

Association between Intimate Partner Violence and Posttraumatic Stress Disorder: A Case-Control Study

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Abstract

Background: Intimate partner violence (IPV) against women is a common form of interpersonal violence in both developed and developing countries, and represents a forensic and public health problem. IPV is related to Post-traumatic Stress Disorder (PTSD). This relationship however, has not been investigated in Colombian population. *Objective:* To determine the strength of the association between IPV and PTSD in women referred for forensic psychiatric evaluation in Bucaramanga, Colombia. *Method:* A case-control study was designed. A total of 132 cases involving women referred for forensic psychiatric evaluation met criteria for PTSD according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). A group of 262 women without PTSD were taken as controls. First, odds ratio (OR) was computed. Logistic regression was used to control confounding variables. *Results:* A total of 76 (56.6%) in the case group reported IPV during the past year compared to 85 (32.6%) in the control group. IPV and PTSD were associated (OR=3.09, 95%CI: 1.58-6.03) after controlling for age, employment, medico-legal loss or injury, and current aggressor (partner). *Conclusions:* IPV increased the risk for PTSD three-fold among women attending forensic assessment in Bucaramanga, Colombia.

Key words: Domestic violence, post-traumatic stress disorders, forensic psychiatry, case-control studies.

Título: Asociación entre violencia doméstica por la pareja y trastorno de estrés post-traumático: un estudio de casos y controles

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Resumen

Introducción: La violencia doméstica por la pareja (VDP) contra las mujeres es un evento frecuente de violencia interpersonal en países en desarrollo y desarrollados y representa un problema médico-legal y de la salud pública. La VDP se relaciona con el trastorno de estrés postraumático (TEP); sin embargo, esta asociación no se ha investigado en Colombia. **Objetivo:** Establecer la fortaleza de la asociación entre VDP y TEP en mujeres remitidas a evaluación psiquiátrica forense en Bucaramanga, Colombia. **Método:** Se diseñó un estudio de casos y controles. Se tomaron como casos 132 mujeres que reunieron criterios para TEP, según los criterios de la Asociación Psiquiátrica Americana, y como controles a un grupo de 262 mujeres sin TEP. Primero se calculó la razón de oportunidad (OR); posteriormente, se usó la regresión logística para controlar variables confusoras. **Resultados:** Un total de 76 (56,6%) mujeres en el grupo de casos informó VDP durante el último año, comparado con 85 (32,6%) en el grupo control. La VDP se asoció significativamente con TEP (OR=3,09; IC95%: 1,58-6,03), aun después de controlar por edad, empleo, incapacidad médico-legal y pareja agresora actual. **Conclusiones:** La VDP incrementa tres veces el riesgo de TEP en mujeres que asisten a evaluación psiquiátrica forense en Bucaramanga, Colombia.

Palabras clave: violencia doméstica, trastornos por estrés postraumático, psiquiatría forense, estudio de casos y controles.

Introduction

Traumatic experiences are relatively frequent. The intimate partner violence (IPV) against women is a common exposure to interpersonal violence in developed and developing countries and represents a medico-legal and public health pro-

blem (1). A comprehensive definition of IPV includes physical, sexual, emotional and financial abuse by current or former partner (2). Last year's prevalence of IPV was around 15% among women attending American health care services (3,4), and up to 50% in several settings of other countries and cultures (5-7). We should bear in mind that the prevalence varies according to the definition of IPV used (8).

The IPV results in significant negative physiological and psychological consequences, with long-term and immediate negative health effects (9-11). IPV is associated with chronic physical symptoms and poor physical health (12-14), and significantly increases the risk of emotional distress and formal mental disorders (15-21).

