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Prospective Association of Intimate Partner Violence with Receipt of Clinical Preventive Services in Women of Reproductive Age

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Abstract

Background—Women who experience intimate partner violence (IPV) have a greater risk for adverse health outcomes, suggesting the importance of preventive services in this group. Little prior research has explored how IPV exposure impacts receipt of relevant preventive services. We assess the prospective association of IPV exposure with receiving specific preventive services.

Methods—Women in the Central Pennsylvania Women’s Health Study’s longitudinal cohort study (conducted 2004–2007; $n = 1,420$) identified past-year exposure to IPV at baseline and receipt of IPV-relevant preventive services (counseling for safety and violence concerns, tests for sexually transmitted infections [STIs], counseling for STIs, Pap testing, counseling for smoking/tobacco use, alcohol/drug use, and birth control) at 2-year follow-up. Multiple logistic regression analysis assessed the impact of IPV on service receipt, controlling for relevant covariates.

Findings—Women exposed to IPV had greater odds of receiving safety and violence counseling (adjusted odds ratio [AOR], 2.40; 95% confidence interval [CI], 1.25–4.61), and tests for STIs (AOR, 2.46; 95% CI, 1.41–4.28) compared with women who had not been exposed to IPV. Independent of other predictors, including IPV, women who saw an obstetrician-gynecologist were more likely to receive Pap tests, STI/HIV testing and counseling, and birth control counseling, compared with women who had not seen an obstetrician-gynecologist.

Conclusion—Overall rates of preventive service receipt for all women in the sample were low. Women exposed to IPV were more likely to receive safety and violence counseling and STI testing, and seeing an obstetrician-gynecologist increased the odds of receiving several preventive services.

Introduction

Intimate partner violence (IPV), defined as emotional, physical, and sexual abuse that occurs between people in a close relationship (U.S. Centers for Disease Control & Prevention,

2006), affects approximately 20% to 36% of U.S. women at some point during their lives (Black et al., 2011; Tjaden & Thoennes, 1998; Tjaden & Thoennes, 2000) and is identified by the Institute of Medicine (IOM) as a major social factor affecting the health of U.S. women (IOM, 2010). In addition to increased risk of physical injury and death, survivors of IPV experience substantial physical comorbidities, such as chronic headaches, gastrointestinal complaints, and gynecological problems (Breiding, Black, & Ryan, 2008; Campbell et al., 2002), as well as significant mental health disturbances including mood and anxiety disorders (Bonomi, Anderson, Rivara, & Thompson, 2007; Porcerelli et al., 2003). IPV is also associated with increased risk for numerous reproductive health problems including sexually transmitted infections (STIs; Campbell et al., 2002), cervical cancer (Coker, Hopenhayn, DeSimone, Bush, & Crofford, 2009; Coker, Sanderson, Fadden, & Pirisi, 2000), and unintended pregnancy (Pallitto, Campbell, & O'Campo, 2005). Unhealthy behaviors such as use of tobacco and illicit drugs (Breiding et al., 2008; Gerber, Ganz, Lichter, Williams, & McCloskey, 2005) are increased among women exposed to IPV. IPV exposure also is a risk factor for IPV revictimization (Lindhorst & Beadnell, 2011), suggesting the need for preventive services related to exposure. These increased risks suggest that healthcare for women exposed to IPV should emphasize prevention, including counseling for safety and violence prevention, adverse health behaviors, and reproductive health risks, in this population.

