OHIO FAMILY HEALTH SURVEY
SPONSORED RESEARCH

How Does Health Insurance Buffer the Consequences of Intimate Partner Violence in Ohio?

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THE OHIO STATE UNIVERSITY
OFHS Ohio Family Health Survey

What is the Ohio Family Heath Survey?

The Ohio Family Health Survey (OFHS) is a phone survey that gathers information on health-related issues impacting Ohioans. It is considered one of the largest and most comprehensive state-level health and insurance surveys conducted in the nation. Four iterations of the survey (1998, 2003/04, 2008 and 2010) have been conducted and current survey sponsors include the Ohio departments of Insurance, Job and Family Services, Health, and Mental Health, the Health Foundation of Greater Cincinnati, the Health Policy Institute of Ohio, and The Ohio State University.

The OFHS Steering Committee partners decided to conduct a smaller interim survey in **2010**, with HPIO continuing its involvement as the disseminator of survey data. The emphasis for the 2010 survey was gauging the level of economic stress on Ohio families and how that stress was is impacting Ohio's health system and indicators of health, in light of the severe economic downturn that began in late 2008. The 2010 OFHS included responses from 8,276 adults and proxy responses for 2,002 children.

Ohio Family Health Survey Web site (all sponsored research reports are available for download here):
http://grc.osu.edu/ofhs

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Executive Summary

Intimate partner violence (IPV) is a significant public health issue. Among non-elderly adults in Ohio, it is more common than cancer or motor vehicle accidents. A growing research literature has documented the health-related consequences of such abuse, including depression, post traumatic stress disorder, and numerous physical and somatic symptoms.

Medicaid and other health insurers assume many of the health care costs associated with IPV. Unfortunately, most research on the topic has studied samples with only a single insurance provider. By studying a general population sample with different types of insurance, this study sought to understand how health insurance might buffer the association of IPV with health outcomes and care utilization. Using data from the 2008 and 2010 Ohio Family Health Survey (OFHS), our project had three specific aims:

1. to estimate the prevalence of IPV for people with different types of health insurance as well as for other select subgroups;
2. to describe the association of IPV with adverse consequences, including serious psychological distress, fair or poor self-rated health status, financial distress, unmet health needs and emergency room use; and
3. to determine if health insurance can buffer the association of IPV with health care utilization.

Methods

To address these aims we analyzed data from the Ohio Family Health Survey (OFHS) – a telephone survey of a random sample of Ohio adults including 8,276 respondents in 2010 and 50,944 in 2008. By using appropriate statistical methods, our findings are representative of all Ohio adults. Because IPV disproportionately affects women under 65, we focused most of our analyses on this group.

To measure IPV, we provided respondents with a definition of "intimate partner" and then asked ""Has an intimate partner ever used physical violence against you? This includes hitting, slapping, pushing, kicking, or hurting you in any way." Those responding "yes" were classified as having lifetime experience of physical IPV and were then asked, "When was the last time an intimate partner used physical violence against you?" Those who reported that the violence occurred during the past 12 months were classified as having past-year physical IPV. Note that the definition omits people who experience sexual or emotional abuse from an intimate partner but not physical abuse.

To measure health insurance, we used a hierarchical scheme devised by OFHS staff based on the answers provided by survey respondents. The mutually exclusive categories included uninsured, Medicaid, employer-sponsored insurance and other (e.g., directly purchased plans). Because women who have employer-sponsored insurance through a spouse may be less able to leave an abusive relationship compared to women who have insurance through their own employment, we distinguished these groups in our analyses.

Results

Our analyses yielded five key findings, each of which is summarized below. Please refer to the complete report for more details.

Physical IPV is very common. Last year in Ohio, about 2.5% of women ages 18-64 were physically assaulted by an intimate partner. This means that conservatively, over 68,705 Ohio women were physically abused by an intimate partner last year, and the actual count may have been as many as 120,226 women. In comparison, about 51,007 Ohio women are injured in motor vehicle crashes and 30,550 are newly diagnosed with cancer each year.[1]

Most Ohio women who experienced physical IPV were uninsured or on Medicaid. Among women who experienced physical IPV last year, roughly one third (36%) were uninsured and another third (32%) were on Medicaid, and one fifth (21%) had employer-sponsored insurance. Nonetheless, physical IPV affected women in every community and social class.

Physical IPV had significant adverse consequences Physical IPV was associated with markedly higher rates of adverse consequences and health care utilization. For example, 19% of women who experienced IPV in the past year tested positive for serious psychological distress, compared to 7% who had never experienced abuse. These effects persisted over time – even women whose last reported episode of physical IPV occurred more than 5 years ago still had elevated levels of adverse consequences. Some of this association was likely due to the influence of demographic factors like poverty, since lower socioeconomic status tends to be associated with both IPV and serious psychological distress. Yet even after controlling for such effects, women experiencing physical IPV were 30% more likely to have financial distress and 40% more likely to have serious psychological distress.

Health insurance reduced the impact of physical IPV on emergency room use. Even after accounting for the influence of poverty, marital status, age and other demographic factors, uninsured women who experienced physical

IPV were 90% more likely to visit an emergency room compared to uninsured women who did not experience physical IPV. In contrast, abused women with employer-sponsored insurance were not more likely to visit an emergency room. Findings for women on Medicaid were less certain, as findings were inconsistent between the 2008 and 2010 OFHS data sets.

Physical IPV had the strongest association with unmet health needs among women who had employer-sponsored insurance through their own employer. After controlling for demographic factors, physical IPV was only marginally associated with having unmet health needs. This may be because other influences like poverty have such a pervasive effect, that the additional contribution of physical IPV is modest. Among women with employer-sponsored insurance through their own employer, however, physical IPV had a very strong association. Among such women, those who had experienced such abuse in the past year were more than twice as likely to have unmet health needs compared to women who had not experienced abuse.

Policy Implications

Relative to other well-established threats to health, physical IPV is remarkably common and is associated with significant adverse consequences. Far from being an overblown, socially-constructed problem, IPV represents a genuine threat to Ohio's families – as real as cancer. Because previous reports[2] suggest that funding for relevant programs are inadequate for the scope of the problem, **Ohio should re-examine its investment in preventing and reducing IPV**.

Our findings suggest that certain state agencies and programs bear a disproportionate share of the costs and consequences associated with IPV. In particular, **Medicaid is uniquely well-positioned to help Ohio address IPV** since it covers nearly one third of all Ohio women who experience physical abuse each year. Moreover, Medicaid's ability to create standardized structures for health care providers across the state would facilitate the development of screening and intervention processes that can be evaluated rigorously.

Medicaid should also be concerned with IPV because of it ultimately shoulders much of the costs of treating the uninsured. Because the greatest potential cost savings from preventing IPV exist among the uninsured, Medicaid along with **hospitals and other providers and institutions that ultimately pay for the uninsured have much to gain from successful prevention of IPV. As such, they should play a leading role in supporting these efforts**.

