Int J Public Health 54 (2009) S37–S42
1661-8556/09/010S37-6
DOI 10.1007/s00038-009-0005-2

Original article

Physical and sexual intimate partner violence and reported serious psychological distress in the 2007 BRFSS

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Received: 23 October 2008; revised: 22 January 2009; accepted: 05 February 2009

Published Online First 14 April 2009

Abstract

Objectives: We sought to determine the relationship between intimate partner violence (IPV) and serious psychological distress (SPD) as measured by the Kessler-6 (K6) among U.S. adults. We used data from the 2007 Behavioral Risk Factor Surveillance System (BRFSS) to determine whether individuals who reported multiple forms of IPV also reported higher prevalences of SPD compared with those who reported: 1) no physical or sexual IPV; 2) physical or sexual IPV only; and 3) threatened or attempted physical IPV. We also obtained adjusted prevalences for lifetime physical or sexual IPV.

Methods: We analyzed responses from three states that administered both the IPV and the K6 optional modules of the BRFSS in 2007. Respondents (5,985 men; 9,335 women) were categorized as experiencing threatened or attempted physical violence, physical violence, sexual violence, or both physical and sexual violence. We calculated lifetime IPV prevalence by demographic characteristics and performed adjusted and unadjusted logistic regressions of the relationship between level of IPV and SPD.

Results: 15.5 % of the sample reported some form of IPV. The prevalence of any IPV was almost twice as high in women (19.9 %) as in men (10.9 %). IPV was also associated with age, marital status, employment status, and income. Overall, the estimated prevalence of SPD was 2.9 % (95 % CI: 2.5–3.5). Among women, it was 2.1 % (95 % CI: 1.16–2.8) among those with no lifetime IPV and 15.4 % (95 % CI: 10.9–21.3) among those who reported both physical and sexual IPV.

Conclusions: IPV is a serious public health problem associated with multiple adverse health outcomes, including SPD. In our study, the odds of SPD increased when respondents experience multiple forms of IPV. Medical and mental health practitioners should consider assessing exposure to IPV when patients have signs or symptoms of SPD or other conditions that might be consistent with IPV. Similarly, practitioners should consider assessing for IPV among patients with SPD. States should consider obtaining population-based IPV prevalence via the BRFSS to better plan for the health needs of their residents.

Keywords: Intimate partner violence – Mental health – Kessler-6.

Introduction

Intimate partner violence (IPV) is a serious public health problem that affects about 25 % of women in the United States at some point in their lifetimes.[1] It is estimated that one-third of emergency room visits by women have IPV as the underlying cause.[2] In addition to the immediate physical injuries, IPV can have serious long-term consequences, including physical health problems such as gynecological problems and gastrointestinal disturbances,[3,4] substance abuse,[5] and higher rates of health care utilization.[6, 7]

Poor mental health functioning is a widely documented outcome of IPV. Women who have experienced IPV are significantly more likely to report depression,[8] suicide attempts,[9] and post-traumatic stress syndrome.[10] These outcomes can be further exacerbated by socioeconomic and demographic factors such as poverty and race.[11] Men report IPV at much lower rates than women, and the effects of IPV on men are less well understood. Some researchers have found physical health problems similar to those in female IPV victims, while others have found only mental health consequences among men who reported lifetime IPV.[12] Recently published BRFSS

data indicate that adverse health conditions are associated with IPV for both women and men[5].

Given the link between IPV and adverse physical and mental health, medical and mental health practitioners should consider assessing exposure to IPV when patients have signs or symptoms of SPD or other conditions that might be consistent with IPV. The development of brief mental health screening tools for use in population-based epidemiologic research may improve targeting of mental health services to potential affected populations. The Kessler-6 (K6) is among the most widely validated of these tools, and has been found to reduce the burden associated with structured clinical interviews.[13] The K6 provides a measure of generalized psychological distress experienced in the past 30 days, including mood and anxiety disorders. Previous research has found that it is sensitive and specific with regard to depression.[13]

In 2007, both the IPV and K6 modules were included in the U.S. Behavioral Risk Factor Surveillance System (BRFSS) survey by some of the participating states. The purpose of our study was to examine the relations between physical and sexual IPV and serious psychological distress (SPD), using a large sample size and controlling for potential confounders. Furthermore, the IPV questions included assessment of both physical and sexual victimization, affording us the opportunity to examine the relations between various forms of IPV and to determine if reporting both physical and sexual victimization increased the odds of SPD above that of experiencing one form of IPV.

