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RESEARCH ARTICLE

Lifetime Economic Burden of Intimate Partner Violence Among U.S. Adults

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Introduction: This study estimated the U.S. lifetime per-victim cost and economic burden of intimate partner violence.

Methods: Data from previous studies were combined with 2012 U.S. National Intimate Partner and Sexual Violence Survey data in a mathematical model. Intimate partner violence was defined as contact sexual violence, physical violence, or stalking victimization with related impact (e.g., missed work days). Costs included attributable impaired health, lost productivity, and criminal justice costs from the societal perspective. Mean age at first victimization was assessed as 25 years. Future costs were discounted by 3%. The main outcome measures were the mean per-victim (female and male) and total population (or economic burden) lifetime cost of intimate partner violence. Secondary outcome measures were marginal outcome probabilities among victims (e.g., anxiety disorder) and associated costs. Analysis was conducted in 2017.

Results: The estimated intimate partner violence lifetime cost was $103,767 per female victim and $23,414 per male victim, or a population economic burden of nearly $3.6 trillion (2014 US$) over victims' lifetimes, based on 43 million U.S. adults with victimization history. This estimate included $2.1 trillion (59% of total) in medical costs, $1.3 trillion (37%) in lost productivity among victims and perpetrators, $73 billion (2%) in criminal justice activities, and $62 billion (2%) in other costs, including victim property loss or damage. Government sources pay an estimated $1.3 trillion (37%) of the lifetime economic burden.

Conclusions: Preventing intimate partner violence is possible and could avoid substantial costs. These findings can inform the potential benefit of prioritizing prevention, as well as evaluation of implemented prevention strategies.

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INTRODUCTION

In 2012, an estimated 26% of U.S. women and 10% of men reported their lives had been impacted (e.g., missed work or post-traumatic stress disorder [PTSD] symptoms) by contact sexual violence, physical violence, or stalking by an intimate partner.[1] Even more adults reported other forms of intimate partner violence (IPV), including noncontact sexual violence and psychological aggression.[1] IPV victimization is associated with poor short- and long-term physical and mental health outcomes.[2–4]

Few studies have quantified the IPV per-victim cost, which at a minimum includes victims' impaired health, lost productivity, and criminal justice costs,[5,6] and no study has addressed victims' long-term health costs.

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A 1995 National Violence Against Women analysis estimated the cost of IPV limited to acute and short-term follow-up medical costs and included only female victims ($838 per rape, $816 per physical assault, and $294 per stalking victimization [1995 US$][6]; or, $1,210, $1,178, and $424 as 2014 US$[7]). Following the methodology and presentation of a recent study that estimated the per-person lifetime cost of rape,[8] this study aims to combine previous studies' data with current administrative and surveillance data to estimate the U.S. per-victim lifetime cost and population economic burden of IPV.

METHODS

Study Sample

Mathematical model inputs included: number of U.S. adults (aged ≥18 years) with any lifetime and past 12 months IPV exposure, selected attributable, or marginal, health and other outcomes associated with IPV from administrative data and previous studies, and the marginal cost of those outcomes. Marginal outcome refers to the proportion of victims with an outcome beyond the proportion among nonvictims, and is used to calculate the attributable cost of IPV.

The main outcome measures were: (1) lifetime IPV cost per victim, and (2) lifetime IPV cost in the U.S. population (or economic burden) of currently non-institutionalized adults (hereafter, U.S. population), calculated as the lifetime cost per victim multiplied by the estimated victim population. Medical, lost productivity, and criminal justice costs were included. This analysis used the societal cost perspective (i.e., all payers), a lifetime time horizon, and assumed first IPV victimization occurred at victim average age of 25 years.[9] Future costs were discounted by 3%.[10] Costs are presented as 2014 US$ unless otherwise noted, inflated using selected indices.[7,11] Analysis was conducted in 2017 using publicly available data.

Measures

The economic burden is based on the 2012 U.S. National Intimate Partner and Sexual Violence Survey (NISVS) estimated number of males and females with lifetime IPV exposure, defined as contact sexual violence, physical violence, or stalking by an intimate partner and related impact[1] (Table 1, Appendix Tables 1–5, available online, report expanded data and calculations). Contact sexual violence included rape, being made to penetrate, sexual coercion, and unwanted sexual contact. Physical violence included being slapped, pushed, hit, kicked, hurt by pulling hair, slammed against something, attempting to hurt by choking or suffocating, beaten, burned on purpose, or a perpetrator using a knife or gun. Stalking included repeated harassing or threatening behaviors (e.g., watching, following, or contacting), causing the victim to be very fearful or concerned for safety. IPV-related impacts included being fearful; concerned for safety; PTSD symptoms; injury; needing medical care; contracting a sexually transmitted infection (STI); becoming pregnant; need for housing, advocate, or legal services; missing ≥1 day of work or school; or contacting a crisis hotline.

IPV outcomes, identified through a targeted literature search, were included based on reference studies' U.S. population representativeness and study design (Appendix Table 3, available online). Studies addressing female and male victims were prioritized. Reported outcomes had to facilitate calculation of victims' marginal probability of the outcome; for example, outcome prevalence among non-victims and an AOR of the relationship between the outcome and respondents' IPV exposure, controlling for relevant factors.[44] Studies that aligned with this study's exposure definition were prioritized. Unit costs represented the attributable cost of analyzed outcomes based on direct comparison of affected and unaffected individuals (Appendix Table 4, available online). Comprehensive lifetime unit costs that included medical care and lost work productivity and controlled for related conditions (e.g., depression and anxiety) were prioritized. Some lifetime costs were estimated from annual costs by multiplying the annual cost over the age range of respondents in the cost reference study, bounded by this study's average age at first victimization (25 years)[9] and current population life expectancy (79 years[45]; Appendix Table 5, available online). Prevention costs were excluded whenever possible.

