Ohio Family Health Survey

Intimate Partner Violence Among Medicaid and Uninsured Populations in Ohio: Associations with Health Outcomes and Care Utilization

Kenneth J. Steinman, PhD, MPH
Amy E. Bonomi, PhD, MPH

THE OHIO STATE UNIVERSITY

OFHS

About the Ohio Family Health Survey

With more than 51,000 households interviewed, the Ohio Family Health Survey is one of the largest and most comprehensive state-level health and insurance surveys conducted in the country. The project was managed by The Ohio State University's Ohio Colleges of Medicine Government Resource Center, and the Health Policy Institute of Ohio and the survey was conducted by Macro International. The Ohio Departments of Insurance, Job and Family Services, Health, and Mental Health, the Cleveland State University, and the Ohio Board of Regents funded the project. This current project is the third in a series of statewide health surveys, following family health surveys in 1998 and 2004.

Ohio Family Health Survey Web site (all sponsored research reports are available for download here):

http://grc.osu.edu/ofhs

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Kenneth J. Steinman, PhD, MPH is Clinical Assistant Professor of Health Behavior and Health Promotion at the Ohio State University College of Public Health. He also directs the Ohio Family Violence Prevention Project, a collaborative project of The Ohio State University College of Public Health and the Health Policy Institute of Ohio.

Amy E. Bonomi, PhD, MPH is Associate Professor of Human Development and Family Science at The Ohio State University.

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For more information, please contact ksteinman@cph.osu.edu 614.292.3158

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EXECUTIVE SUMMARY

Considerable research suggests that intimate partner violence (IPV) is surprisingly common and has a profound impact on health status. Such abuse incurs significant health care costs each year in the United States, including billions of dollars for female victims alone. To date, however, few studies have examined IPV's impact on Ohio.

This report describes some of the burden that intimate partner violence places on the adults, children and institutions of Ohio. The Ohio Family Health Survey (OFHS) is a rich source of information for the topic, although it is important to recognize that the OFHS only assesses physical IPV (p-IPV) that occurred during the past year. Other types of abuse (e.g., emotional, sexual) are important but remain beyond the scope of the report.

The OFHS is designed to measure the health care experiences of people in Ohio. From August 2008 through January 2009, telephone interviewers administered the survey to a random digit dialing sample. Interviewers asked respondents about their history of violent victimization during the past year and their relationship to the perpetrator at the time of the most recent incident. We classified intimate partners as including first dates, dating partners, boy/girlfriends; former boy/girlfriends, live-in partners, spouses and former spouses.

In this report we describe the methods we used to collect and analyze the data and then organize our findings around five questions (see below). We then conclude by considering the implications of these findings for policy.

How common is physical IPV in Ohio?

During the past year, 100,000 Ohio adults (1.2%) experienced p-IPV. This figure includes women and men of every age and from every county, social class and ethnic group. Nonetheless, p-IPV is more common in some groups than in others. Women (1.8%) are twice as likely as men (0.9%) to experience p-IPV and younger adults are more likely than older adults. P-IPV is also more common among people with lower income and education and among the uninsured or those with Medicaid compared to those with employer-based insurance. P-IPV is equally common in cities, suburbs, Appalachia and other rural areas, and there are no ethnic group differences after controlling for social class. About one third of all women who experienced p-IPV are uninsured (n=23,130), and a third are on Medicaid (n=21,980). Nearly one half of all men who experienced p-IPV are uninsured (n=15,360).

Do people with physical IPV have worse health outcomes?

Ohio adults who experience p-IPV are more likely than others to have worse health status. Compared to adults who do not experience violence, those with p-IPV are much more likely to smoke and drink alcohol heavily and are more than three times as likely to report a mental or emotional problem. In addition, women experiencing p-IPV are more likely to have had cancer or hypertension. These findings hold up even after controlling for the demographic factors that might confound such relationships. For example, p-IPV is associated with compromised health among women who are older and wealthy as well as among those who are young and poor.

Do people with physical IPV use more health care?

Women experiencing p-IPV are 60% more likely than other women to be a patient at an urgent care center and 50% more likely to seek emergency care services. This finding is true for all regions of the state, but it does vary by insurance status. The association of p-IPV with health care utilization is especially strong for uninsured women and those on Medicaid. Among women with employer-based insurance, however, p-IPV is not associated with health care utilization. Men experiencing p-IPV are twice as likely to seek urgent care or emergency services and are three times as likely to have a hospital admission.

Each year in Ohio, physical intimate partner violence is as common as injuries from motor vehicle accidents or new cases of cancer.

How many Ohio children live in homes where physical IPV is occurring?

In Ohio, more than 58,000 children live in homes where p-IPV is occurring. This figure represents 2.2% of all children in the state. As with adults, this cuts across all regions and all types of families. Nonetheless, p-IPV is less common in homes with children where the couple is married (0.6%) compared to homes with children where adults are not married. Similarly, children in homes with higher socioeconomic status (e.g. higher income) are less likely to be exposed to p-IPV. Two thirds of all children living in homes where p-IPV is occurring (n=39,563) are on Medicaid.

Do children in homes where IPV is occurring use more health care?

Regardless of their age, gender, ethnicity or where they live, children living in homes with p-IPV are 50% more likely to have an emergency room visit and 60% more likely to have had a hospital admission during the past year. They were also somewhat less likely to have a dental check up.

Taken together, these findings indicate that p-IPV represents an important threat to the health of Ohio adults and children. The issue demands policy-makers' attention because it is common, consequential and changeable. Our finding of 100,000 adult victims per year, suggests that each year in Ohio p-IPV is as common as injuries from motor vehicle accidents (n=117,639) or new cases of cancer (n=55,590). Now, it is also clear that p-IPV in Ohio is consequential: people who experience such violence have significantly worse health outcomes and use significantly more health services. Finally, the different levels of prevalence across demographic groups suggest that policies and programs may curtail p-IPV and its effects. Covering more uninsured people with employer-based insurance, for instance, may result in less use of urgent care and emergency services associated with p-IPV. Further research will be necessary to develop the most effective and efficient approaches to prevention, but one thing is clear: Intimate partner violence is an important health threat to Ohio families that *can* be prevented.

