

Is Firearm Threat in Intimate Relationships Associated with Posttraumatic Stress Disorder Symptoms Among Women?

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Abstract

In the context of intimate partner violence (IPV), firearms may be used to threaten, coerce, and intimidate. Yet, what little research exists on firearms among IPV victims has focused almost exclusively on homicide or near homicide. Thus, the deleterious health consequences of firearms more broadly remain unknown. The goals of the current study were (1) to document the prevalence of firearm threat in a community sample of female IPV victims, and (2) to identify the extent to which threat with a firearm, independent of other forms of IPV, is related to women's posttraumatic stress disorder (PTSD) symptom severity. Participants were 298 women who had been a victim in a criminal domestic violence case with a male intimate partner ($M_{age} = 36.39$ years; 50.0% African American; 51.3% unemployed). Retrospective data on firearm threat, fear of firearm violence, other IPV victimization (i.e., physical, psychological, and sexual), and PTSD symptoms were collected during in-person individual interviews. Approximately one-quarter of the sample (24.2%) experienced threat with a firearm during the course of their relationship, and 12.5% were afraid that their partners would use a firearm against them in the 30 days prior to the study interview. Firearm threat and fear of firearm violence emerged as significant and unique predictors of PTSD symptom severity, controlling for age and physical, psychological, and sexual IPV victimization severity. The findings underscore firearm threat as a key factor for identifying and intervening with criminal justice involved women who experience IPV.

Keywords: domestic violence, intimate partner violence, firearms, women, victims, posttraumatic stress disorder

Introduction

INTIMATE PARTNER VIOLENCE (IPV) is associated with a wide range of negative outcomes among women (Beydoun et al. 2012; Coker et al. 2002; Trevillion et al. 2012; Weiss, Dixon-Gordon, et al. in press). The most extreme outcome of IPV is death, with firearms being the leading cause (Violence Policy Center 2013). In the context of IPV, firearms also may be used to threaten, coerce, and intimidate (Sorenson and Wiebe 2004; Tolman and Rosen 2001). Nearly 25% of domestic violence incidents reported to police involved a male offender armed with a weapon (U.S. Department of Justice 2013). Moreover, partners of nearly two-thirds of women who experience IPV with a firearm in the home used the firearm to threaten, scare, or otherwise harm her (Sorenson and Wiebe 2004), with <1% of such assaults involving a firearm resulting in death (Sorenson 2006). Yet, firearm threat among IPV-victimized women has been grossly understudied. What little research exists on the topic has focused on homicide or near homicide (Bailey et al. 1997; Campbell et al. 2003; Saltzman et al. 1992).

One potential health consequence of firearm threat is posttraumatic stress disorder (PTSD). PTSD is highly

prevalent among women who experience IPV, with rates varying from 31% to 84% and with a mean prevalence of 12 times the national average (Golding 1999). Moreover, PTSD has been linked to harmful outcomes among IPV-victimized women, including physical and psychiatric comorbidity and risky health behaviors (Ashare et al. 2011; Cavanaugh et al. 2010; Dutton et al. 2006; Sullivan and Holt 2008; Weiss et al. 2015). Though the authors are not aware of any research that has linked firearm threat to PTSD among IPV-victimized women, there is some evidence that IPV, which may include threatening behavior (a form of psychological abuse), is related to a greater severity of PTSD symptoms in women (Sullivan et al. 2009; Weiss, Dixon-Gordon, et al. in press). Moreover, the use of a weapon, in particular in the context of IPV, is positively associated with PTSD symptoms (Dutton 2003a, 2003b). Although preliminary, these findings highlight firearm threat as a potential contributor to PTSD.

Therefore, the purpose of this study was to extend prior research by elucidating the role of firearm threat in intimate relationships in IPV-victimized women's PTSD symptom severity. Specifically, the study sought to (1) describe the prevalence of firearm access, threat, and fear; and (2) determine the

extent to which firearm threat, independent of other forms of IPV, is related to PTSD symptom severity. Of note, in the context of IPV, firearms may be used to threaten, coerce, and intimidate (Sorenson and Wiebe 2004; Tolman and Rosen 2001), which raises the empirical question of whether firearm threat be subsumed under other forms IPV, generally speaking, or whether it is a distinct form that exerts a unique influence. Therefore, further goals of this study were to determine if firearm threat (1) is distinct from other forms of IPV, or (2) exerts a unique influence above and beyond other IPV victimization on PTSD symptom severity.