Women exposed to IPV are known to have higher rates of overall healthcare use and healthcare costs (Rivara et al., 2007; Ulrich et al., 2003) than women not exposed to IPV. These findings occur across all categories of services—primary and preventive, urgent care, emergency care, and specialty care. As such, IPV-exposed women are frequently in contact with the healthcare system. However, accessing the healthcare system frequently does not necessarily mean receiving recommended clinical preventive services. Moreover, current literature inadequately describes preventive healthcare utilization among women exposed to IPV. Prior work examining IPV and prevention is limited by cross-sectional (Cronholm & Bowman, 2009; Lemon, Verhoek-Oftedahl, & Donnelly, 2002) or retrospective (Gandhi et al., 2010) study designs, examination of relatively few preventive services (Gandhi et al., 2010; Lemon et al., 2002; Loxton, Powers, Schofield, Hussain, & Hosking, 2009), or focus on women beyond reproductive age (Loxton et al., 2009) for whom IPV is less prevalent (McCauley et al., 1995). A few studies suggest that women exposed to IPV are less likely to receive clinical preventive services than the general population; for example, women with self-reported safety concerns in their relationships were less likely to report receiving cervical cancer screening within the past 12 months (Cronholm & Bowman, 2009).

The behavioral model of health services utilization (Andersen, 1995) is a framework for examining sociodemographic variables that predict use of clinical preventive services. In this model, individual-level determinants of health services utilization are categorized as predisposing, enabling, and need variables. Prior research has shown such factors as race/ethnicity, income level, and education predispose individuals to receive preventive healthcare services (McCall-Hosenfeld, Weisman, Camacho, Hillemeier, & Chuang, 2012). In the context of IPV, women exposed to IPV were less likely to utilize mental health services if they were Black or Latina compared with White women (Ahmed & McCaw, 2010; Flicker et al., 2011). Likewise, minorities may prefer informal help seeking (Ahmed & McCaw, 2010) for IPV-related care rather than seek formal services. Having access to both general practitioners and gynecologic healthcare providers enables women to access preventive healthcare services (Henderson, Weisman, & Grason, 2002). Likewise, adequate health insurance enables women to access preventive services (McCall-Hosenfeld et al., 2012) because out-of-pocket costs are lower than for those without health insurance. Need for preventive services is defined by clinical guidelines and can be elevated in the presence of specific risks. For example, need for preventive IPV-related services is elevated among

women displaying specific physical and mental health concerns that are known to be associated with IPV (Wathen & MacMillan, 2012).

Psychosocial and sociodemographic factors can also explain why women exposed to IPV may not receive the clinical preventive services that they need in spite of accessing the healthcare system more often. Low-self-esteem, increased mental distress (Leiferman & Pheley, 2006; Thorpe, Patterson, & Sleath, 2006) and decreased self-efficacy (Grembowski et al., 1993) among women exposed to IPV may result in poor self-care habits, and thus inattention to preventive healthcare services. IPV-exposed women may not seek IPV-related care if they perceive their victimization is too minor or if they do not believe that help is readily available (Du Mont, Forte, Cohen, Hyman, & Romans, 2005). Women of higher socioeconomic status may not identify their experience as abuse, perceiving abuse as an issue affiliated with lower classes (Flicker et al., 2011). In addition, clinicians may focus on somatic complaints among women with IPV, rather than preventive services, which would result in relatively less preventive service utilization despite higher overall healthcare use. Abusive partners may prevent women from accessing health services (McCloskey et al., 2007), including preventive services. Lack of detection of IPV by clinicians (Gutmanis, Beynon, Tutty, Wathen, & MacMillan, 2007) reduces targeting of preventive services to this high-risk population.

Using data from a population-based, prospective, cohort study, we investigated receipt of clinical preventive services for women with IPV compared with women not exposed to IPV. We investigate whether recent exposure to IPV at baseline predicts receipt of specific clinical preventive services during a 2-year follow-up period.

