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Short-term Lost Productivity per Victim: Intimate Partner Violence, Sexual Violence, or Stalking

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Abstract

Introduction—The purpose of this study is to estimate victims' lifetime short-term lost productivity because of intimate partner violence, sexual violence, or stalking.

Methods—U.S. nationally representative data from the 2012 National Intimate Partner and Sexual Violence Survey were used to estimate a regression-adjusted average per victim (female and male) and total population number of cumulative short-term lost work and school days (or lost productivity) because of victimizations over victims' lifetimes. Victims' lost productivity was valued using a U.S. daily production estimate. Analysis was conducted in 2017.

Results—Non-institutionalized adults with some lifetime exposure to intimate partner violence, sexual violence, or stalking ($n=6,718$ respondents; survey-weighted $n=130,795,789$) reported nearly 741 million lost productive days because of victimizations by an average of 2.5 perpetrators per victim. The adjusted per victim average was 4.9 (95% CI=3.9, 5.9) days, controlling for victim, perpetrator, and violence type factors. The estimated societal cost of this short-term lost productivity was \$730 per victim, or \$110 billion across the lifetimes of all victims (2016 USD). Factors associated with victims having a higher number of lost days included a higher number of perpetrators and being female, as well as sexual violence, physical violence, or stalking victimization by an intimate partner perpetrator, stalking victimization by an acquaintance perpetrator, and sexual violence or stalking victimization by a family member perpetrator.

Conclusions—Short-term lost productivity represents a minimum economic valuation of the immediate negative effects of intimate partner violence, sexual violence, and stalking. Victims' lost productivity affects family members, colleagues, and employers.

INTRODUCTION

Intimate partner violence, sexual violence, and stalking constitute a substantial U.S. public health burden. Approximately 37%, 36%, and 16% of adult women and 31%, 17%, and 5% of adult men report some lifetime exposure to intimate partner violence, contact sexual violence, and stalking, respectively.¹

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The long-term health and economic consequences of such violence are substantial.²⁻⁴ Victims' lost productivity, in particular, is estimated to be very costly.² However, there are few opportunities to directly measure the economic impact of interpersonal violence across the U.S. population. This study uses U.S. nationally representative surveillance data to estimate short-term lost productivity per victim of intimate partner violence, sexual violence, or stalking.

METHODS

Study Sample

The Centers for Disease Control and Prevention's 2012 National Intimate Partner and Sexual Violence Survey (NISVS)⁵ (most recent) was used to estimate victims' cumulative (or lifetime) short-term lost work and school days (or lost productivity) because of intimate partner violence, sexual violence, or stalking. NISVS is an ongoing, dual-frame national random-digit-dial telephone survey. NISVS represents the U.S. non-institutionalized, English-and Spanish-speaking population, aged 18 years.

Measures

Victimizations assessed in this analysis (defined previously¹) included sexual violence or stalking perpetrated by a stranger, acquaintance, family member, or person of authority, and sexual violence, stalking, physical violence, or psychological aggression perpetrated by an intimate partner. An intimate partner was defined as a current or former spouse (including married, common-law, civil union spouses, and domestic partners); boyfriend/girlfriend; dating partner; or ongoing sexual partner. Sexual violence included rape or being made to sexually penetrate someone else (completed or attempted forced penetration or completed alcohol- or drug-facilitated penetration); sexual coercion (non-physically pressured unwanted penetration); unwanted sexual contact (e.g., kissing or fondling); and noncontact unwanted sexual experiences (e.g., being flashed or forced to view sexually explicit media). Stalking included a pattern of unwanted attention and contact causing fear that the victim or victim's associate would be harmed. Physical violence (assessed if perpetrator was an intimate partner) included being slapped, pushed, kicked, shoved, beaten, or burned on purpose, pulling hair, being hit with something hard, being slammed against something, attempts to hurt by choking or suffocating, or having a partner use a knife or gun against the victim. Psychological aggression (assessed if perpetrator was an intimate partner) included expressive aggression (e.g., name calling, insulting, or humiliating) and coercive control and entrapment (behaviors that are intended to monitor, control, or threaten).

NISVS includes respondents' age at first victimization (i.e., *How old were you the first time [perpetrator] did this/these things?*) and number of missed work and school days (i.e., *How many days of work or school did [perpetrator] cause you to miss?*) for each perpetrator respondents identified. Questions about lost productive days are asked with questions on the immediate aftermath of victimization (e.g., did the victim access housing or legal services?) and are interpreted to refer to only short-term lost productivity.