Method

Participants and procedures

Data were collected as part of a larger study examining the influence on women of criminal orders of protection issued by the criminal justice system in an IPV case. All procedures were reviewed and approved by the authors' Institutional Review Board. Women were recruited from two courthouses. They were eligible to participate if (1) they were a victim in a criminal domestic violence case with a male intimate partner, (2) their offender was arraigned approximately 12–15 months prior to study recruitment, and (3) they spoke English or Spanish. Eligibility criteria were determined via records from the Family Violence Victim Advocates Office or the State of Connecticut Judicial Branch.

Potential participants were sent a letter by the study team inviting them to participate in a confidential two-hour study. Interested participants were asked to call the study phone line in response to the mailed letter. Research assistants followed up on the recruitment letter with a phone call to those who did not respond either because the letter was returned or a call back was not received. Eligible participants were scheduled to participate in an interview if interested.

After providing written informed consent, face-to-face individual interviews were administered in private offices to protect participants' safety and confidentiality. Participants were remunerated \$50 for their participation and provided with a list of community resources. Additionally, victims were offered an opportunity to develop a detailed, individualized safety plan.

Participants were 298 women whose age ranged from 18 to 75 years ($M=36.39$ years, $SD=11.38$ years). In terms of racial/ethnic background, 149 (50.0%) participants self-identified as African American, 86 (28.9%) as white, 42 (14.1%) as Latina, and 21 (7.0%) as another or multiple racial/ethnic backgrounds. Many women were unemployed for more than a month prior to the study (132; 44.3%). Women's monthly household income ranged from \$0 to \$6,400 ($M=\$1,518.98$; $SD=\$1,174.30$), and their mean level of education was 12.73 years ($SD=2.06$). At the time of the study interview (i.e., 12–15 months after the arraignment), most of the women (221; 74.2%) were not dating the offending partner. The mean number of years in a relationship with the offending partner was 5.83 (range <1 month–55 years; $SD=5.97$ years).

Measures

Firearm access, threat, and fear. For the purpose of the current study, questions were developed to assess (1) part-

ners' firearm access, (2) women's experiences of being threatened with a firearm by their partners in the context of an intimate relationship, and (3) women's fear of such threat. The following two items were used in the current study: (1) firearm threat, operationalized by "How many times has your partner threatened to use a gun on you throughout your entire relationship?" with the response options of "never," "one time," "2–3 times," "many times," "often"; and (2) fear of firearm violence, operationalized by "In the last 30 days, how afraid were you that your partner would use a gun against you?" with the response options of "not afraid," "a little bit afraid," "somewhat afraid," and "very afraid." Table 1 shows the items, response options, and descriptive statistics.

Physical victimization. Physical victimization was measured by the Revised Conflict Tactics Scale (CTS-2) (Straus et al. 2003). Participants reported the frequency of physical victimization types during the past 30 days. Cronbach's alpha was 0.79 for the 12 CTS-2 items.

Psychological victimization. Psychological victimization was measured by the Psychological Maltreatment of Women—Short Version (PMWI-S) (Tolman 1999). Using a five-point Likert-type scale (where 1 = "never" and 5 = very frequently), participants rated the extent to which each item applies to them during the past 30 days. Cronbach's alpha was 0.94 for the 14 PMWI-S items.

TABLE 1. ITEMS ASSESSING FIREARM ACCESS AND THREAT

<i>Firearm access and threat items</i>	<i>n (%) endorsed</i>
During your relationship, has your partner ever had a gun? (yes)	58 (21.2%)
Where does your partner keep his gun? ^a	
His place	19 (35.2%)
Your place	1 (1.9%)
The place you live together	16 (29.6%)
The car	10 (18.5%)
Other	20 (37.0%)
Does/did your partner bring a gun into your house or where you live? ^a	35 (12.9%)
You said that your partner does/did not own a gun. How easy do you think it would be for him (or would have been for him) to get access to a gun if he wanted to? ^b	
Very easy	77 (37.0%)
Easy	19 (9.1%)
Neutral	32 (15.4%)
Difficult	21 (10.1%)
Very difficult	59 (28.4%)
Has your partner ever threatened you with a gun or threatened to use a gun against you?	60 (24.2%)
In the last 30 days, how afraid were you that your partner would use a gun against you?	
Not afraid	239 (87.5%)
A little bit afraid	17 (6.2%)
Somewhat afraid	11 (4.0%)
Very afraid	6 (2.2%)

^aExamined among women whose partner had a gun at some point during their relationship.

