15% (Mosher *et al.*, 2002).

<sup>8</sup> The effect of combining series and non-series crimes, counting each of the series crimes as a single victimization based on the details of the most recent incident, is discussed in a 1982 Bureau of Justice Statistics Technical Report (see NCJ-80838, BJS 1982). The report showed that victimization counts and rates were significantly higher in 1979 and 1980 when the series crimes were added. However, rate changes between these 2 years were basically in the same direction and significantly affected the same crimes as those affected when only non-series crimes were analyzed. See also Rand and Saltzman (2003).

<sup>9</sup> These estimates were produced by the authors. Information on these estimates is available upon request.

The NVAWS has adopted a very different counting method for dealing with recurring violence. For rape, NVAWS first produced a lifetime prevalence estimate. For physical assault, the survey screened for childhood assaults by caretakers and adult assaults by any perpetrator. For rapes and physical assaults experienced as an adult, respondents identified how many different offenders committed these offenses. For every offender, the victim was asked whether any offenses occurred during the previous 12 months, and if so, how many times the violence occurred during the previous 12 months. Using this information, NVAWS incidence estimates were calculated by multiplying the number of victims by the number of times victimized during the previous 12 months.

In order to determine the influence of differences in incident counting protocols, NVAWS counting protocols were applied the NCVS data. That is, series victimizations were included in the present violence estimates using the NCVS. As will be demonstrated, applying these counting rules introduces a considerable amount of error into the estimates. Our plan for making these estimates comparable is presented in the next section.

### 3. THE ANALYTIC PLAN

Our analytic strategy is to make NCVS and NVAWS annual incidence estimates as comparable as possible, and to conduct statistical tests on these estimates to determine if resulting violence against women estimates differ statistically.<sup>10</sup> Several steps are necessary to make NCVS and NVAWS estimates comparable. First, the analysis is restricted to a comparison of NVAWS and 1995 NCVS estimates. NVAWS data were collected between November 1995 and May of 1996. Respondents were asked to recall events that had taken place the previous 12 months (i.e., a period ranging from November 1994 through May 1996). For comparison, we used NCVS data for 1995, the same time period used by Bachman (2000). NCVS data were collected from February 1995 to June 1996, and include incidents occurring between January and December 1995. Tjaden and Thoennes (1998, 2000a, 2000b) used 1994 NCVS results as their benchmark, because these were the most recent data available at the time.

<sup>10</sup> Clearly other adjustments would be required to make NCVS and NVAWS estimates absolutely comparable. Unfortunately, many of these adjustments are not possible. For example because the NVAWS was a one time survey, there is no way to determine the degree of estimate inflation since the data are unbounded. NCVS was selected for recalibration in this analysis because NVAWS estimates cannot be recalibrated. For example, because no one under age 18 was interviewed in the NVAWS, victimizations estimates for this group are not available.

The NCVS victimizations included in this analysis are aggravated assaults, simple assaults and rapes. NCVS victimizations of sexual assault<sup>11</sup> and robbery are excluded because the NVAWS did not screen specifically for this violence. The NVAWS may include some incidents that would classify as robberies in the NCVS since robberies include an element of threat, which is screened for in the NVAWS.

The next step toward comparability in estimates is the exclusion of persons age 12 to 17 from NCVS data. By restricting NCVS estimates to persons age 18 or older, they match the eligible population in the NVAWS. And finally, the NVAWS series victimization counting protocol is applied to the NCVS (i.e., series victimizations are included and multiplied by the number of times the respondent reported being victimized).

We restrict our analysis to comparisons of annual incidence of rape, assault, intimate partner rape, intimate partner assault and the combination of the two, because these are the victimizations each survey has in common.<sup>12</sup> Our comparisons are also confined to violence against women, though similar comparisons could be produced for violence against men. Intimate partner is defined similarly in both the NCVS and NVAWS and includes current or former spouses, boyfriends or girlfriends.<sup>13</sup>

To address the issues outlined above we begin by presenting tables with recalibrated NCVS and NVAWS estimates for total rape and physical assault, and for intimate partner rape and physical against women in 1995. Next we present confidence intervals for the estimates to demonstrate the difference, if any, between the estimates. From these findings, a discussion related to the development of more meaningful, reliable estimates of violence against women is presented.

