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US Reserve Soldiers' Combat Exposure and Intimate Partner Violence: Not More Common, but it is More Violent

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Abstract

Objective: Combat exposure's influence on intimate partner violence (IPV) in reserve soldiers is not well understood. This work examines combat exposure's influence on IPV in US Army Reserve/National Guard (USAR/NG) Soldiers and partners.

Methods: Data are from Operation: SAFETY, a longitudinal study of USAR/NG Soldiers and partners. Logistic regression models examined odds of sexual aggression, physical aggression, and physical injury with combat exposure, controlling for PTSD symptoms, marital satisfaction, and age.

Results: Combat exposure was associated with greater physical injury, despite no association between combat exposure and physical aggression. This was significant for male soldier to female partner, as well as female partner to male soldier injury. In addition, female partners were more likely to be sexually aggressive against their male soldiers. Female soldiers' combat exposure was not associated with IPV or injury.

Conclusions: Although men's combat exposure did not increase the likelihood of physical aggression, it increased the likelihood of IPV resulting in injury for both husband to wife and wife to husband aggression. Results indicate post-deployment programming should focus on conflict resolution and communication for both partners.

Keywords

mental health; post-traumatic stress; child/family; physical morbidity

Introduction

Intimate partner violence (IPV) consists of behaviors that encompass physical, psychological, and/or sexual abuse of an intimate partner. Beyond immediate consequences (e.g., direct injury), there is a wide range of negative outcomes associated with IPV relating to mental health (depression, PTSD, anxiety, suicide; Pico-Alfonso et al., 2006) physical health (injury, chronic pain, gastrointestinal/gynecological illness, sexually-transmitted infections; Campbell, 2002) and behavioral health, such as smoking, heavy drinking (Dichter, Bossarte, & Cerulli, 2011) and drug use (Smith, Homish, Leonard, & Cornelius, 2012).

One in three women and one in four men have experienced IPV in the United States during their lifetimes (Black et al., 2011). Within military populations, data are less clear and often focus exclusively on active duty military. Black and Merrick conclude that civilian women, active duty military women, and wives of active duty male soldiers all have similar rates of lifetime IPV victimization (26.9%-36% physical violence; 32.8%–40.3% sexual violence). A recent report for the Department of Veterans Affairs found similar IPV rates within active duty personnel of 22% perpetration and 30% victimization (Gierisch et al., 2013). However, Marshall and colleagues (2005) found IPV perpetration as high as 42–48% among active duty military members.

IPV estimates for reserve soldiers are more challenging to determine. The US Military is composed of 42.5% reserve soldiers (Thomas et al., 2010); they represent a large portion, but differences between active duty and reserve cannot be determined when examined together. Distinguishing between active duty and reserve soldiers is especially critical, as reserve soldiers are distinct from active duty soldiers in several ways that may influence IPV perpetration. For example, reserve soldiers have greater prevalence of PTSD, depression, anger, and alcohol misuse, despite having combat and deployment experiences that are similar to active duty soldiers (Griffith, 2010; Renshaw, 2010; Riviere, Kendall-Robbins, McGurk, Castro, & Hoge, 2011; Thomas et al., 2010). Additionally, findings indicate that reserve soldiers show an increase in post-deployment mental health conditions, compared to active duty soldiers (Thomas et al., 2010).

Increases in negative mental health outcomes for reserve soldiers may be due to reduced unit support, compared to active duty soldiers who spend much more time with their unit (Griffith, 2010, 2015). It is also possible that individuals enlist in the reserves to experience ‘partial inclusion’ in the military, with limited exposure to combat and deployment (Griffith, 2010). However, once the reserve soldier is activated and switches from part-time to full-time military service, job realities may conflict with job expectations (Griffith, 2010).

There are additional, non-military considerations unique to reserve soldiers, such as civilian job stress. Reserve soldiers’ rely primarily on civilian employment, with supplemental income from their military service (Griffith, 2011). Deployment-induced breaks in civilian employment may add undue financial stress for the family; one study found that nearly 20% of families had financial difficulty because of deployment and 10% experienced job loss, despite job loss during deployment being illegal (Riviere et al., 2011). Reserve soldiers with

financial difficulties, job loss, or an employer unsupportive of their military affiliation had greater PTSD and depression at three and twelve months post-deployment (Riviere et al., 2011).

