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Do Child Abuse and Maternal Care Interact to Predict Military Sexual Trauma?

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Abstract

Objective—The present research tested the hypothesis that maternal care moderates the relationship between childhood sexual abuse and subsequent military sexual trauma (MST).

Method—Measures of childhood sexual abuse, maternal care, and MST were administered to 197 Iraq and Afghanistan war veterans.

Results—After accounting for gender, age, and the main effects of maternal care and childhood sexual abuse, the maternal care × childhood sexual abuse interaction was a significant predictor of MST (odds ratio = .28, β = −1.26, 95% confidence intervals of .10, .80). As hypothesized, rates of MST were higher among veterans who reported childhood sexual abuse and low levels of maternal care (43%) compared with veterans who reported childhood sexual abuse and high levels of maternal care (11%).

Conclusions—These findings suggest that high levels of maternal care may act as a protective factor against future revictimization among military service members. These findings have the potential to inform both prevention and intervention efforts.

Keywords

military sexual trauma; child sexual abuse; maternal care; parental bonding; revictimization

Military sexual trauma (MST) is defined as any experience that involves sexual harassment or sexual assault during the course of military service (Department of Defense Sexual Assault Prevention and Response, 2012). In 2011, 3,192 incidences of MST were reported (Department of Defense Sexual Assault Prevention and Response, 2012). Among the unrestricted reports, 31% of these incidences were rape, 30% were aggravated sexual

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assaults, and 25% were wrongful sexual contact. A literature review by Suris and Lind (2008) demonstrated a wide range of prevalence rates (0.4% to 71%), although the majority of studies demonstrated rates between 20 to 43%. Women were approximately 20 times more likely to be sexually victimized during their military service than men.

Research suggests that MST is a unique predictor of psychiatric symptoms after controlling for combat exposure and other life stressors (Murdoch, Polusny, Hodges, & Cowper, 2006). MST survivors demonstrate a high prevalence of posttraumatic stress disorder (PTSD) and comorbid psychopathology (Maguen, Cohen, Ren, Bosch, Kimerling, & Seal, 2012). Kimerling et al. (2010) found that women who experienced MST were 3.82 times more likely to be diagnosed with PTSD compared to women in the military who did not experience MST, whereas men who experienced MST were 2.37 times more likely to be diagnosed with PTSD compared to men in the military who did not experience MST. Because of the high prevalence and strong relationship with psychopathology, there is a critical need to identify risk and protective factors associated with MST.

Childhood Trauma

Veterans report higher rates of childhood trauma and non-military adulthood trauma than civilians (Schultz, Bell, Naugle, & Polusny, 2006). In a sample of male veterans, Lapp and colleagues (2005) found that 96% reported some form of victimization during their lifetime, with 60% reporting child physical abuse, 41% reporting child sexual abuse, and 20% reporting adult civilian sexual assault. Schultz and colleagues (2006) found that female veterans were more likely to have experienced sexual abuse by a parent and to have experienced a longer duration of child sexual abuse than female civilians. Female veterans also reported significantly higher rates and greater severity of sexual violence as adults compared to female civilians. Thus, the available evidence suggests that both male and female veterans experience a higher prevalence of childhood and adulthood victimization compared to their civilian counterparts.

Childhood Trauma and Adult Revictimization

In civilian samples, childhood victimization, particularly childhood sexual abuse, is associated with increased odds of being sexually victimized as an adult (Messman-Moore & Brown, 2004). A meta-analysis found that estimates of revictimization among child sexual abuse survivors ranged from 15% to 79%, with an average effect size of 0.59 (Roodman & Clum, 2001). Messman-Moore and Brown (2004) found an odds ratio of 1.9 for childhood sexual abuse when predicting rape in a female civilian sample. Among female Navy recruits, those who experienced childhood sexual abuse were 4.7 times more likely to experience adulthood rape than those without a history of childhood sexual abuse (Merrill et al., 1999). Thus, the relationship between childhood abuse and adulthood sexual victimization is robust in civilian samples, with one study suggesting this relationship is also present in military samples. Moreover, findings regarding the strength of this relationship are particularly important for military samples because of higher rates of childhood victimization compared to civilians. Although there is a strong link between childhood and adulthood sexual traumas, not all child abuse survivors report experiencing future victimization. Child sexual

abuse often co-occurs with other forms of trauma and stressors, such as poor quality of parent-child relationships, and the impact of this accumulation of stressful experiences may help explain the heterogeneity of outcomes observed among survivors (Maker, Kemmelmeier, & Peterson, 2001; Rutter, 1985).