A previous NISVS analysis limited to short-term lost productivity costs reported that female and male victims of IPV, sexual violence, or stalking each lost days from school and work valued at $1,063 (females) and $357 (males) (Table 1).[9] Average annual data from 2006–2015 National Crime Victimization Survey indicated 15.3% (n=137,155 survey-weighted) of IPV victimizations (rape or sexual assault, robbery, aggravated assault, and simple assault) included victim property loss or damage, valued at a mean $1,181 per victimization (applied in this study as per-victim cost, which is an underestimate for victims with multiple victimizations; Table 1; unpublished data, U.S. Department of Justice). Among IPV victimizations (n=745,946 female and n=151,910 male, surveyed-weighted) from annual average 2006–2015 National Crime Victimization Survey data, 1.9% of female and 0% of male victimizations required treatment for nonfatal injuries in a doctor's office, 6.6% of females and 4.6% of males required treatment in an emergency department, and 0.2% of females and 0.1% of males were admitted as inpatients (all applied as per-victim estimates in this study; Table 1; unpublished data, U.S. Department of Justice). Unit costs were the estimated payment for a doctor's visit[12] and the lifetime medical and lost productivity costs for an emergency department visit or admission for physical assault or sexual assault[13] (Table 1). In 2012, there were an estimated 1,256 murders (992 females, 264 males) perpetrated by intimate partners (Appendix Table 3, available online).[14,15] Unit costs were medical care and lost productivity due to homicide.[13]

A 2010–2012 NISVS analysis indicated 26.2% of females with lifetime IPV vaginal rape exposure had rape-related pregnancy.[17] Data from a study of a convenience sample of females (n=148) seeking a protection order from an intimate partner reported the outcome of IPV rape-related pregnancies (n=32; i.e., 81% live birth, 16% abortion, 3% still born).[16] Unit costs were estimated payments for medical treatment for medically assisted abortion,[19] pregnancy and delivery,[18] and stillborn hospital birth[20] applied to the estimated number of female IPV vaginal rape victims in 2012 NISVS1,[1,16,17,46] (i.e., cost of child-rearing not included; Table 1).

Table 1. Outcomes and Costs of IPV Per Victim and U.S. Population (2014 US$)

Measure	Marginal outcome among victims[a,b]		Marginal lifetime cost per outcome, $[c]	Lifetime cost, $[d]			
				Per victim			
	Females	Males		Females	Males	Population	% of total
Total[e]							
Victims[f]	*n*=31,598,000[1]	*n*=11,769,000[1]	81,960	103,767	23,414	3,554,379,074,198	100.00
Medical cost	—	—	48,690	65,165	4,458	2,091,167,801,520	58.8
Lost productivity cost	—	—	30,156	36,065	14,291	1,328,157,006,028	37.4
Criminal justice cost	—	—	1,680	1,376	2,497	72,854,951,254	2.0
Other[g]	—	—	1,434	1,161	2,168	62,199,315,396	1.7
Government cost as % of total	—	—	30,865	40,389	5,294	1,326,323,457,095	37.3
Acute outcomes							
Victim property loss/damage	15.3[h]		1,181[g]	180	180	7,821,902,886	0.2
Victim short-term lost productivity	100.0	100.0	730[9]	1,063	357	37,787,735,510	1.1
Injuries treated by location	—	—	—	1,553	1,026	61,161,905,372	1.7
Doctor's office	1.9[h]	0[h]	168[12]	3	0	100,426,284	0.0
ED treat-and-release	6.6[h]	4.6[h]	7,053	469	323	18,619,253,405	0.5
Medical	—	—	2,860[13]	190	131	7,551,939,243	0.2
Lost productivity	—	—	4,192[13]	279	192	11,067,314,162	0.3
Hospitalization	0.2[h]	0.1[h]	157,658	306	190	11,911,486,138	0.3
Medical	—	—	30,871[13]	60	60	2,600,906,583	0.1
Lost productivity	—	—	126,787[13]	246	130	9,310,579,555	0.3
Victim fatalities	0.02[14,15]	0.01[14,15]	1,671,227	316	205	12,404,636,131	0.3
Medical	—	—	11,707[13]	2	1.44	86,894,883	0.0
Lost productivity	—	—	1,659,520[13]	314	204	12,317,741,248	0.3
Rape-related pregnancy	—	—	—	770	0	24,316,192,319	0.7
Birth	4.6[1,16,17,46]	NA	15,867[18]	734	0	23,208,451,647	0.7
Abortion	0.9[1,16,17,46]	NA	518[19]	5	0	149,578,053	0.0
Stillbirth	0.2[1,16,17,46]	NA	17,687[18,20]	30	0	958,162,619	0.0
Long-term outcomes							
Victim mental health	—	—	—	56,837	0	1,795,944,335,055	50.5
Anxiety disorder (including PTSD)	9.1[3]	0[3]	70,283	6,388	0	201,848,962,281	5.7
Medical	—	—	62,295[21]	5,662	0	178,907,708,598	5.0
Lost productivity	—	—	7,988[21]	726	0	22,941,253,683	0.6
Depression	15.3[22]	0[22]	328,788	50,449	0	1,594,095,372,774	44.8
Medical	—	—	153,906[23]	23,615	0	746,197,091,989	21.0
Lost productivity	—	—	174,882[23]	26,834	0	847,898,280,785	23.9

(*continued on next page*)

Table 1. Outcomes and Costs of IPV Per Victim and U.S. Population (2014 US$) (*continued*)

Measure	Marginal outcome among victims[a,b]		Marginal lifetime cost per outcome, $[c]	Lifetime cost, $[d]			
				Per victim			
	Females	Males		Females	Males	Population	% of total
Victim substance use	—	—	—	7,683	17,254	445,823,059,179	12.5
Alcohol abuse	2.9[4]	7.3[4]	18,317	532	1,342	32,615,553,466	0.9
Medical	—	—	2,081[24,25]	60	153	3,705,786,354	0.1
Lost productivity	—	—	13,176[24,25]	383	966	23,460,634,936	0.7
Other	—	—	3,060[24,25]	89	224	5,449,132,176	0.2
Illicit drug use	0.9[26]	2.6[26]	208,355	1,809	5,344	120,052,305,766	3.4
Medical	—	—	12,737[27,28]	111	327	7,338,707,792	0.2
Lost productivity	—	—	129,533[27,28]	1,125	3,322	74,635,871,014	2.1
Other	—	—	66,085[27,28]	574	1,695	38,077,726,961	1.1
Smoking	10.6[4]	10.2[4]	80,782	5,342	10,567	293,155,199,947	8.2
Medical	—	—	5,427[29]	359[i]	710[i]	19,695,870,448	0.6
Lost productivity	—	—	61,872[29]	4,091[i]	8,093[i]	224,531,049,165	6.3
Other	—	—	13,483[29]	892[i]	1,764[i]	48,928,280,335	1.4
Victim physical health	—	—	—	34,216	2,475	1,110,298,477,848	31.2
Asthma	3.5[4]	1.9[4]	90,150	3,173	1,670	119,922,014,198	3.4
Medical	—	—	82,688[30]	2,910	1,532	109,995,506,175	3.1
Lost productivity	—	—	7,462[30]	263	138	9,926,508,023	0.3
Blindness or glaucoma	1.9[31]	NR	495,731	9,320	0	294,495,270,353	8.3
Medical	—	—	30,132[32]	566	0	17,900,245,166	0.5
Lost productivity	—	—	465,599[33]	8,754	0	276,595,025,187	7.8
Gastroesophageal reflux disease	4.4[34]	NR	15,886	700	0	22,126,987,748	0.6
Medical	—	—	15,223[35]	671	0	21,203,709,288	0.6
Lost productivity	—	—	663[35]	29	0	923,278,459	0.0
Headache	7.0[34]	NR	84,375	5,867	0	185,399,330,079	5.8
Medical	—	—	46,017[36]	3,200	0	101,113,331,173	2.2
Lost productivity	—	—	38,358[36]	2,667	0	84,285,998,906	2.4
Heart disease	1.2[4]	0.0[4]	611,338	7,407	0	234,060,532,626	6.6
Medical	—	—	576,253[37]	7,119	0	224,940,548,425	6.3
Lost productivity	—	—	23,364[38,39]	289	0	9,119,984,201	0.3
Joint conditions	6.7[4]	4.4[4]	18,220	1,214	805	47,841,993,692	1.3
Medical	—	—	16,049[36]	1,070	709	42,143,572,430	1.2
Lost productivity	—	—	2,170[36]	145	96	5,698,421,262	0.2
Sexually transmitted infections	2.4[34]	NR	1,116	26	0	833,986,814	0.0
Medical	—	—	819[40,41]	19	0	612,168,053	0.0

