When War Comes Home: The Effect of Combat Service on Domestic Violence[*]

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Abstract

This study is the first to estimate the effect of combat exposure on domestic violence. We exploit a natural experiment in overseas deployment assignment among active duty servicemen in the Global War on Terrorism (GWOT) and find that servicemen exogenously exposed to combat are substantially more likely to physically assault their intimate partners and children. These findings are robust to controls for propensity for violence prior to deployment and can be explained, in part, by the stress- and substance use-related consequences of war.

Keywords: combat exposure, domestic violence, relationship quality, post-traumatic stress disorder

1. Introduction

A wide body of literature in economics has examined the human capital and health costs of war for those serving in the Armed Forces (Angrist 1998, 1990, Angrist et al. 2010; Angrist et al. 2011; Angrist and Chen 2011; Cesur, Sabia and Tekin 2013). Relatively less attention has been paid to the effects of war on servicemembers' partners, children, and communities (Angrist and Johnson 2000; Lyle 2006; Rohlfs 2010). This study is the first to estimate the effect of war service on domestic violence.

Between 2.5 and nearly 5.0 million physical assaults per year are perpetrated against women by their intimate partners (Rand and Rennison 2005). Card and Dahl (2011) describe two theoretical explanations for why men might commit acts of violence against their intimate partners or other family members: (i) men use violence as a mechanism to control their partners (or children), and (ii) violence arises unintentionally via the interaction of verbal arguments with stress and emotional cues. This second explanation suggests that stress may be an important contributing factor to incidents of domestic violence.

Because of the substantial occupational stress that accompanies military service, the families of servicemen have been identified by policymakers as a vulnerable population in need of protection from such violence. The Department of Defense (DOD) has taken a strong position against domestic violence beginning with the implementation of DOD Directive 6400.1 in 1981, when it set out administrative procedures through which suspected incidents of abuse would be dealt. Specifically, this directive requires each branch of the United States Armed Forces to implement:

> (a) a Family Advocacy Program to prevent child maltreatment and spouse abuse; and (b) a confidential registry to collect and analyze Family Advocacy Program data (Department of Defense 1981). Suspected incidents of child maltreatment and/or spouse abuse in military families are referred to Family Advocacy Programs where a case review

> committee, composed of a multidisciplinary team of designated individuals working at the military installation level, is tasked with the evaluation and determination of abuse and/or neglect and the development and coordination of treatment and disposition recommendations (Mollerstrom et al. 1992). (Rentz et al., 2006; p. 94)[1]

The consequences for the commission of domestic violence by servicemen can vary from family counseling to Court-Martial under the Uniform Code of Military Justice. These Court-Martials are likely to fall under Articles 120 (Rape), 128 (Assault), or 134 (Threat of Harm), and could lead to discharge. Federal law also provides taxpayer-funded financial protection to spouses and dependent children of servicemen who are discharged for domestic violence.[2]

While the US Armed Forces claims to take cases of domestic violence quite seriously, there is at least some concern that military families are counseled to be prepared for and even tolerate spillover effects of violence in the household from returning war veterans.[3]

Our study is the first to estimate the causal effect of combat service on domestic violence and relationship quality. We exploit a natural experiment in overseas deployment assignment among active duty military personnel in the Global War on Terrorism (GWOT) to identify the causal effect of combat service on relationship health, intimate partner violence, and child abuse. We find that combat service leads to diminished relationship health and a substantially increased

[1] During the course of a domestic violence investigation, the commander may order an accused serviceman to move from the household and into military barracks. A military protective order, similar to a restraining order in civilian court, may also be granted to the alleged victim. Child abuse cases mandate involvement of local civilian child protective services organizations in the investigation as well. See Sadusky (2010) for a detailed discussion.

[2] The authorized payment to abused spouses is $850 per month for up to a maximum of 36 months, with an additional $215 for each dependent child.

[3] To take an example, a July 2004 report in the *New Yorker* gave this account from an Army wife:

"When he was coming home, the Army gave us little cards that said things like 'Watch for psychotic episodes' and 'Is he drinking too much?' "she said. "A lot of wives said it was a joke. They had a lady come from the psych ward, who said—and I'm serious—'Don't call us unless your husband is waking you up in the middle of the night with a knife at your throat.' Or, 'Don't call us unless he actually chokes you, unless you pass out. He'll have flashbacks. It's normal.'" (*New Yorker*, 7/12/04)

risk of domestic violence. Our results suggest that up to two-thirds of the estimated effect of combat exposure on domestic violence can be explained by the increased stress- and substance use-related consequences of war.

2. Background

2.1 *Prevalence of Domestic Violence.* According to the National Intimate Partner and Sexual Violence Survey (NIPSV), conducted by the Center for Disease Control and Prevention (CDC), about 1 in 4 women have suffered from severe physical violence. Recent statistics suggest that, over the course of their lives, 11.2 percent of women have been beaten by an intimate partner, and 17.2 percent have been slammed against something. Within a given year, it is estimated that 2.7 percent of women (or approximately 3.2 million women) have experienced such violence (Black et al., 2010). In addition, child maltreatment is the leading cause of injury-related death among children who are older than one year (Institute of Medicine 1999). According to CDC (2012), state and local child protective services in the United States reported that an estimated 695,000 children were victims of child maltreatment in 2010.

Each year, the U.S. spends $4.1 billion on direct medical and mental health care services to treat the victims of domestic violence (CDC 2003). The total costs of domestic violence—including lost productivity (in both the labor market and household) of those who survive as well as foregone lifetime earnings of those killed—have been estimated to exceed $5.8 annually (CDC 2003).[4]

2.2 *Theoretical Mechanisms.* Sociologists and psychologists have offered a number of theoretical explanations for domestic violence. General Strain Theory argues that presence of

[4] See recent work by Sabia, Dills, and DeSimone (Forthcoming) and Rees and Sabia (Forthcoming) for evidence on the human capital and earnings effects of sexual violence victimization.

strain leads to negative affective states, including anxiety, depression, fear and anger, which in turn leads to violent behaviors with the intention of minimizing or eliminating the source of strain (Agnew 1992). Empirical evidence suggests that both stress in general (Card and Dahl 2011) and occupational stress in particular (Gibson, Swatt, and Jolicoeur, 2001) have been found to be associated with increased levels of domestic violence against women and children.

Combat service is known to be one of the highest stress occupations, raising concerns that family members of such employed men may be at risk for potential abuse. A number of studies by both public health researchers (Hoge et al., 2006, 2004; Erbes et al., 2007; Rosenheck and Fontana, 2007; Seal et al., 2007; Tanielian and Jaycox, 2008) as well has health economists (Cesur, Sabia, and Tekin 2013) have documented the effects of combat exposure on stress-related mental health ailments, such as Post-Traumatic Stress Disorder, a potentially important mechanism through which combat service could affect domestic violence.

In addition to the direct effects of stress-related ailments on domestic violence, the indirect stress-related consequences of combat could also influence the likelihood of violence. A number of studies have found that war service increases substance use. For instance, those drafted to combat in World War II, Korea, and the Vietnam War have been found to be more likely to use drugs (Price et al., 2004) and drink alcohol excessively (McFall et al., 1992). Descriptive (Thomsen et al., 2011; Hooper et al., 2008; Jacobson et al., 2008) as well as more careful causal studies (Chesney et al. 2013) have found that servicemen deployed to combat in GWOT are more likely to use illegal drugs, and abuse alcohol. The effects of substance use on domestic violence have been well-documented as well. Substance use has been found to be associated with increased likelihood of child maltreatment (Markowitz and Grossman, 1998,

2000), and intimate partner abuse (Angelucci 2008; Markowitz 2000; Klosterman and Fals-Stewart, 2006; Exum 2002; Stuart et al. 2008; El-Bassel et al. 2005; Kyriacou et al. 1999).[5]

While the direct and indirect effects of war on stress might explain a portion of the relationship between war and domestic violence, there are other channels as well. The normalization of violence—often known as a "pathologic adaption to violence"—may be yet another mechanism (Schwab-Stone et al., 1995). A number of studies in the sociology and psychology literature find that younger individuals who are pathologically adapting to violence may be desensitized to repeated violence, which both protects those who are exposed to violence and increases their propensity to commit violent behaviors (Dubrow and Garbarino, 1989; Garbarino, 1995, 1999; Garbarino and Kostelny, 1997; Pollack 2004). Grossman and Siddle (1999) have conjectured that combat exposure as well as combat training may permanently break down the mind's natural barriers to committing violent acts.[6]

Combat service may affect the likelihood of domestic violence by its effect on the distribution of potential mates (and the distribution of mate quality) available to the servicemen. For example, a well-established assortative mating literature in the social sciences documents that female and male partners share similar traits and come from comparable socioeconomic classes (Belot and Francesconi, 2013). Therefore, those that are willing to partner with servicemen who have served in combat may be those from military families who may themselves have been exposed to the violence.

[5] Identification of substance use effects has generally come from policy variation in beer taxes or via cross-regional variation in drug prices.

[6] See Grossman (2009) for a discussion of how the U.S. military implemented different training methodologies to reduce soldiers' reluctance to fire on the battlefield.

Finally, war deployments themselves may have ambiguous theoretical effects on domestic violence. The absence of a potentially violent spouse from the household may reduce the likelihood of domestic violence. However, their return may bring a new set of stresses to the household, including reallocation of household duties, which could trigger violence.

While the above mechanisms represent plausible causal channels through which military service may affect domestic violence, military service also may be related to domestic violence through selection. Men who select into military service are different on a wide set of characteristics from civilians (Dobkin and Shabani 2009) and many of these characteristics—such as socioeconomic status (Segal et al., 1998; Bachman et al., 2000; Kleykamp, 2006), physical and mental health (see Department of Defense Directives 6130.3 and 6130.4), and personality—are also related to the likelihood of commission of domestic violence (Aizer 2010; Angelucci 2008; Pollack 2004; Tjaden and Thonnes 1998; Dugan, Nagin, and Rosenfeld. 1999). Women who choose to partner with and have children with military servicememembers may also differ in substantial ways from partners and children of civilians (Larsen et al., 2011), and victims of violence may be targeted (Sabia, Dills, and DeSimone 2013).[7]

2.3 *Literature.* While no study in the economics literature has explored the effect of war service on domestic violence, several recent studies have estimated the effect of military service on violent crime more broadly, using the draft lottery as a source of exogenous variation in war service (Rohlfs 2010; Galiani, Rossi, and Schargrodsky 2011; Lindo and Stroecker Forthcoming). Each of these studies provides evidence in support of the hypothesis that

[7] While Reservists and National Guardsmen have been argued to be a better counterfactual than civilians, several studies have found that they differ from active-duty deployed soldiers on a wide set of dimensions that coujld also be related to family violence and relationship health (Hirsch and Mehay, 2003).

randomly conscripting a civilian into military service, particularly involving combat, increase the risk of subsequent violent crime commission. [8]

A handful of studies have explored the relationship between military service and relationship quality. Angrist and Johnson (2000) find that deployment of male soldiers in the Persian Gulf War has no effect on divorce, while deployment of female soldiers increases divorce.[9] However, Negrusa, Negrusa, and Hosek (2011) find that post-9/11 deployments adversely affect marital stability when men are deployed, particularly when accompanied by intense combat, and Heerwig and Conley (2013) also find that military service may adversely affect residential stability. Negrusa and Negrusa (2012) find that the adverse psychological consequences of deployments—including Post-Traumatic Stress Disorder—may represent important channels through which deployments affect relationship and family well-being.

Prior research that has studied intimate partner violence or child abuse in families of military servicemen has been descriptive in nature, usually examining small convenience samples. The studies have either (i) focused on military populations and studied the prevalence of domestic violence among these individuals (Taft et al. 2005; Marshall, Panuzio, and Taft 2005; Forgey, and Badger, 2006; Defense Task Force on Domestic Violence, 2003; Campbell et al. 2003; Sayers, Farrow, Ross, and Oslin 2009), or (ii) compared domestic violence rates of military families to civilian families (Griffin and Morgan 1988; Cronin 1995; Heyman and Neidig 1999). These latter studies have generally found that spousal abuse is more common in military than civilian families (Griffin and Morgan 1988; Cronin 1995; Heyman and Neidig 1999), but the results on child abuse is far more mixed (Gessner and Runyan 1995; North

[8] There are also a number of correlational studies (see, for example, Black et al. 2005; Bouffard 2003; King and King 2000; Kulka and others 1990a, 1990b; Mumola 2000), which have reached a similar conclusion.

[9]However, a RAND study by Karney and Crown (2007) suggests little evidence that deployment increase divorce rates among enlisted members of the Armed Forces.

Carolina Child Advocacy Institute 2004; Raiha and Soma 1997; McCarroll et al. 2004; Dubanoski and McIntosh 1984). While descriptively informative, none of these studies has empirically isolated the causal effect of war service on domestic violence from an association due to selection.