Among 2012 NISVS respondents, victims ($n=7,296$) of intimate partner violence, sexual violence, or stalking were identified. Victims ($n=6,718$; survey-weighted $n=130,795,789$) with complete data on age at first victimization and number of lost days comprised the analysis sample. The value of victims' lost productivity was calculated as the number of lost days times the estimated daily production value for the U.S. non-institutionalized population (both sexes aged ≥ 15 years; adjusted to 2016 US\$148.43).^{6,7}

Like previous survey data,³ most victims (84%; 79% of females, 90% of males) reported zero lost days (data not shown). Therefore, an exponential hurdle model (in which one model stage analyzes the difference between zero and non-zero values of the dependent variable and the second stage analyzes the value of non-zero responses⁸) estimated the adjusted per-victim average number of lost days. Model covariates included the number of years since victims' first victimization; lifetime number of perpetrators; victim demographics (age at survey time, sex, race/ethnicity); perpetrator type (e.g., intimate partner); and violence type (e.g., sexual violence) by perpetrator type. Post-estimation analyses estimated the number of lost days associated with a unit increase in each covariate. Further model details are reported in Table 1 notes.

RESULTS

Victims (Table 2 reports summary data) collectively reported 741 million short-term lost work and school days, or a simple average of 5.7 (95% CI=4.6, 6.7) days per victim (Table 1). The estimated value of that lost productivity was \$110 billion, or a simple average of \$841 per victim. The regression-adjusted per victim estimate was 7.2 (95% CI=5.7, 8.6) days for female victims; 2.4 (95% CI=1.7, 3.1) days for male victims; or 4.9 (95% CI=3.9, 5.9) days for all victims valued at \$730 per victim when controlling for victim, perpetrator, and violence type factors.

Each additional perpetrator was associated with a significant increase in victims' total short-term lost productivity (i.e., 0.73 days among female victims, 0.28 days among male victims, or 0.52 days among all victims, controlling for victim sex; Table 1). Other factors associated with a higher number of lost days included being female, sexual violence, physical violence, or stalking by an intimate partner, stalking by an acquaintance, and sexual violence or stalking by a family member. Victim non-Hispanic Asian or Pacific Islander race/ethnicity and victimization by a person of authority were associated with a lower number of lost days.

DISCUSSION

This study estimated that the short-term economic cost of lost productivity because of intimate partner violence, sexual violence, or stalking over victims' lifetimes is \$730 per victim, or \$110 billion across the U.S. population, when victims lose time from work and education. Measuring economic consequences per victim might improve understanding among service providers and employers about how to support victims. Reporting the magnitude of these consequences across the U.S. population might increase awareness of the importance of violence prevention. For future research, average per person lost productivity

values can be used to estimate the economic burden of injuries and health conditions; such estimates can be used to anticipate the value of population-based prevention programs.

Limitations

In addition to NISVS limitations described elsewhere,¹ this study is limited in that its human capital valuation of short-term lost productivity⁶ represents a minimum valuation of the immediate negative effects of violence on victims' productive activities. Moreover, victims' time lost from work and school in the short-term aftermath of victimization represents a small fraction of the total cost of victimization, but is one of the few economic consequences of intimate partner violence, sexual violence, or stalking that is directly measurable from population-based data. Long-term lost productivity because of sexual violence, for example, is estimated to be substantial because of chronic mental and physical health consequences (e.g., depression).²

Given that many victims experience multiple violence and perpetrator types, comprehensive analysis of victims' short-term lost productivity because of all lifetime victimizations assessed in NISVS was deemed a desirable use of available data. This study's modelling approach yielded an adjusted average lost productivity estimate that applies to victims of intimate partner violence, sexual violence, or stalking—perhaps relevant for future research and reporting purposes even when victims' entire victimization history may be unknown.

CONCLUSIONS

Victims, family members, friends, colleagues, and employers are adversely affected by victims' lost economic productivity. Reducing intimate partner violence, sexual violence, and stalking could avoid considerable personal and societal costs. The Centers for Disease Control and Prevention recently published guidance to help communities make use of the best available evidence on strategies to stop sexual and intimate partner violence before it starts and support survivors to lessen harms.^{9,10}

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Table 1

Number and Value of Lost Days Due to Victimization and Marginal Effect of Covariates