Parental Bonding and Revictimization

Adverse parenting experiences, such as low levels of parental care, have consistently been demonstrated as a risk factor for future adjustment difficulties and psychosocial consequences in adulthood (e.g., depression, interpersonal difficulties; Enns, Cox, & Clara, 2002; Heider, Matschinger, Bernert, Alonso, & Angermeyer, 2006; Wilhelm, Niven, Parker, & Hadzi-Pavlovic, 2005). One way of defining parental bonding is based on two primary dimensions—care and overprotection (Parker, Tupling, & Brown, 1979). Parental care involves expressions of warmth, whereas parental overprotection involves a lack of autonomy (Parker et al., 1979). Unhealthy parent-child relationships or bonding have been characterized as lower care scores and higher overprotection scores. Numerous studies have found that parental care is the parenting dimension most closely related to adult outcomes (e.g., Enns et al., 2002; Heider et al., 2006). Specific to this study, child sexual abuse has been found to be significantly negatively correlated with levels of parental care, but not significantly related to parental overprotection (Cosden & Cortez-Ison, 1999). That is, child sexual abuse and low levels of parental care often co-occur.

Child sexual abuse does not always lead to future maladjustment and/or victimization (e.g., adult rape), and therefore it is important to consider possible risk pathways. One theory that has received some support in this area is attachment theory (Bowlby, 1977), which indicates that a caretaker's response to his/her child's needs impacts the child's later adjustment, even into adulthood. Therefore, low levels of parental care can be considered a risk factor for long-term adjustment difficulties and high parental care can be considered a protective factor. Put in the context of the current research, lower levels of parental care following sexual abuse have been found to be associated with greater subsequent adjustment difficulties (Lynskey & Fergusson, 1997). This finding relates to revictimization risk because adjustment difficulties following childhood maltreatment have been found to increase risk for future sexual victimization (Risser, Hetzel-Riggin, Thomsen, & McCanne, 2006). Therefore, it is conceivable that lower parental care in the context of child sexual abuse might further increase the likelihood of MST beyond the direct and independent influence of child sexual abuse.

In the current study we chose to focus on maternal care for three reasons. First, mothers tend to spend more time with their children than fathers (Acock & Demo, 1994), which often makes them the primary attachment figure. Second, women are less likely than men to be the perpetrator of sexual abuse (Briere & Elliott, 2003; Finkelhor, 1986). Finally, research suggests that recalled maternal parenting experiences are more closely related to adult outcomes than paternal parenting (e.g., Enns et al., 2002).

Objective and Hypotheses

Although there is strong evidence for the influence of childhood trauma on long-term negative outcomes, not all survivors experience revictimization. Prior research based on attachment theory in civilian samples suggests that some of this heterogeneity in outcomes may be due to parental bonding, specifically maternal care. Understanding the role of childhood trauma and additional potential risk factors, such as maternal care, in predicting MST is particularly important because military samples report higher rates of childhood adverse events than civilians. The aim of the current study was to inform families and practitioners about appropriate intervention in situations of suspected child abuse that can impact future risk of victimization.

The present research examined the impact of childhood sexual abuse and maternal care on MST among a sample of predominantly male veterans from the wars in Iraq and Afghanistan. Even though women are estimated to be 20 times more likely to experience MST than men (Kimerling, Gima, Smith, Street, & Frayne, 2007), because the military is predominantly male, it is estimated that approximately the same number of males and females are victims of MST (Suris & Lind, 2008). Thus, much of the prior research that has included predominantly or exclusively female samples may not generalize to male survivors. However, because women were included in the sample and are at substantially higher risk of sexual victimization during childhood and adulthood (including during their military service; Finkelhor, 1994; Suris & Lind, 2008), gender was included as a covariate in all analyses. Similarly, because younger men and women have been found to be at greater risk for MST (Kimerling et al., 2007), age was also included as a covariate.

We hypothesized that maternal care would moderate the effect of childhood sexual abuse on MST, such that the hypothesized positive association between childhood sexual abuse and MST would only occur at lower levels of maternal care. In contrast, we expected that higher levels of maternal care would buffer veterans against the deleterious effects of childhood sexual abuse. Thus, we expected that there would be no association between childhood sexual abuse and MST at higher levels of maternal care. If this hypothesis is supported, it would suggest that improving the parent-child relationship in situations of child abuse may help reduce subsequent risk of victimization.

Methods

Participants

The sample included 197 veterans previously deployed to Iraq/Afghanistan. The participants were predominantly male (92%) and Caucasian (66%), in keeping with demographic characteristics of the U.S. military (86% male, Department of Defense, 2010; 65% Caucasian, Watkins & Sherk, 2008). On average, participants were 39.9 years of age (*SD* = 10.4) and had 15.7 (*SD* = 9.4) years of military service. The majority (86%) of the sample had served in the Army.