(*continued on next page*)

Table 1. Outcomes and Costs of IPV Per Victim and U.S. Population (2014 US$) (*continued*)

Measure	Marginal outcome among victims[a,b]		Marginal lifetime cost per outcome, $[c]	Lifetime cost, $[d]			
				Per victim			
	Females	Males		Females	Males	Population	% of total
Lost productivity	—	—	297[42]	7	0	221,818,761	0.0
Stroke	1.0[4]	0.0[4]	611,338	5,699	0	180,070,935,989	5.1
Medical	—	—	576,253[37]	5,481	0	173,176,780,404	4.9
Lost productivity	—	—	35,085[38,39]	218	0	6,894,155,585	0.2
Urinary tract infection	9.2[34]	NR	422	39	0	1,231,234,030	0.0
Medical	—	—	136[43]	13	0	395,815,201	0.0
Lost productivity	—	—	286[43]	26	0	835,418,828	0.0
Convicted perpetrators	—	—	—	1,917	1,917	83,137,022,217	2.3
Criminal justice	1.0[j]		83,294[k]	802	802	34,777,224,293	1.0
Lost productivity	1.0[j]		115,825[l]	1,115	1,115	48,359,797,924	1.4

Note: Appendix Tables 1—5 (available online) show how data as reported in reference studies were used to calculate data as presented in this table.
[a]Combined marginal outcomes for males and females reflect estimates from studies that controlled for victim sex. Appendix Table 3 (available online) provides details. Intimate partner violence defined as contact sexual violence, physical violence, or stalking by an intimate partner and IPV-related impact.[1]
[b]Values are percentages, unless otherwise indicated.
[c]All marginal costs without references are calculated from other data in the table; for example, category sums.
[d]Per victim cost is marginal outcome probability multiplied by marginal cost. Population cost by outcome is the number of victims by sex multiplied by the per-victim cost. Total per-victim by sex and total population costs are the sum of all per-victim (by sex) and population costs by outcome.
[e]"Total" rows are sum of category costs below; e.g., "victim total cost" is sum of "medical," "productivity," "criminal justice," and "other" cost categories, which each represent sum of subcategories (e.g., "other" category includes property damage/loss) (Appendix Table 1, available online, provides details).
[f]Details of reference studies reported in Appendix Table 3 (available online; outcomes), Appendix Table 4 (available online; costs), and Appendix Table 5 (available online; discounted cost calculations).
[g]Includes victim property damage/loss and "other" costs attributable to smoking and alcohol abuse (Appendix Table 1, available online, provides details).
[h]Unpublished data from the U.S. Department of Justice. Estimate is per victimization, rather than per victim. Appendix Tables 3 and 4 (available online) provide details.
[i]Sex-specific estimates applied (Appendix Tables 1 and 4, available online, provide details).
[j]See Table 2.
[k]This is the per convicted perpetrator lifetime cost reported in Table 2 ($80,632 as 2012 US$) as 2014 US$.
[l]See Appendix Table 4 (available online).
ED, emergency department; IPV, intimate partner violence; NA, not applicable; NR, not reported; PTSD, post-traumatic stress disorder.

A nationally representative U.S. study of adult (aged ≥18 years) married or common law respondents (*n*=2,254) reported statistically significantly higher prevalence of anxiety disorder (including PTSD) among females but not males who reported victimization by a current intimate partner.[3] A longitudinal study of young adults (*n*=1,516) assessed the impact of incident dating violence and reported a significantly greater prevalence of depression among females but not males.[22] That study's results are broadly supported by other studies with only female respondents, which did not report data amenable for inclusion in this study's model.[47,48] Unit costs were medical and lost productivity costs for anxiety disorder (including PTSD)[21] and depression[23] (Table 1).

Data from 18 states in the 2005 Behavioral Risk Factor Surveillance System survey (*n*=70,156 respondents) indicated significantly higher self-reported prevalence of alcohol abuse and smoking, as well as medically diagnosed asthma, coronary heart disease, joint disease, and stroke among females and males aged ≥18 years with lifetime exposure to threatened, attempted, or completed physical violence and nonconsensual sex perpetrated by a current or former intimate partner.[4] Unit costs were the estimated lost work productivity value and medical payments for excess alcohol use,[24,25] smoking,[29] asthma,[30] cardiovascular disease,[37–39] and joint pain[36] (Table 1). Another nationally representative U.S. study of adults (aged ≥18 years), indicated higher self-reported prevalence of recent cannabis use among females and males recently victimized by an intimate partner,[26] assessed here as the medical and lost productivity cost of illicit drug use.[27]

A large random sample of females (*n*=1,928) aged 18–64 years at one U.S. managed care plan who reported recent IPV had significantly higher medically diagnosed prevalence of headaches, gastroesophageal reflux, STI, and urinary tract infections[34] (Table 1). Unit costs were the estimated lost work productivity value and medical payments for moderate pain,[36] gastroesophageal reflux,[35] STI,[40–42] and urinary tract infections.[43] Another large survey of females (*n*=1,152) aged 18–65 years consecutively surveyed at family practice clinics indicated a higher prevalence of blindness or glaucoma among females with current IPV compared with females with no IPV exposure.[31] Unit costs were the medical[32] and lost productivity[33] cost of blindness and visual impairment.