The possible savings from effective prevention of IPV may also be relevant when calculating the costs of current efforts to expand health insurance coverage to more Ohioans. If, as our results suggest, health insurance reduces the effects of physical IPV on emergency room use, then expanding coverage may yield additional cost savings that have not previously been considered. **Additional research linking claims data and other sources of IPV history (e.g., survey self-reports) would be worthwhile** for documenting the magnitude of such savings. This information could help determine what investments in IPV prevention could be cost-effective.

Although this study did not examine specific approaches to IPV screening in health-care settings, our findings offer some tentative support for this approach. The fact that abused women with employer-sponsored insurance are not more likely to visit an emergency room suggests that greater access to services can help interrupt violence before it becomes severe. As such, **screening for IPV in a wide range of health-care settings (e.g., urgent care centers, physicians' offices) may be useful for offering victims multiple opportunities to seek help**. We hope providers that offer such screening will continue to do so.

In many health-care settings, however, universal screening is impractical. **Further research linking claims data with other sources of IPV history may help providers identify particular constellations of risk factors (e.g., age, insurance type, presenting condition) that can guide selective screening that is both efficient and effective.**

Finally, private insurers may be particularly interested in our findings related to women with employer-sponsored insurance through their own employer. Unlike other women, physical IPV was strongly associated with unmet health needs in this group. **Employee health plans should consider IPV screening and intervention for women who report difficulty accessing services to meet their own health needs.**

As our findings indicate, research can help guide the development of thoughtful policies for IPV. We hope that future policy in this area will similarly lead to the development of opportunities for thoughtful research.

Table of contents

List of tables

List of figures

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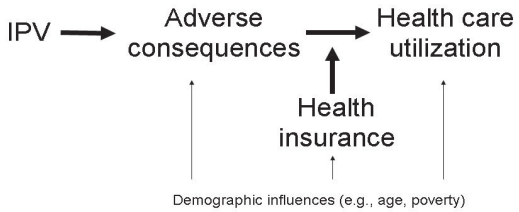
Background

Intimate partner violence (IPV) is a significant public health issue. Among non-elderly adults in Ohio, it is more common than cancer or motor vehicle accidents.[1] A growing research literature has documented the health-related consequences of such abuse including depression, post traumatic stress disorder, and numerous physical and somatic symptoms.[3]

Medicaid and private insurers assume many of the health care costs associated with IPV. Unfortunately, most research on the topic has studied samples with a single insurance provider. By studying a general population sample with different types of health insurance coverage, this study sought to understand how health insurance might buffer the association of IPV with health outcomes and care utilization. To do so, we first examined IPV prevalence by insurance type and tested its association with adverse consequences such as serious psychological distress while controlling for demographic factors (e.g., age, poverty and marital status). We then tested for the association of IPV with health care utilization (e.g., emergency room use) while controlling for demographic factors, and assessed whether health insurance influences this association. Figure 1 summarizes the conceptual model underlying these analyses.

Figure 1. Conceptual model for assessing how health insurance buffers the association of intimate partner violence with health care utilization



From this model, the study had three specific aims. We present each aim below and briefly highlight relevant research literature.

1. To estimate the prevalence of IPV for people with different types of health insurance. Many studies have sought to estimate the prevalence of IPV in the general population, yet very few have provided estimates by insurance type. This is a significant omission because many prevention and intervention efforts involve health care providers. A report using data from the 2008 Ohio Family Health Survey (OFHS)[4] provided figures specific to Ohio, with past-year prevalence among women estimated as 4.5% for uninsured, 5.2% for Medicaid and 0.7% for employer-sponsored insurance. We anticipate relatively few differences for the 2010 data.

The present study also sought to provide the first estimates of IPV prevalence among Ohio women who are veterans as well as those with same-sex partners. Previous research suggests that IPV certainly occurs among veterans[5] as well as same sex couples,[6] although it is unclear whether the prevalence differs from other groups. While the 2010 OFHS will be able to provide some estimates, we anticipate that that the survey's brief IPV measure and the relatively small number of people who self-identify with these groups in a general population sample will limit our ability to provide precise figures.

2. To describe the association of IPV with adverse consequences. We will examine serious psychological distress, fair or poor self-rated health status, financial distress, unmet health needs and emergency room use. Previous research has documented associations with each of these outcomes.[3,7,8] Consistent with our model, we anticipate that for all victims, IPV will have a positive association with all proximate outcomes like serious psychological distress, fair or poor self-rated health status and financial distress. For health care utilization (e.g., emergency room use; unmet health needs), however, the nature of the relationship will vary by insurance status (see below).

3. To determine how the association of IPV with adverse consequences varies by health insurance type. We assess how health insurance may buffer the association of IPV with health care utilization. To our knowledge, no studies have examined this question to date with the exception of a brief analysis of the 2008 OFHS.[4] For uninsured women, we expect our analyses to help us choose between two plausible models. One model suggests that abused, uninsured women's reduced ability to pay will mean that IPV will result in *less* health care utilization. An alternative model suggests that their reduced ability to pay for health care services will lead them to delay seeking care and thus missed opportunities for providers to identify abuse and intervene. As a result, violence may escalate until it becomes so severe that it results in *more* health care utilization.

For women with employer-sponsored insurance, we will distinguish individuals insured through their spouse, from those who have health insurance through their own employer. We anticipate that the former group may be more likely to endure an increasingly abusive relationship for fear of losing health insurance for themselves and perhaps their children. As such, IPV may have a stronger association with health care utilization compared to women who have greater autonomy because they have insurance through their own employment. Many women have trouble leaving a violent partner on whom they depend for housing, income and other basic necessities. In a similar manner, studies find evidence of "job lock," when individuals are reluctant to leave an undesirable job because they fear losing their health insurance.[9] Although research has not yet directly examined it, we hypothesize that this may be true for health insurance as well.

For Medicaid, there are few models to guide hypotheses on how the association of IPV with health care utilization should differ for this group. If results for Medicaid are more similar to those with employer-sponsored insurance (and differ significantly from uninsured women) then any type of health insurance can help buffer the effect of IPV on health care utilization. If, however, the association of IPV with health care utilization is more similar for Medicaid and uninsured women, then that may suggest that insurance may be less important for curtailing the consequences of IPV among low income women.

Methods

The 2010 OFHS is a data collection instrument used to measure the health care experiences of people in Ohio. From August through November 2010, trained, computer-assisted telephone interviewers administered the OFHS to 8,276 Ohio residents age 18 years or older. The stratified, list-assisted random digit dialing sample aimed to be representative of all Ohio households and residents. The sample was stratified by region and race/ethnicity. Six counties were over-sampled to provide stronger estimates for metropolitan areas and ethnic minority populations. Because these six counties also contained most of the state's African American population, the research team over-sampled exchanges within these counties that had high, mid, and low densities of African American households. Respondents who preferred, completed a version of the survey in Spanish. In addition, because many homes rely exclusively on cellular telephones, the research team developed a separate sampling frame of such phone numbers.

