Examining the Physical and Mental Health Consequences of Head/Brain Injury in a National Sample of Women Survivors of Intimate Partner Violence

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Building Interdisciplinary Research Careers in Women's Health

BACKGROUND

Rationale

1. Women survivors of intimate partner violence (IPV) are at increased risk of brain injury due to abuse, including traumatic brain injury due to blunt force trauma and potential hypoxic-ischemic brain injury due to nonfatal strangulation.
2. Per the 2015 National Intimate Partner and Sexual Violence Survey (NISVS), an estimated 4.9-5.1 million U.S. women have experienced head or brain injuries resulting from IPV.
3. In comparison to sport and combat-related injuries in predominantly male samples of athletes and veterans, the health and functional consequences of IPV-related head or brain injuries has been underexamined.

Objective

1. This study leveraged data derived from the U.S. population based on the 2015 NISVS (https://doi.org/10.3886/ICPSR37632.v1).
2. The study aim was to examine whether IPV-related head or brain injuries were associated with health and functioning.
   a. Health outcomes included posttraumatic stress disorder (PTSD), sleep problems, chronic pain, and headaches
   b. Functional outcomes included missed school or work due to IPV.
3. Women survivors of IPV were categorized based on injury history, including (i) women with IPV-related head or brain injuries, and comparison groups of (ii) women with no IPV-related injuries and (iii) women with IPV-related orthopedic injuries.
   a. Hypothesis: Women with IPV-related head or brain injuries would have higher rates of all health problems and greater occupational and educational disruption compared to the other groups.

METHODS

Participants

1. Participants included women respondents to the 2015 NISVS reporting IPV who were asked about injuries resulting from IPV (N=2,532).
2. Based on responses to the injury questions, women were divided into 3 groups:
   a. Women with no IPV-related injuries (n=2011, M_{age}=48.4 years, SD=17.1)
   b. Women with IPV-related orthopedic injuries (n=169, M_{age}=50.8, SD=14.5)
   c. Women with IPV-related head/brain injuries (n=352, M_{age}=47.6, SD=13.7)
3. Women in the head/brain injuries group could have orthopedic injuries, but women in the orthopedic injury group could not have head or brain injuries.

Table 1. Comparisons of health and functional outcomes by IPV-related injury group

No Injury vs. Orthopedic Injury	χ^2	p	OR	95% CI
PTSD	169.14	**<.001**	7.14	5.12, 9.95
Sleep Problems	20.54	**<.001**	2.05	1.49, 2.82
Chronic Pain	14.58	**<.001**	1.86	1.35, 2.58
Headache	11.76	**<.001**	1.80	1.28, 2.52
Ever Missed School	37.96	**<.001**	3.66	2.36, 5.68
Ever Missed Work	256.96	**<.001**	10.67	7.60, 15.00
No Injury vs. Head/Brain Injury	χ^2	p	OR	95% CI
PTSD	568.87	**<.001**	15.20	11.71, 19.72
Sleep Problems	75.40	**<.001**	2.73	2.16, 3.44
Chronic Pain	73.21	**<.001**	2.68	2.13, 3.38
Headache	54.73	**<.001**	2.43	1.91, 3.08
Ever Missed School	140.98	**<.001**	5.57	4.08, 7.59
Ever Missed Work	551.62	**<.001**	15.05	11.55, 19.60
Orthopedic Injury vs. Head/Brain Injury	χ^2	p	OR	95% CI
PTSD	15.88	**<.001**	2.13	1.46, 3.10
Sleep Problems	2.25	.134	1.33	0.92, 1.92
Chronic Pain	3.67	.055	1.44	0.99, 2.09
Headache	2.31	.129	1.35	0.92, 1.99
Ever Missed School	3.17	.075	1.52	0.96, 2.41
Ever Missed Work	3.31	.069	1.41	0.97, 2.04

Figure 1. Health outcomes by injury group.

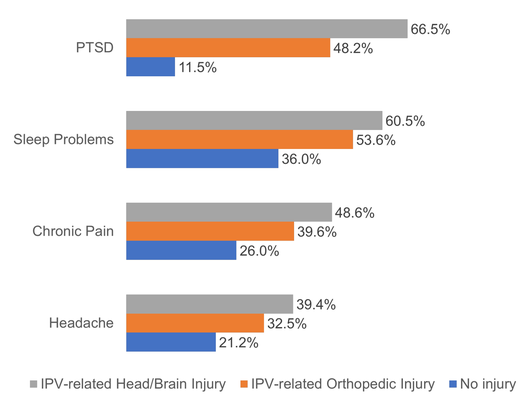
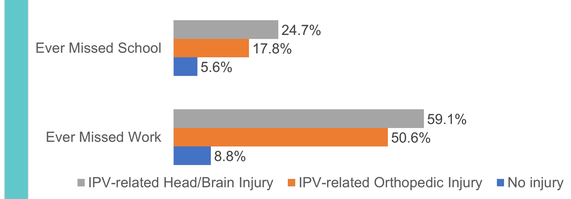


Figure 2. Functional outcomes by injury group



Materials

1. The NISVS asked about types of injuries resulting from physical or sexual abuse.
2. Orthopedic injuries included tissue injury, broken bones/teeth, and back/neck injury.
3. Head/brain injuries included women reporting "head injury" or "being knocked out after getting hit, slammed against something, or choked"

Analyses

1. Pairwise comparisons between the groups were conducted using 2x2 χ^2-tests, with p<.05 indicating significance, and an odds ratio (OR) reported as the effect size with a 95% confidence interval (CI).

RESULTS

1. The rates of PTSD, Sleep Problems, Chronic Pain, and Headache for each IPV-related injury group are presented in Figure 1.
2. The rates of missed school or work due to IPV for each group are presented in Figure 2.
3. The χ^2-test results, comparing rates of each outcome across groups, are presented in Table 1.
4. Women survivors of IPV with no prior injuries reported the lowest rates of all health conditions and missed school or work less often than women with IPV-related orthopedic or head/brain injuries (all p-values<.001)
5. Only PTSD frequency differed significantly between the orthopedic injury and head/brain injury groups (p<.001), although group differences in Chronic Pain (p=.055) and missed work (p=.069) or school (p=.075) approached significance.

CONCLUSION

1. Women with IPV-related injuries reported physical and mental health problems and disrupted occupational and educational functioning at high frequencies.
2. The majority of women with IPV-related head or brain injuries among the general U.S. population reported sleep problems, PTSD, and missed work.
3. IPV-related injuries corresponded with poorer health and functional impairment, indicating unaddressed healthcare needs among IPV survivors.

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