Suicide and Additional Homicides Associated with Intimate Partner Homicide: North Carolina 2004–2013

Sierra Smucker · Rose E. Kerber · Philip J. Cook

Published online: 18 April 2018
© The New York Academy of Medicine 2018

Abstract Intimate partner homicide (IPH) is a critical public health and safety issue in the USA. In this study, we determine the prevalence and correlates of perpetrator suicide and additional homicides following intimate partner homicide (IPH) in a large, diverse state with high quality data. We extract IPHs from the North Carolina Violent Death Reporting System for 2004–2013 and identify suicides and other homicides that were part of the same incidents. We analyze the likelihood (in odds ratio form) of perpetrator suicide and additional homicides using logistic regression analysis. Almost all IPH-suicide cases were by men with guns (86.6%). Almost one-half of IPHs committed by men with guns ended with suicide. Male-perpetrated IPH incidents averaged 1.58 deaths if a gun was used, and 1.14 deaths otherwise. It is well-known that gun access increases the chance that a violent domestic relationship will end in death. The current findings demonstrate that gun IPH is often coupled with additional killings. As suicidal batterers will not be deterred from IPH by threat of punishment, the results underline the importance of preemption by limiting batterers' access to guns.

Keywords Intimate partner homicide · Domestic violence · Homicide · Suicide · Firearms · Violence against women · Crime policy · Homicide suicide

Introduction

Intimate partner homicide (IPH) is a critical public health and safety issue in the USA. The great majority of IPH cases involve female victims and male perpetrators [1]. Furthermore, IPH accounts for a substantial proportion of female homicide victimization [2, 3]. The threat of IPH to public safety is amplified by the fact that IPH is often coupled with killing one or more additional victims, and with the perpetrator's suicide [4–6]. These additional deaths are concentrated in IPHs committed by white men with guns [7]. Male domestic batterers wielding guns is also a characteristic of mass homicides. One analysis found that from 2009 to 2016, 54% of mass homicides (defined as four or more individuals killed in one incident) [8] were related to domestic or family violence, and all were committed with guns [9].

It is well-known that the risk of IPH is elevated by abusers' access to firearms [10]. (Note that in what follows, we use the words “gun” and “firearm” interchangeably.) More than half of all women killed by intimate partners between 2001 and 2012 were killed with guns [11]. Previous research finds an association between firearms in the home and the risk of violent death [10, 12, 13]. Intimate partner violence that involves a firearm is 12 times more likely to result in death than incidents that do not involve a firearm [14].

Federal law and some state laws seek to prevent domestic abusers from buying or possessing guns, and to deter misuse of guns [15, 16]. Research suggests that such laws reduce intimate partner homicides overall, but

S. Smucker (✉) · R. E. Kerber · P. J. Cook
The Sanford School of Public Policy at Duke University, Durham, NC, USA
e-mail: sierrasmucker@gmail.com

no studies have evaluated their effects on the incidence of IPH followed by the suicide of the perpetrator (hereafter referred to as “IPH-suicide”) [16, 17]. However, existing evidence suggests that IPH-suicides make up a large portion of IPHs. A history of intimate partner violence is a key risk factor for perpetrator suicide following IPH [5, 18]. A recent analysis found 90% of IPH-suicides were committed with a firearm [5]. The prevalence of suicide in IPH is a particularly important consideration in the development of domestic violence and firearm policies because suicidal batterers will not be deterred from IPH by threat of punishment.

Also, important in the consideration of weapon type in IPH is the possibility of additional homicide victims, such as family members and friends [4, 19]. Such victims swelled the homicide victim count by 20%, according to one recent study [4]. These additional victims are for the most part (70%) killed with a gun. Male perpetrators predominated in IPH-suicide deaths and multiple death incidents.

In this analysis, we build on existing research in two ways. First, we utilize a relatively new and high quality source of homicide data: The Violent Death Reporting System (VDRS). Research on IPH-suicide and IPH with multiple victims has been handicapped by limitations in conventional data sources such as the Uniform Crime Reports and the Federal Supplementary Homicide Reports. Because these data sets do not include suicide or a means for linking homicides, scholars have relied on relatively small hand-collected data sets from medical examiner files [6, 20, 21]. However, the VDRS links all violent deaths occurring in the same incident. Our analysis advances the literature by testing established findings about IPH using comprehensive data for a large jurisdiction.