^bExamined among women whose partner never had a gun during their relationship.

Sexual victimization. Sexual victimization was measured by the Sexual Experiences Survey (SES) (Koss and Oros 1982). The original SES response options are yes/no. To gain greater knowledge about the frequency of experiences in the past 30 days, the response options and scoring system from the CTS-2 were used. Cronbach’s alpha was 0.83 for the 10 SES items.

PTSD symptom severity. PTSD symptom severity for the past 30 days was measured with the Posttraumatic Stress Diagnostic Scale (PDS) (Foa et al. 1997). Items assess the severity of DSM-IV PTSD symptoms in relation to victimization in an intimate relationship (American Psychiatric Association, 1994). Responses were rated on a scale from 0 = “not at all or only one time” to 3 = “five or more times a week/almost always.” Cronbach’s alpha was 0.92 for the 17 PDS items.

Demographic and relationship characteristics. All participants reported demographic (i.e., age, race/ethnicity, income, education, and employment) and relationship (i.e., relationship status, relationship duration, and living with partner) characteristics.

Data analysis

Descriptive data for the primary study variables are presented. To identify covariates, Pearson’s product–moment correlations and analyses of variance were calculated to explore the impact of demographic variables and relationship characteristics on firearm threat and PTSD symptom severity. Correlations among the study variables were then conducted to determine if firearm threat is (1) distinct from other forms of IPV and (2) related to PTSD symptom severity. Two hierarchal regression analyses were then calculated to explore the primary question of whether firearm threat and fear of firearm violence are uniquely related to PTSD symptom severity above and beyond identified covariates and physical, psychological, and sexual IPV victimization severity.

Results

During the 30 days prior to the study interview, 203 (68%) women reported being victimized by psychological IPV, 34 (11.4%) women reported being victimized by physical IPV, and 29 (9.7%) women reported being victimized by sexual IPV. Sixty (24.2%) women reported being threatened with a firearm by the offending partner at some point in their rela-

tionship, and 12.5% were afraid that their partner would use a firearm against them in the 30 days prior to the study interview. Nearly one-quarter (74; 24.8%) of the women met DSM-IV diagnostic criteria for current PTSD during the 30 days prior to the study interview (American Psychiatric Association, 1994), with PTSD symptom severity scores ranging from 0 to 48 ($M=12.66$; $SD=11.57$).

Analyses examined the relations of demographic variables and relationship characteristics to firearm threat items and PTSD symptom severity. Results revealed a significant relation between age and firearm threat ($r=-0.14$; $p=0.02$), such that younger women reported greater firearm threat in their relationships. Moreover, both relationship ($F[1, 271]=10.13$; $p=0.002$) and cohabitation ($F[1, 271]=6.32$; $p=0.01$) status were significantly associated with fear of firearm violence, such that women were more likely to report fear of firearm violence if they were currently in a relationship with or living with the offending partner 12–15 months after the arraignment. Whereas PTSD symptom severity was significantly positively correlated with age ($r=0.16$; $p=0.01$), it was not significantly related to relationship ($F[1, 294]=3.87$; $p=0.05$) or cohabitation ($F[1, 294]=3.13$; $p=0.08$) status. As such, only age was included as a covariate.

Means and standard deviations of all study variables, as well as their zero-order and partial correlations, are presented in Table 2. Firearm threat and fear of firearm violence were significantly positively associated. Regarding the associations of firearm threat and fear of firearm violence to other IPV victimization, a small but significant positive correlation was found between firearm threat and fear of firearm violence and physical victimization severity. A significant positive correlation was also found between fear of firearm violence and sexual victimization severity. Regarding the relations between firearm threat and fear of firearm violence and PTSD symptom severity, greater firearm threat and fear of firearm violence significantly predicted greater PTSD symptom severity. These findings remained the same in strength and direction when controlling for age.