Policy implications

Our findings indicate that p-IPV merits policy-makers' attention because it has the characteristics of a critical health issue: that is, it is common, consequential and changeable.

While p-IPV harms all types of families, its effects on health care utilization are not borne equally by all insurers and health care providers. In particular, agencies that serve Ohio's Medicaid and uninsured populations should recognize the acute relevance of p-IPV to their work.

Agencies that serve Ohio's Medicaid and uninsured populations should support screening and treatment as well as efforts to prevent violence before it begins.

They should not only support screening and intervention for p-IPV, but also consider efforts to prevent violence before it begins. School-based teen dating violence programs are one promising approach that can reduce future victimization as well as perpetration.

Our findings also support the value of expanding employer-based health insurance, as doing so may reduce the use of urgent care and emergency services associated with p-IPV.

Further research will be necessary to develop these and other policy recommendations, yet one conclusion remains clear: Intimate partner violence is an important health threat to Ohio families that *can* be prevented.

BACKGROUND

Intimate partner violence – defined as "actual or threatened physical or sexual violence or psychological and emotional abuse directed toward a spouse, ex-spouse, or former boyfriend or girlfriend, or current or former dating partner" – is a significant public health issue that results in 1,300 deaths and 2.6 million injuries nationally each year.[1,2] Women with IPV histories suffer adverse health-related consequences resulting from their abuse experiences—including depression, sexually transmitted disease, post traumatic stress disorder, chronic pain-related conditions and physical and somatic symptoms.[3,4,5,6,7] In addition, a growing literature has documented adverse consequences for children residing in homes where IPV occurs—including internalizing and externalizing behaviors, sleep disturbance and trauma symptoms.[4,8] Children who reside in IPV homes are also three times as likely to use mental health services than other children.[9]

These outcomes are associated with significant direct health care costs—$19.3 million per year in excess health care costs for every 100,000 women.[10] Interpolating such findings from these and other[11] studies to Ohio, IPV may result in $213 to $262 million in excess health care annually. No study has quantified costs attributable to IPV in men. However, a recent study showed that health care costs were marginally significantly higher for children who reside in homes where IPV occurs versus other children.[9]

Despite these findings, much about IPV is poorly understood, including the association between IPV and health outcomes and care utilization for children and for men, as

well as the relevance of national studies to Ohio. Recent evidence suggests considerable state level variation in rates of IPV,[12] yet even the most current, rigorous Ohio estimates are largely interpolated from national data.[11]

This project has six specific aims:

1. estimate IPV prevalence for specific demographic groups;
2. describe the association between IPV and health outcomes and health care utilization among women and men;
3. determine how these associations may vary by insurance status;
4. estimate the number of Ohio children who live in homes where IPV occurs;
5. describe children's health outcomes and care utilization associated with living in a home where IPV occurs; and
6. discuss relevant policy implications

Such information will be critical for government leaders, foundations and others to distribute resources where the need is greatest. These data will also serve as a valuable comparison to other state and local data sets that rely on case reports (e.g., domestic violence arrest incidents) to document the extent of IPV. Doing so will help highlight gaps in these other data collection efforts and thus improve agencies' abilities to allocate resources efficiently.

Also significant is our effort to examine the association between IPV and health outcomes and health care utilization for women, children and men. The size of the Ohio Family Health Survey (OFHS) sample enabled us to model important relationships between IPV and health outcomes and health care utilization that smaller samples of women, men and children have been unable to undertake. Of particular note was our ability to distinguish how the association between IPV and health and health care utilization is related to health insurance status. Such information can help health care providers, health plans and insurance administrators develop tailored approaches to identify IPV and provide appropriate interventions to improve public health and reduce expenditures.

METHODS

We analyzed data from the 2008 OFHS to estimate p-IPV prevalence and the association between p-IPV and health outcomes and care utilization among women, men and children. This section describes the measures and analytic strategy used to fulfill the project's specific aims**.**

The 2008 OFHS is a data collection instrument used to measure the health care experiences of people in Ohio. From August through December 2008, trained, computer-assisted telephone interviewers administered the OFHS to 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 county, with independent samples selected for each of the state's 88 counties. 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, middle, and low densities of African American households. Researchers also selected, separately for Asians and Hispanics, a supplemental sample based on a list of surnames along with a database of residential

phone listings. Respondents who preferred completed a version of the survey in Spanish. In addition, because many American homes rely exclusively on cellular telephones, the research team developed a separate sampling frame of such telephone 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). Overall, 750 (1.5%) surveys were completed by proxy.

The response rate for the OFHS was 34.6%. This figure is equivalent to similarly calculated response rates from other random digit dial surveys, including the 2007 California Health Interview Survey[13] and 2007 Behavior Risk Factor Surveillance System Survey.[14] Because p-IPV is very rare among older adults[a] (and consistent with previous studies) we limited analyses to Ohioans less than 65 years old.

Measures

In addition to typical demographic covariates (age, ethnicity), we also included income, education, and home ownership to consider the complex ways in which socioeconomic status may influence p-IPV.[15]

Physical intimate partner violence

At the end of the survey, women were asked about their history of p- IPV using questions derived from the BRFSS: "During the last 12 months, how many times, if any, has anyone hit, slapped, pushed, kicked or physically hurt you?" Those who reported any violence (unweighted = 2.5%; weighted = 3.4%) were then asked: "Think about the time of the most recent incident involving a person or persons who hit, slapped, pushed, kicked or physically hurt you. What was that person's relationship to you?" We classified intimate partners as including first dates, dating partners, boy/girlfriends; former boy/girlfriends, live-in partners, spouses, former spouses. Non-intimate partners included perpetrators who were strangers, co-workers, friend/acquaintances, professional caretakers, children, step-children, other family members, or other. For multivariate analyses, we included individuals with intimate partner violence and those with no violence history (by intimate or non-intimate persons).