3. Identification

Our innovation is to exploit a natural experiment in overseas deployment assignment among active duty personnel to identity the causal effect of combat service in the Global War on Terrorism on domestic violence and relationship health. The process by which deployment assignments of active duty U.S. Armed Forces personnel are made is not well known. Individual servicemen are, in fact, rarely deployed. Rather, individual soldiers are assigned and then re-assigned to units every three to five years, and it is these units that are deployed (Lyle 2006). Deployment assignments, made by Human Resources Command, are based on two exogenous factors: operational needs of the U.S. military, which are driven by world events, and the readiness and availability of units, which is determined by timeliness of equipment being inventoried and cleared for shipment, completion of specified training, and occupational skill set of unit members (Army Regulation 220-1).

Human Resources Command views servicemen of equivalent military rank, occupation, and branch as interchangeable when making unit deployment decisions. Conditional on rank and occupational characteristics of units, deployment assignments are made independently of servicemen's family background, home circumstances, personality, marital status, relationship quality, predisposition for violence, and other individual characteristics (Engel et al. 2010).

> "As a rule, [Human Resources Command] do[es] not take into consideration the welfare of an individual enlisted soldier...nor do they consider the average characteristics of units and families." (Engel et al., 2010, p. 76)

In fact, Human Resources Command only has a small set of observables—military rank, occupation, and age—available to it when deployment decisions are made. Thus, the US Armed Forces views servicemen of identical rank and military occupation as essentially perfect substitutes when making unit and deployment assignments.

The credibility of our natural experiment rests upon the assumption that, conditional on the small set of military observables described above, deployment assignment decisions are exogenous to the commission of domestic violence. A few recent studies have argued that deployment assignments are exogenous to servicemembers' mental health (Cesur et al. 2013) and their children's test scores (Lyle 2006; Engel et al. 2010). We descriptively explore whether it is plausible to expect that deployment is also exogenous to family violence and relationship health in three ways. We examine (i) whether deployment assignment is related to a wide set of pre-deployment individual and family background characteristics including prior propensity for violence; (ii) the sensitivity of estimates of the effect of deployment assignment on domestic violence and relationship health to the inclusion of controls for background characteristics that we expect to be orthogonal to deployment assignment; and (iii) the robustness of estimates across multiple datasets, one of which is designed to be representative of all active duty servicemen serving in the US Armed Forces.

It is important to note precisely what our identification strategy identifies. We purport to estimate the effect of randomly drawing a serviceman of identical rank and occupation to combat deployment as compared to a non-combat overseas deployment. This may be a different local average treatment effect (LATE) from that generated via draft lottery, which estimates the effect

of randomly drawing a civilian into war service. While both LATEs are informative, the lack of political support for reinstitution of the military draft suggests that our estimates will provide an important policy-relevant parameter.

As is often the case with more credible identification, our approach does have the cost of limited generalizability. Because our identifying variation comes from deployment assignment among overseas deployed active duty servicemen, we do not identify the effects of deployment per se, but rather the effect of combat deployments relative to non-combat deployments. Thus, the theoretical channels described above related to the effect of deployment (relative to non-deployment) will not explain our findings effects.[10] Therefore, for example, if deployment itself has stress-related consequences that affect family violence, our estimates might understate the full effects of war service on family violence. Second, while servicemen can affect the probability of deployment by their occupation choice, our identification approach relies on conditional randomization; that is, *within-occupation* and *within-military rank*, deployment assignment is non-random. Thus, military occupations without a positive probability of deployment to combat will be excluded as a source of identifying variation, making our results uninformative in understanding the domestic violence effects of randomly drawing such servicemen into combat. And finally, these estimates may not be informative in assessing the effects of other occupational stresses or violence exposure on the subsequent commission of domestic violence.

4. Data and Measures

[10] In fact, identifying the effects of deployment among active duty personnel can prove empirically challenging, While short-run timing of deployments may be plausibly exogenous (Lyle 2006), long-term non-deployed servicemen may, in fact, be "non-deployable" for reasons related to health (Department of the Army AR 614-30, 2010), which could be related to family violence.

We use two datasets to explore our question: the National Longitudinal Study of Adolescent Health and the Department of Defense Health and Related Behaviors Survey.

Add Health. The Add Health is a nationally representative school-based survey that initially interviewed respondents in seventh through twelfth grades in the 1994-1995 academic year (Baseline Survey). In-home surveys were completed by 20,745 baseline respondents ages 11 to 18. In addition; a parental questionnaire was completed by the respondent's parent or guardian, usually the biological mother. Information was collected on health, education, family background, cognitive ability, and risky behaviors, including violence. In subsequent years, three follow-up surveys to Add Health's Baseline Survey were conducted. The first in the 1995-96 school year (First Follow-Up Survey), the second in 2001-2002 when respondents were ages 18 to 26 (Second Follow-Up Survey), and the third in 2007-2008 when respondents were ages 24 to 34 (Third Follow-Up Survey). Our analysis focuses on the Third Follow-Up Survey (Wave IV) when respondents were in young adulthood.

At Wave IV, there were 753 men who reported active duty service in the United States Military, 80 percent of whom served in the Global War on Terrorism (post-September 2001). The analysis sample is restricted to 482 active duty male soldiers who reported overseas deployment. Our key measure of combat in the Add Health, *Combat Service*, is an indicator is set equal to 1 for those who reported assignment "to a combat zone" and set equal to zero for those who were assigned to an overseas deployment in a non-combat zone.[11] In the Add Health sample, 75.5 percent of those deployed overseas (N = 364) were assigned to combat zones, while the remainder (N = 118) were assigned to non-combat zones. We also experiment with an alternate measure of combat, *Combat Exposure*, which measures whether the respondent

[11] Combat zones are designated by an Executive Order from the President as areas in which the U.S. Armed Forces are engaging or have engaged in combat. For a further description, see: http://www.irs.gov/uac/Combat-Zones

"engaged the enemy in firefight." Among those who reported combat service, 48.6 percent (N = 177) reported combat exposure.

We measure domestic violence and relationship health in the Add Health using information gathered from servicemen at Wave IV. Each measure is dichotomous in nature and measures violence not only in marital relationships, but in any dating-like relationship. Our first outcome, *Threaten,* measures whether the serviceman reports he has "threatened [his] partner with violence, pushed or shoved her, or thrown something at her that could hurt" in the most recent year of the relationship. [12] Our second, *Hit*, measures whether the respondent has "slapped, hit, or kicked [his] partner." And our final domestic violence outcome, *Injury,* measures whether the respondent's partner "had an injury such as a sprain, bruise, or cut because of a fight with [him]." We provide means of these measures in Table 1A. Among deployed active duty servicemen, 5.7 percent report having threatened, pushed, or thrown something at their partner, 3.2 percent reported having slapped, hit, or kicked their partner, and 1.7 percent report injuring their partner.

In the Add Health, we also construct two measures of relationship health, again reported by servicemen: *Trust,* which measures whether the respondent strongly agreed or agreed that he "trusts [his] partner to be faithful" and *Listen,* which measures whether the respondent strongly agreed or agreed that his "partner listens to [him] when [he] need[s] someone to talk to." In our

[12] The reference partner was decided by the survey administers based on the following criteria: "This section is administered for ONE current partner. If there are multiple current partners, priority is: marriage partner, cohabitation partner, pregnancy partner, dating partner. If two or more partners fall in the same type of relationship, the longer/longest relationship is selected. If two or more partners fall in the same type of relationship, and they are of the same duration, then the respondent is asked to pick the partner they care about the most. If there are no current partners then the most recent partner is selected. If there is no current partner and no most recent partner, end dates for each marriage, cohabitation, and relationship with a pregnancy are reviewed to select the one partner with the most recent end date. If two or more partners have the same end date, select the longer/longest relationship."

sample of deployed servicemen, 78.9 percent report trust in their partner's faithfulness and 81.5 percent report that their partner listens to them.

There are a few important limitations to our measures. First, they are all self-reports by servicemen. While the Add Health survey is administered using the Computer Assisted Personal Interview (CASI) to minimize underreporting of sensitive or even illegal behaviors, self-reports are likely to produce an underreport of the true prevalence of intimate partner violence. However, the means reported in the Add Health are not dissimilar from other data sources. For instance, 2.0 to 13.0 percent of Army veterans reported intimate partner violence in an alternate national sample (Heyman and Neidig 1999). Moreover, even if our measures understate the prevalence of violence, as long as underreporting rates are orthogonal to combat assignment, our estimates should remain unbiased.

Our identification assumption rests on the assumption that, conditional on military observables, combat assignment is exogenously determined. The key advantage to using the Add Health is that it contains information on each of the observables available to Human Resources Command when making deployment decisions. Moreover, because the data are longitudinal in nature, we can explore whether deployment assignment is related to a wide set of family and individual background characteristics, including pre-deployment violence. The disadvantage of the Add Health is its relatively small sample size, which reduces the precision of estimates, as well as its generalizability given that it focuses only on young adults ages 24 to 34.

HRB Survey. The 2008 Department of Defense Health and Related Behaviors (HRB) Survey was collected by Research Triangle International to measure the well-being of military personnel serving in GWOT. The survey consists of 28,546 active duty military servicemembers, of which 20,927 were male— 4,320 from the Army, 4,909 from the Navy,

3,837 from the Marine Corps, 4,873 from the Air Force, and 2,988 from the Coast Guard. The survey was completed via anonymous surveys distributed at military installations to respondents ages 18 to 54. When weighted, the survey is designed to be representative of US servicemembers in all pay grades serving throughout the globe.[13] (See Bray et al. 2009 for more detailed information on the DOD HRB data collection strategy.) Our main sample consists of 11,542 active duty servicemen (2562 soldiers, 3,370 sailors, 2,505 marines, and 3,093 airmen) who had deployed overseas and who provided non-missing information on combat exposure and domestic violence. An important advantage of the HRB data, therefore, is a much larger, representative sample.

There is no analogous measure of *Combat Service* available in the HRB Survey, as the HRB survey does not provide information on whether overseas deployment assignments beyond the previous year were made to a combat zone or not. However, the data do contain analogous information on *Combat Exposure*, measured as whether the respondent reports "incoming fire from small arms, artillery, rockers or mortars" or having their "unit fire on the enemy." As reported in Table 1B, 51.5 percent reported combat.

The inability to disaggregate those who do not report exposure has important implications. Assignment to a combat zone—even one in which firefight does not materialize—could potentially induce stress (beyond that seen from deployment to non-combat zones) that could affect the likelihood of domestic violence. Therefore, pooling those assigned to non-combat zones with those assigned to combat zones without combat exposure could understate the domestic violence effects of combat.

[13] However, the sample excludes those who were absent without official leave, attending a service academy, or who were incarcerated at the time of data collection effort.

Information on domestic violence and relationship health is a bit more extensive in the HRB Survey than in the Add Health. *Any Abuse* measures whether each serviceman "hit [his] spouse, live-in fiancé, boyfriend or girlfriend, or the person [he] dates[s]" or "hit [his] children for a reason other than discipline (spanking)" in the last year. We then separate intimate partner violence (*Partner Abuse)* from child maltreatment (*Child Abuse*). We find that 2.3 percent of some form of domestic violence, with 1.8 reporting intimate partner abuse, and 1.3 percent child abuse. These percentages are lower than those reported in the Add Health for two reasons: first, the average age of HRB respondents is about 3 years older than in the Add Health and violence reports are lower among older servicemen; second, the 2008 HRB survey was a pencil and paper survey that often took place in large communal halls with less confidentiality afforded than the CASI system. HRB reports of intimate partner violence were on the lower end of the range reported by Heyman and Neidig (1999) as were child abuse rates (US National Survey of Children's Exposure to Violence).[14]

With regard to relationship health, we measure *Break-Up* as whether the respondent reports that his "spouse or live-in fiancé/ boyfriend/girlfriend threatened to leave or left [him]" in the last year; Relationship stress (*Stress)* is measured by whether the respondent reports having experienced serious stress "in [his] family life or in a relationship with [his] spouse, live-in fiancé, boyfriend or girlfriend, or the person [he] date[s] seriously" over the last twelve months; and *Argument* measures whether the respondent had "heated arguments with family or friends" in the last year. We find that 13.5 percent of servicemen reported that their partners had threatened to leave them or had broken up with them, 16.4 percent reported serious relationship

[14] Approximately 3.7 percent of those ages 0 to 17 reported physical abuse by caregiver (US National Survey of Children's Exposure to Violence 2011)

stress in the last year, and 31.0 percent of the sample reported heated arguments with family or friends. These estimates, along with means of the controls are shown in Table 1B.