The posttraumatic stress disorder (PTSD) is the most diagnosed and deteriorating mental disorder that appears after traumatic events among women (22). Physical violence is associated with a higher risk of PTSD (23). In addition, females are at a higher risk of PTSD than men (23-26). Several studies report a significant relationship between IPV and PTSD among women. They have found Odds Ratios (OR) between 2.0 and 3.0, after controlling other variables (27,28). However, the strength of this link has not been explored within any Colombian population using a case-control design study. In forensic settings, there are special considerations; people may

distort information and symptoms for many reasons, for instance, self-justification or financial gains (29). Women who report IPV are more likely to access mental health and emergency services (20,30,31) and need forensic evaluation (32). The forensic evaluation must consider physical and mental aspects of the IPV of the woman's health in order to reduce its negative impact, suggesting integral intervention (33). Moreover, Colombian and other countries' laws increase the sentence if PTSD is diagnosed as a consequence of an assault (34).

The objective of this research was to find out the strength of association between IPV and PTSD, after controlling some confounding variables, among women attending a medico-legal setting in Bucaramanga, Colombia.

Method

An un-match case-control study was carried out. The research protocol was approved by the Scientific Research Division of the Instituto Nacional de Medicina Legal y Ciencias Forenses of Colombia (INML-CF). Participants signed an informed consent form according to the Helsinki Declaration and Colombian research laws.

Participants included women older than 14 years residing in Bucaramanga, Colombia. They were referred for medico-legal clinical assessment due to personal

injuries, determining age, level of alcohol consumption, and pregnancy between April and June in 2004. A total of 599 women referred to INML-CF by judicial authorities were consecutively assessed. The Structured Interview for Axis I Diagnosis was administered to diagnose PTSD (35), according to Diagnostic and Statistical Manual for Mental Disorders DSM-IV (36). A total of 132 women met criteria for PTSD, only or with comorbidity, and were defined as cases. Then, two controls were selected by each case (n=262). Controls were participants without PTSD. Cases and controls with a same-sex partner or those who refused to participate were excluded from the study. Cases and controls were asked about any kind of violence experienced (past and current), including IPV by former or current partners. The mean age of cases was 30.6 years (SD=12.2) compared to 30.4 years (SD=12.7) in controls (t=0.181, df=394, p=0.857), and mean years of formal schooling was 8.0 years (SD=3.8) in cases versus 8.3 years (SD=4.0) in the control group (t=0.715, df=394, p=0.475). Both variables were dichotomized for the final analysis. See these categories and other characteristics of cases and control in Table 1.

For statistical analysis IPV was taken as the independent variable; PTSD as the dependent variable; and others as covariables (age, formal education, employment, last stable partner within the past year,

Table 1. Characteristics of Case and Controls

Variable	Cases n (%)	Controls n (%)	OR (95% CI)	P
Being older than 18	123 (93.2)	227 (86.0)	2.22 (1.10-4.76)	0.035
Formal schooling less than 6 years	43 (32.6)	84 (31.8)	1.25 (0.81-1.94)	0.879
Unemployed	63 (47.7)	106 (40.2)	1.36 (0.89-2.07)	0.151
Low socio-economic status	86 (65.2)	158 (59.4)	1.25 (0.81-1.94)	0.306
Stable partner (within last year)	77 (55.3)	136 (51.5)	1.17 (0.77-1.77)	0.447
Catholic	111 (84.1)	211 (79.9)	1.33 (0.76-2.31)	0.316
Medico-legal incapacity greater than 8 days	72 (54.5)	118 (44.7)	1.49 (0.98-2.26)	0.064
Current intimate partner aggressor	54 (40.9)	60 (22.7)	2.35 (1.50-3.70)	0.001

socio-economic status, religion, current intimate partner aggressor, and medico-legal incapacity greater than 8 days as an index of the severity of the assault). Unconditional logistic regression was computed to control some of the confounding covariables (variables with values of probability lower than 0.20). Odds Ratios were calculated with 95% confidence interval (95%CI). All analyses were carried out with STATA 9.0 software (37).