Methods

Sample

Data are from the Central Pennsylvania Women's Health Study, a longitudinal survey of a population-based sample of women ages 18 to 45 residing in a 28-county region of Central Pennsylvania. The region was chosen for its socioeconomic as well as its geographic diversity, including urban, rural, and semi-rural locations (Weisman et al., 2009). Baseline interviews were conducted in 2004 and 2005 via a random-digit-dial telephone survey of 2,002 English- or Spanish-speaking women. The purpose of this baseline survey was to provide estimates of the prevalence of risk factors for adverse pregnancy outcomes, and included detailed information about preventive health, health-care access and exposure to risks including IPV. The details of the sampling design, survey implementation, and response rate have been previously published (Weisman et al., 2006). The baseline sample was highly representative of the target population on key demographics including age, race/ethnicity, educational level, and poverty status. At the end of the interview, 90% of the sample consented to follow-up contact (Weisman et al., 2009). At the 24-month follow-up, 1,420 participants completed a follow-up telephone interview, for a response rate of 79% among those consenting to follow-up (Weisman et al., 2009). The main reason for nonresponse was failure to locate women who had changed residence (Weisman et al., 2009). In the follow-up survey, response bias was noted in the expected direction: Participants who completed the follow-up interview were more likely to be older, have higher educational attainment and socioeconomic status, be married or cohabitating, and be non-Hispanic White (Weisman et al., 2009). Loss to follow-up was significantly more likely among women exposed to IPV ($p < .01$) compared with those not exposed to IPV at baseline. The study was approved by the Pennsylvania State University College of Medicine Institutional Review Board; a Certificate of Confidentiality was obtained from the National Institutes of Health.

Independent Variable

Recent IPV exposure was assessed at baseline. IPV was measured using an eight-item scale from the 1998 Commonwealth Fund Survey of Women's Health (Collins et al., 1999). After a framing statement, "Domestic violence affects many women's lives," women were asked, "In the past 12 months, has a spouse, partner, or boyfriend: "Threatened to hit you or throw something at you?", "Thrown something at you?", "Pushed, grabbed, shoved, or slapped you?", "Kicked, bit, or hit you with a fist or some other object?", "Beaten you up?", "Choked you?", "Forced you to have sex against your will?", and "Threatened you with a knife or gun?" Each item was coded yes or no, and there were no missing data on these items. An affirmative response to any of the eight items determined baseline IPV exposure. Thus, in this study, IPV included physical and sexual abuse or threats of such violence. Emotional abuse such as put-downs and other controlling behaviors including stalking were not assessed. Table 1 shows the frequencies of responses to the individual items in the IPV screening question. The most common type of IPV was "threatened to hit you or throw something at you" with a frequency of 3.4%, and the least common type was being threatened with a knife or gun, with a frequency of 0.2%.

Dependent Variables

We defined seven recommended clinical preventive services for women of reproductive age as the dependent variables of interest. These services are recommended for all reproductive-age women, but are particularly relevant for women exposed to IPV owing to known health risks in this population. In the follow-up survey, women were asked, "In the *past 2 years*, have you received any of the following health services?" The list that followed included: "Test for sexually transmitted infections or HIV (the virus that causes AIDS)" and "Pap smear or Pap test." Women were also asked about counseling services received: "In the *past 2 years*, has a doctor or other health professional asked you or talked to you about any of the following things?" The list that followed included: "Smoking or tobacco use," "alcohol or drug use," "birth control," "sexually transmitted infections," and "concerns about safety or violence in your home." By this definition, any discussion or inquiry about a topic, whether initiated by the provider or the patient, or whether recent IPV exposure was disclosed, would be considered receiving the counseling service. Receipt of each service was coded as yes or no. All questions were adapted from the National Centers of Excellence in Women's Health Evaluation Survey (Anderson et al., 2002). There were no missing data for these variables.

Control variables

As noted, control variables were selected based on the behavioral model of health services utilization (Andersen, 1995). Predisposing variables included baseline age, race/ethnicity, and educational level. Enabling variables included having a regular doctor or other healthcare provider "to go to when you are sick or want medical advice" (Collins et al., 1999), any use of an obstetrician-gynecologist "for female-related health care" (Collins et al., 1999) in the past 2 years, and any gap in health insurance coverage in the 12 months preceding the interview. In addition, poverty status (computed from household income and composition, using federal poverty standards); and rural residence, assessed using the zip-code based approximation of Rural–Urban Commuting Area codes, a classification taxonomy based on the sizes of cities and towns and daily commuting practices (Hall, Kaufman, & Ricketts, 2006; Hart, Larson, & Lishner, 2005) were considered enabling variables. Need for the preventive service was assumed, but elevated need was indicated by several outcome-specific risks. We included measures of smoking status, whether or not the woman binge drinks (defined as 5 or more drinks on one occasion in the past month), or has used any illicit drugs in the past month as control variables when analyzing the corresponding counseling outcomes.