Family challenges are also critical issues for reserve soldiers, particularly as reserve soldiers have different expectations around deployment and family separations than active duty soldiers (Griffith, 2011). While active duty soldiers are accustomed to the idea of deployment and family separation, reserve soldiers have limited expectations of deployment, given their ‘part-time’ military role (Griffith, 2010). Lapp and colleagues reviewed sources of stress for reserve soldiers’ partners surrounding deployment and found that families felt as though they could not make plans, that their lives were on “hold prior to deployment” (Lapp et al., 2010).

These additional stressors, notably increased military involvement and unit support are unique IPV risk factors for reserve soldiers. However, to date, there is very limited work that focuses on IPV exclusively in reserve populations. One study acknowledged that reserve soldiers comprise part of the research sample and found aggression was associated with combat exposure and PTSD (Elbogen et al., 2013). Additional research with samples that included large portions of reserve component soldiers indicated that reduced relationship satisfaction and additional family or financial stressors were associated with increased IPV perpetration (Blume, Schmalig, & Russell, 2011; Fonseca et al., 2006). However, this work did not examine combat exposure, which, together with the lack of focus on reserve soldiers’ unique risk factors, represents a knowledge gap.

Thus, the present work examines IPV and its association with combat exposure. Data are from Operation: SAFETY (Soldiers and Families Excelling Through the Years; Operation: SAFETY, 2016), a multi-wave, longitudinal study examining the health and wellness of USAR/NG soldiers and their partners. Operation: SAFETY includes both the soldier and his/her partner, allowing the best understanding of both within (e.g., how his exposure impacts his behavior) and cross-spouse (e.g., how his exposure impacts her behavior) effects. This is particularly salient for IPV research as to best comprehend the nature of violence between two people we must recognize reports of both perpetration and victimization. This is emphasized by Capaldi, Kim, Shortt, and Knoble (2012) who cited the paucity of studies examining both partners as a major weakness in current IPV research. The present work examines whether increased combat exposure is associated with greater physical or sexual aggression. Further, this work examines if combat exposure results in greater injury (a measure of severity) among USAR/NG soldiers and their partners.

Methods

Participants

There are 418 couples in Operation: SAFETY. This study was open to all couples, and there are 7 same-sex couples participating, however 7 couples were too few same-sex couples to include in these analyses. In addition, we included only those with combat exposure: 246 couples had male soldiers with combat exposure and 33 couples had female soldiers with

combat exposure. However, a small proportion of couples were dual military (n=22 couples, 8.6%), resulting in a final sample of 257 couples (Table 1 for additional demographics).

Recruitment

Operation: SAFETY recruited USAR/NG soldiers and their partners over Summer 2014 – Fall 2015, throughout upstate New York. The protocol was approved by the [BLINDED – AUTHOR’S INSTITUTION] and vetted through the Army Human Research Protections Office, Office of the Chief, Army Reserve, as well as the Adjutant General of the National Guard. At drills soldiers were given a 10-minute overview of the project, including project goals, study timeline (three surveys over two years), and confidentiality. Once all questions were answered, soldiers were invited to complete a one page screening form. Couples screened on six inclusion criteria: one member is a current USAR/NG soldier; married/living as if married; soldier’s age is between 18 and 45; both partners have had at least one alcoholic beverage in the past year; both partners speak and understand English; and both partners are willing and able to participate. Following screening, ineligible participants were notified by email; eligible participants were contacted via phone to review study objectives and confidentiality procedures.

Recruitment identified 731 who were eligible for the study. Of those, 572 (78%) agreed to participate and given the nature of the main study was to examine spousal influence, only surveys where both partners completed the entire survey were included for follow-up (N=418). The only significant difference between those that were eligible and enrolled vs those who were eligible and did not enroll occurred when a civilian partner screened for the study (n=11). These couples were less likely to enroll ($p<.001$). For this work, we present data from a subset of the main study based upon soldiers with combat experience (N=257).