[a] Only 17 of the 460 p-IPV cases in the data set occurred among people 65+ years old.

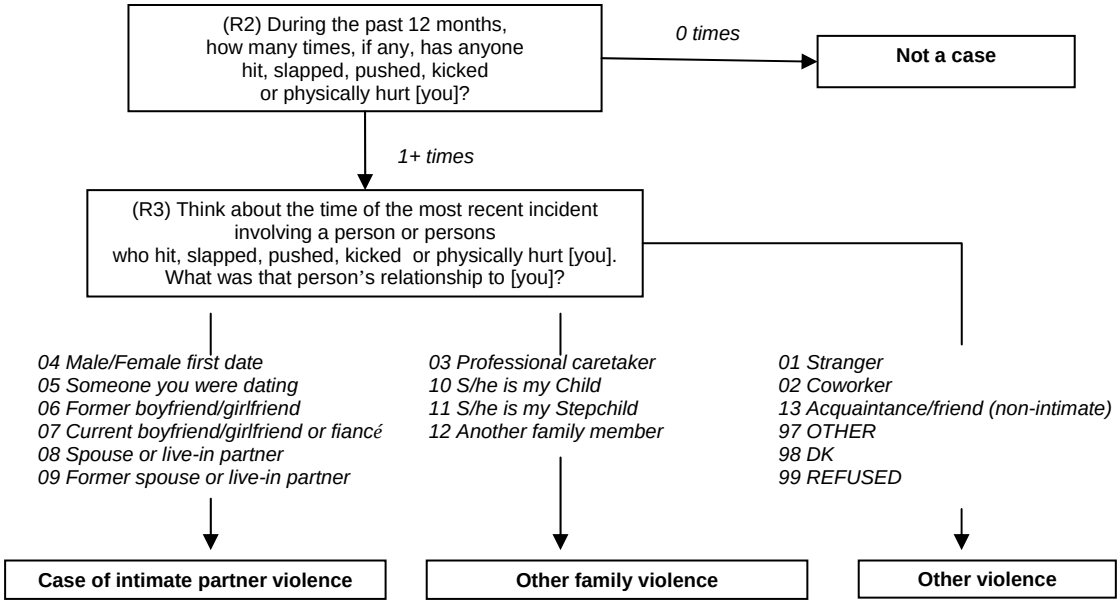

Figure 1. Procedure for classifying a case of intimate partner violence from 2008 OFHS

The p-IPV items resemble those used in other population-based studies.[16] Whereas IPV involves physical, sexual *and* emotional abuse,[5] brief measures that focus only on physical abuse can still yield valuable data.[12,13] Compared to psychological abuse, p-IPV may be more strongly associated with adverse health consequences[5] and health care utilization.[17] Prior studies have shown the sensitivity of brief physical IPV assessment questions to be 93%.[18] 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.

Health Outcomes

To examine p-IPV's association with health outcomes, we focused on key health indicators outlined in previous research. In adults, this included a history of cancer, (non-gestational) diabetes, hypertension, coronary heart disease, congestive heart failure and stroke. Two items assessed concerns with mental/emotional health: "Do you need or get treatment or counseling for any kind of mental health, substance abuse or emotional problem?" and "Has this problem lasted or is it expected to last for at least 12 months?" Adults who responded affirmatively to both questions were classified as having problems with mental/emotional health. Participants were also asked about activity limitations (Do you have difficulty doing or need assistance to do day-to-day activities), their global health status (In general, would you say your health is excellent, very good, good, fair, or poor) and heavy alcohol use (During the past 30 days, on how many days, if any, have you had more than 4 drinks on an occasion?) Adults who had smoked >100 cigarettes in their lifetime and reported now smoking every day were

classified as “current smokers.” Single items assessed use of urgent care centers, emergency rooms and hospital services during the past 12 months.

For children, we examined asthma[19] and behavioral problems.[4,8] Because of complications associated with accessing automated data on disease burden from health care delivery systems, self-reported questions are frequently used to assess health outcomes in studies examining the association between health and abuse history in adults.[5] Adults are also considered to be reliable reporters of children’s health status. Prior studies rely upon adult reports of health behaviors that could be linked to the experience of IPV in children. [4,8]

Health Care Utilization

Single items assessed use of urgent care centers, emergency rooms and hospital services during the past 12 months. We selected these variables based on findings from previous research on IPV and health care utilization.[5,7,9,10] The gold standard for assessing health care utilization in adults and children is automated data from health plan records. However, such data are challenging to obtain and characterize because of variations in the collection and recording (or lack thereof) of these data across health plans within a given state. As a proxy, numerous studies rely upon the use of self-reported health care utilization data from adults—that is, asking adults about their own use of health services and their children’s use of services. Recall bias can be an issue in studies that rely on self-reported health care use, especially studies that ask respondents to recall use over long periods of time. Because most of the OFHS questions we used ask respondents to recall health care use over a period of one year, recall bias was not likely to be a significant problem.

Insurance status

We classified individuals into four mutually exclusive categories: (1) Medicaid/Medicare; (2) employer-based insurance; (3) uninsured; and (4) those with privately purchased or other plans. Creating such a classification scheme was complex because many people have more than one type of coverage. We relied on the hierarchical classification scheme provided by the OFHS.