The chief advantage of the HRB Survey is that it produces estimates that are more generalizable to the active duty population than the younger sample available in the Add Health. Moreover, because of the large sample size, relatively precise, branch-specific estimates can be obtained. However, an important disadvantage of the HRB Survey is that it does not contain information on military occupation, one of the few variables on which Human Resources Command has information and which may influence deployment decisions. However, the HRB Survey does contain detailed information on military installation assignment (Major Command) and educational attainment, which could be important proxies for occupation. Below, we test the degree of bias introduced in the HRB data by the lack of occupation data by comparing "clean estimates" from the Add Health to estimates from the Add Health using only HRB controls.

Empirical Approach. To descriptively explore the exogeneity of deployment assignment, we begin by drawing data from the Add Health, and estimate:

$$Combat = \beta_0 + \beta_1'\mathbf{M} + \beta_2'\mathbf{X} + \varepsilon \quad (1)$$

where **X** is a wide set of individual and family background characteristics generally measured prior to deployment (age, race, education, parental income, parental marital status, maternal education, and religion) as well as pre-deployment measures of violence, including serious physical fight experiences and parental physical maltreatment prior to age 18 ; and **M** is a set of military controls, including rank, occupation, branch, and timing of service. If deployment assignment is exogenous to domestic violence and relationship health, then, conditional on military characteristics, background variables should be unrelated to deployment assignment.

The findings in Table 2 generally support this hypothesis across deployment assignments within and across combat zones.[15] Across comparisons, we find little evidence that individual, family background, or pre-deployment violence predicts deployment assignment. Only being Hispanic seems related to deployment assignment, which we control for in all models. Robustness checks on a non-Hispanic white sample of males produce a similar pattern of results to those produced below.

To identify the effects of combat exposure on domestic violence we estimate the following linear probability model[16]:

$$\textit{Domestic Violence} = \delta_0 + \delta_1 \textit{Combat} + \delta_2' \mathbf{M} + \varepsilon \quad (2a)$$

$$\textit{Domestic Violence} = \delta_0 + \delta_1 \textit{Combat} + \delta_2' \mathbf{M} + \delta_3' \mathbf{X} + \varepsilon \quad (2b)$$

If the background characteristics, including prior violence, are exogenous to deployment assignment, then estimates of δ_1 from equations (2a) and (2b) should be statistically equivalent.

5. Results

Our main findings appear in Tables 3-8. Heteroskedasticity-corrected standard errors are in parentheses and sample sizes are in brackets.

5.1 *Main Add Health Results*

Table 3A presents our main findings using the Add Health data. Row (1) of Panel A presents estimates from equation (2a), conditioning on military observables. Columns (1)-(3) show that assignment to a combat zone as compared to a non-combat zone increases the

[15] Specifically, column (1) compares respondents assigned to combat zones to those assigned to non-combat zones; column (2) compares respondents assigned to combat zones with enemy firefight to those assigned to non-combat zones; column (3) compares respondents assigned to combat zones with firefight to those assigned to either combat zones without firefight or to non-combat zones; and column (4) compares respondents assigned to combat zones without enemy firefight to those assigned to non-combat zones.

[16] Probit models produce similar marginal effects:

probability of subsequent domestic violence by 3.2 to 6.0 percentage-points. Relative to the means of these outcomes, these increases are quite large. We also find that combat zone assignments are associated with a decline in relationship health, decreasing the probabilities of trust in fidelity by 8.5 percent (0.067/0.789) and effective listening by 11.9 percent (0.097/0.815). The inclusion of controls for family and individual background characteristics (row 2) and pre-deployment violence (row 3) has little effect on the magnitude of the estimated effects, lending support to the hypothesis that deployment assignment is exogenous to personal characteristics.[17]

In Panel B, we allow for differential effects of *Combat Service* depending on whether the serviceman assigned to a combat zone actually was exposed to enemy firefight (*Combat Exposure*). Here, the coefficient on *Combat Service* can be interpreted as the effect of a deployment assignment to a combat zone where the serviceman did not see enemy firefight. The findings in Panel B suggest that assignment to a combat zone –whether or not that respondent saw enemy firefight—is associated with substantial increases in the risk of intimate partner violence and reduced relationship quality. In no case can we reject the hypothesis that the estimated domestic violence and relationship quality effects are significantly different for those assigned to combat zones with firefight compared to those assigned to combat zones without such firefight materializing.

In the remaining panels (C through E), we present branch-specific estimates for the Army, Marines, and Navy.[18] Despite the imprecision of estimates, our results suggest that the

[17] An alternate interpretation of the estimates in Table 3 could be that combat service increases the likelihood that men report committing domestic violence because combat reduces the stigma of violence. While Add Health does not ask questions about attitudes toward violence in the home, it does ask about the respondent's agreement with the following statements: *"I like order", "I sympathize with others' feelings",* and *"I am not interested in other people's problems."* The results in Appendix Table 3 do not

[18] There are too few observations in the Add Health to estimate the Air Force sample separately.

effects of combat on domestic violence and relationship quality are strongest for those in the Army and Marines as compared to the Navy. This finding is consistent with earlier research that suggests that the adverse stress- and risky behavior-related effects of combat are largest for the Army and Marines (Cesur et al. 2013; Chesney et al. 2013).

Interpreting the estimates in Table 3A could prove complicated given how combat service affects relationship formation. If combat assignment affects the distribution of relationships formed and the propensity for violence among unformed relationships differs from those formed, our estimates may be biased.[19] While we do not attempt to disentangle relationship selection effects, in Table 3B, we explore the effects of combat service *conditional* on being in a relationship as well as the effect of combat on the probability of being in a relationship. The results in Panel A suggest that, conditional on being in a relationship, assignment to a combat zone is associated with an increased risk of domestic violence and diminished relationship quality among those in a relationship across each of our three measures (columns 1-3) as well as a marginally significant 9.9 percent (0.083/0.842) decline in the probability of being in a relationship. The findings when we separate out those in combat zones exposed to firefight (Panel B) generally produce a similar pattern of results to those using the unconditional sample, as do the branch-specific estimates (Panels C-E), though they are very imprecisely estimated.

5.2 *Main HRB Results*

In Table 4A, we turn to results from the HRB Survey. As noted above, these data only allow us to measure *Combat Exposure*, so to the extent that those assigned to combat zones

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[19] For instance, if those who are deterred from relationship formation by combat had formed relationships, it is possible that those relationships would have been violent, biasing downward our previous estimates. Moreover, combat service could affect the likelihood of entering into heterogeneously-matched relationships differently. For example, combat could induce poorer match short-term relationships for coping, but deter longer term better matches because of the psychological consequences of combat. Thus, combat could affect both match quality and match length in complicated ways.

without enemy firefight also incur stress that induces domestic violence, these estimates may be biased downward. The findings in Panel A of Table 4A produce consistent evidence that combat exposure is associated with substantial increases in the risk of domestic violence and diminished relationship quality. We find that assignment to a deployment with combat exposure leads to a substantially increased risk of domestic violence (columns 1-3): a 43.4 percent (0.010/0.023) increase in the probability of domestic violence, a 44.4 percent increase in the probability of intimate partner violence (0.008/0.018), and a 76.9 percent (0.010/0.013) increase in child abuse. These estimates are approximately half the size observed in the Add Health, which may in part be explained by our inability to separate those assigned to combat zones without exposure from those assigned to non-combat zones.[20] Turning to relationship health (columns 4-6), we also find that combat exposure is associated with a 20.7 percent (0.034/0.164) increase in the probability of serious relationship stress, a 24.4 percent (0.033/0.135) increase in the probability of a relationship break-up (or threat thereof), and an 18.3 percent (0.057/0.310) increase in the probability of heated arguments.

The estimates in Panels B through E again point to large domestic violence effects for the Army and Marines as in the Add Health, but also for the Navy. There is less evidence that those in the Air Force who are exposed to combat are more likely to abuse their partners and families, perhaps because combat exposure is more distant for those in the Air Force. Again, this pattern of results is generally consistent with prior work that has uncovered the largest stress-related effects of combat among those in the Army and Marines (and to a lesser extent, Navy).

In Panel 4B, we repeat the exercise in Table 3B for the HRB data. We find that conditional on being in a relationship, combat exposure is associated with increases in the risk of

[20] Another explanation might be heterogeneity in the effects of combat by age across the datasets. When we restrict the datasets to active duty individuals of the same age, the magnitudes are somewhat more similar, but still remain larger in the Add Health.

domestic violence (column 3), particularly of children (column 5), and diminished relationship quality (columns 6-8), but little evidence that combat exposure affects the likelihood of being in a relationship (column 7), having children (column 8), or having children conditional on being in a relationship (column 9). Branch-specific estimates are generally smaller, but show a similar pattern of results.

As noted above, the key drawback of the HRB data is the lack of data on military occupation. To judge the magnitude of any bias, we limit the set of observables in **M** and **X** from equation (2b) to the set of controls available in both datasets. Assuming that the natural experiment is "clean" in the Add Health data, a comparison of estimates of δ_1 from a regression that omits those observables and one that includes them should allow us to sign and magnify the bias. Row (1) of Table 5 shows estimates from the clean natural experiment while row (2) shows estimates of equation 2(b) including only the HRB-available controls. Uniformly, the results suggest that the absence of occupation data in the HRB does not substantially bias our estimates, suggesting that educational attainment controls and information on installation-level Major command may proxy reasonably well for occupation. In fact, the HRB estimates may modestly understate the domestic violence and relationship health effects of combat.[21]

5.3 *Robustness of Findings*

In order to examine whether the estimates presented above are sensitive to our definition of combat, we experimented with alternate measures available in both the Add Health and HRB surveys. Specifically, respondents were asked whether they (i) believed they had killed anyone

[21] An alternative approach we take is to use propensity score matching in the HRB data to ensure that those deployed to combat and non-combat share common support on observables. Results obtained from the propensity score matching methodology are quantitatively and qualitatively very similar to our main estimates, as shown in Appendix Table 5.

or had actually killed someone in battle, (ii) were wounded or injured themselves in battle, and (iii) had observed an ally killed or wounded.[22] We use responses to these items to create alternate dichotomous measures of combat. Tables 6A and 6B present estimates using the HRB and Add Health survey, respectively. Our findings suggest that combat increases subsequent domestic violence and diminishes relationship quality across alternate combat measures.

Next, we explore whether combat exposure has different effects on enlisted personnel in comparison to officers. For instance, Lyle (2006) finds that the adverse effects of combat on families are smaller for officers. Hence, in Table 7, we present estimates of the effect of combat exposure on domestic violence and relationship quality measures in the HRB sample for the enlisted personnel (Panel A) and officers (Panel B). The Add Health data do not include sufficient observations on officers to conduct such an analysis. The results shown in Table 7 suggest that the violence and relationship health effects of combat exposure among enlisted personnel are much larger than for officers. Although unearthing the factors behind the differential effects of combat exposure among enlisted personnel versus officers is beyond the

[22] In the Add Health, respondents were asked:

> *Did you ever kill or think you killed someone?*
> *During your combat deployment, were you wounded or injured?*
> *During your combat deployment, did you see [coalition or ally] wounded, killed, or dead?*

Among deployed active duty male personnel, 29.5 percent reported believing they had killed or had actually killed someone, 8.9 percent reported being wounded or injured in battle, and 39.2 percent reported having observed an ally wounded or killed.

In the HRB survey, respondents were asked:

> *Thinking about all of your deployments (combat and noncombat), how many times have you had each of the following experiences?*
>
> *I was responsible for the death or serious injury of an enemy.*
> *I was wounded in combat.*
> *I witnessed members of my unit or an ally unit being seriously wounded or killed.*

In the HRB sample, 15.6 percent reported being responsible for death or serious injury of enemy, 5.2 percent reported being wounded in battle, and 39.2 percent reported witnessing members of their unity or an ally wounded or killed.

scope of the current study, among the explanations might be the endogenous determinants of becoming an officer, the consequences of serving as an officer, and partner characteristics such as her educational attainment and tolerance of domestic violence.

In Table 8, we examine whether combat deployment of *women* affects the likelihood of subsequent commission of domestic violence against their partners. There are a number of theoretical reasons to expect that the effect of combat on women may differ. First, physical differences between the sexes make physical violence a less effective strategy for women to control men (Matud, 2004; Ptacek, Smith, and Dodge 1994; Tamres et al. 2004). There is also evidence that women cope with stressful situations differently than men. Finally, combat exposure for women is likely to differ substantially from that experienced by men because of pre-2013 U.S. military policy that banned women from combat roles. Thus, females' exposure is likely to be confined to observing the consequences of combat rather than personal battlefield experience.[23] The results in Table 8 suggest consistent evidence that combat exposure is significantly negatively related to our three measures of relationship health (columns 4-6). However, while the effects of combat exposure on domestic violence were uniformly positive, the effect sizes are much smaller in magnitude than those found for males and are statistically indistinguishable from, zero.[24]

5.4 *Descriptive Mechanisms*

[23] In the HRB sample, we estimate that 38.1 percent of deployed females were assigned to combat zones where they experienced combat exposure. We also find that 3 percent reported intimate partner violence. Summary statistics for women are reported in Appendix Table 7. Sample sizes of deployed active duty women were insufficiently large (N = 83) in the Add Health to allow for informative analysis.