Results

A total of 76 (56.6%) in the case group reported IPV during the past year compared to 85 (32.6%) in the control group. The difference was statistically significant (OR=2.86, CI95% 1.86-4.40, p=0.001). All confounding variables (older than

18 years, unemployed, medico-legal incapacity greater than 8 days, and current intimate partner aggressor) were included in an unconditional regression logistic model in order to control confusion. This model is presented in Table 2. Hosmer-Lemeshow's goodness-of-fit was adequate.

Discussion

This un-match case-control study corroborates the important association between IPV and PTSD among women referred for medico-legal assessment in a developing country. In the present research, it was found that IPV increases the risk of PTSD almost three-fold. Similar findings have been reported by other investigations. O'Campo et al. observed OR of 2.3 in a sample of

Table 2. Unconditional Logistic Regression for PTSD

PTDS	OR	95% CI	p
Intimate partner violence (within the past year)	3.09	1.58-6.03	0.001
Being older than 18	1.85	0.82-4.17	0.137
Unemployed	1.52	0.95-2.38	0.079
Medico-legal disability greater than 8 days	1.42	0.92-2.20	0.115
Current intimate partner aggressor	0.82	0.40-1.68	0.588

Hosmer-Lemeshow's goodness-of-fit test, $\chi^2=3.26$; $df=8$; $p=0.917$.

relatively highly educated, middle-class working women, between 21 and 55 years old, drawn from a metropolitan area in the United States (27). And, Fedovsky et al. reported OR of 3.0 in Spanish-speaking women, aged between 18 and 64 years, attending a primary care clinic in a large, urban, public hospital in the US (28). However, Yoshihama & Horrocks did not find a statistically significant association between IPV and PTSD, OR of 2.1 and 95%CI 0.87-5.5, in a community-based random sample of 211 women, between 18 and 49 years of age, of Japanese descent born in the United States or Japan (7). The lack of association was probably due to the relatively small sample size used in the study.

The PTSD is a complex mental disorder associated with many important negative experiences, both past and present. Clinical presentation of PTSD needs interaction between constitutional and environmental factors, not well understood yet (38). The IPV is highly prevalent

in the community of developed and developing countries (3-7,39,40); and it is a common factor for PTSD in women around the world (22,23). Often, female victims of IPV report the assaults to legal authorities and are referred for medico-legal, physical and psychiatric assessment. Forensic psychiatrists must evaluate these women without any bias (29). As it was expected, an important number of these women met full criteria for PTSD (22). In consequence, IPV represents an epidemic public health concern that predominantly affects women and contributes to the burden of PTSD in females (38). Forensic psychiatrists have to refer any women victim of IPV to mental health services. Lipsky & Caetano reported that women who experienced IPV were at increased risk of not receiving mental health care (41).

This is the first case-control study demonstrating the relationship between IPV and PTSD in a forensic setting. However, it has some limitations with regards to its design and population. PTSD is

a mental disorder associated with multiple factors and direction of causality cannot be determined. All participants were women, and it is possible that these correlations do not exist among men. In addition, medico-legal assessment could be affected by other issues, such as simulations by women who making false claims for compensation from male aggressors.

It concludes that IPV increases the risk for PTSD three-fold among women attending medico-legal assessment in Bucaramanga, Colombia. More complex design researches need to be developed in order to establish the exact strength of the relation between IPV and PTSD.

Acknowledgments

We would like to thank to Miss Catrina Morley, English teacher at the University of Magdalena, Santa Marta, Colombia, for her assistance with the editing of this article.