Survey Administration

It is common for NG/reserve soldiers to live great distances from their unit location. It is also possible for soldiers to be deployed during the study. For these reasons, the surveys were administered through a secure HIPAA-compliant online survey programming software, StudyTrax™ which allowed for data encryption. Soldiers and partners who lived in the Western New York area were invited to the [BLINDED – AUTHOR’S INSTITUTION] Center for Health Research (CHR) to complete their surveys. Local participants were encouraged to complete their surveys in person in order to build the rapport necessary for a successful longitudinal study. We wanted to encourage face-to-face contact to enhance participant engagement throughout the three waves of the study. Regardless of method, participants completed an informed consent process prior to accessing the survey. Each participant received a \$60 check as a thank you for their time in the first survey (\$120 per couple), and each received a \$70 check (\$140 per couple) for the second and third surveys. Data from the first wave is presented here.

Measures

Intimate Partner Violence.—Outcomes of sexual aggression, physical aggression, and physical injury (a severity measure for physical aggression) were assessed using the Conflicts Tactics Scale (CTS-2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996).

Consistent with our previous work (Schumacher, Homish, Leonard, Quigley, & Kearns-Bodkin, 2008) individuals responded to two sets of 25 questions; for the first set they indicated whether their partner performed any of the behaviors in the past year (e.g., “My partner hit me”). For the second set, they indicated whether they had committed any of these behaviors against their partner (e.g., “I used threats to make my partner have sex”). Responses indicated the frequency with which each behavior occurred. The dual set of questions provided self-report and partner report of aggression and provided a maximum report of aggression in the relationship. For example, if a husband indicated he hit his partner, or his wife indicated that she was hit by her partner, then then the husband would be positive for perpetration of that aggressive behavior (husband perpetration $\alpha=0.79$; wife perpetration $\alpha=0.86$). This allowed us to focus on aggression perpetration while accounting for under-reporting that can happen with IPV.

Combat Exposure.—Deployed participants completed the Deployment Risk and Resilience Inventory-2 (DRRI-2; Vogt, Smith, King, & King, 2012), which includes 17 questions that examine the frequency of combat exposure (e.g., “I was exposed to hostile incoming fire”). Greater scores indicate greater combat exposure (range 17–102; husband $\alpha=0.94$; wife $\alpha=0.90$).

Post-traumatic Stress Disorder.—PTSD was measured using the 20-item PTSD Checklist (PCL-5; Weathers et al., 2013). Questions ask respondents to indicate how much they were bothered in the past month by a series of concerns (e.g., “repeated, disturbing, and unwanted memories of the stressful experience”). Greater scores indicate greater PTSD symptoms (range 0–80; husband $\alpha=0.95$; wife $\alpha=0.95$).

Marital Satisfaction.—Marital satisfaction was measured using the Marital Adjustment Test (Locke & Wallace, 1959) a 15-item, Likert-based scale. Questions include the extent of agreement with their spouse on issues such as “Handling family finances,” “Demonstrations of affection,” and “Philosophy of life.” In addition, questions assess the degree to happiness that individual has in their relationship, as well as whether they would marry their spouse again, “if you had to live your life over again.” Responses to each question are summed for a total relationship satisfaction score; greater scores indicate a stronger marriage/romantic partnership (husband $\alpha=0.76$; wife $\alpha=0.79$).

Analytic Plan

Sexual aggression and physical aggression prevalence were examined for soldiers and their partners by gender. Logistic regression models were used to determine the odds of sexual aggression and physical aggression occurring based on combat exposure. To examine the severity of physical aggression, logistic regression examined the odds of physical injury with increased combat exposure. All models controlled for PTSD symptoms, marital satisfaction, and age. Hosmer-Lemeshow Model fit (H-L; Hosmer, Lemeshow, & Sturdivant, 2013) was used to assess goodness of fit for logistic regressions and are reported with results. The H-L test assesses whether the observed match the expected; if the value is less than 0.05, then the observed does not equal the expected and the model is not well fit. In these analyses, all models returned Hosmer-Lemeshow Model Fit statistics greater than 0.05, indicating good

model fit. Further, models examined whether a male soldier's combat exposure was associated with his aggression (within spouse effect), as well as whether a male soldier's combat exposure was associated with his partner's aggression (cross spouse effect). The within spouse effects results will review male soldier perpetration and female soldier perpetration associated with their combat exposure, against their partners. The cross spouse effects will examine the effect of the male soldier's combat exposure on his female partner's perpetration as well as the female soldier's combat exposure on her male partner's perpetration. These pathways are illustrated in Table 2. All couples were in heterosexual relationships.