Methods

This investigation used data collected as part of the 2007 BRFSS survey. The BRFSS is an annual random-digit-dialed survey conducted by state health departments with assistance from the U.S. Centers for Disease Control and Prevention (CDC) to monitor health risk behaviors among adult, non-institutionalized persons aged 18 years and older. In 2007, three states (Hawaii, Nebraska, and Virginia) administered the IPV module as well as the K6 items in their BRFSS survey.

The IPV module was based on uniform definitions developed by the CDC[14] and included the following questions, each of which had a Yes/No answer format: 1) "Has an intimate partner ever threatened you with physical violence? This includes threatening to hit, slap, push, kick, or otherwise hurt you in any way." 2) "Has an intimate partner ever attempted physical violence against you? This includes times when they tried to hit, slap, push, kick, or otherwise hurt you, but they were not able to." 3) "Has an intimate partner ever hit, slapped, pushed, kicked, or hurt you in any way?" and 4) "Have you ever experienced any unwanted sex by a current or former intimate partner? Unwanted sex includes things like putting anything into your vagina (if respondent was female), anus, or mouth, or making you do these things to them after you said or showed that you didn't want to. It includes times when you were unable to consent, for example, when you were drunk or asleep, or you thought you would be hurt or punished if you refused." An intimate partner was defined as any current or former spouse, boyfriend, girlfriend, or dating partner or any person with whom the respondent had ever been romantically or sexually intimate.

We constructed an index of lifetime IPV experience using the following five categories: 1) no physical or sexual IPV; 2) threatened or attempted physical IPV only; 3) physical IPV only; 4) sexual IPV only; and 5) both physical and sexual IPV.

The K6 measures generalized distress within the past 30 days. Each of the six questions begins with the stem "How often during the last month did you feel…" and goes on to ask whether the respondent felt: 1) so sad that nothing could cheer you up; 2) nervous; 3) restless or fidgety; 4) hopeless; 5) worthless; and 6) that everything was an effort. Response categories range from all of the time (4 points), most of the time (3 points), some of the time (2 points), a little of the time (1 point), to none of the time (0 points). Higher scores indicate worse psychological functioning. Following protocols developed by Kessler, total K6 scores were dichotomized by designating respondents who scored a 13 or higher as suffering from SPD.[15]

In the three participating states, 15,320 participants (5,985 men and 9,335 women) completed both the K6 items and the IPV module; they form the basis of the subsequent analyses. Cooperation rates for these states were between 63.2 - 79.9 %. We calculated weighted estimates of the prevalence of IPV by selected demographic characteristics (sex, age, marital status, race/ethnicity, education, employment status, and income) using SPSS's complex samples program. We used two logistic regression models to test the relations between level of lifetime IPV and SPD:1) a simple unadjusted model, and 2) a model that adjusted for sociodemographic characteristics known to be associated with K6 scores. These variables were sex, age (18–-24, 25–34, 35–44, 45–54, ≥55), race/ethnicity (white non-Hispanic, black non-Hispanic, Hispanic, Asian/Pacific islander/other), education (less than high school diploma, high school graduate, some college or more), marital status (currently married, previously married, never married), employment status (employed, unemployed, retired, unable to work, other), and income level (<$20,000, $20,000–$49,999, $50,000–$74,900, ≥$75,000).

Table 1. Weighted percentage of adults aged ≥18 years reporting type of intimate partner violence by selected demographic characteristics.