Data analysis

We assessed p-IPV prevalence separately for women and men, using the sampling weights to provide estimates for the state of Ohio. We considered estimates unreliable if the relative standard error exceeded .30.[1,20] We also employed multivariate models to assess the association between IPV and various outcomes related to health status and care utilization while controlling for demographic variables. To assess the association between IPV and each outcome, we fit a generalized linear model with a Poisson distribution and log link. Covariates included age, ethnicity, region, income, education, and home ownership. For models of care utilization, we also controlled for health insurance type. This approach enabled us to calculate prevalence ratios and produce models that were more likely to converge given p-IPV’s highly skewed distribution.[21] In each model, we only included those covariates that improved fit and tested whether the effects of IPV varied across these covariates. Consistent with previous research in the area, we limited analyses to individuals 18-64 years old.

RESULTS

We organized our results around five questions: (1) how common is p-IPV in Ohio? (2) Do people with physical IPV have worse health outcomes? (3) Do people with physical p-IPV use more health care? (4) How many children in Ohio live in homes where physical IPV is occurring? (5) Do children in homes where IPV is occurring use more health care?

How common is physical IPV in Ohio?

During the past year, 100,000 Ohio adults (1.2%) experienced p-IPV. This figure includes women and men of every age, county and social class. For adults 18-64 years old, p-IPV prevalence is 1.4%.[b] Nonetheless, p-IPV is more common in some groups than in others. Women (1.8%) are twice as likely as men (0.9%) to experience p-IPV and younger adults are more likely than older adults (Table 1). Social class differences are also important: p-IPV is more common among people with lower income and education. Men who do not own their home are about six times as likely to report recent p-IPV compared to those who do own their own home. (Women are about three times as likely.) In addition, uninsured women (4.5%) or those on Medicaid (5.2%) are much more likely to experience p-IPV compared to those with employer-based insurance (0.7%). P-IPV is equally common in cities, suburbs, Appalachia and other rural areas, and there are no racial/ethnic differences after controlling for socioeconomic status.

It is also worthwhile to examine the total number of people in each group who report past-year p-IPV. Even if p-IPV is more common among the uninsured, for example, most people have health insurance so most of the people with p-IPV may have such insurance. Table 2 presents the estimated number of Ohio females and males who experienced p-IPV across different demographic groupings.

During the past year, 100,000 Ohio adults experienced p-IPV. This figure includes women and men of every age, county and social class.

In reviewing the table, several patterns are noteworthy. About 40% of p-IPV cases occur among adults18-24 years old and a similar proportion occur among those never married[c]. Regarding insurance type, the uninsured represent the plurality of p-IPV cases among women (n=23,130; 35%) and men (n=15,130; 47%).

By considering age and insurance status together, we identified groupings of p-IPV cases that are both reasonably common and precise (analyses not shown). Differentiating common patterns in this manner (i.e., market segmentation) can help guide plans for prevention and intervention services. Policy makers might consider whether existing or planned efforts are adequately tailored to these different groups.

For men, nearly half of all p-IPV cases occur among 18-44 year olds who are uninsured (45%; n=14,921). Most of this group has never married, although a sizable

[b] Unless otherwise noted, the remainder of the results presented are for adults 18-64 years old, representing 98.5% of the p-IPV cases in the state (n=98,910).

[c] Or part of an unmarried couple. In that age group, "unmarried couples" are similar to those who are "never married."

minority is separated or divorced. A second group is comprised of 25-54 year olds with employer-based insurance (21% of male cases; n=6,822). Two thirds of these cases are currently married. In total, these two pattern groups describe 66% of male p-IPV cases.

Table 1. Prevalence of past-year physical intimate partner violence among Ohio adults (ages 18-64)

	Females			Males		
	Unweighted count	Weighted		Unweighted count	Weighted	
	n	*%*	*95%CI*	*n*	*%*	*95%CI*
Total	351	1.8	[1.6 - 2.1]	92	0.9	[0.7 - 1.2]
Age						
18-24	75	5.3	[4.0 - 6.9]	19	2.5	[1.6 - 4.1]
25-34	93	2.1	[1.5 - 2.8]	30	1.5	[1.0 - 2.3]
35-44	85	1.8	[1.3 - 2.5]	19	0.9	[0.5 - 1.5]
45-54	72	1.1	[0.8 - 1.5]	17	--*	
55-64	26	0.4	[0.2 - 0.8]	7	--*	
Race/Ethnicity						
white	259	1.7	[1.4 - 2.1]	70	0.8	[0.6 - 1.1]
black	70	3.3	[2.4 - 4.5]	17	2.5	[1.5 - 4.3]
Hispanic	22	2.7	[1.5 - 4.7]	4	--*	
Asian	0	--*		1	--*	
Region						
Appalachia	85	2.5	[1.7 - 3.5]	19	0.9	[0.5 - 1.7]
Rural	59	1.5	[1.0 - 2.2]	20	1.5	[0.8 - 2.5]
Metropolitan	177	2.0	[1.7 - 2.5]	43	1.0	[0.7 - 1.4]
Suburban	30	1.4	[0.9 - 2.3]	10	--*	
Marital status						
Never married	101	3.7	[2.9 - 4.8]	28	1.5	[1.0 - 2.4]
Married	75	0.6	[0.4 - 0.8]	17	0.4	[0.2 - 0.6]
Separated/Divorced	132	3.9	[3.1 - 5.1]	33	2.4	[1.5 - 3.7]
Widow	15	--*		0	--*	
Unmarried couple	28	4.4	[2.6 - 7.3]	13	--*	
Income as % of federal poverty level						
<100%	145	4.3	[3.4 - 5.5]	23	1.9	[1.1 - 3.2]
100-300%	133	2.1	[1.7 - 2.7]	34	1.1	[0.8 - 1.7]
>300%	73	0.8	[0.5 - 1.1]	35	0.7	[0.4 - 1.0]
Education						
<high school	44	4.1	[2.8 - 5.9]	9	--*	
high school grad	259	2.1	[1.7 - 2.5]	68	1.1	[0.8 - 1.5]
college grad	48	0.8	[0.5 - 1.3]	15	--*	
Home ownership						
owns home	173	1.3	[1.6 - 2.2]	36	0.4	[0.3 - 0.7]
does not own home	176	3.5	[2.8 - 4.3]	55	2.6	[1.9 - 3.6]
Insurance type						
Medicaid	127	5.2	[4.1 - 6.7]	16	--*	
employer-based	105	0.7	[0.5 - 0.9]	31	0.4	[0.3 - 0.7]
uninsured	83	4.5	[3.4 - 6.0]	35	2.5	[1.7 - 3.8]
Other **	36	1.8	[1.1 - 2.9]	10	--*	