Results

Combat Experiences

Male and female soldiers have 11.8 (sd: 6.0) and 11.3 (sd: 4.0; Table 1) years of service, respectively, with 1.7 deployments (sd: 0.92) for male soldiers and 1.3 deployments (sd: 0.48) for female soldiers. Average combat exposure scores were 32.3 (sd: 16.6) for male soldiers and 23.2 (sd: 8.4) for female soldiers. Combat exposure scores were significantly greater for male soldiers ($p < 0.01$).

Sexual Aggression

The prevalence of sexual aggression perpetration was 15.0% for men and 12.1% for women.

Within Spouse Effects—Male soldier's perpetration of sexual aggression was not associated with his combat exposure ($p > 0.05$; Table 3). Female soldier's sexual aggression perpetration was not associated with her combat exposure ($p > 0.05$).

Cross Spouse Effects—Female partners had significantly greater odds of perpetrating sexual aggression (aOR: 1.33, $p < 0.05$; Table 4) with their male soldier's increased combat exposure, controlling for his PTSD symptoms, marital satisfaction, and age. Male partners' sexual aggression perpetration was not associated with his female partner's combat exposure ($p > 0.05$).

Physical Aggression

The prevalence of physical aggression perpetration was 17.5% for men and 24.2% for women.

Within Spouse Effects—Increased combat exposure for the male soldier did not increase the odds of physical aggression towards his female partner ($p > 0.05$; Table 3). Increased combat exposure for the female soldier did not increase the odds of physical aggression towards her male partner ($p > 0.05$).

Cross Spouse Effects—Increased combat exposure for the male soldier did not increase the odds of physical aggression perpetration by his female partner ($p > 0.05$; Table 3). Increased combat exposure for the female soldier did not increase the odds of physical aggression by her male partner ($p > 0.05$).

Severity of Physical Aggression: Physical Injury

The prevalence of physical injury perpetration was 5.7% for men and 9.1% for women.

Within Spouse Effects—Male soldiers had significantly greater odds of injuring their female partners (aOR: 1.76, $p<0.01$; Table 3) with his increased combat exposure, controlling for his PTSD symptoms, marital satisfaction, and age. Further, marital satisfaction had a protective effect in this model; there were reduced odds of injury perpetration by male soldiers with his increased marital satisfaction (aOR: 0.98, $p<0.05$; Table 3). Female soldiers did not have greater odds of injuring their male partners with her increased combat exposure ($p>0.05$).

Cross Spouse Effects—Female partners had increased odds of injuring their military partners (aOR: 1.69, $p<0.05$; Table 4) with their male partner's increased combat exposure, controlling for his PTSD symptoms, marital satisfaction, and age, a significant across spouse effect. In addition, female partners had reduced odds of perpetrating injury with his increased marital satisfaction (aOR: 0.98, $p<0.05$; Table 4) as well as his increased age (aOR: 0.84, $p<0.05$; Table 4). Male partners did not have greater odds of physically injuring their female soldiers with her increased combat exposure ($p>0.05$).

Discussion

Our results indicate that male reserve soldiers' combat exposure is not associated with greater rates of physical aggression but is associated with greater physical *injury*. Thus, it is not that physical aggression is more prevalent among combat-exposed USAR/NG soldiers and their partners, but there is greater injury when IPV occurs among this group. This relationship held for injury from male soldier to female partner as well as from female partner to male soldier, even after controlling for PTSD, marital satisfaction, and age. This is particularly notable as there are strong associations between marital satisfaction and PTSD as well as between marital satisfaction and IPV (Capaldi et al., 2012; Fonseca et al., 2006). Further, in the injury perpetration models, marital satisfaction had a protective effect; increased marital satisfaction reduced the odds of IPV-Injury perpetration for both male soldiers and their female partners.

This work indicates that IPV perpetration is common among US Army Reserve/National Guard Soldiers. We found past-year prevalence rates from 5.7% (IPV-Injury) to 17.5% (IPV-Physical) for male perpetration, and 9.1% (IPV-Injury) to 24.2% (IPV-Physical) for female perpetration. These estimates are in line with other work that found 16% IPV prevalence in the past year among primarily active duty military couples (Fonseca et al., 2006). Others have found that 13% of men and 17% of women on active duty reported past-year IPV; these estimates include both physical aggression and physical injury (Heyman & Neidig, 1999).