#### 4. FINDINGS

Table III presents levels and rates per 1000 of the annual incidence of violence against women. The NCVS estimates reflect the recalibration discussed above and the NVAWS estimates come from published estimates (Tjaden and Thoennes, 2000a/b). Table III demonstrates that the change in recalibrated NCVS estimates from published NCVS estimates (presented in Table I) is substantial. For violence against women age 18 or older, NCVS rape estimates increased about 50% (1.8 to 2.6 rapes per 1000 women age 18+), physical assault estimates tripled (25.8 to 80.4), and intimate partner violence (i.e., rape and physical assault) estimates quadrupled (7.1 to 27.6).

<sup>11</sup> NCVS measures rape and sexual assault as distinct forms of violence.

<sup>12</sup> Intimate partner violence includes rapes and physical assaults.

<sup>13</sup> This includes same-sex relationships between women.

**Table III.** 1995 Number and Rate per 1000 Women age 18+ of Rape and Physical Assault, National Crime Victimization Survey (NCVS) and the National Violence Against Women Survey (NVAWS)

Type of violence	NCVS 1995					
	Excluding series		Including series		NVAWS	
	Number	Rate*	Number	Rate*	Number	Rate*
Total rape or physical violence	2,760,008	27.5	8,292,301	83.0	6,807,117	67.6
Rape	176,030	1.8	256,469	2.6	876,064	8.7
Assault	2,583,978	25.8	8,035,832	80.4	5,931,053	58.9
Total intimate partner violence	712,312	7.1	2,759,091	27.6	4,773,037	47.4
Rape	51,799	0.5	82,653	0.8	322,230	3.2
Physical assault	660,513	6.6	2,676,438	26.7	4,450,807	44.2

\*rate per 1000 females age 18 or older.

*Note:* detail may not add to total due to rounding.

*Sources:* NCVS: 1995 National Crime Victimization Survey.

NVAWS: Tjaden and Thoennes (2000b) Full Report of the Prevalence, Incidence and Consequences of Violence Against Women: Findings from the National Violence Against Women Survey. Washington DC: National Institute of Justice and Centers for Disease Control and Prevention.

Comparing recalibrated NCVS and NVAWS estimates suggests that NCVS rape and intimate partner rape and physical assault estimates are nominally lower than equivalent NVAWS estimates, and that the recalibrated NCVS physical assault estimate is higher than the equivalent NVAWS estimate.<sup>14</sup>

Because the NCVS and the NVAWS are sample surveys, they are subject to sampling error. Therefore it cannot be assumed based on point estimates only—even when point estimates appear *very* different—that NCVS and NVAWS estimates differ. In order to take into account sampling error and determine if NCVS and NVAWS estimates differ statistically, standard errors and 95% confidence intervals (CI) are provided for each estimate. By examining the overlap, or lack of overlap in the 95% CI, we can determine with a degree of certainty whether nominal differences between NCVS and NVAWS estimates represent actual differences or are likely due to sampling error.

Table IV offers NCVS and NVAWS estimates, accompanying confidence intervals, standard errors and associated *z*-scores. Not surprisingly, NVAWS confidence intervals are substantially larger than are NCVS estimates.<sup>15</sup> (See Fig. 1). This is to be expected given the relatively large size of the NCVS sample compared to the NVAWS sample. Other things being equal, as sample size increases, sampling error decreases. The relative standard errors of the NVAWS rape and intimate partner rape estimates are extremely high, and the 95% CI for the rape estimate encompasses zero, indicating that these estimates are not robust.

Tests of significance in Table IV demonstrate that while the point estimates between NCVS and NVAWS appear substantially different, there are no statistically significant differences between estimates for overall rape ( $z = 1.32$ ), or intimate partner rape ( $z = 1.81$ ), once sampling error is taken into account. NCVS estimates of women's physical assault are significantly *higher* than those of the NVAWS ( $z = 3.21$ ). While there is a slight overlap in the 95% CI of the NVAWS and NCVS for intimate partner assaults, the difference is significant at the 0.05 level ( $z = 2.05$ ).