[24] In unreported results available upon request, we explore whether there are heterogeneous effects of combat assignment across several proxies for social support, including religiosity, education, and parental resources. The results of this descriptive exercise did not uncover evidence of differing combat effects across these measures.

The existing literature suggests several mechanisms through which combat service may affect domestic violence and relationship quality, including psychological stressors, substance abuse, and normalization of violence. Both data sets used in the analysis provide information on psychological stressors (PTSD, suicidal ideation, and stress scales) and substance abuse (drug use and binge drinking). In Table 9 Panels A and B, we estimate the effect of combat assignment on these outcomes. Across both datasets, we find that our estimates show that assignment to combat leads to increased probability of PTSD, psychological stress, and suicidal ideation, consistent with evidence from Cesur, Sabia, and Tekin (2013).

In Tables 10A and 10B, we descriptively explore how each of these measures mediates the relationship between combat assignment and domestic violence (or relationship health). However, we urge caution in the interpretation of these mediating models. Even if the results in Tables 9A and 9B suggest a causal link between combat assignment and several key mechanisms, we do not identify the causal effect of substance use or psychological stress on domestic abuse. Therefore, as thoroughly discussed Heckman and Pinto (2013), comparing estimates of δ_1 across models that include and exclude mediators can lead to misleading interpretations about the role of these channels given that substance use and stress-related ailments are endogenous. With those caveats in mind, Table 10A presents our descriptive mediating results for the HRB data. We find that controlling for PTSD, suicide ideation, and anxiety disorders[25] reduces the magnitude of the association between *Combat Exposure* and *Any*

[25] Specifically, in the HRB survey, *PTSD* is created in the following fashion:

Questions asked whether participants had a loss of interest in activities that used to be enjoyable, being extremely alert or watchful, having physical reactions when reminded of a stressful experience, and feeling jumpy or easily startled. Respondents were asked to indicate how much they had been bothered by each of the 17 experiences in the last 30 days; response options were not at all, a little bit, moderately, quite a bit, and extremely. Each statement was scored from 1 to 5, and a sum for all items was computed. The standard diagnostic cutoff was used such that if the sum were greater than or equal to 50, participants were classified as needing further evaluation for current (past month) PTSD; those with a score less than 50 were considered not to need further evaluation.

Abuse (Panel A) by approximately 30 percent, while binge drinking and drug use explain approximately 40 percent of the association. Together, the estimated association between combat assignment and domestic violence falls approximately 60 percent after controlling for substance use and stress-related ailments.

In Panels B through F, we conduct the same exercise using other measures of domestic abuse and relationship quality. The results continue to suggest that combat-induced stress and substance use mediate the relationship between combat exposure and domestic violence as well as domestic violence and relationship quality. The inclusion of these controls reduces the estimated association by 33.3 to 61.7 percent.

In Table 10B, we repeat the exercise using the Add Health data. While we do find that the magnitude of the estimated association between combat and domestic violence falls with the inclusion of stress and substance use as right hand-side variables, the decline we observe is not sharp as seen in the HRB data; rather, we can explain only 10 to 15 percent of the estimated effect. One explanation is that the stress disorder measure available in the HRB data is more

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Psychological Stress is scale generated from:

Questions asked how often they felt nervous, hopeless, restless, or fidgety; so depressed nothing could cheer them up; that everything was an effort; and worthless in the past 30 days. The five-point scale ranged from 0 to24 with response options from "none of the time" to "all of the time." Items were summed and the standard cutoff of 13 or more indicated possible serious mental illness

Suicidal Ideation is created based on the following questionnaire item:

> *If you have ever seriously considered suicide, when did this occur? (Mark all that apply.) Within the past year.*

Drug Use is created based on the following questionnaire item:

> "*Past 30 Days, Any Illicit Drug Use Except Steroids, Sexual Enhancers, Analgesics*"

Binge Drinking is created by the DOD HRB survey if respondent reported drinking five or more drinks in one occasion in the past 30 days.

detailed relative to the measure available in Add Health.[26] Another might be because the channels are more important for those who have experienced combat service more recently while on active duty. To explore this possibility, in Appendix Tables 6A and 6B, we limit the estimation sample in both datasets to current active duty members who are in the age range of 24 to 32 for the DOD HRB, and Add Health, respectively. When the estimation samples are comparable, our mediation analysis produces similar results across each dataset.

6. Conclusions

Researchers estimating the impact of war are increasingly focusing on effects not only to the servicemen, but also their families and children (Angrist and Johnson 2000; Lyle 2006; Engel et al. 2010). Our paper suggests that the diminished physical health and well-being of servicemen's intimate partners and children should be included as part of the costs of war. This study is the first in the economics literature to estimate the effect of war on intimate partner violence, child abuse, and relationship quality. We exploit plausibly exogenous variation on overseas deployment assignment among active duty servicemen to estimate the effect of combat

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[26] The PTSD variable in the Add Health data is generated based on the following survey question:

Has a doctor, nurse or other health care provider ever told you that you have or had: post-traumatic stress disorder or PTSD?

The binary PTSD variable is coded as 1 for the respondents who reported PTSD diagnosis and 0 otherwise.

We used the Cohen Perceived Scale variable created by the Add Health based on the following four questions.

1. In the last 30 days, how often have you felt that you were unable to control the important things in your life?
2. In the last 30 days, how often have you felt confident in your ability to handle your personal problems?
3. In the last 30 days, how often have you felt that things were going your way?
4. In the last 30 days, how often have you felt that difficulties were piling up so high that you could not overcome them?

Possible responses to the above items and the per-item Cohen scale associated with each response were as follows: "never" (=0); "almost never" (=1); "sometimes" (=2); "fairly often" (=3); "very often" (=4). The scores from questions *(2)* and *(3)* are reversed and the overall Cohen Perceived Stress Scale was created by adding up the responses, ranges between 0 and 16 with higher values corresponding to higher stress levels.

on a number of measures of domestic violence across two datasets. Our findings point to consistent evidence that combat is associated with substantial increases in the risk of domestic violence. We also find evidence that assignment to combat increases the likelihood of being in a relationship with more threats of breakups (or actual breakups) as well as being in a more stressful relationship. Descriptive evidence also suggests that combat-induced stress and substance use might explain some of the domestic violence effect we observe.

The DOD's Family Advocacy Program (FAP) is tasked with identifying and treating victims of domestic violence, as well as investigating, treating and recommending punishments for alleged perpetrators. However, FAP has also increasingly taken on a role in identifying families at risk for violence and intervening before such violence unfolds. Recent efforts in collaboration with the National Resource Center on Domestic Violence have focused on devoting resources to evidence-based interventions.

In October 2010, the U.S. Military launched "Domestic Violence Awareness Month," to raise awareness of domestic violence problems in the Armed Forces and to provide early interventions to those in need. DOD highlighted a number of these programs:

> "Fort Meade, Md…held…seminars on subjects ranging from couples communication to healthy versus unhealthy relationships and spousal rights. At Scott Air Force Base, Ill., the 375th Medical Group's family advocacy office launched voluntary anger management workshops to teach attendees to understand their anger issues and deal with them in nondestructive ways. Meanwhile, Marine Corps Base Camp Pendleton, Calif., is spotlighting its successful Power Workshop. The program gives victims of domestic violence an opportunity to share how it has impacted their homes, and teaches participants how to defuse potentially violent domestic situations, and what to do if they escalate." (DOD 2010)

The findings in our study suggest that interventions such as these may have substantial social benefits.[27]

[27] Moreover, as domestic violence offenses are often unreported, there may be positive spillover effects for interventions that encourage victims—or potential future victims—to come forward (Carrel and Hoekstra 2011).

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Table 1A: Means of Key Variables, Add Health

Dependent Variable		*Stress and Substance Use*			
Threaten	0.057	PTSD	0.119	First Class Sergeant or Higher	0.091
	(0.232)		(0.324)		(0.288)
Hit	0.032	Suicide	0.064	Age	28.678
	(0.175)		(0.246)		(1.704)
Injury	0.017	Stress	4.243	Black	0.220
	(0.129)		(2.992)		(0.415)
Trust	0.789	Binge	0.232	Other	0.079
	(0.409)		(0.422)		(0.270)
Listen	0.815	Drug	0.154	Hispanic	0.164
	(0.389)		(0.361)		(0.371)
In a Relationship	0.842			Some College	.6639
	(0.365)	*Selected Controls*			(.4729)
		Army	0.411	College and Above	.1639
Combat Assignment and Alternate Combat Measures			(0.493)		(.3706)
Combat Service	0.755	Marines	0.201		
	(0.430)		(0.401)		
Combat Exposure	0.367	Navy	0.247		
	(0.483)		(0.432)		
Combat Service w/o Exposure	0.388	Air Force	0.160		
	(0.488)		(0.367)		
Killed	0.295	Specialist/Corporal	0.326		
	(0.456)		(0.469)		
Wounded	0.089	Sergeant	0.373		
	(0.285)		(0.484)		
Death of Ally	0.392	Staff Sergeant	0.152		
	(0.489)		(0.359)		
				Observations	482

Notes: The means are generated using data drawn from Wave IV of the National Longitudinal Study of Adolescent Health. Branch of service are not mutually exclusive in the Add Health Data.

Table 1B: Means of Key Variables, DOD HRB

Dependent Variable		*Stress and Substance Use*			
Any Abuse	0.023	PTSD	0.095	Rank E7-E9	0.167
	(0.149)		(0.294)		(0.373)
Partner Abuse	0.018	Suicide	0.041	Rank W1-W5	0.040
	(0.131)		(0.197)		(0.195)
Child Abuse	0.013	Stress	0.121	Rank O1-O3	0.098
	(0.112)		(0.326)		(0.297)
Relationship Stress	0.164	Binge Drinking	0.487	Rank O4-O10	0.096
	(0.370)		(0.500)		(0.294)
Argument	0.310	Drug Use	0.042	Age	31.609
	(0.462)		(0.201)		(7.626)
Break up	0.135			Black	0.153
	(0.342)	*Selected Controls*			(0.360)
In a Relationship	0.813	Army	0.222	Other	0.115
	(0.390)		(0.416)		(0.319)
		Marines	0.217	Some College	0.475
Combat Assignment			(0.412)		(0.499)
Combat Exposure	0.515	Navy	0.292	College and Above	0.268
	(0.499)		(0.455)		(0.443)
Killed Someone	0.156	Air Force	0.268		
	(0.363)		(0.443)		
Wounded or Injured	0.052	CONUS	0.684		
	(0.221)		(0.465)		
Witnessed Death of Ally	0.227	Rank E4-E6	0.526	Observations	11542
	(0.419)		(0.499)		

Notes: The means \are generated using data drawn from the 2008 Department of Defense Health and Related Behaviors Survey.

