Stony Brook University

Victims Who Victimize:

A Multifactorial Model of the PTSD/ IPV Link in OEF/OIF Veterans

A Dissertation Presented

by

Heidi Lary Kar

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The Graduate School

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The Graduate School

Heidi Lary Kar

We, the dissertation committee for the above candidate for the

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acceptance of this dissertation.

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Abstract of the Dissertation

Victims Who Victimize:

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2011

Veterans with Posttraumatic Stress Disorder (PTSD) are more prone to perpetrating intimate partner violence (IPV) than are males in the general community or veterans not suffering from PTSD. However, there is little research on the PTSD-IPV link (IPV) among younger OEF/OIF veterans and on the factors that drive this association in general. PTSD may lead to increased risk for IPV through its impact on emotional intimacy. To test the hypothesis that emotional intimacy mediates the PTSD/IPV link, a sample of 110 male participants was recruited from the VAMC in Northport, NY. PTSD, IPV, and relationship functioning were assessed via a battery of standardized instruments. Results supported the hypothesis that poor emotional intimacy mediates the association between PTSD and IPV perpetration.

Dedication

I dedicate my dissertation…

To Mom for instilling in me the value of higher education and for loving the person I am;

To Bobba for inspiring me to dedicate my career to helping the vulnerable and for his pride in me;

To Sara for being my friend and confidant during my most trying professional and personal times;

To my dearest friends, Jiyon, Dan, and Lauren for their shoulders I have leaned on, the endless laughter, and their unwavering encouragement;

To Sourav for supporting me in every conceivable way (financial, emotional, and physical), for his own sacrifices which have enabled me to reach my professional goals, and most of all, for adoring me.

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IPV	Intimate Partner Violence
OEF/OIF	Operation Enduring Freedom/Operation Iraqi Freedom
PTSD	Post-traumatic Stress Disorder
CTS	Conflict Tactics Scale
DAS	Dyadic Adjustment Scale
PAIR	Personal Assessment of Intimacy in Relationships Scale

Acknowledgements

Many people and institutions have played a role in the implementation of this dissertation study. First and foremost, I would like to thank my doctoral advisor, Dr. K. Daniel O'Leary. Allowing me to pursue the dissertation topic of my choice has meant the world to me— and is an indicator of his professional generosity and dedication to his doctoral students. His guidance, insightful ideas, excitement about the topic and my career, and long hours of work have been vital and much appreciated. I am grateful for his mentorship and for the life-long friendship we have begun together.

I also owe a huge debt of gratitude to my friends and lab mates, Dr. Heather Foran and Dr. Anita Jose. Both Heather and Anita mentored me through my doctoral program and were always generous of their knowledge, time, and encouragement whenever I had a question about theory, data collection, or analysis. I very much appreciate the time and energy they put toward trouble-shooting analysis and theoretical questions and for proof-reading. I am eternally grateful for all of their mentoring, and, of course, their friendship.

I want to thank Dr. Stephen Long for his multi-faceted support of this study and of me. His clinical insights and emotional support have been invaluable. He generously gave of his limited time to help me make important professional connections vital to the study's implementation and assisted me with every step of the administrative process to allow this study to come to fruition. Furthermore, I am thankful for his constant encouragement and belief in my ability to reach my goals – both personal and professional.

I want to express my thanks and affection to the two people whom I credit both with introducing me to the field of intimate partner aggression and with grooming me into a developing scientist, Dr. Suzanne Maman and Dr. Jacquelyn Campbell. Suzanne welcomed me into her laboratory at the Johns Hopkins School of Public Health when I knew next to nothing about research or aggression. She calmly guided me through those initial stages of learning how to conduct research studies and analyze data and helped me define and realize my professional goals. She made me aware of the need for violence/aggression research and intervention in the international arena and encouraged my excitement for the field of public health. Jackie took my hand and generously began a mentoring relationship through which she taught me about the many aspects of being a scientist/practitioner including aspects of study design, data analysis, and publishing, but also the importance of networking with like-minded professionals and the value of collegiality. She, also, modeled for me the confident, humble, caring, and skilled scientist/practitioner professional that I strive to be.

I also want to thank Dr. Dina Vivian for her unfailing support of my personal and professional goals. Her concern, advice, enthusiasm and "pep talks" throughout my training at Stony Brook University have kept me going through tough times. At times when I struggled with my dissertation and started to question my abilities, Dina was always there to help pick me up and trouble-shoot the practical research questions and issues. I am grateful for our friendship and for the ability to learn from her interpersonal grace.