Similar to a previous study,[8] authors used a top-down accounting approach to estimate the cost of IPV-related criminal justice activities. Authors' annual IPV-related criminal justice expenditure estimate was $5.7 billion (or $80,632 per convicted IPV perpetrator, both as 2012 US$; Table 2 and Appendix Table 2, available online; included in the model as $83,294 in 2014 US$ [Table 1]).[49–60] Department of Justice funding for victims' services (e.g., transitional housing) at the federal, state, and local levels was included via this method. With this approach authors could not identify the per-victim cost of such services, and it was not feasible to selectively exclude federal grant money that funds IPV prevention programs[61] or civil court proceedings.[62] This approach neither accounts for public criminal justice expenditures outside of dedicated budgets,[63] nor nonpublic expenditures on related activities. Lost productivity because of incarceration was the annual production value of the U.S. non-institutional population[64] multiplied by authors' average estimated number of years IPV perpetrators are incarcerated (2.3 years) (Table 1, Table 2, Appendix Tables 2, 4, and 5, available online).

Statistical Analysis

Authors multiplied the marginal probability of selected outcomes by associated unit costs to estimate the per-person lifetime cost of IPV for females and males. The sex-specific, per-person estimated cost of IPV was multiplied by the estimated number of females and males with lifetime IPV exposure to estimate the total U.S. lifetime economic burden of IPV. Government costs were assessed as total criminal justice costs plus the estimated government share of all medical spending (i.e., 59.8%).[65]

RESULTS

The present-value, per-victim IPV lifetime cost was $81,960, or $3.6 trillion for all victims, based on 32 million U.S. females and 12 million males with any lifetime victimization (Table 1). The per-victim cost was $103,767 for females and $23,414 for males, representing outcomes differences (e.g., rape-related pregnancy) and differences in the proportion of affected victims by sex for particular outcomes (Table 1).

The economic burden estimate included $2.1 trillion (59% of total) in medical costs, $1.3 trillion (37%) in lost productivity among victims and perpetrators, $73 billion (2%) in criminal justice activities, and $62 billion (2%) in other costs, including victim property loss or damage. Government sources pay an estimated $1.3 trillion (37%) of the economic burden (Table 1).

DISCUSSION

The per-victim lifetime cost ($103,767 for females, $23,414 for males) is the estimated cost of IPV exposure. A recent study using NISVS data and similar methods estimated the lifetime per-victim cost of rape, including intimate partner perpetrators, to be $122,461 (2014 US$).[8] Other comparative cost estimates include the lifetime per-victim cost of nonfatal child maltreatment[66] ($210,012 as 2010 US$, or $225,408 as 2014 US$[7]) and smoking[29] ($219,889 for males and $106,050 for females as 2000 US$, or $292,010 and $139,119 as 2014 US$,[7] respectively).

The per-victim estimate could change with new information about victim outcomes or unit costs. Barring substantial changes to the per-victim cost, the lifetime economic burden estimate ($3.6 trillion) will remain relatively stable, as it is based on the number of U.S. adults with lifetime IPV victimization and IPV-related impact; such a large population experiences modest incremental demographic changes. The estimated number of victims with IPV exposure in the past 12 months (5,244,000 females and 2,150,000 males[1]) had a lesser effect on the economic burden—only through criminal justice and fatalities costs. The economic burden represents costs over adult victims'

Table 2. Estimated Criminal Justice Costs Related to IPV Among U.S. Adults (2012 US$)

Measure	Input	Unit cost, $[a]	Attributable to IPV		
			Proportion of total, %	Annual cost, $	Per convicted perpetrator lifetime cost, $
Annual IPV victims					80,632[p]
Females, *n*	5,244,000[1]	—	—	—	—
Males, *n*	2,150,000[1]	—	—	—	—
Total U.S. Government justice system annual spending, $	265,160,340,000[49]	—	—	5,739,944,705[m]	—
Police protection					
Annual spending, $	126,434,125,000[49]	11,283[g]	2.1[k]	2,633,042,810[n]	
Annual arrests, all offenses, *n*	11,205,833[50]	—	—	—	—
Annual arrests, intimate partner perpetrators, *n*	233,366[d]	—	—	—	—
Judicial and legal					
Annual spending, $	57,935,169,000[49]	5,170[h]	2.1[k]	1,206,523,794[n]	
Annual arrests, all offenses, *n*	11,205,833[50]	—	—	—	—
Estimated intimate partner perpetrators, *n*	233,336[d]	—	—	—	—
Annual arrests, murder offense, *n*	10,571[50]	—	—	—	—
Estimated intimate partner perpetrators, *n*	1,256[14,15]	—	—	—	—
Annual arrests, rape offense, *n*	21,007[50]	—	—	—	—
Estimated intimate partner perpetrators, %	7[51]	—	—	—	—
Annual arrests, robbery offense, *n*	94,403[50]	—	—	—	—
Estimated intimate partner perpetrators, %	12[51]	—	—	—	—
Annual arrests, aggravated assault offense, *n*	372,685[50]	—	—	—	—
Estimated intimate partner perpetrators, %	15[51]	—	—	—	—
Annual arrests, simple assault offense, *n*	1,093,258[50]	—	—	—	—
Estimated intimate partner perpetrators, %	15[51]	—	—	—	—
Corrections					
Annual spending, $	80,791,046,000[49]	11,641[i]	1.0[l]	1,900,378,101[o]	—
Total corrections population, *n* [b]	6,940,500[52]	—	—	—	—
Corrections spending per intimate partner perpetrator, $	—	26,969[j]	—	—	—
Convicted intimate partner perpetrators (annual), all offenses, *n*	71,187[e]	—	—	—	—
IPV victims with corrections-sentenced perpetrator, %	1.0[f]	—	—	—	—
Average corrections duration per convicted intimate partner perpetrator, all offenses, years[c]	2.3[e]	—	—	—	—

[a]Unit cost refers to per arrest or person in the corrections population.
[b]Total corrections population refers to individuals in prison, jail, probation, parole, not limited to intimate partner perpetrators. Parole defined in source as a period of conditional supervised release in the community following a prison term.
[c]Estimated corrections duration per IPV perpetrator calculated as the sum of parole, prison, and probation terms for the estimated proportion of selected offense types (murder, rape, robbery aggravated assault, simple assault) committed by intimate partners. Includes estimated years in prison, rather than prison sentence received (Appendix Table 2, available online, provides details).
[d]Calculated from number or proportion of arrests for murder, rape, robbery, aggravated assault, and simple assault estimated as intimate partner perpetrators (e.g., 7% of rape offenses).