* unstable estimate, relative standard error >.30
** Other insurance types include: Medicare only, directly purchased, unknown

Table 2. Estimated counts of Ohio adults (ages 18-64) with past-year physical intimate partner violence

	Females			Males		
	Count	Upper Bound	Lower Bound	Count	Upper Bound	Lower Bound
Total	66 084	55 925	76 244	32 826	24 326	41 325
Age						
18-24	25 951	18 671	33232	11 782	6 135	17 429
25-34	14 563	10 178	18949	10 064	5 486	14 643
35-44	14 014	9 658	18371	6 391	2 800	9 982
45-54	8 621	5 581	11661	--*	--*	--*
55-64	2 934	1 137	4 732	--*	--*	--*
Race/Ethnicity						
white	50 530	41 397	59 664	23 626	16 525	30 727
black	13 582	9 249	17 915	8 831	4 169	13 493
other	1 972	845	3 099	--*	--*	--*
Region						
Appalachia	10 550	6 659	14 442	4 182	1 754	6 610
Metropolitan	39 373	31 415	47 331	17 430	11 075	23 786
Rural	6 884	4 106	9 663	7 088	3 040	11 136
Suburban	9 277	5 121	13 433	--*	--*	--*
Marital status						
Never married	11 515	7 747	15 282	6 866	3 095	10 637
Married	26 574	19 551	33 596	12 553	6 905	18 201
Separated/Divorced	19 236	14 228	24 244	9 227	5 011	13 444
Widow	--*	--*	--*	--*	--*	--*
Unmarried couple	6 610	3 089	10 132	--*	--*	--*
Income as % of FPL						
<100%	27 182	20 730	33 634	8 359	4 045	12 674
100-300%	27 052	20,439	33,666	12,940	7,448	18,432
>300%	11,850	7,577	16,123	11,526	6,671	16,381
Education						
<high school	13,224	8,239	18,208	--*	--*	--*
high school grad	44,578	36,456	52,699	22,029	15,295	28,763
college grad	8,283	4,713	11,854	--*	--*	--*
Home ownership						
owns home	30 924	23 804	38 044	10 226	5 550	14 903
does not own home	34 811	27 556	42 067	22 076	15 049	29 103
Insurance type						
Uninsured	23 130	16 405	29 855	15 360	9 506	21 755
Medicaid	21 980	16 359	27 601	--*	--*	--*
Employer-Based	14 345	10 237	18 454	9 260	5 015	13 505
Other**	6 629	3 478	9 781	--*	--*	--*

* unstable estimate, relative standard error >.30
** Other insurance types include: Medicare only, directly purchased, unknown
FPL=Federal Poverty Level

Among women, one quarter of all p-IPV cases occur among18-34 year olds without insurance (n=16,451) and another quarter are among those in that same age group on Medicaid (n=16,421). In each of these groups, roughly 7 in 10 women had not been married. The third largest group is women 35+ with employer-based insurance

(n=9128; 14%), almost half of whom are married and another quarter separated or divorced.

Do people with physical IPV have worse health outcomes?

In Ohio, people who experience p-IPV are more likely than others to have worse health status across a number of indicators. Tables 3a and 3b describe these associations among women and men respectively.

Compared to adults who do not experience violence, those with p-IPV are much more likely to smoke and drink alcohol heavily and are more than three times as likely to report a mental or emotional problem. Nearly 60% of women and men who experience p-IPV are current smokers. In addition, women experiencing p-IPV are more likely to have had cancer or hypertension, to report current activity limitations and to describe their health status as "fair" or "poor."

Nearly 60% of adults who experience physical intimate partner violence are current smokers.

These findings hold up even after controlling for demographic factors that might confound such relationships. For example, p-IPV is associated with compromised health among women who are older and wealthy as well as among those who are young and poor.

At younger ages, p-IPV is remarkably common among women engaging in risky behavior. One in eight women smokers (12.3%), ages 18-24, report p-IPV during the past year. P-IPV is similarly common (11.7%) among young women who used alcohol heavily during the past month.

Do people with physical IPV use more health care?

Adults experiencing p-IPV are much more likely to use health care services. Generally, women and men with p-IPV are two to three times as likely as those without violence to be a patient in an urgent care center, emergency room or hospital. For instance, over 50% of adults who experienced p-IPV also reported being a patient in an emergency room in the past year compared to less than 25% among adults who did not experience violence (Tables 3a and 3b).

In making such comparisons, it is important to control for demographic variables that might confound the relationship between p-IPV and health care utilization. Yet even after controlling for demographic variables like age, ethnicity, region income and education, women experiencing p-IPV are still 60% more likely than other women to be a patient at an urgent care center and 50% more likely to seek emergency services. There is, however, no significant association with hospital admissions.

The association between p-IPV and health care utilization also holds for men. Even after controlling for demographic variables, men experiencing p-IPV are twice as likely to seek care at an urgent care center or emergency department and three times as likely to have a hospital admission compared to those note experiencing p-IPV.

These findings are similar in all regions of the state, but they do vary by insurance status. The association of p-IPV with health care utilization is especially strong for uninsured women and for those on Medicaid. Among women with employer-based insurance, however, p-IPV is not associated with health care utilization (Table 4). We

could not complete similar analyses for men because small cell sizes yielded unstable estimates.