As noted above, Tjaden and Thoennes (1998, 2000a, 2000b) did not conduct tests of significance in their comparison of NCVS and NVAWS

<sup>14</sup> Recalibrated NCVS estimates produced for the current analyses differ from estimates presented by Bachman (2000). We did not attempt to reconcile these differences.

<sup>15</sup> Statistical programs developed by the Census Bureau were used to calculate CI around NCVS estimates. Information about these protocols can be found on the BJS website at: <http://www.ojp.usdoj.gov/bjs/pub/pdf/cvus/cvus02mt.pdf>. The formula used to calculate confidence intervals around NVAWS estimates accounted for the variances of both the estimate of number of victims, and number of times victimized. This was a more conservative procedure than that used in Tjaden and Thoennes, 2000b, which accounted only for the variance around the estimate of number of times victimized.

**Table IV.** 1995 National Crime Victimization Survey (NCVS) and National Violence Against Women Survey (NVAWS). Estimates of Violent Victimitizations Against Women and Associated 95% CI

Type of violence	Estimated number of victimizations	95% CI			SE
		Lower bounds	Upper bounds	SE*1.96	
NCVS					
Rape	256,469	200,534	312,404	55,935	28,538
Assault	8,035,832	7,574,703	8,496,961	461,129	235,270
Intimate partner violence	2,759,091	2,488,654	3,029,528	270,437	137,978
Rape	82,653	52,881	112,425	29,772	15,190
Assault	2,676,438	2,448,312	2,904,564	228,126	116,391
NVAWS					
Rape	876,064	-39,449	1,791,576	915,513	467,098
Physical assault	5,931,053	5,181,062	6,681,045	1,199,286	611,881
Intimate partner violence	4,773,037	2,837,897	6,708,177	1,935,140	987,316
Rape	322,230	64,813	579,647	257,417	131,335
Physical assault	4,450,807	2,773,084	6,128,530	1,677,723	855,981

Sources: NCVS: 1995 National Crime Victimization Survey.  
NVAWS: Tjaden and Thoennes (2000b) Full Report of the Prevalence, Incidence and Consequences of Violence Against Women: Findings from the National Violence Against Women Survey. Washington DC: National Institute of Justice and Centers for Disease Control and Prevention.

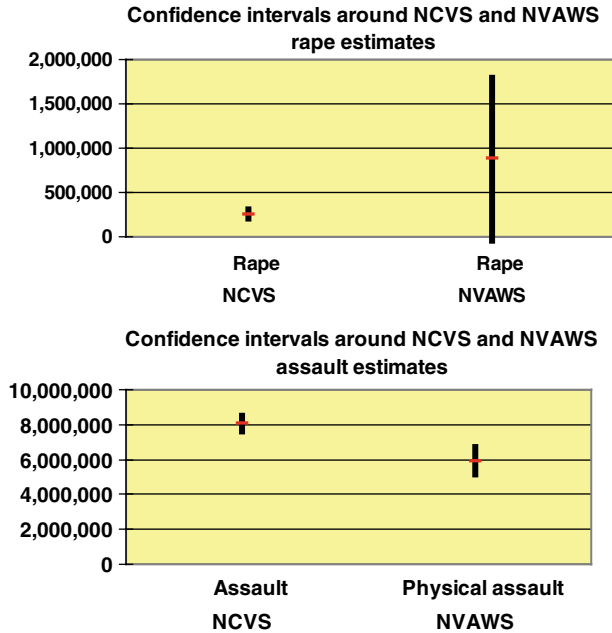


Fig. 1. Confidence intervals.

estimates. Bachman (2000) conducted tests of significance for overall rape and physical assault, but the use of incorrect NVAWS confidence intervals led to the erroneous conclusion that the NVAWS rape estimate was higher than that of the NCVS, and that the two surveys produced statistically equivalent estimates of physical assault. The “95% Confidence Interval” column in Bachman (2000) actually presented NVAWS confidence intervals based on 1 standard error (SE), not 1.96 SE (see Table 1 in Bachman 2000, p. 852). In addition, Bachman’s (2000) conclusion that estimates of intimate partner rape differ between NCVS and NVAWS above was not supported by tests of statistical significance. Based on  $p < 0.05$ , we found no difference between the NCVS and NVAWS intimate partner rape estimates.