Measures

Demographic and Military History Questionnaire—A demographic and military history questionnaire was created for use in the current study to assess basic demographic and veteran-specific characteristics, including years and branch of service.

Deployment Risk and Resilience Inventory-Relationships Within Unit (DRRI-RWU; King, King, & Vogt, 2003)—The DRRI-RWU is a 7-item scale that assesses exposure to unwanted sexual touching or inappropriate attention perpetrated by members of the participant's unit, commanding officers, or civilians in a combat zone. Examples of items include: "Threatened me with some sort of retaliation for not being sexually cooperative," "Made unwanted attempts to have sex with me," and "Forced me to have sex." Research suggests adequate internal consistency (i.e., most Cronbach's alpha coefficients above .85), adequate test-retest reliability (i.e., average one-month test-rest coefficient of . 86), and evidence of good scale validity (King et al., 2003; King, King, Vogt, Knight, & Samper, 2006). In the current study, Cronbach's alpha for the DRRI-RWU was .81. Participants endorsing one or more of the seven DRRI-RWU items were classified as having experienced MST. This is consistent with the Department of Defense (2012) definition of MST, which includes both sexual harassment and sexual assault. MST was coded as present (1) or absent (0).

Childhood Trauma Questionnaire Short Form (CTQ-SF; Bernstein & Fink, 1998)—The CTQ-SF is a 28-item self-report measure of childhood maltreatment and abuse. Participants respond to each item using a 5-point Likert scale (1= "never true," 5= "very often true"). The CTQ-SF assesses five types of childhood maltreatment: sexual abuse (5 items), emotional abuse (5 items), physical abuse (5 items), emotional neglect (5 items), and physical neglect (5 items). The CTQ-SF has adequate internal consistency (i.e., Cronbach's alphas ranging from .61 to .95 across samples and subscales) and adequate criterion-related validity (Bernstein et al., 2003).

The participants' responses to the 5- item sexual abuse subscale were of primary interest in the current study because child sexual abuse is the form of child abuse most closely linked to adulthood sexual victimization (Messman-Moore & Brown, 2004). Examples of items include: "Someone threatened me into doing sexual things," "Someone molested me," and "I believe I was sexually abused." Cronbach's alpha for the current study was .91. Participants endorsing one or more of the 5-items of the child sexual abuse subscale were categorized as having experienced child sexual abuse (i.e., answered at least one or more items with a response of "2" or greater). This is consistent with Texas state law that defines child sexual abuse as any act or failure to act that involves sexual conduct that is harmful to the child's mental, emotional or physical health (Texas Statutes §261.001). The use of a dichotomous measure reflecting either the presence or absence of child sexual abuse has been found to have equal predictive value to a measure of abuse severity and is more parsimonious (Fassler, Amodeo, Griffin, Clay, & Ellis, 2005). The presence (coded 1) or absence (coded 0) of child sexual abuse was analyzed in the current study.

Parental Bonding Instrument (PBI; Parker et al., 1979)—The PBI is a 25-item, self-report measure of perceived parental care and overprotection. Participants were asked to score their mothers and fathers separately on each item using a Likert scale (i.e., 0 = "very unlike my parent," 3 = "very like my parent"). The PBI has a strong two-factor structure (i.e., parental care and parental overprotection) and adequate test-retest reliability (Mackinnon, Henderson, Scott, & Duncan-Jones, 1989). The 12-item continuous maternal care subscale, which can range from 0 to 36, was used in the analysis because of the aforementioned reasons, with higher scores reflecting more maternal care. The Cronbach's alpha of the maternal subscale in the current study was .94.

Procedures

This research was approved by the local Institutional Review Board of the Central Texas Veterans Health Care System (CTVHCS) as part of two larger projects on the genetics of PTSD. Consequently, the inclusion criteria were for the larger studies. Participants were deemed eligible if they were (a) an Iraq/Afghanistan veteran, (b) able to provide informed consent, and (c) able to complete the full assessment battery. They were excluded if they (a) had a diagnosis of bipolar or psychotic disorder, (b) recently began psychiatric medications or psychotherapy, or (c) reported any suicidal or homicidal ideation, intent or plan. The studies were advertised as assessing warzone experiences and post-deployment adjustment at veteran's service organizations, presentations to VA staff, and mailings to Iraq/Afghanistan veterans enrolled in the CTVHCS system. Participants were then screened over the telephone after providing informed consent to determine initial eligibility. If they were eligible, the participants then completed self-report instruments in a private office at CTVHCS. The sample size reflects the number of veterans who volunteered and consented during the data collection period.