[e]Calculations and sources reported in Appendix Table 2 (available online).
[f]Calculated as the estimated annual number of IPV victims (5,244,000 + 2,150,000 = 7,394,000) divided by the estimated number of convicted intimate partner perpetrators (71,187) annually.
[g]Calculated as total annual police protection spending ($126 billion) divided by total annual arrests (11,205,833).
[h]Calculated as total annual judicial and legal spending ($58 billion) divided by total annual arrests (11,205,833).
[i]Calculated as total annual corrections spending ($81 billion) divided by total annual corrections population (6,940,500).
[j]Corrections spending per IPV perpetrator calculated as average annual spending per person in the corrections population ($11,641) multiplied by the estimated average corrections duration per intimate partner violence perpetrator (2.3 years), with annual costs after the first year discounted to present value by 3% (Appendix Table 2, available online, provides details).
[k]Calculated as the estimated number of intimate partner perpetrator arrests (233,336) among total arrests (11,205,833).
[l]Calculated as the estimated annual number of convicted intimate partner perpetrators (71,187) as a proportion of the total annual corrections population (6,940,500).
[m]Calculated as sum of annual police protection, judicial and legal, and corrections spending attributable to IPV.
[n]Calculated as total annual spending by category multiplied by estimated proportion attributable to IPV.
[o]Calculated as estimated annual number of convicted intimate partner perpetrators (71,187) multiplied by total estimated discounted corrections cost per intimate partner perpetrator ($26,969).
[p]Calculated as estimated total annual justice system spending attributable to IPV ($5.7 billion) divided by annual number of convicted intimate partner perpetrators (71,187).
IPV, intimate partner violence.

lifetimes; therefore, it includes costs already experienced among older living adult victims and future costs among younger living adult victims. Although it is unknown what proportion of victims in the previous 12 months were first-time victimizations, applying this study's per-victim cost estimate yields an approximate annual economic burden of $594 billion. A comparative study estimated the annual economic burden of child maltreatment was $124–$585 billion (2010 US$; or $133–$628 billion as 2014 US$[7]).[66]

Limitations

This study used outcome data from observational studies but assumed IPV was the cause of victims' higher observed prevalence of various outcomes; the status of these outcomes as risk factors for, correlates with, or outcomes of IPV is complex.[48] This means if victims and perpetrators experiencing costs related to IPV would have incurred the same costs because of other risk factors, then this study has overstated the cost attributable to IPV. Future longitudinal analysis of IPV and health outcomes might address this issue, along with issues related to timing of IPV exposure and the effects of multiple victimizations. This study did not include nonmonetary elements, sometimes presented as intangible costs—a monetized version of victims' pain and suffering.[67] Costs to victims' and perpetrators' friends and families were not included. Costs to employers and insurance companies were not measured. Government costs were underestimated because reduced tax revenue due to victims' lost work productivity was not included.

The lifetime cost of some outcomes was inferred from annual cost data (Appendix Table 5, available online), which is a major limitation; this assumes an accurate distribution of patients at all stages of a particular outcome (i.e., acute, recurring, remission) in reference studies' annual estimates and, when applied to individuals, may overstate lifetime medical costs. For example, the annual cost of depression and other conditions was uniformly applied to affected victims for multiple years. Based on available data, it was not possible to assign costs by victim demographics or time since IPV exposure. The depression cost estimate referred to major depressive disorder, which represents severe depression. Reference cost studies on non-IPV populations were used for unit costs; such populations may differ in demographic distribution from the IPV victim population. This study did not address the possibility that incarcerating perpetrators could result in fewer IPV victims or victimizations.

Health outcomes that could be linked to specific costs were included, though authors did not attempt to assign a cost to increased risk factors (e.g., IPV victims have higher prevalence of activity limitations and HIV risk

factors[4,34]). The cost of nonfatal suicide attempts was not included independent of anxiety and depression costs.[48] The model applied a unit cost of illicit drugs to the marginal prevalence of cannabis use among IPV victims; state-based legalization of non-medical cannabis use (first occurred in late 2012) may decrease the applicability of this unit cost for this outcome in future years. This analysis focused on the prevalence and cost of formally defined health conditions as assessed in previous studies, such as anxiety (including PTSD) defined by the Composite International Diagnostic Interview 2.1.[26] However, a much higher proportion of IPV victims have reported individual symptoms of PTSD (e.g., nightmares, feeling numb or detached[1]). Several lost productivity unit estimates included employed respondents only, and valued respondents' productivity using the human capital approach (i.e., lost wages)—rather than value per statistical life approach—which undervalues lost productivity. Several lost productivity estimates from previous studies did not include mortality. Long-term lost productivity among IPV victims not diagnosed with any of the analyzed outcomes was not included.

Discounting assumed victims' mean age at first IPV victimization was 25 years, which underestimates costs among victims with first victimization at less than 25 years and overestimates costs among victims with first victimization at more than 25 years. First victimization occurs in adolescence for some IPV victims.[1] If first IPV exposure age was instead 18 years, the estimated lifetime cost would increase (per victim: female=$104,238, male=$24,298; data not shown). At an alternative 7% discount rate, the present value cost per victim would be lower (female=$73,378, male=$19,812; data not shown).

Too few reference studies met quality and reporting criteria for a meaningful deterministic sensitivity analysis (e.g., range test per outcome), and too few reported measures of dispersion for a meaningful probabilistic sensitivity analysis (e.g., distribution test based on CIs; Appendix Table 3, available online). Identifiable cost double-counting includes: HIV costs appear in both STI and illicit drug use unit costs, and some anxiety and substance use costs are included in the depression cost (Appendix Tables 3 and 4, available online). A small portion of the illicit drug and excess alcohol unit costs comprised research and prevention activities.[24,25,27,28] Some reference studies focused on outcomes among adults who experienced current or recent IPV or recent outcomes (e.g., STI) rather than lifetime assessment (Appendix Table 3, available online). The short-term lost productivity estimate included lifetime stalking and sexual violence victimizations by non-intimate partners.[9]

This study is notably limited by inexact timelines related to intimate partner victimizations during victims' lifetimes, number of victimizations per victim, number of victims per perpetrator, onset of attributable health outcomes, and treatment of those outcomes and related conditions. This study's acute cost estimates (e.g., short-term medical care) are per victim, rather than per victimization, which underestimates consequences among victims with multiple victimizations.[68] Owing to available data, this study did not address costs among specific subpopulations of IPV victims, including men who have sex with men. This study did not include IPV effects on non-rape pregnancies (e.g., higher prevalence of preterm birth[69]) or on children exposed to IPV (e.g., child abuse and neglect[70]) because population prevalence data are lacking.[71] Some health outcomes measured to be more prevalent among female victims have not been assessed among male victims (e.g., blindness).