Upon finding an eligible household, the interviewer (assisted by a computer) randomly selected an eligible adult in the household to complete the OFHS. If this index respondent was incapable of completing the survey, another adult in the household then completed the interview by proxy (i.e., on behalf of the original index individual). Because of the sensitivity of the topic, proxy interviewees were not asked questions about IPV.

The response rate (RR3)[10] for the landline version of the survey was 42.7%, and the response rate for the cell phone version was 21.9%. This figure is equivalent to similarly calculated response rates from other random digit dial surveys, such as the California Health Interview Survey[11] and Behavior Risk Factor Surveillance System (BRFSS).[12]

Because the prevalence and consequences of IPV are greatest for women, we focused our analyses on the 3,473 female respondents less than 65 years old. While some men certainly experience physical intimate partner violence, it is difficult to use brief survey items like those on the OFHS to distinguish men who are primarily victims from those who are primarily aggressors. Many physically abusive relationships involve an element of reciprocity – that is, where the primary victim hits back. Most primary aggressors in such relationships are male, yet such a man might accurately claim on a survey that he indeed has been hit by an intimate partner. Thus, studying physical IPV among men has a high likelihood of conflating perpetrators with victims. Because women are far less likely to be the primary aggressor in abusive relationships, focusing our analyses on females yields a more coherent description of the consequences of physical intimate partner violence.

For the 2008 OFHS data used in this study, we included data on 23,038 women ages 18-64. There were, however, important methodological differences between the administrations of the OFHS in 2008 versus 2010. In 2008, for example, OFHS asked about violence only during the past year and then classified as physical IPV only those episodes where the perpetrator was an intimate partner. (Also, the much larger sample in 2008 produced more precise estimates that made it easier to establish the statistical significance of the relationships we studied.[4]) In contrast, the 2010 version (see description below), asked about ever experiencing physical IPV, and then distinguished individuals whose most recent episodes occurred during the past 12 months. Because past-year physical IPV is relatively uncommon, small differences in wording can yield noteworthy differences in prevalence estimates.

Measures

Physical intimate partner violence. Towards the end of the survey, respondents were read a definition of an intimate partner[13] and then were asked "Has an intimate partner ever used physical violence against you? This includes hitting, slapping, pushing, kicking, or hurting you in any way." Those responding "yes" were classified as having lifetime experience of physical IPV and were then asked, "When was the last time an intimate partner used physical violence against you?" Those who reported that the violence occurred during the past 12 months were classified as having past-year physical IPV.

The physical IPV items resemble those used in other population-based studies.[14] Whereas IPV involves physical, sexual and emotional abuse, brief measures that focus only on physical abuse can still yield valuable data. Compared to psychological abuse, physical IPV may be more strongly associated with adverse health consequences and health care utilization.[15] Prior studies have shown the sensitivity of brief physical IPV questions to be 93%.[16] Sensitivity is defined as the proportion of respondents who are "truly abused" who test/score positive on single questions that assess abuse—such as the question used in the proposed study. Given the high sensitivities of brief questions in prior studies, the OFHS is appropriate to measure *physical* IPV in Ohio.

Adverse consequences. We used single items and multiple item scales to assess adverse consequences that were available on the 2010 OFHS. The specific outcomes included emergency room use, serious psychological distress, financial distress, unmet health needs and fair or poor self-rated health status. We selected these variables based on our review of the previous literature and suggestions from the OFHS review committee. Table 1 describes how we constructed each of the variables from the 2010 OFHS data.

Table 1. Description of key outcome measures

Variable	Variable name(s) in OFHS data set	Item wording	Responses used in analysis
Financial distress	f70	During the last 12 months, were there times when you had problems paying or were unable to pay for medical bills for yourself or anyone else in the family or household?	yes/no
Serious psychological distress	6-item scale; k6_1-k6_6	Multi-item scale; sample item: During the past 30 days, how often did you feel so sad that nothing would cheer you up?[17]	Collapsed scale scores: 0-12 ≈ less than serious distress 13-24 ≈ serious distress
Unmet health needs	hlthnd_a_10	Multi-item scale; sample item: Did you delay or avoid getting care that you needed, but that you could not afford?	"yes" or "no" responses tallied into "no unmet health needs" vs. "any unmet health needs"
Emergency room use	ervt_a	During the last 12 months, how many times were you a patient in a hospital emergency room? Include emergency room visits where you were admitted to the hospital.	Numbered responses collapsed into "any" ER visits (i.e., 1+) vs. "none"
Fair or poor self-rated health status	d30	In general, would you say your health is excellent, very good, good, fair, or poor?	Collapsed responses into "fair" or "poor" vs. "excellent," "very good" or "good"

Insurance status. Classifying people's insurance type is complex because many people have more than one type of coverage. We employed a hierarchical scheme devised by OFHS staff to classify individuals into four mutually exclusive categories: (1) Medicaid; (2) employer-sponsored insurance (ESI); (3) uninsured; and (4) "other." This last "other" group included individuals with a wide range of plans, from disabled people on Medicare, to those with directly purchased plans to other complex arrangements that did not fit into the other categories. Given the lack of conceptual clarity in the "other" group, we only included other in analyses for the sake of completeness and will not try to interpret findings associated with it. In addition, we distinguished women who had employer-sponsored insurance through their own employment from those who had such insurance through a spouse's employment.[18] Please see the Background section (p. 7) for an explanation.

Demographic variables. In multivariable models, we adjusted for the effects of potential confounders including age, ethnicity (white, African-American, other), education (< high school, high school graduate, some college, college graduate), marital status (never married, married, separated/divorced, unmarried but cohabiting, and other), poverty

status (household income as % of federal poverty level) and region (major metropolitan counties; suburban counties, Appalachian counties and non-Appalachian rural counties.) Please refer to the 2010 OFHS website for the description of these variables.

Data analysis

Descriptive statistics as well as confidence intervals and complex survey regression modeling incorporated the survey design characteristics of the OFHS. While many of our analyses were simply descriptive, others involved exploring and testing relationships between groups through multivariable regression models. We employed generalized linear models (specifically Poisson regression) to explore the association between IPV and adverse consequences, as well as potential effect modification of covariates with insurance type, while adjusting for the effects of demographic characteristics. As we preferred to estimate adjusted risks, rather than adjusted odds ratios, we employed a '*Poisson working model*' within the survey framework.[19] While logistic regression would have approximated relative risk estimates well when the outcomes was rare (<10%), it would have overestimated the estimated relative risks when the outcome was more prevalent. Utilizing the proposed modeling strategy removes the extra calculation needed for obtaining relative risk estimates from the estimated odds ratios. Furthermore, we are able to calculate reliable confidence interval estimates directly from these models.