Demographic characteristic	Respondents (N)	Any IPV % (95% CI)	Threatened or Attempted PV % (95% CI)	PV only % (95% CI)	SV only % (95% CI)	PV and SV % (95% CI)
Sex[1]						
Male	6,062	10.9 (9.1–12.9)	2.1 (1.5–2.8)	7.8 (6.2–9.7)	0.4 (0.2–1.0)	0.7 (0.3–1.4)
Female	9,462	19.9 (18.5–21.4)	2.1 (1.7–2.7)	9.4 (8.4–10.5)	2.7 (2.2–3.5)	5.6 (4.8–6.5)
Age group[1]						
18–24	595	16.3 (10.8–23.8)	1.5 (0.8–2.8)	10.6 (5.8–18.6)	1.6 (0.6–4.1)	2.4 (1.1–5.0)
25–34	1,612	19.5 (16.2–23.3)	2.0 (1.2–3.3)	11.6 (9.0–14.8)	0.9 (0.5–1.7)	4.9 (3.4–7.0)
35–44	2,621	19.6 (17.1–22.4)	2.3 (1.5–3.5)	12.2 (10.1–14.6)	2.2 (1.3–3.7)	3.0 (2.3–4.0)
45–54	3,421	16.0 (14.1–18.1)	2.9 (2.1–4.1)	7.4 (6.2–8.7)	2.1 (1.4–3.1)	3.7 (2.9–4.8)
≥55	7,201	9.8 (8.6–11.0)	1.8 (1.2–2.6)	4.6 (3.9–5.4)	1.4 (1.0–2.1)	2.1 (1.6–2.6)
Race						
White	10,173	15.7 (14.3–17.2)	2.2 (1.7–2.7)	8.7 (7.6–10.0)	1.7 (1.3–2.3)	3.2 (2.7–3.9)
Black	558	18.1 (13.2–24.4)	2.9 (1.4–5.8)	11.0 (6.9–17.1)	1.0 (0.4 –2.1)	3.0 (1.3–6.7)
Hispanic	750	15.6 (11.5–20.9)	1.7 (0.8–3.6)	8.2 (5.2–12.5)	0.7 (0.3–1.7)	5.1 (3.0–8.5)
Other[2]	3,924	13.4 (11.2–16.0)	1.6 (1.1–2.3)	7.4 (5.8–9.4)	1.5 (0.9–2.5)	2.5 (1.7–3.5)
Education						
Not H.S. grad	1,059	19.2 (15.0–24.3)	1.5 (0.7–3.0)	10.5 (7.4–14.8)	1.7 (0.9–3.1)	5.5 (3.1–9.6)
H.S. grad	4,668	16.3 (13.8–19.2)	1.8 (1.3–2.5)	9.5 (7.2–12.4)	1.6 (1.1–2.4)	3.5 (2.6–4.6)
Some college or higher	9,776	14.9 (13.5–16.3)	2.3 (1.8–2.9)	8.1 (7.1–9.2)	1.6 (1.2–2.2)	2.9 (2.4–3.5)
Marital status[1]						
Never married	2,395	17.6 (14.1–21.8)	2.4 (1.7–2.5)	9.3 (6.4–13.2)	1.7 (1.0–3.0)	4.1 (2.8–5.9)
Previously married	3,834	25.8 (23.1–28.7)	3.3 (2.3–4.6)	13.7 (11.6–16.1)	2.2 (1.4–3.5)	7.0 (5.5–8.9)
Currently married	9,265	12.5 (11.3–13.9)	1.7 (1.3–2.3)	7.3 (6.3–8.4)	1.4 (1.0–1.9)	2.1 (1.7–2.5)
Employment status[1]						
Employed	9,322	15.8 (14.4–17.3)	2.4 (1.9–3.0)	9.4 (8.3–10.7)	1.3 (0.9–1.7)	2.8 (2.2–3.4)
Unemployed	385	24.6 (17.5–33.4)	5.3 (2.0–13.2)	10.9 (6.4–18.0)	1.4 (0.5–3.7)	7.1 (3.6–13.5)
Retired	3,734	7.6 (6.3–9.2)	1.2 (0.8–1.8)	3.2 (2.6–4.1)	1.6 (0.9–2.9)	1.7 (1.1–2.7)
Unable to work	730	25.2 (20.6–30.5)	2.4 (1.3–4.3)	9.4 (6.7–13.2)	2.9 (1.3–6.3)	10.7 (7.7–14.8)
Other	1,325	18.0 (13.3–23.8)	0.9 (0.4–1.8)	9.9 (5.8–16.3)	3.1 (1.7–5.6)	3.9 (2.5–5.8)
Income[1]						
<$20,000	2,041	26.9 (21.3–33.3)	2.5 (1.6–4.0)	14.5 (9.2–21.9)	2.3 (1.4–3.8)	7.8 (5.6–10.7)
$20,000–$49,999	5,391	15.7 (13.9–17.7)	1.9 (1.4–2.6)	8.0 (6.8–9.5)	1.4 (0.9–2.3)	4.2 (3.2–5.4)
$50,000–$74,999	2,580	17.1 (14.4–20.1)	2.6 (1.6–4.0)	10.4 (8.2–13.2)	1.8 (1.0–3.1)	2.4 (1.5–3.8)
≥$75,000	4,190	12.0 (10.4–13.7)	1.8 (1.3–2.6)	6.9 (5.7–8.2)	1.4 (0.9–2.3)	1.9 (1.4–2.6)
Total			2.1 (1.7–2.5)	8.6 (7.7–9.7)	1.6 (1.3–2.1)	3.2 (2.7–3.7)

[1]$p < 0.0001$
[2]Category includes Asian, Pacific Islander, and other racial groups