Table 3a. Association of physical intimate partner violence with health outcomes and care utilization among Ohio women 18-64 years old

	Prevalence of condition				
	Among women reporting IPV	*Among women reporting no violence*	*p* [a]	*Prevalence ratio* [b] *[95%CI]*	
Has a doctor, nurse or other health professional ever told you that you have…?					
…cancer	11.7	7.8	.07	**2.3**	**[1.5 - 3.4]** [c]
…stroke	2.4	2.1	.79	1.4	[0.6 - 3.3]
…congestive heart failure	1.7	1.5	.80	1.5	[0.6 - 3.7]
…hypertension	2.8	2.5	.31	**1.5**	**[1.2 - 1.9]** [c]
…coronary artery disease	3.3	2.9	.74	1.9	[0.9 - 3.8]
…diabetes (non-gestational)	10.1	8.7	.54	1.5	[0.9 - 2.4]
Other health variables					
Current smoker	**58.1**	**25.5**	**<.01**	**1.6**	**[1.4 - 1.9]**
Heavy alcohol use	**36.2**	**15.2**	**<.01**	**2.1**	**[1.7 - 2.6]**
Mental/emotional problem	**32.3**	**7.7**	**<.01**	**3.2**	**[2.5 - 4.2]**
Activity limitations	**17.3**	**7.5**	**<.01**	**2.3**	**[1.6 - 3.3]**
Self-rated health (poor or fair)	**31.5**	**17.1**	**<.01**	**1.6**	**[1.3 - 2.1]**
Care utilization (past 12 months)					
Urgent care visit	**32.6**	**15.6**	**<.01**	**1.6**	**[1.3 - 2.1]**
Emergency room visit	**51.7**	**23.2**	**<.01**	**1.5**	**[1.3 - 1.7]**
Hospital admission	**25.4**	**15.2**	**<.01**	1.3	[1.0 - 1.7]

Notes:

Statistically significant results (p<.05) appear in **bold**

unstable estimate, relative standard error >.30

[a] *p* value of design-based *F* test

[b] adjusted for age, ethnicity, income, education, region; models of care utilization also adjust for insurance status

[c] effect only significant for white respondents.

Table 3b. Association of physical intimate partner violence with health outcomes and care utilization among Ohio men 18-64 years old

	Prevalence of condition				
	Among men reporting IPV	*Among men reporting no violence*	*p* [a]	*Prevalence ratio* [b] *[95%CI]*	
Has a doctor, nurse or other health professional ever told you that you have…?					
…cancer	--*	4.4		--*	
…stroke	--*	2.1		--*	
…congestive heart failure	--*	2.0		--*	
…hypertension	31.1	29.4	.78	--*	
…coronary artery disease	--*	4.8		--*	
…diabetes (non-gestational)	--*	8.8		--*	
Other health variables					
Current smoker	**59.7**	**28.2**	**<.01**	**1.5**	**[1.2 - 1.9]**
Heavy alcohol use	**42.3**	**26.1**	**<.01**	**1.4**	**[1.0 - 1.9]**
Mental/emotional problem	**24.2**	**5.1**	**<.01**	**3.2**	**[2.0 - 5.2]**
Activity limitations	--*	5.8		--*	
Self-rated health (poor or fair)	20.2	14.5	.21	1.3	[0.8 - 2.1]
Care utilization (past 12 months)					
Urgent care visit	**31.9**	**12.1**	**<.01**	**2.3**	**[1.6 - 3.5]**
Emergency room visit	**53.9**	**18.3**	**<.01**	**2.0**	**[1.6 - 2.6]**
Hospital admission	**29.0**	**8.7**	**<.01**	**3.4**	**[2.1 - 5.4]**

Notes:

Statistically significant results (p<.05) appear in **bold**

unstable estimate, relative standard error >.30

[a] *p* value of design-based *F* test

[b] adjusted for age, ethnicity, income, education, region; models of care utilization also adjust for insurance status

[c] effect only significant for white respondents.

Table 4. Association of physical intimate partner violence with health care utilization: Differences by insurance type

	Uninsured (n=2,924)		Medicaid (n=2,998)		Employer-Based (n=13,763)	
	PR	95%CI	PR	95%CI	PR	95%CI
Urgent care	**2.3**	**[1.5 - 3.5]**	**1.4**	**[1.0 - 1.9]**	1.3	[0.8 - 2.4]
Emergency room	**1.7**	**[1.3 - 2.3]**	**1.4**	**[1.1 - 1.7]**	1.4	[0.9 - 2.2]
Hospital admission	1.2	[0.6 - 2.4]	1.1	[0.8 - 1.6]	1.1	[0.6 - 2.0]

Notes:
Statistically significant results (p<.05) appear in **bold**

PR=prevalence ratio, adjusted for age, ethnicity, income, education, home ownership and region.

How many children in Ohio live in homes where physical IPV is occurring?

In Ohio, 58,000 children live in homes where p-IPV is reported. This figure represents 2.1% of all children in the state (Table 5). As with adults, this cuts across all types of families. Girls and boys of different ages and with different numbers of siblings are equally likely to live in a home where p-IPV occurs.

More than two thirds of children living in homes where physical intimate partner violence is occurring are on Medicaid.

Nonetheless, p-IPV is more common in certain homes with children. P-IPV is less common among married couples with children (0.6%) compared to children residing with unmarried adults. Similarly, children in homes with higher income and education are less likely to live in a p-IPV home. About 4.5% of children on Medicaid live in a p-IPV home, compared to only 0.8% of children covered by employer-based insurance and 1.4% of uninsured children. In fact, children on Medicaid represent more than two thirds of all those living in homes where p-IPV is occurring (n=39,563).

Do children in homes where IPV is occurring use more health care?