We report the adjusted association of physical IPV with each outcome as prevalence ratios. A prevalence ratio compares the probability of an outcome in one group (e.g., those with IPV) to the probability of an outcome in a comparison group (e.g., those without IPV). We can interpret these as relative risks of an outcome. If we estimate the prevalence ratio to be 2.0, then we would explain that the risk of developing that outcome is 2 times higher for those with IPV, as compared to those without IPV. Model fit and diagnostics were assessed for each final model. All analyses were performed in STATA (version 11.2, StataCorp, College Station, TX).

Results

We organized this section around three types of questions: (1) physical IPV prevalence among select subgroups; (2) association of physical IPV with adverse consequences; and (3) how the association of physical IPV with health care utilization varies by insurance type.

A WORD OF CAUTION

When quoting results, please pay careful attention to the upper and lower confidence limits (i.e., the 95% confidence interval). This section reviews what they are and how to interpret them.

Because it is impractical to interview every adult in Ohio, OFHS surveyed a random sample of adults that allowed us to infer findings for all of Ohio with a quantifiable margin of error. In Table 2, for example, our best estimate is that 2.5% of Ohio women experienced physical IPV last year, but we are 95% confident that the true value could be as low as 1.8% or as high as 3.2%.

Confidence intervals are helpful for assessing the degree to which differences are likely due to chance. For example, the prevalence estimate for uninsured women (5.3%) is a bit lower than that for women on Medicaid (6.0%), yet the confidence intervals indicate that there is considerable overlap. We are 95% confident that the true value for uninsured women could be as low as 2.9% or as high as 7.7%, whereas for women on Medicaid the interval is from 3.0% to 8.5%. As such, we conclude that the survey found no significant difference in prevalence between the groups.

Similarly, when we report prevalence ratios (Tables 4, 5, 6), be sure to note the confidence intervals. In Table 4, the prevalence ratio of 1.4 in the first row means that, according to our best estimate, women who experienced physical IPV in the past year were 40% more likely to have serious psychological distress compared to women who had not experienced physical IPV in the past year (after controlling for the effects of age, income and other demographic influences). The 95% confidence interval of 1.1 to 1.8 means that the actual value may be as low as 10% more likely or as high as 80% more likely. When a confidence interval for a ratio includes 1.0, however, we report that there is no association, because the outcome may be either more likely (i.e., prevalence ratio greater than 1.0) or less likely (i.e., prevalence ratio less than 1.0) among abused women. Because we can not be confident in the direction of the association, we conclude that the association is uncertain.

We recognize statistics can be confusing, but they are important to understand in order to interpret these findings accurately. If you are not sure how to interpret a figure in a table, most results are described in the text in plain English. Alternately, feel free to contact the authors or OFHS staff for clarification.

Prevalence of physical intimate partner violence

About one in five (18.4%) women aged 18-64 years reported ever experiencing physical IPV, including 2.5% who reported physical IPV during the past year (Table 2). Among men, 8.8% reported ever experiencing physical IPV, 3.1% in the past year. While the lifetime prevalence was greater among women, there was no significant difference by gender for past-year prevalence. Among women, those with employer-sponsored insurance reported much lower rates of past-year physical IPV (1.2% self; 0.5% spouse) compared to those on Medicaid (6.0%) or the uninsured (5.3%). There were no significant differences by veteran status, and too few women reported being in same sex relationships to provide reliable prevalence estimates of physical IPV.

Table 2. Prevalence of physical intimate partner violence among select subgroups

		Lifetime			*Past-year*		
Group	*Unweighted n*	*Prevalence*	*95% LCL*	*95% UCL*	*Prevalence*	*95% LCL*	*95% UCL*
Men	2,351	8.8%	7.5%	10.1%	3.1%	2.3%	4.0%
Women	3,473	18.4	16.9	19.9	2.5	1.8	3.2
Women only							
Uninsured	500	29.9	25.2	34.6	5.3	2.9	7.7
Medicaid	470	28.2	23.3	33.1	6.0	3.0	8.5
ESI (self)	1,282	16.8	14.3	19.2	1.2	0.4	2.0
ESI (spouse)	799	7.8	5.7	9.9	0.5	0.0	1.1
Other insurance	422	16.5	12.4	20.7	2.3	0.5	4.1
Veterans	79	23.1	12.0	34.1	1.4	0.0	4.3
Non-veterans	3,394	18.3	16.7	19.9	2.5	1.8	3.2
In relationships with women	13	--	--	--	--	--	--

Notes: ESI=employer-sponsored insurance;
LCL=95% lower confidence limit; UCL=95% upper confidence limit
Percentages are weighted to be representative of all Ohio
Too few women reported being in same sex relationships to provide reliable prevalence estimates of physical IPV
Please see "A Word of Caution" (p. 9) for guidance on how to interpret these findings

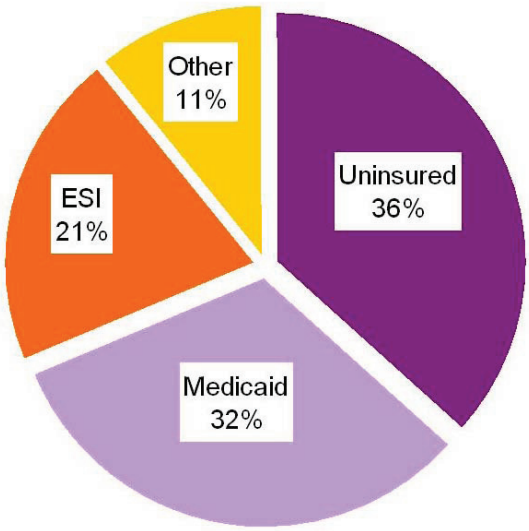
Because rates tell only part of the story, we took advantage of the OFHS's representative sample to estimate the number of Ohio women who experienced physical IPV during the past year. Our best point estimate suggests that 94,465 Ohio women experienced physical IPV last year, although the actual figure may be as low as 68,705 or as high as 120,226 (Table 3). We advise caution in quoting these estimates, however, because of the large interval between our lower and upper confidence limits.