Results

Approximately 21% of the participants reported experiencing childhood sexual abuse and 14% reported MST. Hierarchical logistic regression was used to test the main hypothesis. Gender and age were included in the model as covariates in step 1. The main effects of child sexual abuse (no abuse coded as 0, abuse coded as 1) and maternal care (standardized) were entered into the model in step 2. Finally, the two-way interaction term was entered in step 3. As can be seen in Table 1, both gender and age were significant predictors of MST in step 1. Consistent with the extant literature, female veterans and younger veterans were more likely to experience MST. Age continued to be a significant predictor in step 2 of the model, whereas gender no longer was. As expected, child sexual abuse also had a significant main effect in step 2, indicating that veterans who had been sexually abused were significantly more likely than non-abused veterans to experience MST. Finally, in step 3 we found that consistent with our main hypothesis, the maternal care × childhood sexual abuse interaction term was a significant predictor of MST, $\beta = -1.26$, *OR* = .28, [.10, .80]. Age was the only other significant predictor once the interaction term was entered into the model in step 3, $\beta = -.08$, *OR* = .92, [.88, .97].

In order to determine the specific nature of the interaction, we followed Hayes and Matthes' (2009) procedures for post-hoc probing of interaction terms in logistic regression. Consistent with the main hypothesis, post-hoc probing of the interaction revealed that childhood sexual abuse only had a significant association with MST at lower levels of maternal care. For example, when maternal care levels were 1 *SD* below the mean, childhood sexual abuse was positively associated with MST, B = 2.12 [.70, 3.53], $p = .003$. In contrast, when maternal care levels were 1 *SD* above the mean, childhood sexual abuse no longer had a significant effect on MST, B = −.40 [−2.05, 1.24], $p = .63$.

We also conducted an additional post-hoc analysis to examine rates of MST when veterans were grouped based on their childhood sexual abuse and maternal care status (Figure 1). As expected, rates of MST were substantially higher among veterans who reported experiencing childhood sexual abuse and low levels of maternal care (43%) compared with veterans who reported experiencing childhood sexual abuse and high levels of maternal care (11%).

Discussion

Both childhood sexual abuse and MST were prevalent within this sample of Iraq/Afghanistan veterans. Consistent with the main hypothesis, child sexual abuse and MST were related, but only in the context of low maternal care. While previous research has demonstrated consistent support for a strong link between child sexual abuse and future revictimization, the current study suggests that this relationship is moderated by maternal care. Specifically, child sexual abuse survivors who perceived their mothers as providing less support, affection, or nurture were at significantly greater risk of MST compared with child sexual abuse survivors who perceived their mothers as providing greater levels of care. The implication of this finding is that higher levels of maternal care may serve as a protective factor in individuals who are at heightened risk of MST, based on their history of child sexual abuse.

An alternative explanation for the findings is that the presence of both child sexual abuse and low maternal care could be a marker of a pervasive adverse childhood environment. That is, children that experienced child sexual abuse and reported low perceived levels of maternal support, affection, or nurturance may have grown up in an environment containing numerous risk factors associated with adult sexual victimization (e.g., early sexual experiences, neglect; Stermac, Reist, Addison, & Millar, 2002). By contrast, individuals who endorsed child sexual abuse in the presence of high maternal care, no child sexual abuse and low maternal care, or no child sexual abuse and high maternal care may have been more likely to grow up in an environment with fewer additional risk factors for adult sexual victimization. Therefore, the findings of the current study could reflect the influence of cumulative risk on future revictimization. Future research to identify mechanisms explaining this relationship is needed.

Study Limitations and Strengths

The current findings are limited with respect to the data being collected retrospectively at a single time point. Causation cannot be assumed from these correlational data, and recall bias may have impacted the participants' responses, particularly regarding child abuse

experiences and maternal care given the substantial time delay between the events and data collection. Furthermore, the study relied on participants' willingness to report sexual abuse. Second, the sample was fairly homogenous, thereby restricting generalizability to civilian samples with higher proportions of female and minority participants. Third, the sample was obtained through recruitment at a VA medical center. Therefore, the sample may not be generalizable to veterans who have not enrolled at VA. Fourth, the procedures used to assess for child sexual abuse and MST did not allow us to fully evaluate the influence of factors such as victimization severity or frequency.

The present research also had several notable strengths. First, the sample was generally representative of the demographics of the military. Second, the measures that were used have sound psychometric properties and are well-accepted instruments for assessing the constructs of interest. Finally, the sample was large enough to have sufficient power to conduct the analyses of interest.