Results

Table 1 contains the weighted estimates of IPV status by sociodemographic factors. Overall, 15.5 % of the sample reported having experienced threatened or attempted physical IPV, completed physical IPV, sexual IPV, or both physical and sexual IPV. Physical IPV had the highest frequency (8.6 %, 95 % CI: 7.7–9.7); and sexual IPV, the lowest (1.6 %, 95 % CI: 1.3–2.1). The frequency of experiencing both physical and sexual IPV was 3.2 % (95 % CI: 2.7–3.7). Interestingly, sexual IPV was more likely to be reported in addition to physical IPV (3.2 %, 95 % CI: 2.7–3.7), indicating that both forms of IPV may commonly co-occur. Overall, among those reporting any of the forms of IPV that were measured, 30 % of women and 4 % of men reported both physical and sexual IPV.

IPV status was significantly associated with sex, age, marital status, employment status, and income level, but not with race/ethnicity or education. Almost twice as many women as men reported experiencing any IPV (19.9 % vs. 10.9 %, $p < 0.0001$). Individuals in the 35- to 44-year-old age group had the highest prevalence of any IPV (19.6 %), while those 55 years and older reported the lowest prevalence of all IPV forms (9.8 %). Prevalence of any form of IPV was highest among individuals who described themselves as previously married (this included those whose marital status was divorced, widowed, or separated) and lowest among those who

Table 2. Association between lifetime history of any intimate partner violence (IPV) and serious psychological distress[a] (SPD) among adults aged ≥18 years.

IPV status	SPD Prevalence (%) (95% CI)	Simple (Unadjusted) Odds Ratio (95% CI)	Adjusted odds ratio[b] (95% CI)
None	1.9 (1.5–2.3)	1.00 (referent)	1.00 (referent)
Threatened/attempted physical violence only	5.9 (3.1–10.9)	3.3 (1.6–6.7)	4.5 (2.2–9.3)
Completed physical violence only	6.8 (4.5–10.2)	3.9 (2.4–6.3)	3.9 (2.3–6.7)
Sexual violence only	13.0 (6.3–24.9)	7.9 (3.4–18.1)	7.1 (2.9–17.8)
Physical and sexual violence	14.4 (10.2–19.9)	8.9 (5.7–13.9)	7.8 (4.9–12.6)

[a]Serious psychological distress is estimated by a score of 13 or higher on the K-6 questionnaire
[b]Controlling for age, sex, race, marital status, education, and employment status

Table 3. Association between lifetime history of any intimate partner violence (IPV) and serious psychological distress[a] (SPD) among women aged ≥18 years.

IPV status	SPD Prevalence (%) (95% CI)	Adjusted Odds Ratio[b] (95% CI)
None	2.1 (1.6–2.8)	1.0 (referent)
Threatened/attempted physical violence only	8.9 (4.2–17.7)	5.8 (2.3–14.6)
Completed physical violence only	7.2 (4.7–11.0)	3.9 (2.2–6.8)
Sexual violence only	10.5 (4.9–21.1)	5.4 (2.2–13.3)
Physical and sexual violence	15.4 (10.9–21.3)	8.8 (5.4–14.3)

[a]Serious psychological distress is estimated by a score of 13 or higher on the K-6 questionnaire
[b]Controlling for age, race, marital status, education, and employment status

were currently married (25.8% vs. 12.5%, $p < 0.0001$). The prevalence of any IPV was highest in those who reported an income of less than $20,000 (26.9%) and lowest among those who reported an income of more than $75,000 (12.0%). Any IPV was highest in those who were unemployed (24.6%) or unable to work (25.2%) and lowest among those who were retired (7.6%).

The mean K6 score was 3.13 (se = 0.057). Nearly three percent (2.9%, 95% CI: 2.5–3.5) reached criterion for SPD (K6 score >=13) in this sample. Women were significantly more likely than men to be classified with SPD (3.7% vs. 2.1%, $p < 0.002$).