Table 2. Estimated Relationship Between Background Characteristics and Deployment Assignment

	(1)	(2)	(3)	(4)
	Combat Service =1 vs Combat Service =0	*Combat Exposure = 1 vs Combat Exposure = 0*	*Combat Exposure =1 vs Combat Service = 1 and Exposure = 0*	*Combat Exposure = 1 vs Combat Service = 0*
Serious Fight W1	0.025	0.043	0.038	0.071
	(0.048)	(0.055)	(0.066)	(0.068)
Physical Maltreatment Before 18	-0.017	0.109	0.152	-0.014
	(0.080)	(0.084)	(0.099)	(0.104)
Wave 1 Weight	0.006	0.006	0.003	0.013
	(0.008)	(0.010)	(0.011)	(0.010)
Wave 1 Height	-0.001	-0.000	0.001	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Religion: Protestant	0.034	0.048	0.047	0.058
	(0.064)	(0.061)	(0.081)	(0.079)
Religion: Catholic	0.038	0.020	0.011	0.021
	(0.069)	(0.068)	(0.086)	(0.086)
Religion: Other Christian	0.018	-0.026	-0.019	-0.070
	(0.066)	(0.079)	(0.096)	(0.096)
Religion: Other	-0.111	-0.097	-0.068	-0.156
	(0.107)	(0.110)	(0.148)	(0.135)
F-test on joint significance of Religion	*0.576*	*0.873*	*0.376*	*0.776*
P-value	*0.681*	*0.483*	*0.825*	*0.543*
Age in Years	0.211	-0.270	-0.547	0.231
	(0.368)	(0.470)	(0.563)	(0.476)
Age in Years Squared	-0.004	0.004	0.009	-0.004
	(0.006)	(0.008)	(0.010)	(0.008)
Race: Black	0.004	-0.109	-0.139	-0.049
	(0.055)	(0.074)	(0.089)	(0.093)
Race: Other	0.087	-0.086	-0.111	0.037
	(0.058)	(0.073)	(0.083)	(0.117)
Race: Hispanic	0.016	-0.144**	-0.164*	-0.025
	(0.048)	(0.069)	(0.092)	(0.090)
F-test on joint significance of Race	*0.854*	*1.993*	*1.957*	*0.170*
P-value	*0.467*	*0.119*	*0.125*	*0.917*
Some College	0.022	-0.033	-0.084	0.019
	(0.054)	(0.054)	(0.065)	(0.076)
College	0.065	-0.025	-0.082	-0.003
	(0.085)	(0.094)	(0.114)	(0.121)
F-test on joint significance of Education	*0.308*	*0.186*	*0.850*	*0.0518*
P-value	*0.736*	*0.830*	*0.430*	*0.950*
Wave 1 Picture Vocabulary Test Score	-0.002	-0.002	-0.001	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)
$19K=<Parental Income <$28K	-0.032	0.003	0.042	-0.096
	(0.090)	(0.095)	(0.121)	(0.137)
$28K=<Parental Income <$36K	0.032	0.102	0.146	0.032
	(0.082)	(0.103)	(0.121)	(0.132)
$36K=<Parental Income <$45K	0.086	0.077	0.125	0.099
	(0.095)	(0.097)	(0.122)	(0.147)
$45K=<Parental Income <$56K	0.097	0.060	0.065	0.074
	(0.080)	(0.090)	(0.110)	(0.123)
$56K=<Parental Income <$80K	0.157	0.120	0.082	0.199

	(0.101)	(0.115)	(0.138)	(0.145)
$80K=<Parental Income	0.195*	0.205	0.248	0.269
	(0.113)	(0.136)	(0.157)	(0.188)
F-test on joint significance of Parental Income	*1.237*	*0.574*	*0.597*	*1.289*
P-value	*0.293*	*0.750*	*0.732*	*0.269*
Parents: Married	-0.129	-0.067	-0.044	-0.256*
	(0.086)	(0.152)	(0.183)	(0.151)
Parent: Divorced, Separated or Widowed	-0.108	-0.012	0.039	-0.225
	(0.090)	(0.158)	(0.188)	(0.154)
F-test on joint significance of Parental Marital Status	1.132	0.391	0.497	1.437
P-value	0.326	0.677	0.610	0.242
Mothers Education: High School	-0.012	-0.039	-0.081	-0.014
	(0.094)	(0.068)	(0.096)	(0.110)
Mothers Education: Above High School	-0.043	-0.015	-0.019	-0.000
	(0.086)	(0.079)	(0.109)	(0.123)
F-test on joint significance of Mother's Education	0.251	0.238	0.758	0.0248
P-value	0.779	0.789	0.471	0.976
Observations	482	482	364	295
R-squared	0.218	0.245	0.304	0.364

Robust standard errors corrected for clustering on the school are in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Notes: All models include controls for military-specific variables, including rank, branch of service, timing of service, and occupation. Regressions are estimated using data drawn from Waves I and IV of the National Longitudinal Study of Adolescent Health.

Table 3A: Estimates of the Relationship between Combat Exposure and Domestic Violence, Add Health

VARIABLES	(1) Threaten	(2) Hit	(3) Injury	(4) Trust	(5) Listen
			Panel A: All		
Combat Service (Military Controls)	0.060***	0.050***	0.032**	-0.067	-0.097**
	(0.022)	(0.016)	(0.013)	(0.043)	(0.039)
	[476]	[476]	[476]	[473]	[476]
Combat Service (Full Controls)	0.071***	0.050***	0.036**	-0.099**	-0.108***
	(0.024)	(0.018)	(0.016)	(0.043)	(0.039)
	[476]	[476]	[476]	[473]	[476]
Combat Service (Full Controls and Pre-deployment violence measures)	0.070***	0.050***	0.036**	-0.100**	-0.106***
	(0.024)	(0.018)	(0.016)	(0.044)	(0.039)
	[476]	[476]	[476]	[473]	[476]
			Panel B: All		
Combat Exposure	0.082***	0.057***	0.032**	-0.081	-0.127***
	(0.028)	(0.018)	(0.015)	(0.052)	(0.046)
Combat Service without Exposure	0.060**	0.044*	0.039*	-0.115**	-0.088*
	(0.029)	(0.024)	(0.021)	(0.046)	(0.046)
	[476]	[476]	[476]	[473]	[476]
			Panel C: Army		
Combat Exposure	0.103*	0.104**	0.052	-0.176*	-0.140
	(0.060)	(0.049)	(0.041)	(0.097)	(0.104)
Combat Service without Exposure	0.104*	0.072	0.055	-0.103	-0.182*
	(0.056)	(0.047)	(0.043)	(0.102)	(0.091)
	[195]	[195]	[195]	[194]	[195]
			Panel D: Marines		
Combat Exposure	0.060	0.036	0.017	-0.221	-0.235
	(0.060)	(0.041)	(0.029)	(0.178)	(0.153)
Combat Service without Exposure	0.027	-0.017	0.060	-0.282	-0.120
	(0.102)	(0.078)	(0.046)	(0.170)	(0.273)
	[96]	[96]	[96]	[94]	[96]
			Panel E: Navy		
Combat Exposure	-0.030	-0.029	-0.032	0.049	-0.014
	(0.100)	(0.092)	(0.057)	(0.177)	(0.145)
Combat Service without Exposure	-0.002	0.086	-0.003	-0.071	-0.272
	(0.090)	(0.067)	(0.047)	(0.171)	(0.163)
	[117]	[117]	[117]	[117]	[117]

Robust standard errors corrected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

All models use the full set of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to age 18. In all models, military rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing dummy categories for each of the control variables. Due to small sample size, the outcome variables are not estimated using the Air Force sample.

In every model estimated those who are deployed to a non-combat zone constitute the comparison group.

Table 3B: Estimates of the Relationship between Combat Exposure and Probability of Being in a Relationship and Abuse Conditional on Relationship, Add Health

VARIABLES	(1) Relationship	(2) Threaten	(3) Hit	(4) Injury	(5) Trust	(6) Listen
			Panel A: All			
Combat Service	-0.083*	0.044*	0.036**	0.021	-0.101*	-0.085*
	(0.043)	(0.024)	(0.017)	(0.014)	(0.053)	(0.048)
	[476]	[401]	[401]	[401]	[400]	[401]
			Panel B: All			
Combat Exposure	-0.049	0.060**	0.044**	0.020	-0.101*	-0.104**
	(0.044)	(0.030)	(0.018)	(0.013)	(0.057)	(0.052)
Combat Service without Exposure	-0.112**	0.029	0.028	0.023	-0.100*	-0.069
	(0.049)	(0.029)	(0.025)	(0.020)	(0.057)	(0.058)
	[476]	[401]	[401]	[401]	[400]	[401]
			Panel C: Army			
Combat Exposure	-0.032	0.023	0.069	-0.001	-0.118	-0.065
	(0.109)	(0.071)	(0.051)	(0.030)	(0.110)	(0.114)
Combat Service without Exposure	-0.154	0.049	0.042	0.017	-0.003	-0.080
	(0.106)	(0.050)	(0.045)	(0.036)	(0.129)	(0.093)
	[195]	[157]	[157]	[157]	[156]	[157]
			Panel D: Marines			
Combat Exposure	-0.193**	0.022	0.064	0.000	-0.456**	-0.239*
	(0.082)	(0.099)	(0.065)	(0.000)	(0.175)	(0.140)
Combat Service without Exposure	-0.049	-0.060	-0.048	0.000	-0.405*	-0.284
	(0.128)	(0.086)	(0.045)	(0.000)	(0.237)	(0.278)
	[96]	[85]	[85]	[85]	[85]	[85]
			Panel E: Navy			
Combat Exposure	-0.069	-0.018	-0.024	-0.058	0.047	0.019
	(0.131)	(0.124)	(0.089)	(0.079)	(0.213)	(0.154)
Combat Service without Exposure	-0.194	0.051	0.139*	-0.007	0.055	-0.266
	(0.135)	(0.120)	(0.074)	(0.062)	(0.197)	(0.181)
	117	104	104	104	104	104

Robust standard errors corrected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

All models use the full set of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to age 18. In all models, military rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing dummy categories for each of the control variables. Due to small sample size, the outcome variables are not estimated using the Air Force sample.

In every model estimated those who are deployed to a non-combat zone constitute the comparison group.

Table 4A: Estimates of the Relationship between Combat Exposure and Domestic Violence, DOD HRB

VARIABLES	(1) Any Abuse	(2) Partner Abuse	(3) Child Abuse	(4) Relationship Stress	(5) Argument	(6) Break up
			Panel A: All			
Combat Exposure	0.010**	0.008*	0.010***	0.034***	0.057***	0.033***
	(0.004)	(0.004)	(0.004)	(0.008)	(0.011)	(0.011)
	[11,474]	[11,449]	[11,442]	[11,393]	[11,415]	[11,431]
			Panel B: Army			
Combat Exposure	0.013**	0.008	0.006*	0.049**	0.045	0.029
	(0.005)	(0.005)	(0.003)	(0.016)	(0.027)	(0.031)
	[2,548]	[2,543]	[2,537]	[2,529]	[2,533]	[2,533]
			Panel C: Marines			
Combat Exposure	0.006	0.006	0.009*	0.033	0.072***	0.027*
	(0.012)	(0.015)	(0.003)	(0.018)	(0.014)	(0.010)
	[2,494]	[2,486]	[2,485]	[2,473]	[2,482]	[2,488]
			Panel D: Navy			
Combat Exposure	0.022*	0.021*	0.024*	0.042*	0.077**	0.069**
	(0.011)	(0.009)	(0.011)	(0.021)	(0.031)	(0.028)
	[3,344]	[3,339]	[3,338]	[3,322]	[3,325]	[3,329]
			Panel E: Air Force			
Combat Exposure	0.001	0.000	0.003	0.021*	0.035**	0.006
	(0.004)	(0.004)	(0.002)	(0.011)	(0.013)	(0.009)
	[3,088]	[3,081]	[3,082]	[3,069]	[3,075]	[3,081]

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2.

Table 4B: Estimates of the Effect of Combat Exposure on Being in a Relationship, Living with Children, and Conditional Domestic Violence, DOD HRB

	(1) In a Rlsnship	(2) Living With Children	(3) Any Abuse	(4) Partner Abuse	(5) Child Abuse	(6) Relationship Stress	(7) Argument	(8) Break up
				Panel A: All				
Combat Exposure	0.005	0.001	0.010*	0.008	0.010**	0.033***	0.055***	0.030**
	(0.009)	(0.009)	(0.005)	(0.005)	(0.004)	(0.010)	(0.011)	(0.012)
	[11,404]	[11,425]	[9,274]	[9,255]	[9,248]	[9,205]	[9,222]	[9,238]
				Panel B: Army				
Combat Exposure	0.023	0.018	0.010	0.006	0.003	0.056	0.046	0.026
	(0.024)	(0.028)	(0.008)	(0.006)	(0.004)	(0.033)	(0.032)	(0.031)
	[2,533]	[2,533]	[2,096]	[2,092]	[2,087]	[2,079]	[2,082]	[2,083]
				Panel C: Marines				
Combat Exposure	0.026	0.020	0.005	0.003	0.010	0.023	0.063**	0.018
	(0.020)	(0.028)	(0.013)	(0.015)	(0.006)	(0.018)	(0.022)	(0.014)
	[2,483]	[2,487]	[2,014]	[2,010]	[2,008]	[1,995]	[2,004]	[2,010]
				Panel D: Navy				
Combat Exposure	-0.002	-0.019	0.022	0.022	0.023	0.041	0.073*	0.067*
	(0.020)	(0.016)	(0.013)	(0.012)	(0.012)	(0.022)	(0.030)	(0.031)
	[3,329]	[3,336]	[2,648]	[2,643]	[2,642]	[2,632]	[2,631]	[2,634]
				Panel E: Air Force				
Combat Exposure	-0.006	0.002	0.002	0.002	0.003	0.017	0.035**	0.007
	(0.009)	(0.014)	(0.005)	(0.005)	(0.004)	(0.012)	(0.010)	(0.014)
	[3,059]	[3,069]	[2,516]	[2,510]	[2,511]	[2,499]	[2,505]	[2,511]

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2 along.