Measure	Female victims	Male victims	Both
Respondents, <i>n</i>	3,872	2,846	6,718
Survey-weighted, <i>n</i>	69,122,640	61,673,149	130,795,789
Measure			
Number and value of short-term lost work and school days due to victimization			
All victims			
Number of lost days, <i>n</i> (95% CI)	526,480,163 (418,945,089–634,015,238)	214,344,403 (130,405,544–298,283,261)	740,824,566 (604,245,733–877,403,399)
Value of lost days, 2016 USD ^a	\$78,147,243,244	\$31,815,869,574	\$109,963,112,818
Per victim (simple average)			
Number of lost days, <i>n</i> (95% CI)	7.6 (6.1, 9.2)	3.5 (2.8, 4.1)	5.7 (4.6, 6.7)
Value of lost days, 2016 USD ^a	\$1,130.56	\$515.88	\$840.72
Per victim (regression-adjusted average) ^b			
Number of lost days, <i>n</i> (95% CI)	7.2 (5.7, 8.6)	2.4 (1.7, 3.1)	4.9 (3.9, 5.9)
Value of lost days, 2016 USD ^a	\$1,063.00	\$356.79	\$730.01
Marginal effect of model covariates, lost days (95% CI) ^c			
Female	NA	NA	2.07 (0.94, 3.2)
Age at survey	0.07 (–0.01, 0.16)	0.02 (–0.01, 0.05)	0.05 (–0.01, 0.11)
Years since first victimization	–0.06 (–0.15, 0.02)	–0.02 (–0.05, 0.01)	–0.04 (–0.1, 0.02)
Lifetime number of perpetrators	0.73 (0.28, 1.19)	0.28 (0.09, 0.46)	0.52 (0.2, 0.84)
Race/ethnicity			
White, non-Hispanic			
Asian or Pacific Islander, non-Hispanic	–5.9 (–7.69, –4.11)	–1.93 (–2.71, –1.16)	–4.03 (–5.26, –2.8)
American Indian or Alaska Native, non-Hispanic	0.07 (–4.90, 5.04)	–0.26 (–2.15, 1.62)	–0.09 (–3.59, 3.42)
Multiracial, non-Hispanic	2.80 (–3.02, 8.61)	0.93 (–1.15, 3.00)	1.91 (–2.12, 5.95)
Hispanic	–1.14 (–3.44, 1.16)	–0.36 (–1.22, 0.50)	–0.77 (–2.38, 0.84)
Black, non-Hispanic	–1.11 (–3.80, 1.57)	–0.37 (–1.31, 0.57)	–0.76 (–2.62, 1.09)
Missing	13.21 (–14.57, 40.98)	4.48 (–5.43, 14.38)	9.09 (–10.2, 28.38)
Intimate partner perpetrator ^d			
Sexual violence	2.72 (0.55, 4.89)	1.22 (0.27, 2.17)	2.01 (0.44, 3.59)
Stalking	9.55 (5.6, 13.5)	5.11 (2.7, 7.53)	7.46 (4.34, 10.58)
Physical violence	3.28 (1.27, 5.28)	1.54 (0.78, 2.3)	2.46 (1.07, 3.84)

Measure	Female victims	Male victims	Both
Psychological aggression	5.73 (3.17, 8.3)	2.22 (1.26, 3.18)	4.08 (2.33, 5.83)
Stranger perpetrator ^d	-3.44 (-9.99, 3.11)	-1.19 (-3.2, 0.82)	-2.38 (-6.76, 2.01)
Sexual violence	2.33 (-5.92, 10.59)	0.92 (-2.39, 4.24)	1.67 (-4.23, 7.57)
Stalking	6.08 (-3.12, 15.28)	3.29 (-1.02, 7.6)	4.76 (-2.09, 11.62)
Acquaintance perpetrator ^d	-6.67 (-14.99, 1.66)	-1.84 (-4.57, 0.9)	-4.39 (-10.03, 1.25)
Sexual violence	6.34 (-0.56, 13.23)	2.07 (-0.84, 4.98)	4.33 (-0.63, 9.28)
Stalking	9.83 (1.64, 18.01)	3.99 (0.23, 7.75)	7.07 (1.06, 13.09)
Family member perpetrator ^d	-6.12 (-13.84, 1.59)	-2.25 (-3.97, -0.53)	-4.3 (-9.15, 0.56)
Sexual violence	16.92 (-6.55, 40.40)	10.63 (-5.08, 26.34)	13.95 (-5.73, 33.64)
Stalking	40.22 (1.35, 79.09)	23.99 (0.43, 47.55)	32.57 (1.22, 63.92)
Person of authority perpetrator ^d	-9.75 (-18.6, -0.90)	-3.17 (-5.83, -0.51)	-6.65 (-12.53, -0.77)
Sexual violence	39.1 (-29.35, 107.55)	22.15 (-19.52, 63.83)	31.11 (-24.43, 86.65)
Stalking	26.35 (-18.74, 71.45)	14.76 (-11.2, 40.73)	20.89 (-15.01, 56.79)

Note: Boldface indicates statistical significance ($p < 0.05$).

^aValue of lost days calculated as *number of lost days* * *daily production value* (or, \$148.43, 2016 USD).^{6,7}

^bRegression-adjusted estimates are based on an exponential hurdle model with linearized SEs (Stata 14, *churdle*) and post-estimation marginal effects calculation (Stata 14, *margins*) that controlled for all listed variables. Model results for all victims (last column) controlled for victim sex (female or male).

^cResults are the number of lost days associated with a unit change in each covariate, calculated using Stata 2014 *margins, dydx(covariate)*.