Second, our analysis focuses specifically on IPH and related suicides and additional homicide victims. While scholars have used the VDRS to study homicide-suicides [22] and IPH [4], the current study is the first to examine overlap between these two types of violent death or the role of firearms in both. In doing so, our results speak specifically to the importance of deterrence-based firearm regulation for preventing IPHs.

Methods

The National Violent Death Reporting System is a state-based active surveillance system that collects data on homicides, suicides, legal intervention deaths,

unintentional firearm deaths, and deaths of undetermined intent. Data for this study come from the North Carolina Violent Death Reporting System (NC-VDRS) and include all homicides over a 10-year period (2004–2013) in the state. The NC-VDRS database is a relational, incident-based system that includes extensive secondary data from the Vital Records, the Office of the Chief Medical Examiner, State Bureau of Investigation, local law enforcement, and crime laboratories on every reported incident of fatal violence in North Carolina since January 1, 2004. Abstractors coded data manually or electronically extracted the data from different types of records (e.g., death certificate files, medical examiner records).

Death Certificate and Medical Examiner data in the NC-VDRS are public records. In contrast, data from law enforcement investigations, and type of weapon recorded on crime laboratory reports, are not public records. Our team began its work in 2016 and finished it in 2017. All necessary requirements for using these data were met. We received approval from Duke University IRB in 2016, and the application was renewed in 2017 and 2018 (IRB Protocol no. D0836). We also received approval from the North Carolina Department of Health. This project did not draw on external funding sources.

In the current analysis, all incidents that included an IPH were identified and linked with any other violent deaths in the same incident. IPH was defined as those homicides in which the primary suspect was the current or former romantic partner (including spouse or non-married partner). These relationships are labeled as spouse, ex-spouse, boyfriend or girlfriend, or ex-boyfriend or ex-girlfriend in the NC-VDRS data. Cases of IPH followed by the perpetrator’s suicide were identified by an NC-VDRS indicator that the incident type was a “homicide followed by suicide.”

The NC-VDRS includes information about the primary weapon used in each homicide. If the data indicated that the primary weapon was a firearm of any kind (handgun, shotgun, and rifle), we considered the IPH to involve a firearm. Abstractors input information about perpetrator race, age, and ethnicity when known. We included these variables in the final model as well as a variable for missing information about race, ethnicity, and age.

The VDRS is more inclusive than other data sources on violent death, but not all IPHs can be identified. One quarter of the homicide cases in the North Carolina data lacked any mention of a suspect. However, the

proportion of IPH cases for which there is no suspect is likely to be lower, simply because current and former partners are likely to be targets of police investigation, especially if there is a history of violence [2].

There is a small group of relevant cases with named suspects in which the investigation was indeterminate. In 12 cases, an intimate partner was the primary suspect, but the case remained unsolved, and law enforcement officials identified one or more other suspects. In another 10 cases, the primary suspect was not an intimate partner, but law enforcement did consider an intimate partner to be a 2nd or 3rd suspect. We included the first group in the analysis and excluded the second group; given the small numbers involved, these choices logically cannot have much effect on results.

The outcomes of interest in this analysis are the likelihood of perpetrator suicide and of the perpetrator killing additional victims as part of the IPH incident. The IPH cases were tabulated with respect to sex, weapon type, suicide, and additional homicides. Multivariate logistic regression analysis was utilized to determine the distinct contributions of weapon type, circumstances, and perpetrator characteristics to the key outcome variables; all potentially relevant variables are included in the regression specification if the measures are consistently available in the data, except for victim characteristics (sex, age, race, ethnicity), which are so highly correlated with the perpetrators' characteristics that it is not statistically possible to identify distinct effects. This multivariate analysis was limited to male-perpetrated IPH cases, since they constitute the vast majority of all IPH-suicide cases (96%). Regression effect magnitudes are presented in the form of odds ratios.

Results

During the decade 2004–2013, there were 6440 homicides in North Carolina, of which law enforcement officials identified a perpetrator in 4837 (75.1%) of cases. Of crimes with identified perpetrators, 813 (16.8%) were intimate partners of the victim. Women were victims in 74.9% of IPHs (99% killed by men), and perpetrators in 23.0%. However, about one in four female homicides went unsolved during this time (26.1%).