These findings could be explained by the idea that military service members are 'resocialized' to accept military norms and values, which sometimes necessitates violence to achieve military goals (Klostermann, Mignone, Kelley, Musson, & Bohall, 2012). In order for service members to succeed, they need to alter their ideas about violence, and this may

spill over into intimate relationships. It is also possible that the association between combat experiences and IPV perpetration could be understood as stressful events from military life influencing conflict resolution in intimate relationships. For example, IPV perpetrated by police officers, another high-risk, military-style profession, has been shown to increase with stressful events (Anderson & Lo, 2011).

Husband's combat exposure was also associated with increased odds of wives' sexual aggression toward their husbands. This is a unique finding as a recent review found that more men commit sexual aggression than women (Swan, Gambone, Caldwell, Sullivan, & Snow, 2008). Sexual aggression work has largely been conducted in college populations (Hines & Saudino, 2003), suggesting that male perpetration of sexual aggression is more common (Hines & Saudino, 2003; Williams, Ghandour, & Kub, 2008). Little work has examined sexual aggression perpetrated by women (Williams et al., 2008), and research on female IPV perpetration has developed more slowly than that of male IPV perpetration (Testa, Hoffman, & Leonard, 2011). Given that women are more likely to initiate violence than men (Capaldi, Kim, & Shortt, 2004), the couples currently under study are mutually aggressive, in which the male soldiers are physically violent and their female partners are physically violent and sexually aggressive.

One possible reason that female soldier's combat exposure did not affect her IPV perpetration could be the reduced combat exposure for female soldiers compared male soldiers in our sample. This is consistent with women's military experiences, as, until recently, women were not exposed to front-line combat (Rosenberg & Phillipps, 2015). As women's roles in the military expand, including special operations forces and front-line combat positions, it is likely that their combat exposure will increase significantly and thus merit closer examination in future military populations.

This study should be understood in the context of its limitations. First the data are cross-sectional. However, these data are from the baseline wave of a longitudinal study, and thus once additional waves are completed, predictive patterns of IPV and combat exposure can be examined. Also, there were relatively few female soldiers with combat exposure, which possibly obscured the effects of combat exposure on IPV perpetration or victimization. Our overall sample of female soldiers (20%) is consistent with USAR/NG national estimates, which indicate that 15% to 19% of reserve soldiers are female (Ryan et al., 2007). This does not diminish that additional work should examine female soldiers' experiences, particularly as their functions widen in combat roles.

This study is strengthened by several factors, including the measures for IPV which included both partners' reports. For example, Elbogen and colleagues found that 20% of IPV cases would have been missed if only self-reported perpetration data were used (Elbogen et al., 2013). Further, examining combat exposure as a range of experiences, rather than whether the soldier had simply been deployed allowed a richer understanding of how such exposure influenced behavior. Finally, this data presents findings for an understudied military population, USAR/NG soldiers and their partners.

These findings indicate that increased combat exposure is associated with physical injury among male soldiers and their female partners. Therefore, an emphasis on conflict resolution and communication in the post-deployment period is critical to ameliorate combat exposure's effects on IPV. Trainings should engage both the soldier and his partner, particularly as these findings indicate the male soldier's combat exposure increases odds of physical injury perpetration for both himself and his female partner. Future work should also examine longitudinal patterns, particularly relating to combat exposure. It would be important to understand whether combat exposure has a limited effect post-deployment, or if the negative effects of combat exposure (including IPV) continue or worsen for years afterwards.