Table 5: Exploring Degree of Bias in HRB Survey Estimates using Add Health Data and Xs Available in Both Datasets

VARIABLES	(1) Threaten	(2) Hit	(3) Injury	(4) Trust	(5) Listen
Combat Service (Full Controls "Clean Experiment")	0.070***	0.050***	0.036**	-0.100**	-0.106***
	(0.024)	(0.018)	(0.016)	(0.044)	(0.039)
	[476]	[476]	[476]	[473]	[476]
Combat Service: OLS (Only HRB Xs)	0.063***	0.050***	0.035**	-0.067	-0.119***
	(0.021)	(0.016)	(0.014)	(0.047)	(0.036)
	[476]	[476]	[476]	[473]	[476]

Standard errors corrected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

All models control for age, age squared, race/ethnicity indicators, education indicators, military rank, timing of military service, and branch of service. Models also include missing dummy categories for each of the control variables.

In every model estimated those who are deployed to a non-combat zone constitute the comparison group.

Table 6A: Sensitivity of Estimates to Use of Other Combat Exposure Measures in the HRB Survey

VARIABLES	(1) Any Abuse	(2) Partner Abuse	(3) Child Abuse	(4) Relationship Stress	(5) Argument	(6) Break up
			Panel A: All			
Killed Someone	0.044***	0.039***	0.035***	0.066***	0.072***	0.070***
	(0.007)	(0.007)	(0.008)	(0.011)	(0.019)	(0.011)
	[11,317]	[11,292]	[11,285]	[11,242]	[11,258]	[11,274]
Wounded or Injured	0.090***	0.081***	0.082***	0.075***	0.074***	0.096***
	(0.021)	(0.020)	(0.020)	(0.014)	(0.018)	(0.022)
	[11,338]	[11,314]	[11,307]	[11,264]	[11,283]	[11,296]
Witnessed Death of Ally	0.024***	0.021***	0.022***	0.052***	0.056***	0.044***
	(0.006)	(0.006)	(0.006)	(0.011)	(0.015)	(0.012)
	[11,391]	[11,368]	[11,361]	[11,314]	[11,333]	[11,350]
			Panel B: Army			
Killed Someone	0.034**	0.032**	0.016*	0.081***	0.052*	0.067**
	(0.009)	(0.011)	(0.007)	(0.017)	(0.021)	(0.019)
	[2,487]	[2,482]	[2,476]	[2,469]	[2,472]	[2,472]
Wounded or Injured	0.056*	0.053*	0.037*	0.074**	0.062	0.063*
	(0.026)	(0.026)	(0.018)	(0.024)	(0.031)	(0.026)
	[2,504]	[2,499]	[2,493]	[2,487]	[2,490]	[2,489]
Witnessed Death of Ally	0.019*	0.016	0.008	0.066**	0.021	0.055
	(0.009)	(0.008)	(0.006)	(0.022)	(0.021)	(0.028)
	[2,520]	[2,516]	[2,510]	[2,503]	[2,505]	[2,506]
			Panel C: Marines			
Killed Someone	0.039***	0.030**	0.033**	0.058*	0.064	0.056**
	(0.007)	(0.009)	(0.008)	(0.021)	(0.056)	(0.013)
	[2,453]	[2,445]	[2,444]	[2,433]	[2,441]	[2,447]
Wounded or Injured	0.117*	0.087	0.117*	0.099**	0.089**	0.098
	(0.048)	(0.046)	(0.043)	(0.027)	(0.020)	(0.057)
	[2,473]	[2,465]	[2,464]	[2,454]	[2,462]	[2,467]
Witnessed Death of Ally	0.015	0.013	0.019*	0.019	0.047	0.017
	(0.010)	(0.011)	(0.007)	(0.019)	(0.037)	(0.008)
	[2,472]	[2,464]	[2,463]	[2,452]	[2,460]	[2,466]
			Panel D: Navy			
Killed Someone	0.095**	0.083***	0.095**	0.057**	0.089**	0.119**
	(0.029)	(0.021)	(0.032)	(0.018)	(0.029)	(0.034)
	[3,319]	[3,314]	[3,313]	[3,298]	[3,300]	[3,304]
Wounded or Injured	0.128**	0.124**	0.129**	0.052	0.048	0.178**
	(0.039)	(0.044)	(0.036)	(0.038)	(0.043)	(0.067)
	[3,301]	[3,296]	[3,295]	[3,280]	[3,283]	[3,286]

Witnessed Death of Ally	0.051**	0.046**	0.054**	0.029	0.099**	0.075**
	(0.016)	(0.015)	(0.018)	(0.017)	(0.036)	(0.030)
	[3,327]	[3,322]	[3,321]	[3,306]	[3,308]	[3,312]
	Panel E: Air Force					
Killed Someone	0.036**	0.034**	0.034**	0.046	0.064**	0.036
	(0.012)	(0.011)	(0.010)	(0.034)	(0.019)	(0.028)
	[3,058]	[3,051]	[3,052]	[3,042]	[3,045]	[3,051]
Wounded or Injured	0.108**	0.113**	0.116**	0.025	0.011	0.055
	(0.039)	(0.039)	(0.041)	(0.048)	(0.070)	(0.049)
	[3,060]	[3,054]	[3,055]	[3,043]	[3,048]	[3,054]
Witnessed Death of Ally	0.022**	0.018**	0.024***	0.095***	0.057*	0.017
	(0.008)	(0.007)	(0.005)	(0.026)	(0.030)	(0.026)
	[3,072]	[3,066]	[3,067]	[3,053]	[3,060]	[3,066]

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2.

Table 6B: Sensitivity of Estimates to Use of Other Combat Exposure Measures in the Add Health

VARIABLES	(1) Threaten	(2) Hit	(3) Injury	(4) Trust	(5) Listen
			Panel A: Killed		
Combat Killed	0.088***	0.034**	0.066***	-0.110**	-0.153***
	(0.031)	(0.015)	(0.020)	(0.051)	(0.047)
Combat No Killing	0.059**	0.037*	0.040*	-0.094*	-0.078*
	(0.028)	(0.020)	(0.023)	(0.048)	(0.045)
	[476]	[476]	[476]	[473]	[476]
			Panel B: Wounded		
Combat Wounded	-0.009	0.010	0.003	-0.141	-0.134*
	(0.033)	(0.022)	(0.017)	(0.092)	(0.079)
Combat No Wounding	0.078***	0.054***	0.039**	-0.095**	-0.103**
	(0.026)	(0.019)	(0.017)	(0.044)	(0.040)
	[476]	[476]	[476]	[473]	[476]
			Panel C: Witnessed Ally Dead		
Combat Saw Ally Dead	0.068**	0.049**	0.025	-0.107*	-0.113**
	(0.029)	(0.022)	(0.017)	(0.058)	(0.044)
Combat No Seeing Ally Dead	0.071**	0.051**	0.045**	-0.093**	-0.099*
	(0.029)	(0.023)	(0.020)	(0.044)	(0.051)
	[476]	[476]	[476]	[473]	[476]

Robust standard errors corrected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

All models use the full set of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to age 18. In all models, military rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing dummy categories for each of the control variables.

In every model estimated those who are deployed to a non-combat zone constitute the comparison group.

Table 7: Estimates of the Relationship between Combat Exposure and Domestic Violence, DOD HRB, Enlisted Soldiers vs. Officers

VARIABLES	(1) Any Abuse	(2) Partner Abuse	(3) Child Abuse	(4) Relationship Stress	(5) Argument	(6) Break up
	Panel A: Enlisted Soldiers					
Combat Exposure	0.013**	0.012**	0.012***	0.045***	0.059***	0.037**
	(0.005)	(0.005)	(0.004)	(0.010)	(0.015)	(0.014)
	8,792	8,770	8,764	8,722	8,745	8,753
	Panel B: Officers					
Combat Exposure	-0.002	-0.004	0.002	-0.002	0.051**	0.015
	(0.003)	(0.003)	(0.003)	(0.009)	(0.020)	(0.010)
	2,682	2,679	2,678	2,671	2,670	2,678

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2.

Table 8: Estimates of the Relationship between Combat Exposure and Domestic Violence, DOD HRB, Female Sample

VARIABLES	(1) Any Abuse	(2) Partner Abuse	(3) Child Abuse	(4) Relationship Stress	(5) Argument	(6) Break up
	Panel A: All					
Combat Exposure	0.004	0.007	0.002	0.033*	0.079***	0.035***
	(0.010)	(0.008)	(0.007)	(0.017)	(0.018)	(0.011)
	3,169	3,161	3,158	3,145	3,153	3,156
	Panel B: Army					
Combat Exposure	0.016	0.012	0.003	0.091***	0.100*	0.029
	(0.036)	(0.026)	(0.018)	(0.022)	(0.045)	(0.025)
	718	717	717	713	716	714
	Panel C: Marines					
Combat Exposure	-0.009	0.020	-0.023	-0.008	0.043*	0.017
	(0.022)	(0.016)	(0.023)	(0.025)	(0.018)	(0.043)
	531	531	531	527	529	531
	Panel D: Navy					
Combat Exposure	-0.003	0.002	0.013	0.049	0.106**	0.027
	(0.017)	(0.017)	(0.015)	(0.072)	(0.031)	(0.036)
	916	912	909	911	908	911
	Panel E: Air F					
Combat Exposure	0.001	-0.001	0.002	-0.006	0.062	0.040**
	(0.008)	(0.008)	(0.001)	(0.014)	(0.036)	(0.015)
	1,004	1,001	1,001	994	1,000	1,000

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2.

Table 9: Estimates of the Effect of Combat Exposure on Psychological Stress and Substance Use

VARIABLES	(1) PTSD	(2) Suicidal Ideation	(3) Psychological Stress	(4) Binge Drink	(5) Drug Use
Panel A: DOD HRB					
Sample					
All	0.066***	0.014**	0.042***	0.038***	0.030***
	(0.009)	(0.005)	(0.007)	(0.010)	(0.006)
	[11,366]	[10,796]	[11,370]	[11,010]	[11,449]
Army	0.091***	0.030*	0.059***	0.083**	0.033*
	(0.009)	(0.012)	(0.005)	(0.023)	(0.014)
	[2,533]	[2,390]	[2,531]	[2,448]	[2,544]
Marines	0.086***	0.002	0.029*	0.016	0.038***
	(0.018)	(0.010)	(0.011)	(0.028)	(0.008)
	[2,465]	[2,336]	[2,467]	[2,406]	[2,486]
Navy	0.069**	0.020	0.041*	0.037	0.046**
	(0.026)	(0.013)	(0.018)	(0.019)	(0.013)
	[3,315]	[3,142]	[3,313]	[3,189]	[3,337]
Air Force	0.037***	0.003	0.042**	0.008	0.010
	(0.006)	(0.008)	(0.016)	(0.014)	(0.007)
	[3,053]	[2,928]	[3,059]	[2,967]	[3,082]
Panel B: Add Health					
Combat Exposure	0.204***	0.068**	1.224***	0.048	0.090*
	(0.030)	(0.033)	(0.345)	(0.057)	(0.050)
Combat Service without Exposure	0.072***	-0.010	0.797**	0.032	0.018
	(0.025)	(0.031)	(0.355)	(0.065)	(0.040)
Observations	[481]	[482]	[482]	[475]	[482]

Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

In Panel A: Robust standard errors corrected for clustering on the stratum are in parentheses. All models use the full set of controls shown in Appendix Table 2 along.

Ina Panel B: Robust standard errors corrected for clustering on the school are in parentheses. All models use the full set of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to age 18. In all models, military rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing dummy categories for each of the control variables. Those who are deployed to a non-combat zone constitute the comparison group.