Table 3. Estimated counts of past-year physical intimate partner violence among Ohio women, by insurance type
Estimated number of women with physical intimate partner violence

	Estimated number of women with physical intimate partner violence		
Group	*Estimate*	*95% LCL*	*95% UCL*
Uninsured	34,661	18,472	50,849
Medicaid	30,139	15,453	44,825
Employer-sponsored insurance	19,491	8,343	30,639
Other insurance types	10,174	2,134	18,214
Total	*94,465*	*68,705*	*120,226*

Notes: LCL=95% lower confidence limit; UCL=95% upper confidence limit
Counts are weighted to be representative of all Ohio women ages 18-64
Please see "A Word of Caution" (p. 9) for guidance on how to interpret these findings

Figure 2. Ohio women who experienced physical intimate partner violence during the past year: Proportions by insurance type



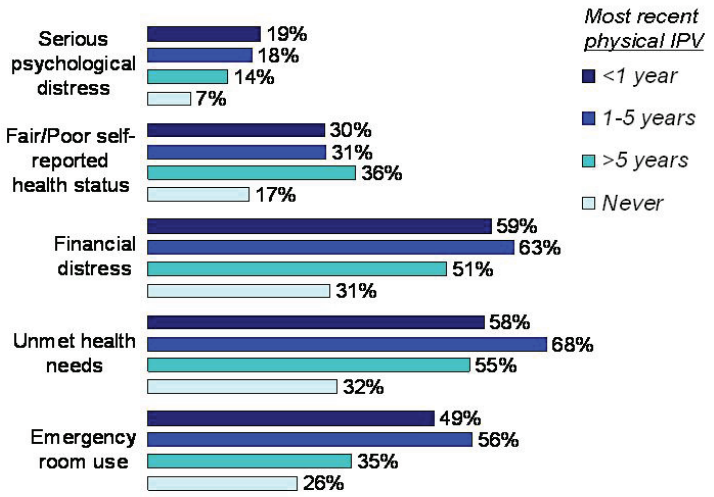
These figures suggest that perhaps two thirds of the women who experienced physical IPV were either uninsured (36%) or on Medicaid (32%; see Figure 2). Despite the fact that over half of Ohio women have employer-sponsored insurance, the much greater prevalence of physical IPV among uninsured women or those on Medicaid means that over two-thirds of the women who experience physical IPV each year fall into these insurance types.

Association of physical intimate partner violence with adverse consequences

We tested how physical IPV was associated with various adverse consequences, including serious psychological distress, fair/poor self-rated health status and financial distress (see Figure 3 for unadjusted associations). Unadjusted for potential confounders, 19% of women who experienced physical IPV in the past year also met the threshold for serious psychological distress. In comparison, 18% of women who reported last experiencing physical IPV 1-5 years ago met the threshold for serious psychological distress, while 14% of those who reported last experiencing physical IPV more than 5 years ago met the criteria. For those who reported never experiencing physical IPV, only 7% met the threshold for serious psychological distress. The length of time since the most recent episode of physical IPV had little or no association with each of the consequences. Approximately 58% of women with past-year physical IPV reported unmet health needs, for example, yet the figure was 55% for women who last experienced physical IPV more than 5 years ago. Across all of these

outcomes, we observed that the rates of adverse consequences are substantially lower for women who reported never experiencing physical IPV compared to those who do.

Figure 3. Prevalence of adverse consequences and health care utilization by length of time since most recent episode of physical intimate partner violence



Note: Figure estimates are weighted to be representative of all Ohio women, 18-64 years old.

In addition, we also examined how IPV was associated with functional impairment related to mental health problems (i.e., when a respondent indicated that on at least 14 of the past 30 days, a mental health condition interfered with her work or usual activities). Not adjusting for demographic factors, 18.6% of women with physical IPV in the past year had such functional impairment. In comparison, the figures were 21.2% for women with physical IPV 1-5 years ago, 18.8% for women with physical IPV more than 5 years ago and 9.2% for women who reported never experiencing physical IPV.

These simple analyses are useful for practitioners to recognize the women with a history of IPV are burdened by a series of adverse consequences. It is important to note, however, that these differences were not adjusted for the confounding effects of demographic factors like age or poverty. Low income women, for example are more likely to experience physical IPV as well as have financial distress. Therefore the apparent association between IPV and financial distress may be partly or even completely due to their spurious association with income level. The following series of analyses control for these effects.

How does the association of physical intimate partner violence and adverse outcomes vary by health insurance type?

We tested the association of physical IPV with adverse consequences for women with different types of health insurance, controlling for the effects of age, education, marital status, poverty status, race, ethnicity and region (Table 4). In general, we found modest, positive associations between each outcome and physical IPV. Women with past-year IPV were 40% more likely report serious psychological distress and were 30% more likely to report financial distress compared to those who did not report past year IPV. Overall, the association of physical IPV with fair to poor self-rated health status was uncertain.

Insurance status did not appear to modify the association of physical IPV with either serious psychological distress or financial distress. In other words, the weak positive association with physical IPV and each of these outcomes (after controlling for covariates), did not vary by insurance type. Moreover, we did not detect significant differences between women who had employer-sponsored insurance through their own employer compared to those who had it through a spouse.

In contrast, the association between physical IPV and fair or poor self-rated health status did vary by insurance status. Women who indicated that their employer-sponsored health insurance was through their spouse, had a substantially higher risk of fair or poor self-rated health outcomes if they reported IPV (PR=5.5, 95% CI: 2.8-10.7) compared to those who did not report IPV.

Table 4. Prevalence ratios (with 95% confidence intervals) of physical intimate partner violence with adverse consequences

	Prevalence Ratio	
	Estimate	95%CI
Serious psychological distress	1.4	[1.1-1.8]
Fair/Poor self-rated health status	1.2	[0.8-1.8]
Financial distress	1.3	[1.0-1.6]

Note: Results are weighted to be representative of Ohio women, ages 18-64
Please see "A Word of Caution" (p. 9) for guidance on how to interpret these findings

We conducted a similar series of analyses with the health care utilization variables as outcomes – emergency room use and unmet health needs. Rather than report a single association for all women, we found that the strength of the association between physical IPV and each outcome depended on the individuals' type of health insurance. Therefore Table 5 presents the association between physical IPV and each outcome for each health insurance type, controlling for demographic factors.

Table 5. Prevalence ratios (with 95% confidence intervals) of physical intimate partner violence with health care utilization, by insurance type

		Prevalence Ratio	
		Estimate	95%CI
Emergency Room Use			
	Uninsured	1.9	[1.3-2.7]
	Medicaid	1.0	[0.6-1.6]
	ESI (self)	0.5	[0.2-1.8]
	ESI (spouse)	1.4	[0.6-3.2]
	Other	0.7	[0.2-2.8]
Unmet health needs			
	Uninsured	1.1	[0.9-1.5]
	Medicaid	0.9	[0.5-1.4]
	ESI (self)	2.2	[1.4-3.5]
	ESI (spouse)	1.8	[0.5-6.8]
	Other	1.1	[0.4-2.7]

Notes: ESI=employer-sponsored insurance. "Self" refers to ESI provided through the respondent's own employer; "spouse" refers to ESI provided through a spouse's employer.
Results are weighted to be representative of Ohio women, ages 18-64
95%CI= 95% confidence interval
Models adjust for age, education, marital status, poverty status, race, ethnicity and region.
Please see "A Word of Caution" (p. 9) for guidance on how to interpret these findings

These results suggest that insurance status may modify the relationship between physical IPV and emergency room use. IPV was strongly, positively associated with emergency room use only among uninsured women (after controlling for covariates). Adjusted effects in other groups were much less certain.

Insurance status may also buffer the association of physical IPV with unmet health needs. This relationship was strongly positive among women with employer-sponsored insurance through their own employment. Although the relationship was not significant among women with employer-sponsored insurance through their spouse, the coefficient had a similar trend. In contrast, adjusted effects for in other insurance types were much less certain.