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References

- Anderson AS, & Lo CC (2011). Intimate Partner Violence Within Law Enforcement Families. *Journal of Interpersonal Violence*, 26(6), 1176–1193. doi:10.1177/0886260510368156 [PubMed: 20587471]
- Black MC, Basile KC, Breiding MJ, Smith SG, Walters ML, Merrick MT, ... Stevens MR (2011) The national intimate partner and sexual violence survey: 2010 summary report. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Blume AW, Schmaling KB, & Russell ML (2011). Intimate partner violence and relationship dissolution among reserve soldiers. *Military Psychology*, 23(6), 685.
- Campbell JC (2002). Health consequences of intimate partner violence. *The Lancet*, 359, 1–6.
- Capaldi DM, Kim HK, & Shortt JW (2004). Women's Involvement in Aggression in Young Adult Romantic Relationships: A Developmental Systems Model.
- Capaldi DM, Kim HK, Shortt JW, & Knoble NB (2012). A Systematic Review of Risk Factors for Intimate Partner Violence. *Partner abuse*, 3(2), 231–280. doi:papers3://publication/doi/10.1891/1946-6560.3.2.231 [PubMed: 22754606]
- Dichter ME, Bossarte RM, & Cerulli C (2011). Intimate partner violence victimization among women veterans and associated heart health risks. *Women's health issues*, 21(4), S190–S194. [PubMed: 21724140]
- Elbogen EB, Johnson SC, Newton VM, Fuller S, Wagner HR, Beckham JC, & Workgroup VAM-AMR (2013). Self-report and longitudinal predictors of violence in Iraq and Afghanistan war era veterans. *J Nerv Ment Dis*, 201(10), 872–876. doi:10.1097/NMD.0b013e3182a6e76b [PubMed: 24080674]
- Fonseca CA, Schmaling KB, Stoeber C, Gutierrez C, Blume AW, & Russell ML (2006). Variables associated with intimate partner violence in a deploying military sample. *Military Medicine*, 171(7), 627–631. [PubMed: 16895129]
- Gierisch JM, Shapiro A, Grant NN, King HA, McDuffie JR, & Williams JW, Jr (2013). Intimate Partner Violence: Prevalence Among US Military Veterans and Active Duty Servicemembers and a Review of Intervention Approaches. Retrieved from
- Griffith J (2010). Citizens Coping as Soldiers: A Review of Deployment Stress Symptoms Among Reservists. *Military Psychology*, 22(2), 176–206. doi:10.1080/08995601003638967

- Griffith J (2011). Decades of transition for the US reserves: Changing demands on reserve identity and mental well-being. *International Review of Psychiatry*, 23(2), 181–191. 10.3109/09540261.2010.541904 [PubMed: 21521088]
- Griffith J (2015). Homecoming of soldiers who are citizens: Re-employment and financial status of returning Army National Guard soldiers from Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF). *Work: A Journal of Prevention Assessment & Rehabilitation*, 50(1), 85–96. doi: 10.3233/wor-131794
- Heyman RE, & Neidig PH (1999). A Comparison of Spousal Aggression Prevalence Rates in U.S. Army and Civilian Representative Samples. *Journal of Consulting & Clinical Psychology*, 67(2), 239–242. [PubMed: 10224734]
- Hines DA, & Saudino KJ (2003). Gender Differences in Psychological, Physical, and Sexual Aggression Among College Students Using the Revised Conflict Tactics Scales. *Violence & Victims*, 18(2).
- Hosmer DW, Lemeshow S, & Sturdivant RX (2013). *Applied logistic regression* (Third edition/ed.). Hoboken, New Jersey: Wiley.
- Klostermann K, Mignone T, Kelley ML, Musson S, & Bohall G (2012). Intimate partner violence in the military: Treatment considerations. *Aggression and Violent Behavior*, 17(1), 53–58. doi: 10.1016/j.avb.2011.09.004
- Lapp CA, Taft LB, Tollefson T, Hoepner A, Moore K, & Divyak K (2010). Stress and coping on the home front: guard and reserve spouses searching for a new normal. *J Fam Nurs*, 16(1), 45–67. doi: 10.1177/1074840709357347 [PubMed: 20065118]
- Locke HJ, & Wallace KM (1959). Short marital-adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living*, 21(3), 251–255.
- Marshall AD, Panuzio J, & Taft CT (2005). Intimate partner violence among military veterans and active duty servicemen. *Clinical Psychology Review*, 25(7), 862–876. doi:10.1016/j.cpr.2005.05.009 [PubMed: 16006025]
- Operation: SAFETY. (2016). The Operation: SAFETY Study. Retrieved from sphhp.buffalo.edu/operation-safety
- Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, Blasco-Ros C, Echeburúa E, & Martinez M (2006). The impact of physical, psychological, and sexual intimate partner violence on women's mental health: depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *Journal of Women's Health*, 15(5), 599–611.
- Renshaw KD (2010). Deployment experiences and postdeployment PTSD symptoms in National Guard/Reserve service members serving in operations Enduring Freedom and Iraqi Freedom. *Journal of Traumatic Stress*, 23(6), 815–818. doi:10.1002/jts.20575 [PubMed: 20963848]
- Riviere LA, Kendall-Robbins A, McGurk D, Castro CA, & Hoge CW (2011). Coming home may hurt: risk factors for mental ill health in US reservists after deployment in Iraq. *British Journal of Psychiatry*, 198(2), 136–142. 10.1192/bjp.bp.110.084863 [PubMed: 21282784]
- Rosenberg M, & Philipps D (2015, 12 3, 2015). All combat Roles Now Open to Women Defense Secretary Says. *New York Times*.
- Ryan MA, Smith TC, Smith B, Amoroso P, Boyko EJ, Gray GC, ... Hooper TI (2007). Millennium Cohort: enrollment begins a 21-year contribution to understanding the impact of military service. *J Clin Epidemiol*, 60(2), 181–191. doi:10.1016/j.jclinepi.2006.05.009 [PubMed: 17208125]
- Schumacher JA, Homish GG, Leonard KE, Quigley BM, & Kearns-Bodkin JN (2008). Longitudinal moderators of the relationship between excessive drinking and intimate partner violence in the early years of marriage. *J Fam Psychol*, 22(6), 894–904. 10.1037/a0013250 [PubMed: 19102610]
- Smith PH, Homish GG, Leonard KE, & Cornelius JR (2012). Intimate partner violence and specific substance use disorders: findings from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychol Addict Behav*, 26(2), 236–245. doi:10.1037/a0024855 [PubMed: 21823768]
- Straus MA, Hamby SL, Boney-McCoy S, & Sugarman DB (1996). The revised Conflict Tactics Scales (CTS2): Development and preliminary psychometric data. *Journal of Family Issues*, 17(3), 283–316.