While perpetrator suicide is a rare event overall (4.8% of homicides), it is highly concentrated in IPH,

24.8% of IPHs were followed by the perpetrator's suicide ($p < 0.001$). Among IPHs, the likelihood of suicide differs with the sex of the perpetrator and whether the perpetrator uses a gun in the IPH. The statistics in Table 1 demonstrate these relationships. In sum, while almost half (46.4%) of IPHs committed by men with guns are followed by suicide, male perpetrators commit suicide 7.3% of the time when the primary weapon they use to commit IPH is a weapon other than a gun ($p < 0.001$). Women perpetrators are unlikely to commit suicide regardless of the weapon they use in the IPH.

Overall, 6.3% of IPHs in our sample included one or more additional homicides. Of the 51 incidents with multiple homicides, 40 had one additional victim, 10 had 2, and 1 had 3, for a total of 63 additional homicide victims. All but 1 of the cases with multiple homicide victims had male perpetrators, and 15 (29.4%) occurred as part of an IPH-suicide. Guns were used in most IPHs by males that involved additional homicide victims; 74.5% of these cases were perpetrated with a firearm, compared with 59.4% of male-perpetrated IPHs that did not involve multiple homicides ($p < 0.05$). Table 2 provides the details.

A review of the incident reports revealed that most additional victims were children or current partners of the victim. Out of 51 cases where IPH perpetrators killed additional victims, 35.2% included the death of the intimate partner's child, 21.5% the current partner of the victim, 19.6% friends or roommates, and 9.7% the parents of the victim.¹

A summary statistic for the importance of weapon type in IPH is the average number of victims (including suicide as well as homicide). For male perpetrators, IPH with a gun averaged 1.58 victims, compared with 1.14 victims in IPH with other weapons ($p < 0.001$). This pattern is much less pronounced for female perpetrators, where IPHs committed with firearms had just 1.09 victims, compared with 1.01 victims for non-gun cases ($p < 0.10$).

As shown in Table 3, the results of the logistic regression analysis (male perpetrators only) confirm the strong association with weapon type; if the perpetrator uses a gun to kill his intimate partner, the odds ratio of then committing suicide is increased by a factor of 9.6 (column 2), and the odds ratio of multiple homicide doubles (column 3).

¹ Because some IPH included more than one additional victim, these percentages do not add to 100%.

Table 1 Percent of IPH cases that are IPH-suicide by sex of perpetrator and weapon in North Carolina, 2004–2013

Perpetrator/weapon	Number of IPH-total	Number of IPH-suicide	% suicide in IPH
Male/gun	377	175	46.4
Male/other weapon	245	18	7.3
Male/total	622	193	31.0
Female/gun	99	8	8.1
Female/other weapon	92	1	1.1
Female/total	191	9	4.7
Total	813	202	24.8

We also find that the relationship between the suspect and the victim changes the likelihood of suicide and of additional homicide victims in IPH. We find that, relative to other types of relationships, suspects who were married to their partner at the time of the homicide were more likely to commit suicide compared to other relationship types (odds ratio = 2.36, 95% CI [1.55, 3.59]).² Furthermore, homicides where a male partner kills his ex-partner (to whom he has never been married), the odds ratio of the perpetrator killing additional people is 3.6 times as high as cases in which the IPH is a current spouse (odds ratio = 3.56, 95% CI [1.60, 7.90]).

Discussion

The contribution of the current analysis is twofold. First, the new findings provide dramatic evidence of the close association between weapon type and whether IPH is followed by suicide. Previous research has established that when a gun is readily available to a batterer, the risk of IPH escalates [10]. Our finding that almost half of gun-using male perpetrators in IPH commit suicide as part of the same incident suggests the importance of preempting gun access by batterers, rather than depending on the deterrent effect of the threat of severe penalties. Someone who plans to commit suicide is logically beyond the reach of the legal threat. Second, the analysis underscores that gun use exacerbates the severity of IPH cases, by documenting what might be called the “expanded

victimization” characteristic of IPHs committed by men with guns, given that gun use is associated with a high prevalence of multiple homicide victims.