In addition to these models, we also examined the association between physical IPV and functional impairment due to mental health problems. Controlling for covariates, this relationship did vary by insurance type, however the data were too sparse to break down employer-sponsored insurance into self and spouse subgroups. For most insurance types, the confidence intervals were wide and included 1.0, suggesting that the was no association with physical IPV. For women with employer-sponsored insurance, however, those who had physical IPV in past year were 4.6 times more like to report functional impairment (95%CI 1.5-14.1) compared to women who did not report physical IPV in the past year.

Comparison with 2008 OFHS

Because we also asked about physical IPV and emergency room use in the 2008 OFHS, we conducted similar analyses on those data (Table 6).[20] As in 2010, there was a strong positive association between physical IPV and emergency room use among uninsured women, yet no such relationship for women with employer-sponsored insurance.[21] Unlike in 2010, however, there was also a positive association among women with Medicaid and those with other types of insurance. We explore possible reasons for this discrepancy below (p. 15).

Table 6. Prevalence ratios (with 95% confidence intervals) of physical intimate partner violence with emergency room use among Ohio women, ages 18-64: Comparing 2008 vs. 2010 Ohio Family Health Survey

	2008		*2010*	
	Estimate	*95%CI*	*Estimate*	*95%CI*
Uninsured	1.7	[1.2-2.4]	1.9	[1.3-2.7]
Medicaid	1.4	[1.1-1.6]	1.0	[0.6-1.6]
ESI	1.5	[0.9-2.3]	0.8	[0.4-1.7]
Other	1.9	[1.1-3.1]	0.7	[0.2-2.8]

Notes: ESI=employer-sponsored insurance.
95%CI= 95% confidence interval
Models adjust for age, education, marital status, poverty status, race, ethnicity and region.
Results are weighted to be representative of Ohio women, ages 18-64
Please see "A Word of Caution" (p. 9) for guidance on how to interpret these findings

Discussion

Our analyses yielded five key findings, each of which is summarized below.

1. Physical IPV is remarkably common. Last year in Ohio, about 2.5% of women ages 18-64 were physically assaulted by an intimate partner. This means that conservatively, over 68,705 Ohio women were physically abused by an intimate partner last year. Our best point estimate was 94,465 and the actual count may have been as many as 120,226 women. In comparison, about 51,007 Ohio women ages 18-64 are injured in motor vehicle crashes and 30,550 are newly diagnosed with cancer each year.[1]

An earlier report on IPV using data from the 2008 OFHS reported a similar estimate of past-year prevalence – 1.8% for women 18-64 years old.[4] (The slight difference with the 2010 estimate reflects the imprecision of statewide estimates that overlap considerably.) A more cumbersome, but more accurate description of past-year physical IPV prevalence among Ohio women is between 1.6 and 2.1% in 2008 and between 1.8 and 3.2% in 2010. While variation in question wording likely contributes to these differences, our findings from 2008 and 2010 are quite similar overall and confirm our conclusion that IPV is remarkably common relative to other well-established threats to health.

2. Most Ohio women who experienced physical IPV were uninsured or on Medicaid. Among women who experienced physical IPV last year, roughly one third (36%) were uninsured and another third (32%) were

on Medicaid, and one fifth (21%) had employer-sponsored insurance. These figures were very similar to those reported in the 2008 OFHS (35%, 33%, and 22% respectively).[4] Thus, despite the fact that over half of Ohio women have employer-sponsored insurance, this finding highlights that most physical IPV occurs among uninsured women or those on Medicaid.

Ohio's current efforts to prevent and reduce IPV are under-resourced and face an overwhelming demand.[2] Even so, many practitioners note that the clients they see represent only "the tip of iceberg" of all IPV victims. Because our findings represent all Ohio women, they can help domestic violence programs learn about those "hidden" victims who do not (or cannot) access services. Such programs should assess how their client population compares to our findings for all Ohio women. What proportion of clients is uninsured? What proportion is on Medicaid? To the extent that these proportions differ markedly from our findings, agencies, foundations and other funders can identify types of victims who are less likely to be helped.

Of course, such work should not lead us to conclude that physical IPV is limited to women of lower socioeconomic status. Rather our findings confirm that IPV affects women in every Ohio community and social class.

3. Physical IPV had significant adverse consequences. Physical IPV was associated with higher rates of adverse consequences and health care utilization. For example, 19% of women who experienced IPV in the past year tested positive for serious psychological distress, compared to 7% who had never experienced abuse. These effects persisted over time – even women whose last reported episode of physical IPV occurred more than 5 years ago still had elevated levels of adverse consequences. Some of this association is likely due to the influence of demographic factors like poverty, since lower socioeconomic status tends to be associated with both IPV and serious psychological distress. Yet even after controlling for such effects, women experiencing physical IPV were 30% more likely to have financial distress and 40% more likely to have serious psychological distress.

Some advocates argue that preventing IPV is a worthwhile goal that merits investment, regardless of researchers' ability to demonstrate its related consequences and costs to society. Yet with enormous pressure on state and local budgets, policy-makers must have a clear and compelling case to act. Other important social issues (e.g., mortgage foreclosures; job training; cancer) rely on research to justify investing in relevant programs, and efforts to address IPV must be prepared to do so as well. Research that is local and puts findings into context (e.g., comparing IPV prevalence to that of other social issues) will be particularly helpful to build support for prevention.[1] We hope the present study is useful in this regard.

4. Health insurance reduced the impact of physical IPV on emergency room use. Even after accounting for the influence of poverty, marital status, age and other demographic factors, uninsured women who experienced physical IPV were 90% more likely to visit an emergency room compared to uninsured women who did not experience physical IPV. This finding suggests that uninsured women's reduced ability to pay for health care services leads them to delay seeking care and thus missed opportunities for providers to identify abuse and intervene. As a result, violence may escalate until it becomes so severe that it results in emergency room visits. With similar results from the 2008 and 2010 data, we are increasingly confident in this finding.

In contrast to uninsured women, abused women with employer-sponsored insurance were not more likely to visit an emergency room (again, after controlling for demographic factors). This may suggest that their greater access to services affords more opportunities to interrupt abusive relationships. Alternately, such women may enjoy greater social support from friends and family that enable them to curtail abuse or leave abusive relationships. Because such social support measures were unavailable in the OFHS, we were unable to empirically test this explanation.

Findings for women on Medicaid were less certain, as they were inconsistent between the 2008 and 2010 OFHS data sets. The most likely reasons for this discrepancy are methodological, including differences in how we measured physical IPV [4] and how OFHS defined Medicaid in the hierarchical measure of insurance type.[22] Another complimentary explanation is that the recent growth in Ohio's Medicaid roles meant that many more people were classified as being on Medicaid in 2010 compared to 2008. Thus the larger, more diverse group of Medicaid recipients in 2010 may result in less precise estimates of the association between IPV and health care use.