- Swan SC, Gambone LJ, Caldwell JE, Sullivan TP, & Snow DL (2008). A Review of Research on Women's Use of Violence with Male Intimate Partners. *Violence & Victims*, 23(3), 301–314. [PubMed: 18624096]
- Testa M, Hoffman JH, & Leonard KE (2011). Female intimate partner violence perpetration: stability and predictors of mutual and nonmutual aggression across the first year of college. *Aggress Behav*, 37(4), 362–373. doi:10.1002/ab.20391 [PubMed: 21462201]
- Thomas JL, Wilk JE, Riviere LA, McGurk D, Castro CA, & Hoge CW (2010). Prevalence of Mental Health Problems and Functional Impairment Among Active Component and National Guard Soldiers 3 and 12 Months Following Combat in Iraq. *Archives of General Psychiatry*, 67(6), 614–623. [PubMed: 20530011]
- Vogt D, Smith BN, King DW, & King LA (2012). *Manual for the Deployment Risk and Resilience Inventory-2 (DRRI-2): A Collection of Measures for Studying Deployment-Related Experiences of Military Veterans*. Retrieved from Boston, MA:
- Weathers F, Litz B, Keane T, Palmieri P, Marx BP, & Schnurr P (2013). The PTSD Checklist for DSM-5 (PCL-5): Scale available from the National Center for PTSD at www.ptsd.va.gov.
- Williams JR, Ghandour RM, & Kub JE (2008). Female perpetration of violence in heterosexual intimate relationships: adolescence through adulthood. *Trauma Violence Abuse*, 9(4), 227–249. doi:10.1177/1524838008324418 [PubMed: 18936281]

Table 1

Sample Characteristics
% (n) or mean (sd)

	Male Soldiers (N=246)	Female Partners (N=246)	Male Partners (N=33)	Female Soldiers (N=33)
Soldiers' Years of Service	11.8 (6.0)	7.9 (4.6) ^T	11.1 (7.8) ^T	11.3 (4.0)
Soldiers' Combat Exposure Score	32.2 (16.6)	23.7 (7.2) ^T	43.7 (18.9) ^T	23.2 (8.4)
<u>Race/Ethnicity</u>				
Non-Hispanic White	80.9% (199)	88.6% (218)	69.7% (23)	75.8% (25)
Non-Hispanic Black	4.5% (11)	1.2% (3)	9.1% (3)	3.0% (1)
Hispanic	9.8% (24)	5.3% (13)	12.1% (4)	12.1% (4)
Other	3.3% (8)	3.7% (9)	6.1% (2)	6.1% (2)
<u>Education</u>				
<HS – HS Grad	14.2% (35)	9.3% (23)	18.2% (6)	3.0% (1)
Some College	59.8% (147)	41.5% (102)	42.4% (14)	48.5% (16)
College +	26.0% (64)	48.4% (119)	39.4% (13)	48.5% (16)
Family Income	\$60,000 to \$79,999		\$60,000 to \$79,999	
Married	75.6% (186)		78.8% (26)	
Cohabiting	24.4% (60)		21.2% (7)	
Age	33.3 (6.2)	32.0 (6.5)	34.3 (5.9)	33.2 (4.7)
PTSD Score	10.3 (11.8)	11.3 (13.8)	7.7 (11.4)	13.1 (13.8)
Marital Satisfaction	110.4 (28.4)	111.7 (26.4)	119.3 (21.6)	114.1 (19.2)