Next, we calculated the odds of SPD by IPV status. Table 2 contains the prevalence of SPD among all adults by category of IPV, as well as the results of two logistic regression models, one with the unadjusted odds ratios and the other with adjusted odds ratios (controlling for age, sex, race/ethnicity, marital status, education, and employment status) The odds of reporting SPD was three times higher in those reporting threatened or attempted physical IPV than in those with no IPV history (OR=3.6, CI=1.6 - 8.1). Among those reporting physical violence only, the odds of reporting SPD rose to 3.9 (CI = 2.3 - 6.4). Sexual violence resulted in a seven-fold increase in reported SPD, and those reporting both forms of IPV were almost 9 times more likely than those with no IPV history to report SPD. Results of the Wald tests of crude effects indicated that sex, age, race/ethnicity, and marital status were not significantly associated with the increased odds of SPD ($p > 0.10$). Examination of the IPV cell sizes for the analysis of the male responses revealed that insufficient power was available to test for the odds of increased SPD. Therefore, we repeated the logistic regressions for women only, adjusting for age, race, marital status, education, and employment status (Table 3). Compared to the overall population of respondents, the risk of SPD was higher for all forms of IPV measured with the exception of experiencing sexual IPV only. The risk of SPD was highest among women who reported experiencing both physical and sexual IPV (AOR 8.8; 95% CI: 5.4–14.3).

Discussion

This is the first study to document the association between IPV and SPD in state-level samples. Overall, 15.5% of all respondents reported some form of lifetime physical or sexual IPV. Within the three participating states, nearly 20% of women reported experiencing physical and/or sexual IPV in their lifetime. This is somewhat lower than the overall lifetime physical or sexual IPV prevalence (23.5%) from the 2005 BRFSS survey, which included respondents from 18 rather

than 3 participating states. Prevalence rates for men were almost identical to the 2005 BRFSS results (11 % in 2007 vs. 11.5 % in 2005).[5] Consistent with previous research, sex, employment status, marital status, lower income and younger age were associated with lifetime experience of physical or sexual IPV.

SPD was markedly higher in persons who also reported IPV. For example, there was a three-fold increase in poor mental health functioning among persons reporting threatened or attempted physical IPV compared with those who reported no IPV. Adjustment for demographic factors had a modest downward effect on the odds.

The IPV items in the BRFSS afforded us the opportunity to test the cumulative stressor model[16]. Our findings are congruent with this hypothesis: women who reported both physical and sexual IPV were at greatest risk of SPD. A nearly ninefold increase was found among persons reporting both physical and sexual IPV.

Furthermore, reporting multiple victimization types was not uncommon in this sample. About one-third (30 %) of women who reported any IPV reported both physical and sexual IPV. An increased odds of SPD was observed among individuals who reported only threatened or attempted physical IPV. Threats of physical IPV have been demonstrated to have important psychological consequences, and these findings provide further evidence regarding their impact on mental health.[17, 18] Alternately, it is possible that some respondents may have underreported IPV by labeling it a threat, rather than actual violence; hence these findings may indicate misclassification bias. Further research is needed to better understand these results.

Sexual IPV, either alone or in combination with physical IPV, doubled the odds of SPD over threatened or actual physical IPV only. These findings amplify and extend previous research that has demonstrated the serious mental health consequences of sexual victimization[19-21].

This study has several limitations. First, the BRFSS uses land-based telephone lines to reach potential participants. Persons without access to land lines are excluded from the sample, thereby potentially limiting generalizability. Second, although the K6 questionnaire has good sensitivity and specificity with regard to depression, it may be less useful in screening for individuals with other kinds of psychiatric illnesses.[22] Third, the number and range of questions that could be included in the IPV module were limited, and information was not collected on severity, frequency or the context of IPV experienced by these respondents. Additionally, these findings are based on three states and cannot be generalized to the U.S. population as a whole (although they have the advantage of being drawn from a population-based sample). Finally, these results are cross-sectional in nature, so no conclusions about causality between physical or sexual IPV and SPD can be inferred

These findings have important public health implications. They underscore the need for a renewed effort toward primary prevention of IPV. An important part of that effort is the continued collection of state-level data using consistent and uniform methods. Such state-level data provide important and useful information for planning the delivery of mental health and victim services. They also inform the development of prevention programs and policies. Other states would be well served by collecting this kind of information from their residents. We recommend that additional states consider adding questions about IPV to the BRFSS survey so that the effects of IPV among women and men can be better understood. We found that acceptance of the questions about intimate partner violence and sexual violence in particular was very high, with less than 1 % of respondents refusing to answer questions in this module. In the near future, states will have the option to collect information on childhood exposures to violence via the BRFSS, which would serve to complement this set of questions in order to better understand lifetime exposure to violence and victimization among adults. Previous research has linked childhood maltreatment to IPV in adulthood.[23, 24]

Preventing IPV, ameliorating its outcomes, and targeting services to victims will contribute to better overall mental and physical health in the United States. By understanding patterns of lifetime exposure to violence and maltreatment, more effective prevention strategies and treatment options can be developed to meet the needs of individuals affected by these pervasive societal ills.

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers of Disease Control and Prevention.

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