Table 10A: Exploration of Whether Psychological Stress and Substance Use Mediates the Relationship Between Combat Exposure and Domestic Violence, HRB Survey

	(1)	(2)	(3)	(4)
	Panel A: Any Domestic Abuse			
Combat Exposure	0.010**	0.007	0.006	0.004
	(0.004)	(0.004)	(0.004)	(0.004)
PTSD		0.031***		0.021***
		(0.007)		(0.007)
Suicide		0.021*		0.018
		(0.012)		(0.012)
Psychological Stress		0.028***		0.025***
		(0.008)		(0.008)
Binge Drinking			0.010**	0.008**
			(0.004)	(0.004)
Drug Use			0.108***	0.097***
			(0.015)	(0.015)
	[11,474]	[11,474]	[11,474]	[11,474]
	Panel B: Hitting Partner			
Combat Exposure	0.008*	0.005	0.005	0.003
	(0.004)	(0.004)	(0.004)	(0.004)
	[11,449]	[11,449]	[11,449]	[11,449]
	Panel C: Hitting Children			
Combat Exposure	0.010***	0.008**	0.007**	0.006**
	(0.004)	(0.003)	(0.003)	(0.003)
	[11,442]	[11,442]	[11,442]	[11,442]
	Panel D: High Stress Relationship			
Combat Exposure	0.034***	0.014*	0.029***	0.013
	(0.008)	(0.008)	(0.007)	(0.008)
	[11,393]	[11,393]	[11,393]	[11,393]
	Panel E: Heated Argument			
Combat Exposure	0.057***	0.041***	0.051***	0.038***
	(0.011)	(0.010)	(0.011)	(0.010)
	[11,415]	[11,415]	[11,415]	[11,415]
	Panel F: Partner Threatened to Leave			
Combat Exposure	0.033***	0.021**	0.027**	0.018*
	(0.011)	(0.010)	(0.010)	(0.010)
	[11,431]	[11,431]	[11,431]	[11,431]
Stress Controls	NO	**YES**	NO	**YES**
Substance Abuse Controls	NO	NO	**YES**	**YES**

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2

on of Whether Psychological Stress and Substance Use Mediates the Relationship Between Combat stic Violence in, Add Health

	(1) Threaten	(2) Threaten	(3) Hit	(4) Hit	(5) Injury	(6) Injury	(7) Trust	(8) Trust	(9) Listen	(10) Listen
					Panel A: All					
	0.082***	0.072**	0.057***	0.042**	0.032**	0.025*	-0.081	-0.053	-0.127***	-0.110**
	(0.028)	(0.028)	(0.018)	(0.018)	(0.015)	(0.014)	(0.052)	(0.056)	(0.046)	(0.046)
osure	0.060**	0.051*	0.044*	0.036	0.039*	0.036*	-0.115**	-0.112**	-0.088*	-0.081*
	(0.029)	(0.028)	(0.024)	(0.025)	(0.021)	(0.021)	(0.046)	(0.048)	(0.046)	(0.045)
	[476]	[476]	[476]	[476]	[476]	[476]	[473]	[473]	[476]	[476]
e Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

rected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical %, and 1% levels, respectively.

of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to tary rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing of the control variables.

hose who are deployed to a non-combat zone constitute the comparison group.

Appendix Table 1: Means of the Full Set of Variables, Add Health

Variable	All	Combat Service	Combat Exposure	Non-Combat Exposure	Non-Combat Service
Threaten	0.057	0.069	0.074	0.065	0.018
	(0.232)	(0.254)	(0.262)	(0.246)	(0.132)
Hit	0.032	0.041	0.040	0.043	0.000
	(0.175)	(0.200)	(0.196)	(0.203)	(0.000)
Injury	0.017	0.022	0.017	0.027	0.000
	(0.129)	(0.147)	(0.130)	(0.162)	(0.000)
In a Relationship	0.842	0.826	0.852	0.801	0.895
	(0.365)	(0.380)	(0.356)	(0.400)	(0.308)
Trust	0.789	0.783	0.793	0.773	0.807
	(0.409)	(0.413)	(0.406)	(0.420)	(0.396)
Listen	0.815	0.798	0.778	0.817	0.868
	(0.389)	(0.402)	(0.417)	(0.388)	(0.340)
Serious Fight W1	0.420	0.420	0.455	0.387	0.419
	(0.494)	(0.494)	(0.499)	(0.488)	(0.496)
Physical Maltreatment Before 18	0.073	0.075	0.092	0.060	0.068
	(0.261)	(0.264)	(0.290)	(0.237)	(0.253)
Army	0.411	0.440	0.537	0.348	0.322
	(0.493)	(0.497)	(0.500)	(0.478)	(0.469)
Marines	0.201	0.181	0.266	0.102	0.263
	(0.401)	(0.386)	(0.443)	(0.303)	(0.442)
Navy	0.247	0.234	0.107	0.353	0.288
	(0.432)	(0.424)	(0.310)	(0.479)	(0.455)
Air Force	0.160	0.173	0.119	0.225	0.119
	(0.367)	(0.379)	(0.324)	(0.418)	(0.325)
Killed or Believed Killed Another	0.295	0.390	0.735	0.064	0.000
	(0.456)	(0.488)	(0.443)	(0.246)	0.000
Wounded or Injured in Combat	0.089	0.118	0.181	0.059	0.000
	(0.285)	(0.323)	(0.386)	(0.236)	0.000
Saw Coalition or Ally Killed, Dead, or Wounded	0.392	0.519	0.718	0.332	0.000
	(0.489)	(0.500)	(0.452)	(0.472)	0.000
PTSD	0.119	0.154	0.250	0.064	0.009
	(0.324)	(0.362)	(0.434)	(0.246)	(0.092)
Suicide Ideation	0.064	0.069	0.107	0.032	0.051
	(0.246)	(0.253)	(0.310)	(0.177)	(0.221)
Psychological Stress	4.243	4.418	4.599	4.246	3.703
	(2.992)	(3.042)	(3.090)	(2.993)	(2.775)
Bing Drink last 30d	0.232	0.232	0.253	0.212	0.231
	(0.422)	(0.423)	(0.436)	(0.410)	(0.423)
Drug Use last 30d	0.154	0.157	0.192	0.123	0.144
	(0.361)	(0.364)	(0.395)	(0.329)	(0.353)
Height in Inches	70.324	70.275	70.475	70.086	70.475
	(3.207)	(3.286)	(3.339)	(3.232)	(2.958)
Weight in Pounds	194.006	192.201	190.859	193.471	199.576
	(35.258)	(34.591)	(34.231)	(34.972)	(36.835)
Missing Data: Weight in Pounds	0.002	0.003	0.006	0.000	0.000
	(0.046)	(0.052)	(0.075)	0.000	0.000
Religion: Protestant	0.313	0.324	0.356	0.294	0.280
	(0.464)	(0.469)	(0.480)	(0.457)	(0.451)
Religion: Catholic	0.241	0.253	0.232	0.273	0.203
	(0.428)	(0.435)	(0.423)	(0.447)	(0.404)
Religion: Other Christian	0.170	0.173	0.158	0.187	0.161

	(0.376)	(0.379)	(0.366)	(0.391)	(0.369)
Religion: Other	0.071	0.058	0.051	0.064	0.110
	(0.256)	(0.234)	(0.220)	(0.246)	(0.314)
Missing Data: Religion	0.002	0.000	0.000	0.000	0.009
	(0.046)	0.000	0.000	0.000	(0.092)
Age in Years	28.678	28.566	28.492	28.636	29.025
	(1.704)	(1.732)	(1.762)	(1.706)	(1.571)
Age in Years Squared	825.351	819.006	814.853	822.936	844.924
	(96.928)	(98.344)	(99.769)	(97.080)	(90.031)
Race: Black	0.220	0.217	0.186	0.246	0.229
	(0.415)	(0.413)	(0.391)	(0.432)	(0.422)
Race: Other	0.079	0.091	0.062	0.118	0.042
	(0.270)	(0.288)	(0.242)	(0.323)	(0.202)
Race: Hispanic	0.164	0.168	0.119	0.214	0.153
	(0.371)	(0.374)	(0.324)	(0.411)	(0.361)
Missing Data: Race	0.002	0.003	0.006	0.000	0.000
	(0.046)	(0.052)	(0.075)	0.000	0.000
Missing Data: Race - Hispanic	0.002	0.003	0.000	0.005	0.000
	(0.046)	(0.052)	0.000	(0.073)	0.000
Personal Earnings	44631.43	46065.74	44443.51	47600.27	40061.95
	(46523.83)	(51325.59)	(24559.42)	(67561.27)	(25496.60)
Missing Data: Personal Earnings	0.019	0.011	0.011	0.011	0.042
	(0.136)	(0.104)	(0.106)	(0.103)	(0.202)
Education: Some College	0.664	0.673	0.661	0.685	0.636
	(0.473)	(0.470)	(0.475)	(0.466)	(0.483)
Education: College	0.164	0.168	0.158	0.177	0.153
	(0.371)	(0.374)	(0.366)	(0.382)	(0.361)
Missing Data: Education	0.000	0.000	0.000	0.000	0.000
	0.000	0.000	0.000	0.000	0.000
No Health Insurance	0.120	0.104	0.124	0.086	0.170
	(0.326)	(0.306)	(0.331)	(0.281)	(0.377)
Missing Data: Health Insurance	0.012	0.014	0.017	0.011	0.009
	(0.111)	(0.117)	(0.129)	(0.103)	(0.092)
Wave 1 PVT Score	96.349	95.692	98.576	92.963	98.373
	(29.541)	(30.632)	(27.082)	(33.494)	(25.903)
Missing Data: Wave 1 PVT Score	0.071	0.077	0.051	0.102	0.051
	(0.256)	(0.267)	(0.220)	(0.303)	(0.221)
Parental Income <$19K	0.141	0.137	0.130	0.144	0.153
	(0.349)	(0.345)	(0.337)	(0.352)	(0.361)
$19K=<Parental Income <$28K	0.127	0.113	0.113	0.112	0.170
	(0.333)	(0.317)	(0.318)	(0.317)	(0.377)
$28K=<Parental Income <$36K	0.100	0.107	0.130	0.086	0.076
	(0.300)	(0.310)	(0.337)	(0.281)	(0.267)
$36K=<Parental Income <$45K	0.116	0.118	0.107	0.128	0.110
	(0.321)	(0.323)	(0.310)	(0.335)	(0.314)
$45K=<Parental Income <$56K	0.141	0.146	0.147	0.144	0.127
	(0.349)	(0.353)	(0.355)	(0.352)	(0.335)
$56K=<Parental Income <$80K	0.083	0.091	0.079	0.102	0.059
	(0.276)	(0.288)	(0.271)	(0.303)	(0.237)
$80K=<Parental Income	0.050	0.055	0.062	0.048	0.034
	(0.218)	(0.228)	(0.242)	(0.215)	(0.182)
Missing Data: Parental Income	0.243	0.234	0.232	0.235	0.271
	(0.429)	(0.424)	(0.423)	(0.425)	(0.447)
Parent is Married	0.647	0.648	0.633	0.663	0.644
	(0.478)	(0.478)	(0.483)	(0.474)	(0.481)
Parent is Divorced, Separated or Widowed	0.185	0.184	0.198	0.171	0.186

	(0.388)	(0.388)	(0.399)	(0.378)	(0.391)
Missing Data: Parents' Marital Status	0.135	0.126	0.130	0.123	0.161
	(0.342)	(0.333)	(0.337)	(0.329)	(0.369)
Mothers Education: Less than High School	0.118	0.110	0.107	0.112	0.144
	(0.323)	(0.313)	(0.310)	(0.317)	(0.353)
Mothers Education: High School	0.326	0.319	0.299	0.337	0.348
	(0.469)	(0.467)	(0.459)	(0.474)	(0.478)
Mothers Education: Above High School	0.456	0.459	0.486	0.433	0.449
	(0.499)	(0.499)	(0.501)	(0.497)	(0.500)
Missing Data: Mother's Education	0.100	0.113	0.107	0.118	0.059
	(0.300)	(0.317)	(0.310)	(0.323)	(0.237)
Currently in the Military	0.407	0.456	0.424	0.487	0.254
	(0.492)	(0.499)	(0.496)	(0.501)	(0.437)
Months Served in the Military	68.907	72.071	71.062	73.027	59.144
	(33.285)	(33.998)	(33.259)	(34.744)	(29.005)
Rank: Specialist/Corporal	0.326	0.302	0.299	0.305	0.398
	(0.469)	(0.460)	(0.459)	(0.462)	(0.492)
Rank: Sergeant	0.373	0.393	0.401	0.385	0.314
	(0.484)	(0.489)	(0.492)	(0.488)	(0.466)
Rank: Staff Sergeant	0.152	0.168	0.175	0.160	0.102
	(0.359)	(0.374)	(0.381)	(0.368)	(0.304)
Rank: First Class Sergeant or Higher	0.091	0.104	0.107	0.102	0.051
	(0.288)	(0.306)	(0.310)	(0.303)	(0.221)
Army	0.411	0.440	0.537	0.348	0.322
	(0.493)	(0.497)	(0.500)	(0.478)	(0.469)
Service Exclusively in After-September 11	0.241	0.267	0.294	0.241	0.161
	(0.428)	(0.443)	(0.457)	(0.429)	(0.369)
Observations	482	364	177	187	118

Notes: The means are generated using drawn from the first and fourth waves of the National Longitudinal Study of Adolescent Health.