5. DISCUSSION

Using recalibrated NCVS data we compared estimates of violence against women to NVAWS estimates. By taking into account sampling error, we observed that contrary to prior claims, *there are no significant differences between NCVS and NVAWS estimates of overall rape or intimate*

*partner rape against women*  $p < 0.05$ . Results also show that *NCVS estimates of physical assault against women are significantly higher than those of the NVAWS* ( $p < 0.05$ ). On the other hand, NVAWS estimates of intimate partner assault appear to be slightly higher than those of the NCVS. Although there is slight overlap in the 95% CI, a less conservative test finds a significant though slight difference ( $p < 0.10$ ).

These findings demonstrate that any evaluation of the differences between NCVS and NVAWS estimates must take into account the considerable methodological differences between the two surveys. The claim that more explicit screening questions would produce higher estimates of rape was not demonstrated by the NVAWS. Although the point estimates for rape were higher in the NVAWS than in the NCVS, the NVAWS sample size is just too small to produce robust annual estimates of rape.

Our findings also indicate that the NVAWS estimates of intimate partner physical assault are higher than those of the recalibrated NCVS. Since the recalibrated NCVS estimates of overall assault against women are higher than those of the NVAWS, it is possible that the screening used to uncover intimate partner violence used by the NVAWS was more productive than that of the NCVS. However, as discussed below, these estimates may be inordinately affected by the protocols used to incorporate recurring violence.

Our analyses refocus discussion on the treatment of recurring or ongoing violence in the estimation of victimization. This issue was raised during the development of the National Crime Survey, the NCVS' predecessor, when it was noted that "the fundamental unit of analysis in crime surveys is the victimization: an incident involving a victim(s) and an offender(s), which has a beginning, some characteristic activity and an end," but there were "many other kinds of crime (even by the definition employed in crime surveys) which more accurately may be thought of as continuous processes rather than discrete events" (Skogan, 1981, p. 7). It was acknowledged that such violence is different than discrete incident victimizations, and that "(b)ecause these are more or less enduring conditions rather than discrete events, they are difficult to count in the conventional fashion" (Skogan, 1981, p. 7). Skogan (1981, pp. 7–8) provided an example of such an ongoing victimization "... consider a family in which the father comes home drunk every night, regularly beats his wife, and threatens his children, who may in turn be protodelinquents in their own right." How such ongoing victimizations should be counted was a problem that BJS has never resolved satisfactorily. The NCVS "series" procedure enables their enumeration, but BJS has historically excluded them from annual NCVS estimates, and included them as a single victimization in other reports.

The NVAWS incident counting procedure attempts to capture and count each of the incident elements of ongoing victimizations. This raises



several questions. Are the higher estimates produced by the NVAWS more accurate than published NCVS estimates (see Table I)? Why aren't NCVS estimates calculated like NVAWS estimates (i.e., multiplying the number of victims by the number of times victimized)? Shouldn't the NCVS estimates incorporate and count each of the incident elements of ongoing or recurring victimization?

### 5.1. Counting Victimizations Based on Series = N

We argue that estimates of victimization should not incorporate and count each of the incident elements of ongoing or recurring victimization because this procedure generates additional sources of error in the estimates. One imprecision comes from responses to the question "How many times" (were you victimized)? More imprecision arises from the unverifiable assumption that every incident experienced by a respondent was similar to the incident for which the detailed information was obtained.