Our findings support established research that suggests homicide-suicides are more prevalent in IPH than other types of homicide and that firearms are often the weapon of choice for such crimes [5, 6, 23]. Our results also tally with existing work that finds children and other family members are at risk of becoming additional victims in IPHs [2, 4, 6]. However, our results differ in certain respects from existing research, perhaps because of differences of time and place, or simply because of the comprehensive nature of our sample. We find that 70% of IPHs were committed with firearms, a number slightly lower than existing research that finds between 80 and 95% of IPHs are committed with guns [6, 18, 20, 24, 25]. Our results suggest that male perpetrator suicide following IPH is 10 or 20% higher than previous studies [6, 25]. Finally, we find lower numbers of additional victims as a proportion of all intimate partner homicide deaths than existing research [4]. Importantly, we find that additional victims are not associated with homicide-suicides but that the gender of the perpetrator and the weapon are.

We add to the existing literature by using a more complete data set that provides details on all documented IPHs for a decade in a large state. Moreover, the NVDRS has been used to study homicide-suicides [22] and IPH [4], but the current study is the first to examine overlap between these two types of violent death or the role of firearms in them.

The VRDS data have some limitations. In particular, the identification of certain homicides as IPH is based on conclusions of police investigations, which are not always successful or accurate. No suspect was identified in one quarter of all homicide cases, and some of these homicides may have been IPHs. We also note that this analysis is descriptive and does not prove causation. The large differences in outcomes by weapon type, while suggestive, cannot be said with confidence to demonstrate the causal importance of guns versus other weapons.

Public Health Implications

The importance of gun use in domestic violence has been recognized in federal law since 1994. In that year, Congress passed the Violence Against Women Act

² This result is not reported in the table but reflects a logistic regression of the relationship between relationship status “spouse” and the odds of being killed in a homicide suicide. The results control for age, racial, and ethnic status.

Table 2 Number of homicide victims per case by sex of perpetrator and weapon in North Carolina, 2004–2013

	Simple IPH			IPH-suicide		
	Total cases	Number of homicide victims	Victims per case	Total cases	Number of homicide victims	Victims per case
Male/gun	202	230	1.14	175	192	1.10
Male/other weapon	227	241	1.06	18	21	1.17
Male/total	429	471	1.10	193	213	1.10
Female/gun	91	91	1	8	9	1.13
Female/other weapon	91	91	1	1	1	1
Female/total	182	182	1	9	10	1.11
Total	611	653	1.07	202	223	1.10

(VAWA) which added a new category to the list of those disqualified from gun possession, namely individuals subject to a court order restraining them from “harassing, stalking, or threatening an intimate partner” or “engaging in other conduct that would place an intimate partner in reasonable fear of bodily injury.”

Table 3 Adjusted-odds ratio of suicide and of multiple homicide in IPH with male perpetrators

	Incident includes perpetrator suicide	Incident includes multiple homicides
Weapon used (comparison: no firearm)		
Firearm	9.64** (2.68)	2.00† (0.67)
Relationship of victim to perpetrator (comparison: spouse)		
Ex-wife	0.46 (0.27)	0.78 (0.83)
Current girlfriend	0.42*** (0.09)	0.52 (0.21)
Ex-girlfriend	0.44* (0.16)	3.60*** (1.45)
Age of suspect (comparison: < 21)		
Suspect 21–49	1.27 (0.35)	1.31 (0.54)
Suspect 50+	1.46 (0.49)	0.48 (0.28)
Constant	0.15*** (0.10)	0.06*** (0.03)
Pseudo R^2	0.24	0.09
N	622	622

Each specification also included indicators of race and Hispanic ethnicity

Standard error in parentheses

† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < .001$

An additional category was added in 1996, when the Lautenberg Amendment to the Violence Against Women Act specified that those convicted of an intimate-partner-violence-related misdemeanor were banned from possession. While felons were already prohibited from having a firearm by the GCA of 1968, many abusers have not been convicted of a felony [26].

These laws seek to decrease IPH (and serious intimate partner violence more generally) both by reducing batterer’s access to guns and by deterring gun use. Access is reduced by two preemptive mechanisms: first, in some cases, a restraining order or domestic violence conviction is coupled with a court order to remove any existing guns from the home; second, the order or the misdemeanor conviction, if entered into the appropriate databases, would serve as the basis for blocking a legal sale following a background check by a licensed gun dealer. The laws may serve as a deterrent to domestic violence by attaching the penalty of gun disqualification to a court order or misdemeanor conviction; they may serve as a deterrent to gun misuse for those who have been disqualified.