CONCLUSIONS

Despite limitations, this study's estimate of IPV per-victim lifetime cost ($103,767 for females, $23,414 for males) included more comprehensive information on victims' lifetime mental and physical health compared with previous estimates and provides IPV cost estimates by impact category. Findings on the cost of IPV can support the need for prevention programs and inform intervention evaluations, identifying cost-effective approaches to eliminate IPV and its substantial impact on public health and public safety. The Centers for Disease Control and Prevention's technical packages help communities use the best available evidence on strategies to stop sexual partner violence and IPV before it starts, including prevention efforts among adolescents and young adults, and support survivors to lessen harms.[72,73]

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Cora Peterson led the study design and interpretation of results, led data analysis, drafted and edited the manuscript, and approved the final manuscript as submitted. Megan C. Kearns conceptualized the study design, managed the literature review to inform the analyses, assisted with study design

and interpretation of results, drafted and edited the manuscript, and approved the final manuscript as submitted. Wendy L. McIntosh managed the literature review to inform the analyses, assisted with study design and interpretation of results, drafted and edited the manuscript, and approved the final manuscript as submitted. Lianne Fuino Estefan managed the literature review to inform the analyses, assisted with study design and interpretation of results, drafted and edited the manuscript, and approved the final manuscript as submitted. Christina Nicolaidis led the literature review to inform the analyses, assisted with the study design and interpretation of results, edited the manuscript, and approved the final manuscript as submitted. Kathryn E. McCollister led the literature review to inform the analyses, assisted with the study design and interpretation of results, edited the manuscript, and approved the final manuscript as submitted. Amy Gordon assisted with the study design and interpretation of results, assisted with the literature review to inform the analyses, edited the manuscript, and approved the final manuscript as submitted. Curtis Florence assisted with the study design and interpretation of results, drafted and edited the manuscript, and approved the final manuscript as submitted.

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SUPPLEMENTAL MATERIAL

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REFERENCES

1. Smith SG, Chen J, Basile KC, et al. *The National Intimate Partner and Sexual Violence Survey (NISVS): 2010–2012 State Report.* Atlanta, GA: National Center for Injury Prevention and Control, CDC, 2017.
2. Houston E, McKirnan DJ. Intimate partner abuse among gay and bisexual men: risk correlates and health outcomes. *J Urban Health.* 2007;84(5):681–690. https://doi.org/10.1007/s11524-007-9188-0.
3. Afifi TO, MacMillan H, Cox BJ, Asmundson GJ, Stein MB, Sareen J. Mental health correlates of intimate partner violence in marital relationships in a nationally representative sample of males and females. *J Interpers Violence.* 2009;24(8):1398–1417. https://doi.org/10.1177/0886260508322192.
4. 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;18(7):538–544. https://doi.org/10.1016/j.annepidem.2008.02.005.
5. Corso PS, Mercy JA, Simon TR, Finkelstein EA, Miller TR. Medical costs and productivity losses due to interpersonal and self-directed violence in the United States. *Am J Prev Med.* 2007;32(6):474–482. https://doi.org/10.1016/j.amepre.2007.02.010.
6. CDC. *Costs of Intimate Partner Violence Against Women in the United States.* Atlanta, GA: CDC, 2003.
7. U.S. Bureau of Economic Analysis. Table 1.1.4. Price Indexes for Gross Domestic Product. www.bea.gov/itable/. Published December 22, 2015. Accessed December 28, 2015.
8. Peterson C, DeGue S, Florence C, Lokey CN. Lifetime economic burden of rape among U.S. adults. *Am J Prev Med.* 2017;52(6):691–701. https://doi.org/10.1016/j.amepre.2016.11.014.
9. Peterson C, Liu Y, Kresnow MJ, et al. Short-term lost productivity per victim: intimate partner violence, sexual violence, or stalking. *Am J Prev Med.* 2018;(55)1:106—110.
10. Gold M. Panel on cost-effectiveness in health and medicine. *Med Care.* 1996;34(12 suppl):DS197–DS199.
11. U.S. Bureau of Economic Analysis. Table 2.5.4: Price Indexes for Personal Consumption Expenditures by Function. www.bea.gov/itable/. Published August 6, 2015. Accessed December 28, 2015.
12. Machlin SR, Adams SA. *Statistical Brief #484: Expenses for Office-Based Physician Visits by Specialty, 2013.* Rockville, MD: Agency for Healthcare Research and Quality, 2015.
13. CDC. Web-based Injury Statistics Query and Reporting System (WISQARS), Cost of Injury Reports 2010, Both Sexes, All Ages, United States. www.cdc.gov/injury/wisqars/index.html.
14. U.S. Federal Bureau of Investigation. *Table 10. Expanded Homicide Data—Murder Circumstances by Relationship 2012.* Washington, DC: U.S. Department of Justice; 2012. https://ucr.fbi.gov/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/offenses-known-to-law-enforcement/expanded-homicide/expanded_homicide_data_table_10_murder_circumstances_by_relationship_2012.xls.
15. U.S. Federal Bureau of Investigation. *Table 1. Expanded Homicide Data—Murder victims by race and sex, 2012.* Washington, DC: U.S. Department of Justice; 2012. https://ucr.fbi.gov/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/offenses-known-to-law-enforcement/expanded-homicide/expanded_homicide_data_table_1_murder_victims_by_race_and_sex_2012.xls.
16. McFarlane J, Malecha A, Watson K, et al. Intimate partner sexual assault against women: frequency, health consequences, and treatment outcomes. *Obstet Gynecol.* 2005;105(1):99–108. https://doi.org/10.1097/01.AOG.0000146641.98665.b6.
17. Basile KC, Smith SG, Liu Y, Kresnow MJ, Fasula AM, Gilbert L, Chen J. Rape-related pregnancy and association with reproductive coercion in the U.S. *Am J Prev Med.* In press.
18. Truven Health Analytics. *The Cost of Having a Baby in the United States.* Ann Arbor, MI: Truven Health Analytics, 2013.
19. Jerman J, Jones RK. Secondary measures of access to abortion services in the United States, 2011 and 2012: gestational age limits, cost, and harassment. *Womens Health Issues.* 2014;24(4):e419–e424. https://doi.org/10.1016/j.whi.2014.05.002.
20. Gold KJ, Sen A, Xu X. Hospital costs associated with stillbirth delivery. *Matern Child Health J.* 2013;17(10):1835–1841. https://doi.org/10.1007/s10995-012-1203-8.
21. Greenberg PE, Sisitsky T, Kessler RC, et al. The economic burden of anxiety disorders in the 1990s. *J Clin Psychiatry.* 1999;60(7):427–435. https://doi.org/10.4088/JCP.v60n0702.
22. Ackard DM, Eisenberg ME, Neumark-Sztainer D. Long-term impact of adolescent dating violence on the behavioral and psychological health of male and female youth. *J Pediatrics.* 2007;151(5):476–481. https://doi.org/10.1016/j.jpeds.2007.04.034.
23. Greenberg PE, Fournier AA, Sisitsky T, Pike CT, Kessler RC. The economic burden of adults with major depressive disorder in the United States (2005 and 2010). *J Clin Psychiatry.* 2015;76(2):155–162. https://doi.org/10.4088/JCP.14m09298.
24. Sacks JJ, Gonzales KR, Bouchery EE, Tomedi LE, Brewer RD. 2010 national and state costs of excessive alcohol consumption. *Am J Prev Med.* 2015;49(5):e73–e79. https://doi.org/10.1016/j.amepre.2015.05.031.
25. Bouchery EE, Harwood HJ, Sacks JJ, Simon CJ, Brewer RD. Economic costs of excessive alcohol consumption in the U.S., 2006. *Am J Prev Med.* 2011;41(5):516–524. https://doi.org/10.1016/j.amepre.2011.06.045.
26. Afifi TO, Henriksen CA, Asmundson GJ, Sareen J. Victimization and perpetration of intimate partner violence and substance use disorders in a nationally representative sample. *J Nerv Ment Dis.* 2012;200(8):684–691. https://doi.org/10.1097/NMD.0b013e3182613f64.
27. U.S. Department of Justice. *The Economic Impact of Illicit Drug Use on American Society.* Washington, DC: National Drug Intelligence Center, 2011.