Children living in homes with p-IPV may be more likely to have emotional or behavioral problems or to have asthma, but demographic differences account for this apparent association (Table 6). Living in p-IPV home is not associated with children's greater use of, or need for prescription drugs.

Regardless of their age, gender, ethnicity or where they live, Ohio children living in homes with p-IPV are 50% more likely to have a visit to the emergency department and 60% more likely to have a hospital admission each year compared to other children (Table 6). They are also somewhat less likely to have a dental check up, but are equally likely to have a well-child visit.

Table 5. Prevalence and estimated counts of Ohio children living in a home where physical IPV is occurring

	Unweighted count	*Weighted Count*		*Physical IPV prevalence%*	
	n	*N*	*Upper/Lower bound*	*%*	*95%CI*
Total	249	58 026	[48 276 - 67 776]	2.1	[1.8 - 2.5]
Male	117	29 285	[22 250 - 36 320]	2.2	[1.8 - 2.8]
Female	110	23 931	[17 900 - 29 963]	1.9	[1.5 - 2.5]
Age					
<1	19	2 969	[1 281 - 4 658]	2.2	[1.2 - 3.8]
1 - 5	83	20 645	[14 782 - 26508]	3.0	[2.3 - 4.0]
6 - 12	80	22 367	[16 048 - 28 685]	2.2	[1.6 - 2.8]
13 - 17	59	12 039	[7 814 - 16 263]	1.4	[1.0 - 2.0]
Number of children					
1	98	15 326	[10 961 - 19 691]	2.3	[1.7 - 3.0]
2	84	19 513	[14 092 - 24 934]	1.8	[1.4 - 2.3]
3+	67	23 187	[16 344 - 30 030]	2.4	[1.8 - 3.2]
Race/Ethnicity					
white	180	42 477	[34 091 - 50 864]	2.0	[1.6 - 2.4]
black	44	13 116	[8 382 - 17 851]	3.5	[2.4 - 4.9]
Hispanic	17	2 426	[1 027 - 3 824]	2.6	[1.5 - 4.6]
Asian	1	--*	--*	--*	--*
Insurance type					
Medicaid	145	39 563	[31 345 - 47 781]	4.5	[3.7 - 5.5]
employer-based	64	11 064	[7 104 - 15 024]	0.8	[0.5 - 1.1]
uninsured	16	1 565	[672 - 2 458]	1.4	[0.8 - 2.5]
Other**	17	5 834	[2 542 - 9 126]	2.4	[1.4 - 4.1]

* unstable estimate, relative standard error >.30

** Other insurance types include: Medicare only, directly purchased, unknown

Unweighted counts may not sum to total because of missing data.

Table 6. Health outcomes and care utilization among Ohio children living in homes where physical intimate partner violence is occurring

	Prevalence				
	Among children in p-IPV homes	*Among children in other homes*	*p* [a]	*Prevalence ratio* [b] *[95%CI]*	
Needs/Uses prescription medication	19.6	14.8	.12	1.2	[0.8 - 1.7]
Emotional/Behavioral problem	**14.9**	**7.3**	**<.01**	1.5	[1.0 - 2.2]
Currently has asthma	**18.2**	**10.3**	**<.01**	1.3	[0.9 - 1.8]
<u>Care utilization (past year)</u>					
Saw a specialist	30.4	25.2	.44	--*	--*
Emergency room	**35.4**	**19.1**	**<.01**	**1.5**	**[1.2 - 2.0]**
Hospital admission	**11.9**	**6.0**	**.03**	**1.6**	**[1.0 - 2.6]**
<u>Preventive care (past year)</u>					
Well-child visit	70.5	77.8	.10	--*	--*
Dental cleaning/check-up	**62.0**	**76.4**	**<.01**	**1.0**	**[1.0 - 1.1]**

Notes:

Statistically significant results (p<.05) appear in **bold**

[b] adjusted for age, ethnicity, income, education, region; models of care utilization also adjust for insurance status

*unstable estimate; relative standard error=.37%

[a] *p* value of design-based *F* test

POLICY IMPLICATIONS

Many of our findings are novel and compelling, yet it is always important to compare a study's findings to relevant previous research. In this section, we discuss our results in the context of other studies and consider the implications for health policy in Ohio.

Intimate partner violence merits policy-makers' attention

Our findings indicate that p-IPV represents an important threat to the health of Ohio adults and children. The issue merits policy-makers' attention because it has the essential characteristics of a critical health issue; that is, IPV is:

- common,
- consequential and
- changeable.

We consider each of these characteristics in turn.

Our finding of 100,000 adult victims per year is similar to previous population-based survey estimates,[1,12] and suggests that each year in Ohio p-IPV is as common as other important threats such as injuries from motor vehicle accidents (n=117,639)[22] or new cases of cancer (n=55,590).[23] Yet even this figure underestimates the true scope of IPV in Ohio. Recall that this study's definition of IPV only included *physical* abuse and did not include emotional or sexual abuse. Considerable research suggests that these other types of abuse often occur independently of physical violence, yet still have a profound affect on health outcomes and care utilization.[1,4-7]

Other methodological limitations also likely contributed to our underestimating the prevalence of p-IPV. The OFHS purposefully excluded some populations (e.g., prisoners; homeless) who experience p-IPV at much higher rates than the general population.[24] Other aspects of telephone surveys (e.g., a respondent answering in the presence of a spouse) also suppress estimates, even among those willing to report IPV on a survey.[25] In contrast, we believe there are few if any factors that might lead to our overestimation of the problem.

IPV is also worthy of policy-makers' attention because it is so consequential. Our findings add to the growing literature on adverse health outcomes associated with IPV.[1-7,9,10] We now know that in Ohio as well, people who experience p-IPV have significantly worse health outcomes and use significantly more health services. While we cannot calculate a exact dollar figure for such expenditures, we can look to previous estimates as a starting point. Even if we consider only direct health care expenditures alone, the figures of $213 to $262 million cited earlier for Ohio are only for women victims.[10,11] New research is beginning to document the considerable costs associated with IPV for children[9] and men and also for the treatment of perpetrators. Applying findings from such studies will likely markedly raise our estimates of the health-related costs of IPV in Ohio.