References

1. Schafer J, Caetano R, Clark CC. Rates of intimate partner violence in the United States. *Am J Public Health.* 1998;88(11):1702-4.
2. Eisenstat SA, Bancroft L. Domestic violence. *N Engl J Med.* 1999;341(12):886-92.
3. Richardson J, Coid J, Petruckevitch A, Chung WS, Moorey S, Feder G. Identifying domestic violence: Cross sectional study in primary care. *BMJ.* 2002;324(7332):274
4. McCloskey LA, Lichter E, Ganz ML, Williams CM, Gerber MR, Sege R, et al. Intimate partner violence and patients screening across medical specialties. *Acad Med.* 2005;12(8): 712-22.
5. Díaz-Olavarieta C, Ellertson C, Paz F, Ponce de Leon S, Alarcon-Segovia D. Prevalence of battering among 1780 out patients at an internal medicine institution in Mexico. *Soc Sci Med.* 2002;55(9):1589-602.
6. Jewkes R, Levin J, Penn-Kekana L. Risk factors for domestic violence: findings from a South African cross-sectional study. *Soc Sci Med.* 2002;55(9):1603-17.
7. Yoshihama M, Horrocks J. The relationship between intimate partner violence and PTSD: an application of Cox regression with time-varying covariates. *J Trauma Stress.* 2003;16(4): 371-80.
8. Hegarty K, Roberts G. How common is domestic violence against women? The definition of partner abuse in prevalence studies. *Austr N Z J Public Health.* 1998;22(1):49-54.
9. García-Linares MI, Sánchez-Llorente S, Coe CL, Martínez M. Intimate male partner violence impairs immune control over herpes simplex virus type 1 in physically and psychological abused women. *Psychosomatics.* 2004;66(4):965-72.
10. Pico-Alfonso MA, García-Linares MI, Celda-Navarro N, Herbert J, Martínez M. Changes in cortisol and dehydroepiandrosterone in women victims of physical and psychological intimate partner violence. *Biol Psychiatry.* 2004;56(4):233-40.
11. Woods AB, Page GG, O'Campo P, Pugh LC, Ford D, Campbell JC. The mediation effect of posttraumatic stress disorder symptoms on the relationship of intimate partner violence and IFN-gamma levels. *Am J Community Psychol.* 2005;36(1-2):159-75.
12. Kimerling R, Clum GA, Wolfe J. Relationships among trauma exposure, chronic posttraumatic stress disorder symptoms, and self-reported health in women: replication and extension. *J Trauma Stress.* 2000;13(1):115-28.
13. Campbell J, Jones AS, Dienamann J, Kub J, Schollenberg J, O'Campo P, et al. Intimate partner violence and physical health consequences. *Arch Intern Med.* 2002;162(10):1157-63.