Research suggests that these laws have been successful in reducing the number of IPHs as well as other domestic homicides. One study finds that the Lautenberg Amendment decreased gun homicide victimization of female intimate partners by approximately 17% and male domestic children by 31% [16]. Another found that state laws that restrict gun ownership among individuals served with domestic violence restraining orders decreased IPHs by 7% [17].

The findings of the current study suggest the importance of reducing gun use in domestic violence goes beyond saving the lives of intimate partners but includes

reducing suicide and multiple homicides. The importance of suicide as part of the gun IPH also justifies preemptive measures that will reduce access to guns, rather than (or in addition to) deterrence-oriented strategies. In a violent domestic confrontation in which the assailant is so desperate as to be suicidal, it is unlikely that the threat of additional prison time for gun misuse will be salient.

One fruitful approach may be continued efforts to utilize the “Danger Assessment” for individuals in households in which domestic violence is evident. The Danger Assessment helps to determine the level of danger an abused woman has of being killed by her intimate partner [27]. Scholars have demonstrated that the Danger Assessment (and the short form version of it) accurately identifies women in situations where IPH is likely [28, 29]. By identifying high-risk cases, law enforcement could use this assessment to preemptively remove firearms from the hands of abusers likely to commit IPH.

Furthermore, federal regulations and many state laws limit the definition of domestic abuse to violence between married or formerly married partners. Our analysis suggests that IPH that involve unmarried partners are more likely to include additional victims than IPH that involves married partners. This finding underscores the importance of expanding firearm restrictions to include individuals who abuse their partners regardless of marital status.

Acknowledgements We are grateful to Scott Proescholdbell and Shana Geary from the North Carolina Department of Health and Human Services for their support during this project. We also thank Kristin Goss, members of the LBT Writing Group, and anonymous reviewers at the Journal of Urban Health for their insightful comments and suggestions.

References

1. Fox JA, Zawitz MW. *Homicide trends in the United States*. Washington, DC: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 1999.
2. Petrosky E, Blair JM, Betz CJ, Fowler KA, Jack SPD, Lyons BH. Racial and ethnic differences in homicides of adult women and the role of intimate partner violence—United States, 2003–2014. *MMWR Morb Mortal Wkly Rep*. 2017;66(28):741–6.
3. Violence Policy Center. When men murder women: an analysis of 2014 homicide data. Washington, D.C.: Violence Policy Headquarters September; 2016.
4. Smith SG, Fowler KA, Niolon PH. Intimate partner homicide and corollary victims in 16 states: National Violent Death Reporting System, 2003–2009. *Am J Public Health*. 2014;104(3):461–6. <https://doi.org/10.2105/AJPH.2013.301582>.
5. Logan J, Hill HA, Black ML, Crosby AE, Karch DL, Barnes JD, et al. Characteristics of perpetrators in homicide-followed-by-suicide incidents: National Violent Death Reporting System—17 US States, 2003–2005. *Am J Epidemiol*. 2008;168(9):1056–64. <https://doi.org/10.1093/aje/kwn213>.
6. Morton E, Runyan CW, Moracco KE, Butts J. Partner homicide-suicide involving female homicide victims: a population-based study in North Carolina, 1988–1992. *Violence Vict*. 1998;13(2):91–106.
7. Koziol-McLain J, Webster D, McFarlane J, Block CR, Ulrich Y, Glass N, et al. Risk factors for femicide-suicide in abusive relationships: results from a multisite case control study. *Violence Vict*. 2006;21(1):3–21.
8. Federal Bureau of Investigation. *Serial murder: multidisciplinary perspectives for investigators*. Behavioral Analysis Unit; 2005. <https://www.fbi.gov/stats-services/publications/serial-murder/serial-murder-july-2008-pdf>. Accessed March 12, 2018.
9. Everytown for Gun Safety. Mass shootings in the United States: 2009–2016. New York City, NY: Everytown For Gun Safety Headquarters; April 2017.
10. Campbell JC, Webster D, Koziol-McLain J, Block C, Campbell D, Curry MA, et al. Risk factors for femicide in abusive relationships: results from a multisite case control study. *Am J Public Health*. 2003;93(7):1089–97.
11. Gerney A, Parsons C. Women under the gun. *Cent Am Prog*. June 2014. <https://www.americanprogress.org/issues/guns-crime/reports/2014/06/18/91998/women-under-the-gun/>. Accessed October 16, 2017.
12. Dahlberg LL, Ikeda RM, Kresnow M. Guns in the home and risk of a violent death in the home: findings from a national study. *Am J Epidemiol*. 2004;160(10):929–36. <https://doi.org/10.1093/aje/kwh309>.
13. Zeoli AM, McCourt A, Buggs S, Frattaroli S, Lilley D, Webster DW. Analysis of the strength of legal firearms restrictions for perpetrators of domestic violence and their association with intimate partner homicide. *Am J Epidemiol*. 2017; <https://doi.org/10.1093/aje/kwx362>.
14. Saltzman LE, Mercy JA, O’Carroll PW, Rosenberg ML, Rhodes PH. Weapon involvement and injury outcomes in family and intimate assaults. *JAMA*. 1992;267(22):3043–7.
15. Biden JR. Violence against women: the congressional response. *Am Psychol*. 1993;48(10):1059–61.
16. Raissian KM. Hold your fire: did the 1996 Federal Gun Control Act Expansion reduce domestic homicides? *J Policy Anal Manag*. 2016;35(1):67–93. <https://doi.org/10.1002/pam.21857>.
17. Vigdor ER, Mercy JA. Do laws restricting access to firearms by domestic violence offenders prevent intimate partner homicide? *Eval Rev*. 2006;30(3):313–46. <https://doi.org/10.1177/0193841X06287307>.
18. Bossarte RM, Simon TR, Barker L. Characteristics of homicide followed by suicide incidents in multiple states, 2003–04. *Inj Prev*. 2006;12(Suppl 2):ii33–8. <https://doi.org/10.1136/ip.2006.012807>.