Statistical Analysis

We performed bivariate tests of association between IPV exposure and all other variables using the chi-square test. We next generated seven separate multiple logistic regression models to investigate the independent contribution of IPV to receipt of each of the preventive services. We included all predictor variables in each of the regression models regardless of their statistical significance as correlates of IPV. As noted, we also included specific risks indicating need for counseling services (i.e., smoking status was included in the model for tobacco counseling). Listwise deletion was used, but there were very few missing data for these models (1% missing for each of the models), so no data were imputed. SAS Version 9.2 (SAS Institute, Inc., Cary, NC) was used for all analyses.

Results

Table 2 shows participant demographics. The prevalence of past-year IPV at baseline in the analytic sample was 4.6%. In bivariate analyses, exposure to any form of IPV was significantly associated with younger age, poverty, and having a gap in health insurance coverage in past 12 months. In addition, smoking and substance use were more common among women with past-year IPV. Overall rates of safety and violence counseling were low (11%), although women with past-year IPV were more likely to have received safety and violence counseling (20%) compared with women without IPV (10%). Women with IPV exposure were also more likely to receive testing for STIs (20% vs. 10% among women not exposed to IPV) and smoking counseling (49% vs. 39% among women not exposed to IPV).

In separate multiple logistic regression models (Table 3), IPV exposure significantly increased the odds of receiving safety and violence counseling (adjusted odds ratio [AOR], 2.40) and of receiving a test for STIs (AOR, 2.46). For the remaining preventive services examined, the odds of receiving the service were not associated with IPV exposure. Other significant predictors of receiving preventive services included age, race/ethnicity, educational status, poverty status, continuous health insurance coverage, seeing an obstetrician-gynecologist, and smoking status (in the smoking counseling model). Of note, the specific variables predicting receipt of preventive services differed across models. Independent of IPV exposure, seeing an obstetrician-gynecologist significantly increased the odds of receiving each preventive service related to reproductive health (i.e., Pap test, tests for STIs/HIV, STIs/HIV counseling, and birth control counseling.) Rurality of residence and having a usual source of care were not predictive of any preventive service examined in this study.

Discussion

Past-year exposure to IPV at baseline was associated with greater adverse health behaviors (smoking or substance abuse), which supports our reasoning that IPV exposure increases the need for certain preventive services. In adjusted models, IPV exposure was found to increase the odds of receiving two clinical preventive services during a 2-year follow-up period—counseling for safety and violence in the home and screening tests for STIs/HIV. Overall, the percentages of women receiving the preventive services measured in this study were low, with much room for improvement. Of note, the rate of IPV exposure in the sample, 4.6%, is similar to national estimates from community-based samples (Black et al., 2011; Tjaden & Thoennes, 2000). In samples from healthcare settings, the prevalence of past year IPV is approximately 12% to 15% (Gerber et al., 2005; McCloskey et al., 2007), which likely reflects selection, because women exposed to IPV are more likely to seek health services (Bonomi, Anderson, Rivara, & Thompson, 2009; Rivara et al., 2007).

Although we found higher odds of receiving safety and violence counseling among women exposed to IPV, the overall rate of receiving safety counseling from a healthcare provider among women with IPV was low (20%). National consensus guidelines published by Futures Without Violence (formerly the Family Violence Prevention Fund; The Family Violence Prevention Fund [FVPPF], 2004) call for counseling and treatment services such as safety planning for victims of IPV. Our data suggest that few women who experience IPV are receiving appropriate IPV-related counseling from a healthcare provider. This represents a missed opportunity for health promotion among women exposed to IPV. Prior research has shown that women who disclose IPV to a healthcare provider are more likely to participate in interventions designed to aid abused women (McCloskey et al., 2006); that assessment of abuse and subsequent referral to services may decrease violence severity and promote safety behaviors (McFarlane, Groff, O'Brien, & Watson, 2006); and that patients find therapeutic value in assessment for violence, when performed compassionately (Gerbert, Abercrombie, Caspers, Love, & Bronstone, 1999).