^T Sample size: 246 couples had male soldiers with combat exposure and 33 couples had female soldiers with combat exposure; a small proportion of couples were dual military (n=22 couples, 8.6%), resulting in a final sample of 257 couples. In addition, some partners had previous military experience.

Table 2

Pathways for Within and Cross Spouse Effects

	Combat Exposure	IPV Perpetrator	IPV Victim
Within Spouse Effects	Male Soldier	Male Soldier	Female Partner
	Female Soldier	Female Soldier	Male Partner
Cross Spouse Effects	Male Soldier	Female Partner	Male Soldier
	Female Soldier	Male Partner	Female Soldier

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Table 3

Odds of Male Soldier’s Perpetration of IPV with an Increase in His Combat Exposure

Hosmer-Lemeshow Model Fit	Sexual – IPV			Physical - IPV			Injury - IPV		
	H-L=0.4246			H-L=0.4111			H-L=0.9935		
	aOR [95% CI]	b (SE)	P Value	aOR [95% CI]	b (SE)	P Value	aOR [95% CI]	b (SE)	P Value
Combat Exposure [^]	1.21 [0.95, 1.54]	0.19 (.12)	0.115	1.01 [0.79, 1.28]	0.01 (.12)	0.959	1.76 [1.28, 2.41]	0.56 (.16)	0.001
PTSD	1.01 [0.98, 1.04]	0.01 (.02)	0.733	1.02 [0.99, 1.05]	0.02 (.01)	0.210	1.00 [0.96, 1.04]	-0.00 (.02)	0.987
Marital Satisfaction	0.99 [0.97, 0.99]	-0.01 (.01)	0.023	1.0 [0.98, 1.01]	-0.00 (.01)	0.423	0.98 [0.96, 0.99]	-0.02 (.01)	0.024
Age	0.94 [0.88, 0.99]	-0.06 (.03)	0.049	0.96 [0.90, 1.01]	-0.04 (.03)	0.140	0.95 [0.87, 1.05]	-0.05 (.05)	0.343

[^] 10-point increase in combat exposure

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Table 4

Odds of Female Partner’s Perpetration of IPV with an Increase in Male Soldier’s Combat Exposure

Hosmer-Lemeshow Model Fit	Sexual – IPV			Physical - IPV			Injury - IPV		
	H-L=0.3631			H-L=0.3716			H-L=0.7174		
	aOR [95% CI]	b (SE)	P Value	aOR [95% CI]	b (SE)	P Value	aOR [95% CI]	b (SE)	P Value
Combat Exposure [^]	1.33 [1.02, 1.73]	0.28 (.14)	0.036	1.13 [0.91, 1.39]	0.12 (.11)	0.265	1.69 [1.13, 2.54]	0.53 (.21)	0.011
PTSD	1.02 [0.98, 1.05]	0.02 (.02)	0.336	1.01 [0.99, 1.04]	0.01 (.01)	0.349	1.02 [0.97, 1.08]	0.02 (.03)	0.343
Marital Satisfaction	0.99 [0.97, 1.00]	-0.01 (.01)	0.154	0.99 [0.98, 1.00]	-0.01 (0.01)	0.166	0.98 [0.95, 0.99]	-0.02 (.01)	0.048
Age	0.94 [0.87, 1.01]	-0.06 (.04)	0.108	0.94 [0.89, 0.99]	-0.06 (.03)	0.019	0.84 [0.73, 0.98]	-0.17 (.08)	0.025

[^] 10-point increase in combat exposure

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