19. Dobash RP, Dobash RE. Who died? The murder of collaterals related to intimate partner conflict. *Violence Women*. 2012;18(6): 662–71. <https://doi.org/10.1177/1077801212453984>.
20. Comstock RD, Mallonee SR, Kruger E, Rayno K, Vance A, Jordan F. Epidemiology of homicide-suicide events: Oklahoma, 1994–2001. *J Forensic Med*. 2005;26(3):229–35.
21. Hanzlick R, Koponen M. Murder-suicide in Fulton County, Georgia, 1988–1991. Comparison with a recent report and proposed typology. *Am J Forensic Med Pathol*. 1994;15(2): 168–73.
22. Barber CW, Azrael D, Hemenway D, Olson LM, Nie C, Schaechter J, et al. Suicides and suicide attempts following homicide: victim–suspect relationship, weapon type, and presence of antidepressants. *Homicide Stud*. 2008;12(3): 285–97.
23. Moracco KE, Clark KA, Espersen C, Bowling JM. Preventing firearms violence among victims of intimate partner violence: an evaluation of a new North Carolina law. *Final Rep Submitt Natl Inst Justice Pac Inst Res Eval Chap Hill NC*; 2006. <https://www.ncjrs.gov/App/abstractdb/AbstractDBDetails.aspx?id=237359>. Accessed 10 Aug 2016.
24. Malphurs JE, Cohen D. A newspaper surveillance study of homicide-suicide in the United States. *Am J Forensic Med Pathol*. 2002;23(2):142–8.
25. Lund LE, Smorodinsky S. Violent death among intimate partners: a comparison of homicide and homicide followed by suicide in California. *Suicide Life Threat Behav*. 2001;31(4): 451–9. <https://doi.org/10.1521/suli.31.4.451.22046>.
26. Nathan AJ. At the intersection of domestic violence and guns: the public interest exception and the Lautenberg amendment. *Cornell Rev*. 1999;85:822.
27. Campbell JC, Webster DW, Glass N. The danger assessment: validation of a lethality risk assessment instrument for intimate partner femicide. *J Interpers Violence*. 2009;24(4): 653–74. <https://doi.org/10.1177/0886260508317180>.
28. Messing JT, Campbell JC, Snider C. Validation and adaptation of the danger assessment-5: a brief intimate partner violence risk assessment. *J Adv Nurs*. 2017;73(12):3220–30. <https://doi.org/10.1111/jan.13459>.
29. Messing JT, Campbell J, Sullivan Wilson J, Brown S, Patchell B. The lethality screen: the predictive validity of an intimate partner violence risk assessment for use by first responders. *J Interpers Violence*. 2015;32:205–26. <https://doi.org/10.1177/0886260515585540>.