14. Nicolaidis C, Curry MA, McFarland B, Gerrity M. Violence, mental health, and physical symptoms in an academic internal medicine practice. *J Gen Intern Med.* 2004;19(8):819-27.
15. Chilcoat HD, Breslau N. Posttraumatic stress disorder and drug disorders. Testing causal pathways. *Arch Gen Psychiatry.* 1998;55(10):913-7.
16. Ellsberg M, Caldera T, Herrera A, Winkvist A, Kullgren G. Domestic violence and emotional distress among Nicaraguan women. *Am Psychol.* 1999;54(1):30-6.
17. Houry D, Kemball R, Rhodes KV, Kaslow NJ. Intimate partner violence and mental health symptoms in African American female ED patients. *Am J Emerg Med.* 2006;24(4):444-50.
18. Kilpatrick DG, Ruggiero KJ, Acierno R, Saunders BE, Resnick HS, Best CL. Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the National Survey of Adolescents. *J Consul Clin Psychol.* 2003;71(4):692-700.
19. Smith MV, Rosenheck RA, Cavalari MA, Howell HB, Poschman K, Yonkers KA. Screening for and detection of depression, panic disorder, and PTSD in public-sector obstetric clinics. *Psychiatr Serv.* 2004;55(4):407-14.
20. Roche M, Moracco KE, Dixon KS, Stern EA, Bowling JM. Correlates of intimate partner violence among female patients at North Carolina emergency department. *N C Med J.* 2007; 68(2):89-94.
21. Wathen CN, Jamieson E, Wilson M, Daly M, Worster A, MacMillan HL, et al. Risk indicators to identify intimate partner violence in the emergency department. *Open Med.* 2007;1(2):e113-22.
22. Golding JM. Intimate partner violence as a risk factor for mental disorders—a meta-analysis. *J Fam Violence.* 1999;14(2):99-132.
23. Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, Andreswki P. Trauma and posttraumatic stress disorder in the community. The 1996 Detroit Area Survey of Trauma. *Arch Gen Psychiatry.* 1998;55(7):626-32.
24. Brewin CA, Andrews B, Valentine JD. Meta-analysis of risk factors for post-traumatic stress disorder in trauma-exposed adults. *J Consult Clin Psychol.* 2000;68(5):748-66.
25. Perkonig A, Kessler RA, Storz S, Wittchen H-U. Traumatic events and post-traumatic events and post-traumatic stress disorder in the community: prevalence, risk factors and comorbidity. *Acta Psychiatr Scand.* 2000;101(1):46-59.
26. Elklit A. Victimization and PTSD in a Danish national probability sample. *J Am Acad Child Adolesc Psychiatry.* 2002;41(2):174-81.
27. O'Campo P, Kub J, Woods A, Garza M, Jones AS, Gielen AC, et al. Depression, PTSD, and Comorbidity related to intimate partner violence in civilian and military women. *Brief Treat Crisis Interv.* 2006;6(2):99-110.
28. Fedovsky K, Higgins S, Paranjape A. Intimate partner violence: how does it impact major depressive disorder and post traumatic stress disorder among immigrant Latinas? *J Immigr Minor Health.* 2008;10(1):45-51.
29. Tennant C. Assessing stressful life events in relation to liability and compensation. *Aust N Z J Psychiatry.* 2001;35(1):81-5.
30. Ulrich YC, Cain KC, Sugg NK, Rivara FP, Rubanowice DM, Thompson RS. Medical care utilization patterns in women with diagnosed domestic violence. *Am J Prev Med.* 2003;24(1):9-15.
31. Thurston WE, Patten S, Lagendyk, LE. Prevalence of violence against women reported in a rural health region. *Can J Rural Med.* 2006;11(4):259-67.
32. Balci YG, Ayranci U. Physical violence against women: evaluation of women assaulted by spouses. *J Clin Forensic Med.* 2005;12(5):258-63.
33. Logan TK, Shannon L, Walker R. Police attitudes toward domestic violence offenders. *J Interpers Violence.* 2006;21(10):1365-74.
34. Congreso de Colombia. Ley 599 por la que se expide el Código Penal. Bogotá: Unión; 2002.
35. First MB, Spitzer RL, Gibbon M, Williams JBW. Structured clinical

- interview for DSM-IV axis I diagnosis disorders (clinical version). Washington: American Psychiatric Association; 1994.
36. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th Ed. Washington; 1994.
37. STATA 9.0 for Windows. College Station: Stata Corporation; 2005.
38. Nemeroff CB, Bremner DJ, Foa EB, Mayberg HS, North CS, Stein MB. Posttraumatic stress disorder: A state-of-the-science review. *J Psychiatr Res.* 2006;40(1):1-21.
39. Fikree FF, Bhatti LI. Domestic violence and health of Pakistani women. *Int J Gynecol Obstetr.* 1999;65(2):195-201.
40. Stein MB, Kennedy C. Major depressive and post-traumatic stress disorder comorbidity in female victims of intimate partner violence. *J Affect Disord.* 2001;66(2-3):133-8.
41. Lipsky S, Caetano R. Impact of intimate partner violence on unmet need for mental health care: Results from NSDUH. *Psychiatr Serv.* 2007;58(6):822-9.

Conflicto de interés: los autores manifiestan que no tienen ningún conflicto de interés en este artículo.

*Recibido para evaluación: 4 de junio del 2009
Aceptado para publicación: 10 de diciembre del 2009*

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