"Survey respondents often construct rather than directly retrieve answers to frequency questions" (Bickart and Felcher, 1996, p. 117). As such, respondent estimates of the number of times they were victimized during the reference period are characterized by extremely large variances. The 95% CI around the NVAWS average number of victimizations per victim for rape (2.9) ranges from 0.1 to 5.7. For intimate partner physical assault, the average number of times victimized was 3.4, and the associated 95% CI ranges from 2.2 to 4.6. Equivalent average-number-of-times estimates for the NCVS were not calculated. Instead, each case's sample weight was adjusted by multiplying it by the number of times the respondent stated they were victimized. The new case weight was used to produce the new estimate of incidents.

The degree of error introduced by relying on victim estimates of the number of times victimized is more clearly seen when unweighted NCVS counts of the number of incidents in each series are examined. Table V shows the distribution of number of times NCVS respondents stated they were victimized during the 6 month reference period. There are no entries for 2 to 5 victimizations since fewer than 6 victimizations cannot by definition be a series victimization (Each of the victimizations for persons victimized between 2 and 5 times during the previous 6 months would be counted as "1" victimization). Four rape victims indicated that they were victimized 6 or more times during the 6 month reference period. Two of the respondents stated they were victimized 6 times, 1 was victimized 10 times, and 1 other stated she was victimized 15 times. Though it difficult to suggest with much confidence because of the low number of rape cases, it appears that victims may have offered rough estimates of the number of times they were

**Table V.** NCVS—Number of Times Victimized According to Victims of Rape and Assault

Number of times victimized during 1995	Estimated number of rapes	Physical assaults
Total	76	1142
1	72	1053
6	2	28
7		5
8		1
9		2
10	1	13
12		5
15	1	4
17		1
18		1
20		4
23		1
24		4
25		3
26		3
30		1
36		1
48		1
50		3
75		1
78		1
100		2
130		1
150		1
180		1
300		1

*Source:* 1995 National Crime Victimization Survey.

victimized: the first two victims estimated that they were victimized once a month while the last two offered estimates divisible by 5 (Bickart and Felcher, 1996).

The case for imprecise estimation of the number of times one was victimized is more evident for physical assault. In the NCVS, 89 respondents stated that they were victims of 6 or more assaults during the reference period. The majority of the entries above 9 victimizations clustered at numbers divisible by 5 or by time periods associated with the number of weeks or months during the 6 month reference period. Twenty-nine of the assault victims reported that they were victimized at least 20 times during the previous 6 months. Of these 29 respondents, 18 estimated victimizations that clustered at numbers divisible by 5. Of the remaining 11 respondents, 4 stated that they experienced 24 victimizations—a number equivalent to 4

**Table VI.** NVAWS—Number of Times Victimized According to Victims of Rape and Assault

Number of times victimized during 1995	Estimated number of rapes	Estimated physical assaults
Total	15	122
1	10	75
2	3	21
3		6
4		6
5	1	4
8		1
10		1
12		3
20		2
24	1	0
25		1
29		1
30		1

*Source:* National Violence Against Women Survey.

incidents per month (i.e., about once a week, given about four weeks in a month for six months). Three victims reported being victimized 26 times—equivalent to a weekly victimization for the reference period. Rand and Saltzman (2003) using NCVS data found similar clustering of respondent estimates in their investigation of intimate partner violence. The number of incidents estimated by respondents tended to cluster at counts ending in “0,” with particular spikes at “50” and “100.”

The NVAWS shows similar clustering, although the number of cases is small and the pattern therefore not as conclusive. Table VI shows that 15 of the 24 respondents who stated that they were raped during the previous 12 months provided estimates of the number of times they were raped during that period.<sup>16</sup> Two rape victims reported more than 2 rapes in the past year; one reported 5 rapes, and the other reported 24 rapes. Both of the latter fit the pattern of estimation, as either is divisible by 5 or by a yearly fraction (twice per month.)

NVAWS respondents who reported being a physical assault victim were asked to provide information on the number of times they were victimized for up to 5 offenders. Table VI displays the aggregated total of the number-of-times questions. Again, most of the victims of recurring

<sup>16</sup>One case was coded “97” for “How many times ... ” We assume that this code represents missing data (it is not listed in the codebook). It appears that this case was counted as one victimization since this would be necessary to arrive at the 2.9 average number of rapes per victim estimated by Tjaden and Thoennes (2000b).

victimizations offered estimates that fit the pattern described above. Of the respondents reporting at least 10 assaults, only one (reporting 29 victimizations) provided an estimate not divisible by 5 or by a yearly fraction.