^dVictims may have experienced more than one violence type per perpetrator and more than one perpetrator type.

Table 2

Victim and Violence Characteristics Among Victims of Intimate Partner Violence, Sexual Violence, or Stalking

Measure	Female victims	Male victims	Both
Respondents, <i>n</i>	3,872	2,846	6,718
Survey-weighted, <i>n</i>	69,122,640	61,673,149	130,795,789
Victim			
Female, % of total victims	100.0	0	52.9
Age at survey, years, M (95% CI)	44.4 (43.7, 45.2)	43.1 (42.2, 43.9)	43.8 (43.2, 44.3)
Age at first victimization, years, M (95% CI)	23.1 (22.6, 23.6)	26.6 (26.1, 27.2)	24.8 (24.4, 25.1)
Years since first victimization years, M (95% CI)	21.3 (20.6, 22.1)	16.4 (15.7, 17.2)	19.0 (18.5, 19.6)
Lifetime number of perpetrators, M (95% CI)	2.7 (2.6, 2.8)	2.2 (2.1, 2.3)	2.5 (2.4, 2.6)
Race/ethnicity, <i>n</i> (% of total victims)			
White, non-Hispanic	48,205,161 (69.7)	42,321,506 (68.6)	90,526,667 (69.2)
Asian or Pacific Islander, non-Hispanic	2,591,107 (3.8)	1,661,092 (2.7)	4,252,199 (3.3)
American Indian or Alaska Native, non-Hispanic	504,338 (0.7)	529,432 (0.9)	1,033,771 (0.8)
Multiracial, non-Hispanic	1,109,117 (1.6)	815,571 (1.3)	1,924,688 (1.5)
Hispanic	7,932,006 (11.5)	8,493,452 (13.8)	16,425,458 (12.6)
Black, non-Hispanic	8,522,873 (12.3)	7,535,111 (12.2)	16,057,984 (12.3)
Missing	258,038 (0.37)	316,984 (0.51)	575,022 (0.44)
Violence and perpetrator type ^a			
Intimate partner, <i>n</i> (% of total victims)	55,359,611 (80.1)	55,654,616 (90.2)	111,014,227 (84.9)
Sexual violence, <i>n</i> (% of victims by perpetrator type)	19,985,325 (28.9)	8,165,314 (13.2)	28,150,639 (21.5)
Stalking, <i>n</i> (% of victims by perpetrator type)	9,417,356 (13.6)	2,072,035 (3.4)	11,489,391 (8.8)
Physical violence, <i>n</i> (% of victims by perpetrator type)	36,014,563 (52.1)	31,232,784 (50.6)	67,247,347 (51.4)
Psychological aggression, <i>n</i> (% of victims by perpetrator type)	50,604,700 (73.2)	49,636,831 (80.5)	100,241,531 (76.6)
Stranger, <i>n</i> (% of total victims)	18,905,526 (27.4)	7,702,171 (12.5)	26,607,697 (20.3)
Sexual violence, <i>n</i> (% of victims by perpetrator type)	17,589,740 (25.5)	7,295,265 (11.8)	24,885,005 (19.0)
Stalking, <i>n</i> (% of victims by perpetrator type)	2,673,952 (3.9)	627,332 (1.0)	3,301,285 (2.5)
Acquaintance, <i>n</i> (% of total victims)	25,966,476 (37.6)	14,357,307 (23.3)	40,323,783 (30.8)
Sexual violence, <i>n</i> (% of victims by perpetrator type)	23,950,913 (34.7)	13,548,224 (22.0)	37,499,137 (28.7)
Stalking, <i>n</i> (% of victims by perpetrator type)	4,692,874 (6.8)	2,075,546 (3.4)	6,768,420 (5.2)
Family member, <i>n</i> (% of total victims)	10,490,358 (15.2)	2,317,275 (3.8)	12,807,632 (9.8)
Sexual violence, <i>n</i> (% of victims by perpetrator type)	9,471,841 (13.7)	1,646,884 (2.7)	11,118,724 (8.5)
Stalking, <i>n</i> (% of victims by perpetrator type)	1,534,648 (2.2)	809,606 (1.3)	2,344,254 (1.8)
Person of authority, <i>n</i> (% of total victims)	4,343,725 (6.3)	1,701,583 (2.8)	6,045,309 (4.6)
Sexual violence, <i>n</i> (% of victims by perpetrator type)	4,054,686 (5.9)	1,549,109 (2.5)	5,603,795 (4.3)
Stalking, <i>n</i> (% of victims by perpetrator type)	389,654 (0.6)	263,051 (0.4) ^b	652,704 (0.5)

^aSome victims experienced more than one violence type per perpetrator and more than one perpetrator type.

^bSmall sample size; not a statistically reliable estimate.

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