These findings must be considered in light of the fact that routine IPV screening is neither universally recommended nor adopted by healthcare providers (Gutmanis et al., 2007), which may account for the low rates of IPV counseling reported in our study. Clinical guidelines regarding the role of IPV assessment in healthcare settings vary by professional organization. Whereas Futures without Violence (FVPPF, 2004), the American Medical Association (2008), and the American College of Obstetricians and Gynecologists (N.D.) favor routine inquiry for IPV at every healthcare encounter, the American Academy of Family Physicians (2000) qualifies its recommendations to suggest that inquiry for IPV should occur in the setting of a diagnostic workup. Moreover, some evidence suggests that routine screening for IPV is not sufficient to improve health-related outcomes and health-related quality of life among women with IPV (Klevens et al., 2012; MacMillan et al., 2009). Although routine screening for IPV has been defined as a clinical preventive service for women to be covered under the Affordable Care Act (IOM, 2011), the most recent guidelines from both the United States Preventive Services Task Force (Nelson, Nygren, McInerney, Klein, & Force, 2004) and the Canadian Task Force on Preventive Health Care (Wathen & MacMillan, 2003) advise that the evidence for or against routine inquiry is for adult domestic violence is insufficient. Thus, the low overall rates of safety and violence counseling reported in this study likely reflect prevailing practice patterns at the time of the study.

Our finding that IPV independently predicted receipt of tests for STIs or HIV may reflect appropriate targeting by healthcare providers of the gynecological sequelae of IPV exposure, or perhaps IPV-exposed women may be more likely to initiate discussion about STI/HIV testing. Women exposed to IPV have three times greater odds of having other risk factors for contracting HIV (Breiding et al., 2008), and are more likely to have contracted an STI (Bonomi, Anderson, Reid, et al., 2009; Letourneau, Holmes, & Chasedunn-Roark, 1999) compared with women without IPV. However, because women with IPV have a greater risk of sexual health complaints overall (Bonomi, Anderson, Reid, et al., 2009), increased STI testing among these women also may reflect healthcare providers' response to genitourinary complaints or increased requests for STI/HIV testing by women exposed to IPV.

Our findings also show that seeing an obstetrician-gynecologist increases the odds of receiving reproductive health-related preventive services, independent of IPV exposure. This is concordant with prior literature showing improved overall preventive services receipt among women who consult an obstetrician-gynecologist in addition to other healthcare providers (Henderson et al., 2002). This may reflect greater awareness or skill providing these services among obstetrician-gynecologists compared with other types of physicians, or may reflect greater likelihood of receiving services when more providers are involved in a

woman's care. Alternatively, women may be more likely to consult an obstetrician-gynecologist about reproductive health-related concerns, which may be particularly relevant to women with a history of IPV. However, despite the American College of Obstetricians and Gynecologists' recommendation for universal assessment for IPV (American College of Obstetricians and Gynecologists, N.D.), our data did not indicate that women who consult an obstetrician-gynecologist were more likely to receive safety and violence counseling. We cannot determine from our data whether obstetrician-gynecologists are more likely to identify IPV than other types of physicians, although obstetrician-gynecologists have been previously reported to be more likely to screen for IPV (Elliott, Nerney, Jones, & Friedmann, 2002).

We did not find an association between IPV and contraceptive counseling. This finding may be considered a preventive care deficit because women exposed to IPV are at increased risk for reproductive coercion (Williams, Larsen, & McCloskey, 2008), are more likely to experience unintended pregnancy (Pallitto et al., 2005) and abortions (Letourneau et al., 1999), and use less effective forms of contraception for pregnancy prevention (Williams et al., 2008). Accordingly, women experiencing IPV are at elevated risk for unintended pregnancy and warrant contraceptive counseling in concordance with U.S. Centers for Disease Control and Prevention guidelines (Johnson et al., 2006).