28. HHS. Results from the 2007 National Survey on Drug Use and Health: National Findings *(NSDUH Series H-34, DHHS Publication No. SMA 08-4343)*. Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2009.
29. Sloan F, Ostermann J, Picone G, Conover C, Taylor D. *The Price of Smoking*. Cambridge, MA: MIT Press, 2004.
30. Barnett SB, Nurmagambetov TA. Costs of asthma in the United States: 2002–2007. *J Allergy Clin Immunol.* 2011;127(1):145–152. https://doi.org/10.1016/j.jaci.2010.10.020.
31. Coker AL, Smith PH, Fadden MK. Intimate partner violence and disabilities among women attending family practice clinics. *J Womens Health (Larchmt).* 2005;14(9):829–838. https://doi.org/10.1089/jwh.2005.14.829.
32. Frick KD, Gower EW, Kempen JH, Wolff JL. Economic impact of visual impairment and blindness in the United States. *Arch Ophthalmol.* 2007;125(4):544–550. https://doi.org/10.1001/archopht.125.4.544.
33. Rein DB, Zhang P, Wirth KE, et al. The economic burden of major adult visual disorders in the United States. *Arch Ophthalmol.* 2006;124(12):1754–1760. https://doi.org/10.1001/archopht.124.12.1754.
34. Bonomi AE, Anderson ML, Reid RJ, Rivara FP, Carrell D, Thompson RS. Medical and psychosocial diagnoses in women with a history of intimate partner violence. *Arch Intern Med.* 2009;169(18):1692–1697. https://doi.org/10.1001/archinternmed.2009.292.
35. Sandler RS, Everhart JE, Donowitz M, et al. The burden of selected digestive diseases in the United States. *Gastroenterology.* 2002;122(5):1500–1511. https://doi.org/10.1053/gast.2002.32978.
36. Gaskin D, Richard R. *Appendix C: the economic costs of pain in the United States*. Institute of Medicine Committee on Advancing Pain Research, Care, and Education. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Washington, DC: National Academies Press, 2011.
37. Birnbaum H, Leong S, Kabra A. Lifetime medical costs for women: cardiovascular disease, diabetes, and stress urinary incontinence. *Womens Health Issues.* 2003;13(6):204–213. https://doi.org/10.1016/j.whi.2003.07.001.
38. Mozaffarian D, Benjamin EJ, Go AS, et al. Heart disease and stroke statistics–2016 update: a report from the American Heart Association. *Circulation.* 2016;133(4):e38–e360. https://doi.org/10.1161/CIR.0000000000000350.
39. Song X, Quek RG, Gandra SR, Cappell KA, Fowler R, Cong Z. Productivity loss and indirect costs associated with cardiovascular events and related clinical procedures. *BMC Health Serv Res.* 2015;15:245. https://doi.org/10.1186/s12913-015-0925-x.
40. Chesson HW, Ekwueme DU, Saraiya M, Watson M, Lowy DR, Markowitz LE. Estimates of the annual direct medical costs of the prevention and treatment of disease associated with human papillomavirus in the United States. *Vaccine.* 2012;30(42):6016–6019. https://doi.org/10.1016/j.vaccine.2012.07.056.
41. Owusu-Edusei Jr. K, Chesson HW, Gift TL, et al. The estimated direct medical cost of selected sexually transmitted infections in the United States, 2008. *Sex Transm Dis.* 2013;40(3):197–201. https://doi.org/10.1097/OLQ.0b013e318285c6d2.
42. Owusu-Edusei Jr. K Jr., Roby TM, Chesson HW, Gift TL. Productivity costs of nonviral sexually transmissible infections among patients who miss work to seek medical care: evidence from claims data. *Sex Health.* 2013;10(5):434–437. https://doi.org/10.1071/SH13021.
43. Foxman B, Barlow R, D'Arcy H, Gillespie B, Sobel JD. Urinary tract infection: self-reported incidence and associated costs. *Ann Epidemiol.* 2000;10(8):509–515. https://doi.org/10.1016/S1047-2797(00)00072-7.
44. Zhang J, Yu KF. What's the relative risk? A method of correcting the odds ratio in cohort studies of common outcomes. *JAMA.* 1998;280(19):1690–1691. https://doi.org/10.1001/jama.280.19.1690.
45. Xu J, Murphy SL, Kochanek KD, Bastian BA. Deaths: final data for 2013. *Natl Vital Stat Rep.* 2016;64(2):1–119.
46. Breiding MJ, Smith SG, Basile KC, Walters ML, Chen J, Merrick MT. Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization–National Intimate Partner and Sexual Violence Survey, United States, 2011. *MMWR Surveill Summ.* 2014;63(8):1–18.
47. Beydoun HA, Beydoun MA, Kaufman JS, Lo B, Zonderman AB. Intimate partner violence against adult women and its association with major depressive disorder, depressive symptoms and postpartum depression: a systematic review and meta-analysis. *Soc Sci Med.* 2012;75(6):959–975. https://doi.org/10.1016/j.socscimed.2012.04.025.
48. Devries KM, Mak JY, Bacchus LJ, et al. Intimate partner violence and incident depressive symptoms and suicide attempts: a systematic review of longitudinal studies. *PLoS Med.* 2013;10(5):e1001439. https://doi.org/10.1371/journal.pmed.1001439.
49. Kyckelhahn T. *Table 1. Percent distribution of expenditure for the justice system by type of government, FY 2012.* Justice Expenditure and Employment Extracts, NCJ 248628. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, 2015.
50. U.S. Federal Bureau of Investigation. *Table 29. Estimated number of arrests. Crime in the United States 2013.* Washington, DC: U.S. Department of Justice; 2012. https://ucr.fbi.gov/crime-in-the-u.s/2013/crime-in-the-u.s.-2013/tables/table-29/table_29_estimated_number_-of_arrests_united_states_2013.xls.
51. U.S. Department of Justice. National Crime Victimization Survey: Violent victimizations by police reporting and perpetrator type. Generated using the NCVS Victimization Analysis Tool. https://www.bjs.gov/index.cfm?ty=nvat.
52. Glaze L, Kaeble D. *Table 1. Estimated number of persons supervised by adult correctional systems, by correctional status, 2000, 2005, and 2010–2013. Correctional Populations in the United States, 2013, NCJ 248479.* Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2014. https://www.bjs.gov/content/pub/pdf/cpus13.pdf.
53. George T. *Domestic Violence Sentencing Conditions and Recidivism (NCJ 247243)*. Olympia, WA: Washington State Center for Court Research, 2010.
54. Herberman E, Bonczar T. *Table 6. Rate of parole exits, by type of exit, 2008–2013.* Probation and Parole in the United States, NCJ 248029. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, 2013.
55. Motivans M. *Table 7.11 Average time to first release and percent of sentence served for federal prisoners released by standard methods, October 1, 2011–September 30, 2012.* Federal Justice Statistics, 2012–Statistical Tables, NCJ 248470. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, 2015.
56. Reaves B. *Table 21. Adjudication outcome for felony defendants in the 75 largest counties, by most serious arrest charge.* Felony Defendants in Large Urban Counties, 2009–Statistical Tables, NCJ 243777. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, 2013.
57. Reaves B. *Table 24. Most severe type of sentence received by convicted defendants in the 75 largest counties, by most serious conviction offense, 2009. Felony Defendants in Large Urban Counties, 2009–Statistical Tables, NCJ 243777.* Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2013. www.bjs.gov/content/pub/pdf/fdluc09.pdf.
58. Reaves B. *Table 25. Length of prison sentence received by defendants convicted of a felony in the 75 largest counties, by most serious conviction offense, 2009.* Felony Defendants in Large Urban Counties, 2009–Statistical Tables, NCJ 243777. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2013. www.bjs.gov/content/pub/pdf/fdluc09.pdf.
59. Reaves B. *Table 26. Length of jail sentence received by convicted defendants in the 75 largest counties, by most serious conviction offense, 2009. Felony Defendants in Large Urban Counties, 2009–Statistical Tables,*