5. Physical IPV had the strongest association with unmet health needs among women who had employer-sponsored insurance through their own employer. After controlling for demographic factors, physical IPV was only marginally associated with having unmet health needs. This may be because other influences like poverty have such a pervasive effect, that the additional contribution of physical IPV is modest. Among women with employer-sponsored insurance through their own employer, however, physical IPV had a very strong association. Among such women, those who had experienced such abuse in the past year were more than twice as likely

to have unmet health needs compared to women who had not experienced abuse. With the greater ability of such women to afford care, IPV may have a pronounced effect on keeping women from meeting their health needs. One explanation is that women experiencing IPV simply have greater health needs,[3,4,10] which are simply more difficult to manage in combination. In addition, abusive partners may make it more difficult for women to address their health needs. Abusers often seek to control all aspects of their victims' lives – from where they travel, to whom they can see, to how they can spend money. In such situations, it can be more difficult to manage ones own health needs.

Contrary to our expectations, we detected no substantive differences in the consequences of IPV for women with employer-sponsored insurance through their own employment compared to those who had it through a spouse. We had hypothesized that abused women with insurance through their spouse might have greater IPV-related consequences because they were less able to leave an abusive relationship for fear of losing their insurance. Instead, we found very low rates of IPV among women who have insurance through their spouse – only 7.8% lifetime and 0.5% during the past year. Such an insurance type may reflect relatively strong, stable relationships as well as an older population with established career positions and financial security. Although physical violence does occur among such couples, its consequences do not appear to differ significantly from those experienced by abused women who have employer-sponsored insurance through their own employer. In short, our findings do not support the conclusion that women are reluctant to leave violent relationships because they depend on their abuser for health insurance.

Limitations

All research has limitations, and the present study is no exception. By measuring only physical abuse, the OFHS captured only part of the broader problem of IPV. Sexual and emotional abuse are central to conceptual definitions of IPV, yet limited resources precluded us from asking about them. Therefore our findings underestimate the true scope of IPV in Ohio, since we omitted victims who experienced sexual and/or emotional abuse but not physical abuse. To give a sense of the magnitude of this undercounting, two other large telephone surveys with more complete measures of IPV reported lifetime prevalence of around 29%,[3,23] compared to the OFHS estimate of 18.4%.

There are several other reasons why our estimates most likely understate the true prevalence of IPV. First, such violence may be more common among segments of the population (e.g., low income) who are more difficult to reach via telephone surveys.[7] Second, many types of family violence are negatively associated with a household's willingness to participate in research. Women who live in fear of an abusive partner may be more difficult to locate when conducting surveys.[24] In contrast, there is little reason to suspect that our findings overstate the scope of IPV in Ohio.

Another limitation of the study relates to its cross-sectional design, which is unable to capture the chronic, reciprocal nature of IPV and its consequences. Such a design limits our ability to claim that IPV *causes* greater emergency room use, serious psychological distress and so on. Because we measured all variables at a single point in time, we could also conclude that health care utilization and different types of distress may also lead to IPV. If such a conclusion is less theoretically compelling, it is still important to acknowledge that women with greater distress may be more vulnerable to physical abuse. Because abuse is such a complex, chronic phenomenon, it was beyond the scope of this study to distinguish these different reciprocal relationships. Nonetheless, the association of physical IPV and these adverse consequences is compelling, and can offer some tentative implications for policy.

Policy Implications

Relative to other well-established threats to health, physical IPV is remarkably common and is associated with adverse consequences. Far from being an overblown, socially-constructed problem, IPV represents a genuine threat to Ohio's families – as real as cancer. Because previous reports[2] suggest that funding for relevant programs are inadequate for the scope of the problem, **Ohio should re-examine its investment in preventing and reducing IPV**.

While IPV affects communities across Ohio, our findings suggest that certain state agencies and programs bear a disproportionate share of the costs and consequences associated with IPV. In particular, **Medicaid is uniquely well-positioned to help Ohio address IPV** since it covers nearly one third of all Ohio women who experience physical abuse each year. Moreover, Medicaid's ability to create standardized structures for health care providers across the state would facilitate the development of screening and intervention processes that can be evaluated rigorously. While the effect of IPV on emergency room use remains uncertain in our data, a large body of other research suggests that IPV contributes to significant excess health care utilization in this population.[25]

Medicaid should also be concerned with IPV because it ultimately shoulders much of the costs of treating the uninsured. Because our findings suggest that the greatest potential cost savings for preventing and reducing IPV exist among the uninsured and impoverished, **Medicaid along with hospitals and other providers and institutions that ultimately absorb or pay for the uninsured and impoverished's health care costs have much to gain from successful prevention of IPV. As such, they should play a leading role in supporting these efforts**.

The possible savings from effective prevention of IPV may also be relevant when calculating the costs of current efforts to expand health insurance coverage to more Ohioans. If, as our results suggest, health insurance reduces the effects of physical IPV on emergency room use, then expanding coverage may yield additional cost savings that have not previously been considered. **Additional research linking claims data and other sources of IPV history (e.g., survey self-reports) would be worthwhile** for documenting the magnitude of such savings. This information could help determine what investments in IPV prevention could be cost-effective.

Although this study did not examine specific approaches to IPV screening in health-care settings, our findings offer some tentative support for this approach. The fact that abused women with employer-sponsored insurance are *not* more likely to visit an emergency room suggests that greater access to services can help interrupt violence before it becomes severe. As such, **screening for IPV in a wide range of health-care settings (e.g., urgent care centers, physicians' offices) may be useful for offering victims multiple opportunities to seek help**. We hope providers that provide such screening will continue to do so.

In many health-care settings, however, universal screening is impractical. **Further research linking claims data with other sources of IPV history may help providers identify particular constellations of risk factors (e.g., age, insurance type, presenting condition) that can guide selective screening** that is both efficient and effective.

Finally, private insurers may be particularly interested in our findings related to women with employer-sponsored insurance through their own employer. Unlike other women, physical IPV was strongly associated with unmet health needs in this group. **Employee health plans should consider IPV screening and intervention for women who report difficulty accessing services to meet their own health needs**.

Directions for future research

Our analyses revealed several directions for future research. Perhaps most compelling is clarifying the association of IPV and health care utilization among women with Medicaid. In the 2008 OFHS, we found a significant association. In 2010, however, we found no such association. Given the large and growing Medicaid population in Ohio, it would be valuable to focus IPV research specifically on the state's Medicaid families. In addition to further analyses of OFHS data, claims data would be a valuable source of information to cross-reference with court records and other data to gain an accurate understanding of the costs of IPV in Ohio. Another relevant line of research could consider how IPV affects children's well-being and health care utilization. Whereas our analyses focused on adults, a growing number of studies find the children living in homes where IPV is occurring also have demonstrably higher rates of health care utilization.[26] Because two thirds of the children in Ohio who live in IPV homes are on Medicaid,[4] this may be an valuable approach to examining the potential cost effectiveness of IPV screening and prevention.