Despite elevated risk for cervical cancers among women exposed to IPV (Coker et al., 2000; Coker et al., 2009), we did not find an independent association between IPV and Pap testing. Of note, the rates of cervical cancer screening were high in the study cohort, so differences would have been difficult to detect owing to a ceiling effect. Our overall rate of Pap testing found in our sample marginally exceeded the rate of 80% previously reported in a nationally representative sample (Sambamoorthi & McAlpine, 2003). Prior research has not conclusively demonstrated whether IPV is associated with cervical cancer screening deficits among reproductive-aged women. Some authors report that women with IPV in this age group do not differ in cervical cancer screening rates compared with women without IPV (Gandhi et al., 2010), whereas others have shown that safety concerns were linked to decreased cervical cancer screening (Cronholm & Bowman, 2009). An IPV-related cervical cancer screening deficit has been reported among older cohorts (Gandhi et al., 2010; Loxton et al., 2009).

We observed that specific covariates affected preventive service receipt differently depending on the service examined. For example, women were more likely to report having received a Pap test if they had uninterrupted insurance coverage or higher educational attainment, likely reflecting decreased access or knowledge barriers. This is consistent with international literature suggesting that higher educational attainment is associated with greater cervical cancer screening (Grange, Malvy, Lancon, Gaudin, & El Hasnaoui, 2008). Similarly, women were more likely to receive tests for STIs if they were younger. This likely reflects current United States Preventive Services Task Force guidelines recommending universal chlamydial screening among sexually active women under the age of 24 (Agency for Healthcare Research and Quality, 2007). Thus providers may be more likely to target younger women for STI screening, or younger women may be more likely to request this service.

Our data have several important limitations. First, our measure of IPV exposure, like many others (Basile, Hertz, & Back, 2007), was a time-based measure focused on the past 12 months. IPV perpetrated by partners outside of this time frame was not assessed. Second, we lacked sufficient statistical power to evaluate preventive service receipt by the type (e.g., threats vs. nonsexual physical abuse vs. sexual abuse) or severity of IPV. Third, our data are self-reported and we cannot exclude recall bias with regard to preventive services received

or misclassification owing to reluctance to report IPV. Nevertheless, self-report is a standard measure for assessing preventive service receipt and IPV status in studies (Lemon et al., 2002; Loxton et al., 2009). Fourth, our data cannot determine whether women were receiving any IPV-related counseling outside the healthcare system (e.g., by religious counselors, in school, or at domestic violence service agencies). Fifth, loss to follow-up was more likely among IPV-exposed women. Although our data cannot directly address this, based on demographics it is likely that women who did not complete the follow-up survey were also less likely to receive preventive services over the 2-year follow-up. In this case, IPV-exposed women would be even less likely to receive preventive services than reported in our study. Finally, reporting that a topic was discussed with a provider does not necessarily mean that comprehensive counseling occurred or was adequately understood by the patient. Our dataset does not include information about the content of counseling, only about whether communication occurred.

This is the first study to demonstrate the association of IPV exposure at baseline with receipt of IPV-relevant preventive health services over a 2-year follow-up period, in a representative community-based sample of women of reproductive age. We are aware of no other study that specifically investigates the frequency of safety and violence counseling among women exposed to IPV. Moreover, we examined a broader set of preventive services relevant to IPV than previous studies. Our data show that IPV exposure increases the receipt of safety and violence counseling and screening for STIs/HIV, but not for other preventive services examined in this study.

Implications for Practice and Policy

Our data strongly suggest that women exposed to IPV are not receiving adequate preventive services related to IPV consequences. Reasons behind this preventive service deficit may be that healthcare providers do not identify IPV, that women experiencing IPV have competing health demands such that preventive services are not addressed, that women do not disclose IPV to healthcare providers, or that providers are unaware of elevated adverse health risks among patients exposed to IPV. Our finding that few women with exposure to IPV reported that they had spoken to their healthcare provider about IPV supports policy changes to promote IPV identification in healthcare settings.