Appendix Table 2: Means of the Full Set of Variables, DOD HRB Survey

Variable	All	Combat	Combat

		Exposure = 1	Exposure = 0
Any Abuse	0.023	0.028	0.017
	(0.149)	(0.166)	(0.128)
Partner Abuse	0.018	0.022	0.013
	(0.131)	(0.147)	(0.112)
Child Abuse	0.013	0.018	0.007
	(0.112)	(0.133)	(0.083)
Relationship Stress	0.164	0.187	0.139
	(0.370)	(0.390)	(0.346)
Argument	0.310	0.341	0.277
	(0.462)	(0.474)	(0.448)
Break up	0.135	0.156	0.113
	(0.342)	(0.362)	(0.317)
In a Relationship	0.813	0.832	0.793
	(0.390)	(0.374)	(0.405)
Army	0.222	0.347	0.089
	(0.416)	(0.476)	(0.285)
Marines	0.217	0.298	0.132
	(0.412)	(0.457)	(0.338)
Navy	0.292	0.125	0.471
	(0.455)	(0.330)	(0.499)
Air Force	0.268	0.231	0.308
	(0.443)	(0.421)	(0.462)
Killed Someone	0.156	0.296	0.009
	(0.363)	(0.457)	(0.096)
Wounded or Injured	0.052	0.099	0.002
	(0.221)	(0.298)	(0.042)
Witnessed Death of Ally	0.227	0.427	0.017
	(0.419)	(0.495)	(0.129)
Stress	0.121	0.139	0.102
	(0.326)	(0.346)	(0.303)
PTSD	0.095	0.130	0.059
	(0.294)	(0.336)	(0.235)
Suicide	0.041	0.045	0.035
	(0.197)	(0.208)	(0.184)
Binge Drinking	0.487	0.506	0.465
	(0.500)	(0.500)	(0.499)
Drug Use	0.042	0.057	0.026
	(0.201)	(0.233)	(0.160)
CONUS	0.684	0.756	0.608
	(0.465)	(0.430)	(0.488)
Rank E4-E6	0.526	0.504	0.550
	(0.499)	(0.500)	(0.498)
Rank E7-E9	0.167	0.167	0.167
	(0.373)	(0.373)	(0.373)
Rank W1-W5	0.040	0.056	0.022
	(0.195)	(0.229)	(0.148)
Rank O1-O3	0.098	0.100	0.096
	(0.297)	(0.300)	(0.294)
Rank O4-O10	0.096	0.112	0.079
	(0.294)	(0.315)	(0.269)
Number of Deployments	1.661	1.946	1.358
	(1.205)	(1.065)	(1.269)
High School Education	0.231	0.224	0.239
	(0.422)	(0.417)	(0.427)
Some College	0.475	0.467	0.484
	(0.499)	(0.499)	(0.500)

College Degree and Above	0.268	0.280	0.255
	(0.443)	(0.449)	(0.436)
Age	31.609	31.794	31.412
	(7.626)	(7.540)	(7.713)
Age Squared	1057.270	1067.721	1046.157
	(505.945)	(501.581)	(510.354)
Black	0.153	0.142	0.165
	(0.360)	(0.349)	(0.372)
Asian	0.053	0.036	0.072
	(0.224)	(0.185)	(0.258)
Race Other	0.115	0.101	0.131
	(0.319)	(0.301)	(0.337)
Married	0.675	0.689	0.660
	(0.468)	(0.463)	(0.474)
Divorced	0.090	0.099	0.081
	(0.286)	(0.298)	(0.272)
Observations	11542	5948	5594

Notes: The means are generated using drawn from the 2008 Department of Defense Health and Related Behaviors Survey.

Appendix Table 3: Estimates of Relationship Between Combat Exposure and Attitudes

VARIABLES	(1) I like Order	(2) Not Interested in Others' Problems	(3) Sympathize with others
Combat Service	0.060	-0.001	0.071
	(0.053)	(0.050)	(0.054)
Observations	481	481	481
Combat Exposure	0.097	-0.003	0.038
	(0.060)	(0.059)	(0.057)
Combat Service without Exposure	0.030	0.000	0.098
	(0.057)	(0.054)	(0.060)
Observations	481	481	481

Robust standard errors corrected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

All models use the full set of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to age 18. In all models, military rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing dummy categories for each of the control variables.

In every model estimated those who are deployed to a non-combat zone constitute the comparison group.

vidence on Matching on Observables in DOD HRB Survey

All	**All**	**All**	Army	Army	Army	Marines	Marines	Marines	Navy	Navy	Navy	Air Force	Air Force	Air Force
Combat	Non-Combat	p-value	Combat	Non-Combat	p-value	Combat	Non-Combat	p-value	Combat	Non-Combat	p-value	Combat	Non-Combat	p-value
0.71	0.76	0.02	0.63	0.67	0.15	0.91	0.91	0.82	0.76	0.78	0.44	0.70	0.66	0.17
0.54	0.55	0.99	0.65	0.61	0.48	0.53	0.50	0.56	0.60	0.60	0.96	0.57	0.61	0.44
0.18	0.15	0.10	0.11	0.11	1.00	0.13	0.12	0.68	0.17	0.16	0.82	0.16	0.17	0.61
0.03	0.04	0.02	0.05	0.07	0.17	0.04	0.05	0.63	0.01	0.02	0.33	0.00	0.00	.
0.10	0.10	0.74	0.09	0.12	0.64	0.13	0.13	0.91	0.09	0.09	0.92	0.10	0.07	0.08
0.09	0.10	0.93	0.06	0.05	0.42	0.08	0.10	0.33	0.07	0.10	0.40	0.12	0.10	0.70
0.01	0.02	0.21	0.14	0.12	0.75									
0.03	0.03	0.05	0.14	0.18	0.69									
0.02	0.02	0.03	0.13	0.09	0.18									
0.03	0.03	0.97	0.11	0.07	0.20									
0.10	0.09	0.02							0.40	0.44	0.37			
0.05	0.05	0.39							0.25	0.22	0.34			
0.03	0.03	0.65							0.12	0.10	0.35			
0.04	0.04	0.60							0.14	0.16	0.53			
0.13	0.15	0.06				0.66	0.66	0.69						
0.07	0.08	0.10				0.31	0.33	0.41						
0.08	0.08	0.51										0.26	0.24	0.40
0.03	0.02	0.08										0.10	0.06	0.18
0.04	0.03	0.41										0.09	0.08	0.57
0.04	0.03	0.13										0.07	0.08	0.43
0.08	0.07	0.24										0.22	0.23	0.70
0.06	0.04	0.03										0.15	0.18	0.26
0.03	0.03	0.59										0.09	0.10	0.34
1.71	1.69	0.61	1.41	1.39	0.65	1.29	1.27	0.35	1.92	1.99	0.19	1.77	1.82	0.39
0.22	0.23	0.75	0.25	0.19	0.72	0.44	0.41	0.64	0.26	0.25	0.79	0.11	0.12	0.64
0.49	0.48	0.39	0.47	0.50	0.52	0.34	0.34	0.79	0.48	0.49	0.94	0.60	0.65	0.35
0.26	0.27	0.66	0.25	0.27	0.74	0.22	0.24	0.40	0.24	0.25	0.74	0.29	0.24	0.20
31.93	31.43	0.08	30.93	30.59	0.69	28.23	28.72	0.38	31.58	31.89	0.67	32.13	31.70	0.60
1078.50	1046.60	0.11	1009.80	984.52	0.62	846.17	883.99	0.31	1050.10	1075.30	0.55	1086.10	1057.00	0.59
0.16	0.13	0.15	0.23	0.18	0.44	0.08	0.06	0.37	0.17	0.15	0.84	0.10	0.08	0.51
0.11	0.09	0.06	0.10	0.09	0.75	0.06	0.05	0.71	0.14	0.14	0.91	0.09	0.08	0.68

atching is employed using data drawn from the 2008 Department of Defense Health and Related Behaviors Survey
various major commands for the Army, Navy, Marines, and Air Force respectively.

Appendix Table 5: Propensity Score Matching Estimates of Relationship between Combat Exposure and Domestic Abuse – DOD HRB SURVEY

	(1) All	(2) Army	(3) Marines	(4) Navy	(5) Air Force
Outcome					
Any Abuse	0.012**	0.011	0.022*	0.025**	0.002
	(0.005)	(0.015)	(0.013)	(0.011)	(0.009)
	[3,949]	[350]	[546]	[801]	[1,028]
Partner Abuse	0.009	(0.011)	0.011	0.019*	0.002
	(0.005)	(0.016)	(0.010)	(0.011)	(0.009)
	[3,949]	[350]	[546]	[801]	[1,028]
Child Abuse	0.012***	0.006	0.018*	0.029***	0.002
	(0.003)	(0.06)	(0.010)	(0.087)	(0.005)
	[3,949]	[350]	[546]	[801]	[1,028]
Relationship Stress	0.037***	0.069*	0.051	0.059**	0.036
	(0.012)	(0.041)	(0.036)	(0.026)	(0.028)
	[3,949]	[350]	[546]	[801]	[1,028]
Argument	0.069***	-0.017	0.096***	0.097**	0.057
	(0.018)	(0.059)	(0.032)	(0.040)	(0.038)
	[3,949]	[350]	[546]	[801]	[1,028]
Break up	0.038**	0.023	0.022	0.089***	0.009
	(0.017)	(0.047)	(0.029)	(0.030)	(0.028)
	[3,949]	[350]	[546]	[801]	[1,028]

Bootstrapped standard errors are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2.

Appendix Table 6A: Age Group Specific Estimates of the Relationship between Combat Exposure and Domestic Violence, DOD HRB , Currently in the Military = 1 & Ages 24 to 32

VARIABLES	(1) Any Abuse	(2) Any Abuse	(3) Partner Abuse	(4) Partner Abuse	(5) Child Abuse	(6) Child Abuse	(7) Relationship Stress	(8) Relationship Stress	(9) Argument	(10) Argument	(11) Break up	(12) Break up
Combat Exposure	0.010*	0.005	0.008	0.002	0.011**	0.007*	0.044***	0.020**	0.055***	0.034**	0.004	0.004
	(0.006)	(0.006)	(0.005)	(0.006)	(0.004)	(0.004)	(0.012)	(0.009)	(0.013)	(0.013)	(0.017)	(0.017)
Stressors and Substance Abuse Controls	[4,408] NO	[4,408] YES	[4,398] NO	[4,398] YES	[4,392] NO	[4,392] YES	[4,377] NO	[4,377] YES	[4,387] NO	[4,387] YES	[4,388] NO	[4,388] YES

Robust standard errors corrected for clustering on the stratum are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All models use the full set of controls shown in Appendix Table 2.

Appendix Table 6B: Exploration of Whether Psychological Stress and Substance Use Mediates the Relationship Between Combat Exposure and Domestic Violence in, Add Health, Currently in the Military = 1 & Ages 24 to 32

VARIABLES	(1) Threaten	(2) Threaten	(3) Hit	(4) Hit	(5) Injury	(6) Injury	(7) Trust	(8) Trust	(9) Listen	(10) Listen
Combat Exposure	0.119**	0.083	0.035	0.006	0.001	0.006	-0.188*	-0.115	-0.122	-0.066
	(0.054)	(0.062)	(0.029)	(0.024)	(0.012)	(0.014)	(0.109)	(0.113)	(0.107)	(0.111)
Combat Service without Exposure	0.128**	0.085	0.035	0.008	0.017	0.024	-0.276***	-0.231**	-0.158*	-0.091
	(0.053)	(0.056)	(0.035)	(0.036)	(0.020)	(0.027)	(0.099)	(0.109)	(0.087)	(0.094)
	[193]	[193]	[193]	[193]	[193]	[193]	[193]	[193]	[193]	[193]
Stressors and Substance Abuse Controls	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

Robust standard errors corrected for clustering on the school are in parentheses. Number of observations is in brackets. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

All models use the full set of controls shown in Appendix Table 1 along with pre-deployment serious physical fight and physical maltreatment by parents prior to age 18. In all models, military rank, timing of military service, branch of service, and occupation indicators are controlled for. Models also include missing dummy categories for each of the control variables.

In every model estimated those who are deployed to a non-combat zone constitute the comparison group.

Appendix Table 7. Means of Domestic Abuse Measures by Combat Status, DOD HRB, Female Sample

Variable	All	Combat Exposure = 1	Combat Exposure = 0
Domestic Violence, Relationship Quality, and Relationship Status			
Any Abuse	0.036	0.042	0.032
	(0.186)	(0.200)	(0.177)
Partner Abuse	0.030	0.035	0.027
	(0.172)	(0.185)	(0.163)
Child Abuse	0.010	0.015	0.007
	(0.100)	(0.121)	(0.084)
Relationship Stress	0.205	0.232	0.188
	(0.403)	(0.422)	(0.391)
Argument	0.323	0.372	0.292
	(0.468)	(0.484)	(0.455)
Break up	0.113	0.142	0.095
	(0.316)	(0.349)	(0.293)
In a Relationship	0.704	0.713	0.698
	(0.457)	(0.452)	(0.459)
Branch of Service			
Army	0.227	0.399	0.121
	(0.419)	(0.490)	(0.326)
Marines	0.168	0.215	0.138
	(0.374)	(0.411)	(0.345)
Navy	0.289	0.109	0.400
	(0.454)	(0.312)	(0.490)
Air Force	0.316	0.277	0.341
	(0.465)	(0.448)	(0.474)
Observations	3198	1218	1980

Notes: The means from the first five columns are generated using data drawn from the 2008 Department of Defense Health and Related Behaviors