Another interesting finding involved women with employer-sponsored insurance. Initially, we suspected that women who had employer-sponsored insurance through a spouse might differ significantly from those who have it through their own employment. Individuals insured through their spouse, for example, may be more likely to endure an abusive relationship, and thus heighten the effect of IPV on adverse consequences. In contrast, women who have employer-sponsored insurance through their own employment may have more autonomy and independent resources to leave a violent relationship. Our analyses, however, found no such differences. For three of the four outcomes, the association with physical IPV was very similar for women with both types of employer-sponsored insurance. For emergency room use, the coefficients were trending in different directions as we had anticipated, but the estimates were far too imprecise to make any conclusions. It would be worthwhile to explore this same question with a larger data set that could provide more precise estimates. As our findings indicate, research can help guide the development of thoughtful policies for IPV. We hope that future policy in this area will similarly lead to the development of opportunities for thoughtful research.

REFERENCES

1. Health Policy Institute of Ohio. *Family Violence in Ohio*. Columbus, OH: Health Policy Institute of Ohio; 2010. See also, *Ohio Family Violence County Profiles: Sources and Methods* (pp. 22-23). www.hpio.net/familyviolence
2. Health Policy Institute of Ohio. *White Paper on Preventing Family Violence in Ohio*. Columbus, OH: Health Policy Institute of Ohio; 2008. Available: www.hpio.net/familyviolence
3. Coker AL, Davis KE, Arias I, Desai S, Sanderson M, et al., Physical and mental health effects of intimate partner violence for men and women. *Am J Prev Med* 2002; 23(4): 260-268.
4. Steinman KJ, Bonomi AE. *Intimate Partner Violence, Health Outcomes and Care Utilization among Medicaid and Uninsured Populations in Ohio*. Columbus, OH: Ohio Family Health Survey; 2009. Available: https://ckm.osu.edu/sitetool/sites/ofhspublic/documents/OFHS_Report_Steinman.pdf
5. Marshall AD, Panuzio J, Taft CT. Intimate partner violence among military veterans and active duty servicemen. *Clinical Psychology Review*; 2005; 25(7): 862-876.
6. Tjaden P, Thoennes N, Allison CJ. Comparing violence over the life span in samples of same-sex and opposite-sex cohabitants. *Violence Vict* 1999;14(4):413-25.
7. Tjaden P, Thoennes N. *Extent, Nature, and Consequences of Intimate Partner Violence: Findings From the National Violence Against Women Survey*. Washington, DC: U.S. Dept of Justice Office of Justice Programs, National Institute of Justice; 2000.
8. Breiding MJ, Black MC, Ryan GW. Chronic disease and health risk behaviors associated with intimate partner violence-18 U.S. states/territories, 2005. *Ann Epidemiol* 2008 Jul;18(7):538-44.
9. Stroupe KT, Kinney ED, Kniesner JJ. Chronic illness and health insurance-related job lock. *J Policy Anal Manage*. 2001;20(3):525-44.
10. The RR3 response rate is considered a conservative estimate and is calculated as: I / (I + R + NC + O + e(UH + UO)), where I = Complete interview; R = Refusal and break-off; NC = Non-contact; O = Other; UH = Unknown if household/occupied HU; UO = Unknown, other; e = Estimated proportion of cases of unknown eligibility that are eligible . American Association for Public Opinion Research. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys, 5th edition*. Lenexa, Kansas: American Association for Public Opinion Research; 2008.
11. California Health Interview Survey. CHIS 2007 Methodology Series, Report 4: Response Rates. Los Angeles, CA: UCLA Center for Health Policy Research, 2009. Retrieved March 1, 2009 at : http://www.chis.ucla.edu/pdf/CHIS2007_method4.pdf
12. Centers for Disease Control and Prevention (CDC) (2008). *2007 Behavioral Risk Factor Surveillance System Summary Data Quality Report* Retrieved March 1, 2009 at: ftp://ftp.cdc.gov/pub/Data/Brfss/2007SummaryDataQualityReport.pdf.
13. The next questions are about different types of violence in relationships with an intimate partner. By "an intimate partner" I mean any current or former spouse, boyfriend, or girlfriend. Someone you were dating, or romantically or sexually intimate with would also be considered an intimate partner.
14. Thompson RS, Bonomi AE, Rivara FP et al. Intimate partner violence: prevalence, types and chronicity in adult women. *Am J Prev Med* 2006;30(6):447-457.
15. Bonomi AE, Anderson ML, Rivara FP, Thompson RS. Health care utilization and costs associated with physical and non-physical intimate partner violence. In press, *Health Services Research*.
16. Bonomi AE, Holt VL, Thompson RS, Martin DP. Ascertainment of intimate partner violence in women seeking legal protection. *Am J Prev Med* 2005; 58(1): 52-58
17. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, et al. Screening for serious mental illness in the general population *Archives of General Psychiatry*. 2003;60(2):184-189
18. 21 individuals did not provide information on the source of their employer-sponsored insurance (ESI); these were omitted from analyses that compared ESI-self versus ESI-spouse.
19. Zou, G. A modified Poisson regression approach to prospective studies with binary data. *Am J Epidemiol* 2004;159:702-706. Greenland, S. Model based estimation of relative risks and other epidemiologic measures in studies of common outcomes and in case control studies. *Am J Epidemiol* 2004; 160: 301-305. Lumley T, Kronmal R, Ma S. *Relative risk regression in medical research: Models, contrasts, estimators and algorithms*. University of Washington Biostatistics working paper series. 2006, paper 293. Carter RE, Lipsitz SR, Tilley BC. Quasi-likelihood estimation for relative risk regression models. *Biostatistics* 2005; 6: 39-44.
20. Note that the results presented in Table 6 vary slightly from those reported in Steinman & Bonomi's report on the 2008 OFHS (see reference 4). This is due to controlling for the effects of a different set of demographic factors.
21. We were not able to distinguish ESI-self from ESI-spouse in 2008.
22. Personal communication, Timothy Sahr, Ohio Colleges of Medicine, Government Resource Center, May 16, 2011.
23. Breiding MJ, Black MC, Ryan GW. Prevalence and risk factors of intimate partner violence in eighteen U.S. States/Territories, 2005. *Am J Prev Med* 2008;34(2):112–118.
24. WalterMaurer EM, Ortega CA, McNutt LA. Issues in estimating the prevalence of intimate partner violence: Assessing the impact of abuse status on participation bias. *Journal of Interpersonal Violence*, 2003;18:959-974.
25. Coker AL, Reeder CE, Fadden MK, Smith PH. Physical partner violence and Medicaid utilization and expenditures. *Pub Health Rep* 2004;199:557-567.
26. Rivara FP, Anderson ML, Fishman P, et al. Intimate partner violence and health care costs and utilization for children living in the home. *Pediatrics* 2007;120(6):1270-1277.