The purpose of this discussion is not to fault victims for not keeping an accurate “count” of the violence they repeatedly experience, but to point to the problems associated with an accounting system that bases violence estimates on a number that is beyond the ability of victims to accurately recall.

## **5.2. The Importance of Accurate Count Estimates**

The importance of obtaining an accurate count of previous violence is not a trivial matter; respondents reporting large numbers of incidents greatly influence the magnitude of the estimates. Recurring victimizations account for a large percentage of the overall NVAWS and recalibrated NCVS incidence estimates, but reflect the victimization of relatively few victims. Rand and Saltzman (2003) found that one-fourth of the victims of intimate partner violence were victimized at least twice during the six months prior to the NCVS interview. In this study, 4 of the 76 NCVS (unweighted) victims of rape—about 5% of respondents—were victimized 6 or more times. In the NVAWS, 5 of the 24 respondents raped during the preceding 12 months said they were raped more than once. If every victim had been victimized once, the incidence estimate would equal the prevalence estimate. These 5 respondents, therefore, account for the difference between the NVAWS incidence and prevalence estimates, or 573,973 of the 876,064 rape incidents.

Because the estimates are weighted by the number of times victimized, repeat victimization accounts for more than half of both the NVAWS and recalibrated NCVS estimates of rape, physical assault and intimate partner violence.

To further demonstrate the impact of recurring victimization on the NVAWS and recalibrated NCVS counts of incidents, one must look at the sampling ratios. For the NVAWS, each respondent represented 12,587 women when the estimate was weighted to national totals. A single NVAWS victim reported being raped 24 times during the year and as such was weighted to account for about 302,100 incidents. In terms of the overall estimates, this single individual accounted for 34% of the total rapes estimated by the NVAWS.

The impact on the recalibrated NCVS is similar, though the weights are smaller. Because of its complex sample design, each respondent can have a

different weight depending on probability of selection in the sample and adjustments for non-interviews.<sup>17</sup> The average weight for female respondents reporting rape was about 2,136 and physical violence was about 2,263. The respondent reporting 15 rapes during the previous 6 months had a sample weight of 2,057. Therefore, this one respondent accounted for 30,855 rapes in the recalibrated estimate. This accounts for about 12% of the total. The assault victim reporting 300 assaults during the previous 6 months had a sample weight of 2,664, and therefore accounted for 799,200 assaults, or 10% of the recalibrated assault estimate.

With relatively few victims contributing very high proportions to the overall victimization estimates, results must be viewed with extreme caution. Moreover, the error associated with estimates of the number of incidents is non-sampling error. Such errors are more difficult to measure and are not included in constructing confidence intervals around estimates.

Additional imprecision is introduced into estimates by assuming that each of the incidents included in the "number of times" response is substantively similar to the incident for which the detailed information was obtained. While the NCVS and NVAWS utilized different classification protocols and questions, the issues are similar for both surveys. If the respondent had a different idea of what was being asked about than did the survey designers it is possible that the nature of some of the additional incidents may not actually fit within the definitions of the violence being measured.

For example, in the case of the NVAWS, physical assault was identified through a positive answer to any of 12 screening questions, including types of attacks and threats with weapons. The screen questions do not ask about verbal threats made by unarmed offenders. If a respondent has been threatened by someone many times, sometimes with a weapon and sometimes without, it is possible that the victim will focus on the concept of threats and include unarmed threats (or even telephone threats) in the estimate of number of times victimized. Because the details of each incident are not obtained from the respondents, it is not possible to determine what the nature of the violence the respondent revealed.

For the NCVS, with a much more detailed victimization classification protocol, the problem of classifying these additional incidents is even more problematic. For example, the NCVS classifies assault into six subcategories depending on the presence of a weapon or presence and seriousness of any injury sustained. It is probable that the nature and extent of injuries sustained by victims of recurring violence due to each incident differs. Therefore if all incidents are classified based on injuries sustained in the most recent incident

<sup>17</sup> See BJS (2003) for a description of the sample selection and weighting procedures.