NCJ 243777. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2013. www.bjs.gov/content/pub/pdf/fdluc09.pdf.

60. Reaves B. *Table 27. Length of probation sentence received by convicted defendants in the 75 largest counties, by most serious conviction offense, 2009. Felony Defendants in Large Urban Counties, 2009—Statistical Tables, NCJ 243777*. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics; 2013. www.bjs.gov/content/pub/pdf/fdluc09.pdf.
61. U.S. Department of Justice. FY 2012 OVW Grant Awards by Program. www.justice.gov/ovw/awards/fy-2012-ovw-grant-awards-program. Published 2016. Accessed October 2, 2017.
62. U.S. Department of Justice. *Justice Expenditure and Employment Extracts, NCJ 248628: JEE Extracts definitions of Terms and Concepts*. Washington, DC: U.S. Department of Justice, 2015.
63. Henrichson C, Delaney R. *The Price of Prisons: What Incarceration Costs Taxpayers*. New York: Vera Institute of Justice, 2012.
64. Grosse SD, Krueger KV, Mvundura M. Economic productivity by age and sex: 2007 estimates for the United States. *Med Care*. 2009;47(7 suppl 1):S94–S103. https://doi.org/10.1097/MLR.0b013e31819c9571.
65. Woolhandler S, Himmelstein DU. Paying for national health insurance—and not getting it. *Health Aff (Millwood)*. 2002;21(4):88–98. https://doi.org/10.1377/hlthaff.21.4.88.
66. Fang X, Brown DS, Florence CS, Mercy JA. The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse Negl*. 2012;36(2):156–165. https://doi.org/10.1016/j.chiabu.2011.10.006.
67. McCollister KE, French MT, Fang H. The cost of crime to society: new crime-specific estimates for policy and program evaluation. *Drug Alcohol Depend*. 2010;108(1–2):98–109. https://doi.org/10.1016/j.drugalcdep.2009.12.002.
68. Tjaden P, Thoennes N. *Full Report of the Prevalence, Incidence, and Consequences of Violence Against Women: Findings From the National Violence Against Women Survey*. Washington, DC: U.S. Department of Justice; 2000. https://doi.org/10.1037/e514172006-001.
69. Shah PS. Maternal exposure to domestic violence and pregnancy and birth outcomes: a systematic review and meta-analyses. *J Womens Health (Larchmt)*. 2010;19(11):2017. https://doi.org/10.1089/jwh.2010.2051.
70. Taylor CA, Guterman NB, Lee SJ, Rathouz PJ. Intimate partner violence, maternal stress, nativity, and risk for maternal maltreatment of young children. *Am J Public Health*. 2009;99(1):175–183. https://doi.org/10.2105/AJPH.2007.126722.
71. Kimber M, McTavish JR, Couturier J, et al. Consequences of child emotional abuse, emotional neglect and exposure to intimate partner violence for eating disorders: a systematic critical review. *BMC Psychol*. 2017;5(1):33. https://doi.org/10.1186/s40359-017-0202-3.
72. Basile K, DeGue S, Jones K, et al. *STOP SV: A Technical Package to Prevent Sexual Violence*. Atlanta, GA: National Center for Injury Prevention and Control, CDC; 2016.
73. Niolon P, Kearns M, Dills J, et al. *Preventing Intimate Partner Violence Across the Lifespan: A Technical Package of Programs, Policies, and Practices*. Atlanta, GA: National Center for Injury Prevention and Control, CDC, 2017.