Clinical guidelines regarding IPV consider two strategies for IPV assessment in healthcare settings—indicator-based assessment and universal screening. If assessment for IPV based on history and risks (i.e., indicator-based assessment) is promoted over universal screening, as advocated by some scholars as the technique of choice for identifying IPV (Wathen & MacMillan, 2012), policies that promote training for providers into the risk factors that should trigger investigation for IPV will be needed. However, because IPV screening is now a preventive service recommended by the IOM (2011), it is possible that universal screening strategies for IPV will become more widely adopted in healthcare settings. Either strategy is likely to lead to better identification of IPV-exposed women in clinical settings. Thus, future study must examine ways to optimize care for women who screen positive or are otherwise identified as exposed to IPV, including optimizing receipt of relevant clinical preventive services. Finally, future research must examine how these policy changes aimed at increasing screening for IPV in healthcare settings affects uptake of women's clinical preventive services.

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Table 1

Frequency of Types of Intimate Partner Violence, Central Pennsylvania Women's Health Study Baseline Survey, 2004–2005 ($n = 1,420$)

In the Past 12 Months, Has a Spouse, Partner, or Boyfriend...	<i>n</i>	Frequency (%)
Threatened to hit you or throw something at you?	48	3.4
Thrown something at you?	28	2.0
Pushed, grabbed, shoved, or slapped you?	46	3.2
Kicked, bit, or hit you with a fist or some other object?	17	1.2
Beaten you up?	9	0.6
Choked you?	11	0.8
Forced you to have sex against your will?	11	0.8
Threatened you with a knife or gun?	3	0.2
Any of the above	65	4.6

Table 2

Bivariate Comparisons by Intimate Partner Violence (IPV) Status Central Pennsylvania Women's Health Study, 2004–2007

	IPV (n = 65; 5%)		No IPV (n = 1,355; 95%)		Total		p [*]
	n	%	n	%	n	%	
Demographics at baseline							
Age (yrs)							<.001
18–24	17	26	144	11	161	11	
25–34	29	45	492	36	521	37	
35–45	19	29	716	53	735	52	
White, non-Hispanic	56	86	1,250	93	1,306	92	.061
Educational status							.258
High school/less	28	43	490	36	518	36	
More than high school	37	57	865	64	902	64	
Poverty status							.039
Poverty	9	14	92	7	101	7	
Near poverty	15	23	249	18	264	19	
Not poverty	31	48	859	63	890	63	
Missing poverty	10	15	155	11	165	12	
Insurance gap (at follow-up)							<.001
None	44	68	1,148	85	1,192	84	
Gap in last 12 months	21	32	205	15	226	16	
Rural residence	30	46	515	38	545	38	.192
Healthcare access at baseline							
Usual source of care	57	88	1,229	91	1,286	91	.406
Sees any obstetrician-gynecologist	47	72	983	73	1,030	73	.966
Health risks and behaviors at baseline							
Smoking	24	37	294	22	318	22	.004
Drug use/binge drinking	21	33	188	14	209	15	<.001
Preventive services received over 2-year follow-up							
Safety/violence counseling	13	20	139	10	152	11	.013
Pap test	57	88	1,156	86	1,213	86	.623
Test for STI/HIV	33	51	315	23	348	25	<.001

	IPV (<i>n</i> = 65; 5%)		No IPV (<i>n</i> = 1,355; 95%)		Total		<i>p</i> [*]
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Smoking counseling	32	49	476	35	508	36	.021
Alcohol/drug use counseling	13	20	202	15	215	15	.267
STI/HIV counseling	11	17	130	10	141	10	.055
Birth control counseling	27	42	461	34	488	34	.218

* Exact chi-square test.