The first hierarchal regression analysis examined the potentially unique effect of frequency of firearm threat to PTSD symptom severity above and beyond age and physical, psychological, and sexual IPV victimization severity (see Table 3). Age and physical, psychological, and sexual IPV victimization severity were entered into the first step of the model and accounted for 5% of the variance in PTSD symptom severity ($F[4, 267]=3.71$; $p=0.01$). Only age was significantly related to PTSD symptom severity. The inclusion

TABLE 2. DESCRIPTIVE DATA AND INTERCORRELATIONS AMONG THE PRIMARY STUDY VARIABLES

	M	SD	1	2	3	4	5	6
1. Firearm threat	0.46	0.97	—	0.33***	0.13*	0.02	0.05	0.22**
2. Fear of firearm violence	0.21	0.62	0.34***	—	0.13*	0.01	0.23***	0.34***
3. Physical IPV victimization	0.55	2.24	0.12*	0.13*	—	0.41***	0.39***	0.13*
4. Psychological IPV victimization	18.05	17.20	0.03	0.01	0.43***	—	0.38***	0.20***
5. Sexual IPV victimization	1.16	6.23	0.05	0.23***	0.41***	0.37***	—	14*
6. PTSD symptom severity	12.66	11.57	0.25***	0.34***	0.13*	0.17**	0.11	—

Zero-order correlations appear above the diagonal and partial correlations controlling for age appear below the diagonal.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

IPV, intimate partner violence; PSTD, posttraumatic stress disorder.

TABLE 3. REGRESSION ANALYSIS EXAMINING THE POTENTIALLY UNIQUE ROLE OF FIREARM THREAT IN PREDICTING PTSD SYMPTOM SEVERITY ABOVE AND BEYOND AGE AND PHYSICAL, PSYCHOLOGICAL, AND SEXUAL VICTIMIZATION SEVERITY

	B	SE	t	Semi-partial r	R ²	F
Step 1					0.05	3.71**
Age	0.14	0.06	2.30*	0.14		
Physical IPV victimization	0.30	0.34	0.88	0.05		
Psychological IPV victimization	0.09	0.05	1.87	0.11		
Sexual IPV victimization	0.07	0.13	0.57	0.04		
Step 2					0.11	6.49***
Age	0.17	0.06	2.89**	0.17		
Physical IPV victimization	0.15	0.34	0.44	0.03		
Psychological IPV victimization	0.09	0.05	2.03*	0.12		
Sexual IPV victimization	0.07	0.12	0.54	0.03		
Firearm threat	2.89	0.71	4.09***	0.24		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

of frequency of firearm threat in the final step significantly improved the model ($\Delta F[1, 266] = 16.71$; $p < 0.001$; $\Delta R^2 = 0.06$). Greater frequency of firearm threat significantly predicted greater PTSD symptom severity, as did older age and greater psychological IPV victimization severity.

The second hierarchical regression analysis examined the potentially unique effect of fear of firearm violence to PTSD symptom severity above and beyond age and physical, psychological, and sexual IPV victimization severity (see Table 4). Age and physical, psychological, and sexual victimization severity were entered into the first step of the model and accounted for 5% of the variance in PTSD symptom severity ($F[4, 266] = 3.79$; $p = 0.01$); only age was significantly related to PTSD symptom severity. The inclusion of fear of firearm violence in the final step significantly improved the model ($\Delta F[1, 265] = 34.44$; $p < 0.001$; $\Delta R^2 = 0.11$). Greater fear of firearm violence significantly predicted greater PTSD symptom severity, as did older age and greater psychological IPV victimization severity.

Discussion

This is among the first studies to examine threat with a firearm among a sample of IPV-victimized women. Descriptive findings with these data reveal new information regarding firearm access, threat, and fear. Nearly one-fifth of

women reported that their partners had a gun during the course of their relationship. Among those whose partners did not have a gun, almost half reported that their partners could easily get access to a gun if they so desired. The accessibility of firearms among abusive partners certainly has implications for threat experiences and related fear. Regarding firearm threat and fear of firearm violence, the data show that nearly one-quarter of women experienced firearm threat by their partner during their relationship, and nearly one-eighth were afraid that their partner would use a firearm against them in the prior 30 days. These findings suggest that firearm threat and fear are highly prevalent among IPV-victimized women.

Importantly, this is the first study to address the empirical question of whether firearm threat exerts unique influence on PTSD symptom severity. Results indicate that firearm threat and fear of firearm violence were significant and unique predictors of PTSD symptom severity above and beyond age and other IPV victimization. These findings have important implications for providers who serve women involved with the criminal justice system who have experienced IPV. First, they suggest that women who are at risk for firearm threat and violence as well as PTSD may be better identified by assessing firearm access, threat, and fear. As such, there is a need for the development of comprehensive, well-validated measures to assess these constructs fully. Such measures could

TABLE 4. REGRESSION ANALYSIS EXAMINING THE POTENTIALLY UNIQUE ROLE OF FEAR OF FIREARM VIOLENCE IN PREDICTING PTSD SYMPTOM SEVERITY ABOVE AND BEYOND AGE AND PHYSICAL, PSYCHOLOGICAL, AND SEXUAL VICTIMIZATION SEVERITY