The different levels of p-IPV prevalence across demographic groups suggest that the problem and its effects may be amenable to change. Covering more uninsured people with employer-based insurance, for instance, might result in lower use of urgent care and emergency health services associated with p-IPV. Whereas the OFHS findings and other intervention studies suggest that IPV prevention *can* work, we cannot yet be confident that any given approach *will* work. Developing such approaches requires sustained investment in well-evaluated programs and policies.

The role of insurance

The OFHS is one of the first population-based studies to purposefully examine IPV among people with different types of health insurance. Most previous studies examine the association of IPV and health care utilization within a single insurance type (e.g., Medicaid; health maintenance organization), and few have considered uninsured men and women.[26] While our findings represent an important contribution to the field they also have implications for Ohio.

Urgent care centers are an important source of care for uninsured women who experience physical intimate partner violence

One conclusion is that Medicaid provides health insurance for a large number of women and children living in homes where p-IPV is occurring. One third of all p-IPV cases among women and two thirds of all children living in p-IPV homes are on Medicaid. Because Medicaid likely funds a large proportion of the health care costs related to IPV they should be especially interested in prevention and intervention efforts. Given the challenges of intervening to stop IPV once it begins, Medicaid might also consider approaches to primary prevention, such as school-based programs on teen dating violence.[27]

Because hospitals often bear the costs associated with treating the uninsured, they should consider OFHS findings related to this population. In particular, urgent care centers appear to be an important resource for uninsured women who experience p-IPV. Even after controlling for demographic factors, uninsured women with p-IPV were more than twice as likely as uninsured women who did not experience violence to have been a patient at an urgent care center during the past year. In practice, health care institutions interested in curtailing p-IPV should consider urgent care centers as a site for screening and referral of victims to clinical and social support services.

Our findings also provide tentative support to the efforts of Ohio's State Coverage Initiative to extend employer-based health insurance to more uninsured Ohioans.[28] As described in Table 4, uninsured women who experience p-IPV are much more likely to use urgent care and emergency room services. In contrast, women with employer-based insurance who experience p-IPV are no more likely to do so (after controlling for relevant confounders). This finding might suggest that providing uninsured women with employer-based insurance could attenuate the effects of p-IPV on health care utilization. Further research will be necessary to understand why this might occur and to specify potential cost savings. Nonetheless, it remains a fruitful area for further exploration.

Assessing existing services

One of the advantages of a population-based survey like the OFHS is that it can help describe the scope and consequences of a problem in the general population, not only among those who seek health or social services. In this regard, our findings may serve as a useful benchmark for assessing how well existing services in Ohio (e.g., shelters; screening protocols) are reaching those in need. It may be useful for a domestic violence coalition to compare how the client population seeking help from local service providers compares to OFHS estimates of the number and types of individuals experiencing p-IPV in the community. If, for instance, providers are seeing relatively few uninsured young women, they might consider developing targeted outreach to that group. Of course, individuals seeking care typically tend to experience more severe types of abuse, so it is important that planners consider such comparisons carefully. Nonetheless, our findings can help providers identify and make a compelling case for intervening with underserved populations.

Our findings should also prompt state agencies and coalitions to consider where best to locate prevention and intervention efforts. Because we found that p-IPV is equally common in rural, urban and Appalachian areas of the state, Ohio should consider assessing where there are currently the greatest gaps in services.[29] In underserved areas, OFHS estimates can help providers build a compelling case for new or expanded programming.

At the local level, our results can also help planners and funders judge individual programs' plans for client recruitment. A new brief intervention effort, for instance, aims to recruit women experiencing IPV through a children's hospital emergency room.[30] Our finding that children in p-IPV homes use more emergency room services would support such an approach.

Future research

This document represents the beginning of efforts to use the OFHS to understand the scope and consequences of p-IPV in Ohio. With additional funding, two projects in particular represent important next steps in a policy-relevant research agenda.

Project #1: Detailed examination of health insurance, p-IPV and health care utilization

In this project we expand our analyses to examine how p-IPV contributes to unmet healthcare needs among adults and children. Just as IPV is known to interfere with housing[31] and employment,[32] it may also interfere with people's ability to access care in a timely manner (and so use health care resources most efficiently). This also relates to our finding that employer-based insurance may attenuate p-IPV's association with health care utilization. While provocative, we still need to distinguish people who have employer-based insurance through a spouse from those who are themselves covered as an employee. An individual who holds coverage through her own employer may have more autonomy to seek help for abuse. In contrast, an individual who depends on a spouse for health benefits may be reluctant to seek care for violence for fear of repercussions. Ironically, the situation could also resemble "job lock," in which individuals are unwilling to leave a job for fear of losing health insurance.[33] Examining such patterns could help insurance providers better tailor efforts to address IPV and related health care use and costs.

Project #2: Patterns of help-seeking behavior among Ohioans experiencing IPV

The OFHS includes six questions on IPV-related help-seeking (e.g., hotlines) that we were unable to examine in the present study. These data can yield useful insights into what types of people turn to which kinds of resources. In conjunction with an assessment of Ohio's existing IPV-related resources, this could refine our understanding of service gaps. If, for example, rural women who experience p-IPV are more likely than urban women to seek help from a mental health professional, Ohio could tailor its screening and intervention efforts accordingly.

These potential projects are just a few of the possible ways in which research can help Ohio develop the most effective and efficient approaches to prevention. For now, however, one chief conclusion is that IPV is a critical health issue for Ohio worthy of sustained investment in IPV-related research and practice. If we are now convinced that IPV is remarkably common and consequential, we also remain confident that it *can* be prevented.

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