Predictors of Receiving Preventive Services, Central Pennsylvania Women’s Health Study, 2004–2007 (*n* = 1,420)

Table 3

Covariates	Safety/Violence Screening/Counseling			Pap Test			Test for STIs/HIV			Smoking Screening/Counseling			Alcohol/Drug Use Screening/Counseling			STI/HIV Screening/Counseling			Birth Control Screening/Counseling		
	AOR	95% CI		AOR	95% CI		AOR	95% CI		AOR	95% CI		AOR	95% CI		AOR	95% CI		AOR	95% CI	
IPV vs. none	2.40	1.25	4.61	1.48	0.66	3.33	2.46	1.41	4.28	1.37	0.77	2.47	1.35	0.70	2.58	1.51	0.74	3.09	0.98	0.56	1.71
Ages 18–24	1.12	0.62	2.05	1.11	0.66	1.86	5.58	3.71	8.38	1.32	0.87	2.01	1.65	1.03	2.65	3.87	2.35	6.37	8.96	5.96	13.45
Ages 25–34	1.07	0.74	1.56	1.18	0.82	1.69	2.59	1.93	3.46	1.18	0.90	1.54	1.04	0.75	1.45	1.22	0.80	1.85	3.34	2.58	4.34
Ages 35–45	Reference			Reference			Reference			Reference			Reference			Reference			Reference		
White, non-Hispanic versus other	1.04	0.53	2.06	0.62	0.32	1.19	0.37	0.24	0.57	0.87	0.55	1.39	0.81	0.47	1.37	0.60	0.34	1.07	0.88	0.56	1.38
Greater than high school education versus less	1.03	0.71	1.50	1.59	1.14	2.21	1.10	0.82	1.46	1.10	0.84	1.45	1.46	1.04	2.04	1.23	0.82	1.83	1.60	1.22	2.08
In poverty	1.20	0.61	2.35	0.81	0.45	1.48	1.83	1.12	3.01	1.39	0.83	2.31	1.19	0.67	2.13	1.08	0.53	2.20	0.74	0.45	1.23
Near poverty	0.95	0.59	1.53	0.78	0.52	1.19	1.18	0.83	1.68	0.98	0.69	1.38	0.96	0.63	1.45	0.98	0.59	1.62	0.76	0.54	1.07
Missing poverty data	0.55	0.28	1.07	0.82	0.50	1.37	0.96	0.62	1.48	0.77	0.51	1.18	0.56	0.31	0.98	0.90	0.50	1.60	0.82	0.55	1.23
Not in poverty	Reference			Reference			Reference			Reference			Reference			Reference			Reference		
Continuous health insurance coverage versus gap in health insurance in past 12 months	1.72	0.97	3.05	2.31	1.57	3.40	0.70	0.49	1.00	1.29	0.89	1.87	1.18	0.76	1.83	0.96	0.58	1.59	1.02	0.72	1.45
Rural versus urban	1.00	0.70	1.43	0.82	0.59	1.14	0.82	0.62	1.09	0.82	0.63	1.07	0.80	0.58	1.11	0.74	0.50	1.11	0.83	0.64	1.06
Usual source of care versus none	1.26	0.65	2.44	1.22	0.75	2.00	1.01	0.65	1.58	1.00	0.65	1.55	0.86	0.53	1.41	1.09	0.59	2.00	0.97	0.64	1.48
Sees any obstetrician-gynecologist versus does not	1.42	0.93	2.16	4.08	2.96	5.62	1.86	1.35	2.58	1.23	0.93	1.64	1.23	0.87	1.75	1.68	1.07	2.65	1.91	1.43	2.56
Smokes versus does not smoke	n/a			n/a			n/a			10.70	7.84	14.60	n/a			n/a			n/a		
Drug use/binge drinking versus does not	n/a			n/a			n/a			n/a			1.36	0.92	2.00	n/a			n/a		
N used, c-statistic	1,406; 0.595			1,406; 0.734			1,406; 0.726			1,405; 0.730			1,404; 0.602			1,406; 0.66			1,406; 0.727		

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval; IPV, intimate partner violence; n/a, not applicable; STI, sexually transmitted infection.