(for which the detailed information is obtained), the classification of the previous incidents will not reflect the reality of the victim's experience.

Because it uses the estimates inflated by the number of times victimized but does not obtain information on every incident, the NVAWS victimization counting protocol produces highly suspect estimates of the consequences and characteristics of victimization. Tjaden and Thoennes included a table providing average annual injury and medical utilization estimates for victims of violence (see Exhibit 35, 2000b, p. 56). The estimate that 2,313,111 women were injured as a result of physical assault assumes that each of the women reporting an injury in the most recent incident were also injured in each of the other incidents reported during the previous year. Similarly, the estimate of 3,617,942 victims counted as uninjured assumes that they were not injured in any of the violence during the year. The problematic assumption of similarity of all incidents exists for every characteristic for which this estimation procedure is used.

The procedure of asking "How many times?" and obtaining information only on one of the victimizations is done to minimize the burden to respondents and reduce the cost of conducting surveys. The result is that the information collected is not sufficient to completely and accurately identify and characterize all the victimizations experienced by victims of recurring violence. Rand and Saltzman (2003, p. 146) suggest that "neither prevalence nor incidence measures may be sufficient to accurately reflect the nature of what some victims of recurring IPV experience." This is true as well for all victimizations measured by such surveys as the NCVS and NVAWS. As Biderman (1975) argued decades ago, some offenses are enduring conditions, not discrete incidents that begin and end at definitive time points.

## 6. CONCLUSIONS

The NVAWS has provided a great deal of information about violence against women. The NVAWS screening protocol is a contribution to research in an area that has been judged to still be in its infancy (Fisher and Cullen, 2000). The breadth of information about the characteristics and consequences of victimization, as well as its groundbreaking treatment of stalking are all valuable contributions to the field. Nonetheless, the incident counting protocol used in the survey is unsound. It introduces an unknown and possibly very substantial amount of error into the estimates, and introduces unsupportable assumptions of the similarity across incidents experienced by victims of violence. It may produce higher estimates than those of the NCVS, but these estimates are largely the product of a few respondents estimating a large number of victimizations. *Bigger estimates are not necessarily better estimates.*

If the process of multiplying the number of victims by an estimated number of incidents is a not a viable procedure for estimating the incidence of violence, what is a better procedure for producing an incidence estimate of victimization? BJS annual estimates exclude recurring victimization that occurs six or more times during the previous 6 months. Clearly this protocol produces an undercount. However, this undercount has minimal impact on the year-to-year changes in victimization because the percent of series incidents has remained stable over time even as victimization has declined. The counting protocol BJS uses for reports using aggregated data includes series victimizations counted as one incident each regardless of how many times the victim was victimized. If one considers such recurring victimization to be the measurable entity, it is not inappropriate to include series victimizations, counted as one each, to the overall estimates of victimization. The NCVS estimates that include series victimizations in this manner are therefore an improvement over total exclusion of series victimizations. What is needed, however, are analyses that can provide information about these recurring victimizations to shed light on the recurring aspect of the victimizations.<sup>18</sup>

A solution to the problem of measuring and quantifying recurring victimization has not yet been devised. What is clear from both the NCVS and NVAWS is the need for more research on the measurement of recurring victimization. For over a quarter of a century we have known that these types of victimizations are more “ongoing conditions” rather than the discrete event that characterizes other victimizations such as robbery (Biderman, 1975; Cantor and Lynch, 2000). But beyond this, little research has been conducted, and little progress made in the best methods to measure recurring victimization. Both the NCVS and NVAWS provide researchers the foundation for future exploration into the nature of recurring violence. Building on the knowledge base constructed with these surveys, new methods can be developed to more precisely measure violence—including recurring victimization—in a more meaningful way than is now possible.

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<sup>18</sup> Even though the NVAWS incident protocol incorporates recurring victimizations, it also does not inform on the recurring aspect of the victimizations.

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