	B	SE	t	Semi-partial r	R ²	F
Step 1					0.05	3.79**
Age	0.14	0.06	2.33*	0.14		
Physical IPV victimization	0.30	0.35	0.87	0.05		
Psychological IPV victimization	0.09	0.05	1.91	0.12		
Sexual IPV victimization	0.07	0.13	0.56	0.03		
Step 2					0.16	10.30***
Age	0.13	0.06	2.35*	0.14		
Physical IPV victimization	0.17	0.33	0.52	0.03		
Psychological IPV victimization	0.11	0.04	2.58*	0.16		
Sexual IPV victimization	-0.08	0.12	-0.66	-0.04		
Fear of firearm violence	6.42	1.09	5.87***	0.34		

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

allow for examination of the nature (e.g., verbal threat, physical threat) and context of the threat, as well as the experience of threat itself and its outcomes.

The results also underscore the potential utility of targeting firearm threat in prevention and intervention efforts aimed at reducing PTSD among women involved with the criminal justice system who experience IPV. For instance, psychoeducation on the impact of firearm threat and fear on PTSD may be provided to these women. In addition, providers may help women develop safety plans that explicitly address firearm threat. Finally, given that IPV is often chronic, with upwards of 93% of women reporting revictimization by their partners (Cattaneo and Goodman 2005), it may be important to teach IPV-victimimized women skills to reduce their risk for PTSD in the event of firearm threat, particularly given evidence here for high prevalence rates of firearm access, threat, and fear in this population. For example, women involved with the criminal justice system who remain in violent relationships may reduce their risk for PTSD by utilizing specific coping strategies, such as greater social support and problem solving coping and less avoidance coping (Weiss, Johnson, et al. in press).

Of note, it warrants mention that older age and greater psychological victimization severity also predicted greater PTSD symptom severity. In other populations, younger age is a well-established risk factor for PTSD (Brewin et al. 2000). It is not entirely surprising that older age was related to greater severity of PTSD symptoms in a sample of IPV-victimimized women. Most women in this study reported being with their partner for a long period of time, and many IPV-victimimized women report revictimization by their partners (Cattaneo and Goodman 2005), as well as experiencing victimization across multiple relationships (Young-Wolff et al. 2013). Thus, older women likely experience more frequent and severe victimization, and prior research indicates that trauma severity is a key predictor of PTSD (Brewin et al. 2000; Clemmons et al. 2007). Regarding the finding for psychological IPV severity, this is consistent with previous investigations, which have found psychological IPV severity to be a stronger predictor of PTSD than other forms of IPV victimization (Dutton et al. 1999; Street and Arias 2001; Sullivan et al. 2005).

Also worthy of mention, results suggest that experiences of being threatened by a firearm and fear of firearm violence are unique forms of IPV and therefore warrant specific attention in future research. Specifically, though firearm threat and fear of firearm violence were related to physical and/or sexual IPV victimization severity, these associations were small to moderate in strength, suggesting that these experiences are distinct. Though conceptually firearm threat and fear of firearm violence overlap with psychological victimization (given the elements of threat, coercion, and instilling fear), it seems that they are unique constructs, as demonstrated by their non-significant correlations. These findings underscore the utility of developing separate firearm threat measures and administering them along with traditional IPV measures.

This study has limitations worthy of mention. First and foremost, the cross-sectional and correlational nature of the data precludes determination of the precise nature and direction of the relations examined here. Second, this study relied exclusively on women's self-reports, which may be influenced by their willingness and ability to report accu-

ately. Third, the measure of PTSD used in the present study was based on the DSM-IV classification of PTSD (American Psychiatric Association, 1994). Fourth, the data collected were among a sample that largely resided in an urban area; this likely influences access to firearms (Gahman 2015). Fifth, to participate in this study, women had to have enough autonomy to complete a phone screen and attend a two-hour interview at a research office in the community. Finally, although the focus on IPV-victimimized women involved in the criminal justice system may be considered a strength of this study, the findings cannot be assumed to generalize to other IPV populations. Despite these limitations, study findings revealed that firearm access, threat, and fear are prevalent among IPV-victimimized women involved with the criminal justice system and predicted PTSD symptom severity. This information strongly supports that resources be devoted to future research on health outcomes of firearm threat beyond homicide.

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