Clinical Implications

The clinical significance of these findings is high given that maternal care is a malleable factor that can be addressed in early treatment interventions following childhood sexual abuse. An example of an empirically supported treatment that may be appropriate in this situation is Parent Child Interaction Therapy (PCIT). PCIT is a short-term manualized parent training intervention that involves strengthening the parent-child attachment (i.e., child directed interaction) and teaching the parent behavioral management techniques (i.e., parent directed interaction; Herschell, Calzada, Eyberg, & McNeil, 2002). Because this intervention places emphasis on improving the parent-child relationship, the results presented here suggest PCIT could help reduce the risk of revictimization among child sexual abuse survivors.

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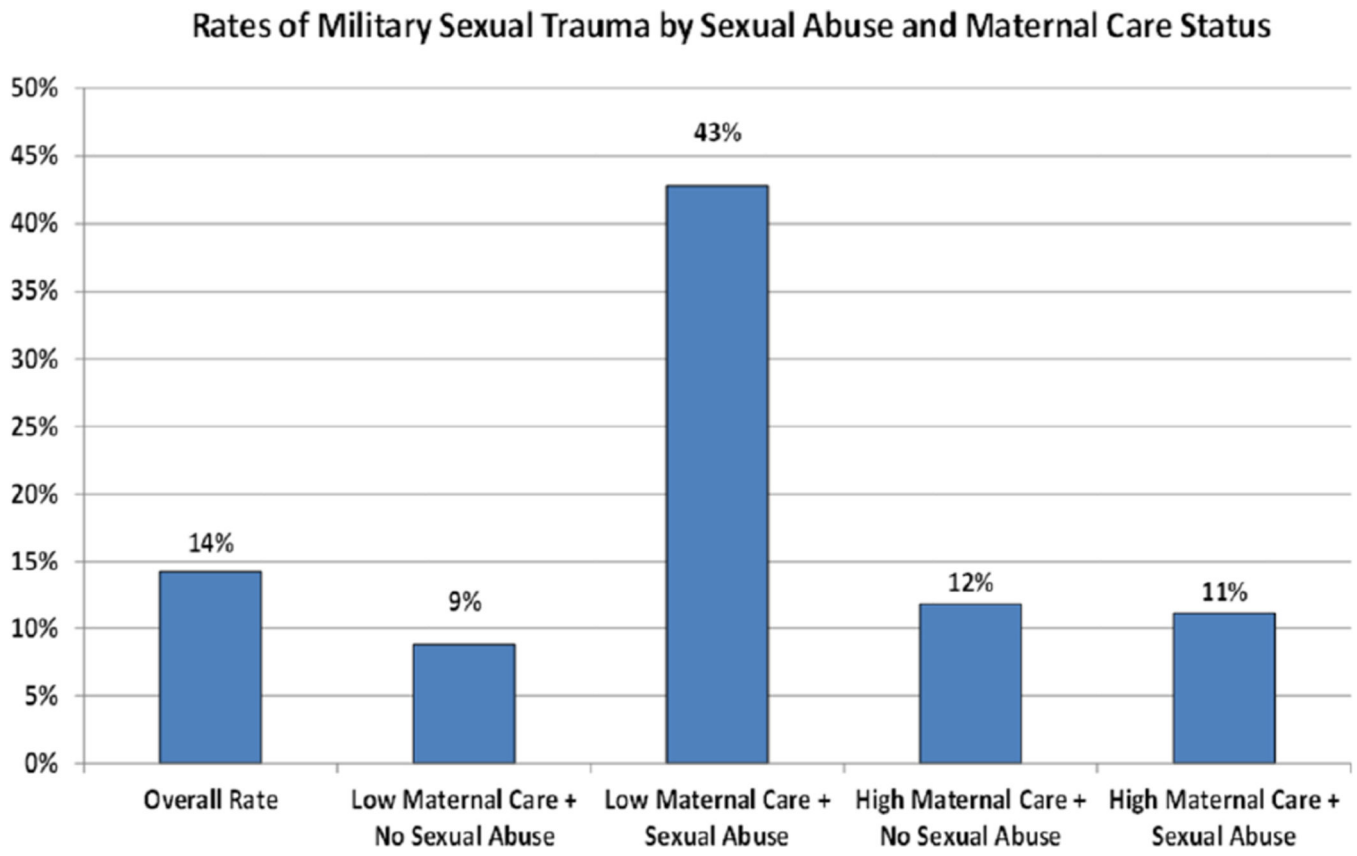

Figure 1.
Rates of military sexual trauma by sexual abuse and maternal care status (N = 197).