I want to thank Dr. Marvin Goldfried for distilling the essence of a stellar clinical psychologist through his own instruction and modeling. His eye-opening yet humble teaching and clinical

supervision quietly proclaimed the necessity of integrating clinical orientations and of focusing on the "process" of therapy in order to offer excellent clinical care to my patients. He also taught me to believe in and take pride in my own clinical ability. His clinical insight and dedication to teaching developing psychologists are gifts to all of us privileged enough to learn from him. The clinical skills he taught me have made me a better, more astute clinical researcher.

I extend my sincere thanks to the Northport VA Medical Center for hosting the research study and for allowing me access to its veteran community for this project. Specifically, I would like to thank the OEF/OIF Program for their support of the study, Joe Sledge for his belief in the value of the study, and finally, Fern Silverman and Dorothy Baker guiding me through each step of the IRB process. My sincere thanks go to the Melissa Institute for Violence Prevention and Treatment and to the Stony Brook Marital Clinic, for their generous financial support of this study.

Finally, I am indebted to the veterans who participated in this study. Their willingness to share very personal and in some cases uncomfortable aspects of their mental health and relationship histories was inspiring. Throughout the course of data collection, many veterans requested that I donate their study payment to the Northport VA Voluntary Services - which serves to highlight this community's undeniable feeling of service and dedication to their fellow veterans. These veterans who so generously gave of their time and energy, despite the discomfort of sharing such vulnerable information, are the soul of the research process.

Curriculum Vitae

Heidi Lary Kar

EDUCATION

September 2006 -August 2011	**Ph.D. in Clinical Psychology** Stony Brook University Stony Brook, NY (*APA Accredited*)
August 2006 -December 2008	**M.A. in Psychology** Stony Brook University Stony Brook, NY (*APA Accredited*)
August 2002 -May 2004	**M.H.S. in International Health** Johns Hopkins University, School of Public Health Baltimore, MD
September 1997 -May 2001	**B.A. in Neuroscience** Smith College Northampton, MA
August 1999 -December 2000	**Semester Abroad in Zimbabwe** Pitzer College (*Sponsoring Institution*) Final project: Women's Healthcare Needs: Challenges and Barriers to Care

SUPERVISED CLINICAL TRAINING

August 2010
-August 2011

Psychology Intern
Veterans Affairs Medical Center, Northport, NY
Training Director: Janet Eschen, Ph.D.

- Provided individual psychotherapy, group therapy, and couples/marital therapy to full age range of male and female veterans spanning World War II, Vietnam, and recently returned OEF/OIF veterans
- Primary rotation areas included: Dual-Diagnosis Recovery Center (Co-occurring substance abuse & PTSD diagnoses); Primary Care Mental Health (includes in-patient consults); Outpatient Mental Health clinic; OEF/OIF Psychology Unit, Psychosocial Recovery and Rehabilitation Center; Acute/Inpatient Unit; Geropsychology & Women's Wellness Clinic.
- Administered, scored, interpreted, and wrote Neuropsychology reports for consults generated throughout hospital

- Supervised training in: Cognitive Processing Therapy (CPT), Prolonged Exposure Therapy (PE), Seeking Safety, Motivational Interviewing, & CBT & Interpersonal txt for Depression

July 2009 -June 2010 **Extern: Psychological/ Psychoeducational Examiner**
Krasner Psychological Center, Stony Brook, NY
Director: Dina Vivian, Ph.D.

- Administered, scored, interpreted, and prepared reports based on psychoeducational assessment to assess cognitive deficits, attention problems, learning disabilities, and psychological functioning in children and adults.
- Co-developed new psychological evaluation program for bariatric surgery patients to screen for personality pathology, eating disorders, quality and life, extent of social support, and motivation.
- Co-developed pre-surgery group treatment program for patients interested in bariatric surgery, and post-surgery group treatment program for patients who have undergone bariatric surgery and are struggling with eating, exercise, side effects, and interpersonal problems following surgery.

May 2009 -September 2009 **Staff Supervisor**
Krasner Psychological Center, Stony Brook, NY
Director: Dina Vivian, Ph.D.

- Chosen by the Director of the Psychological Center to supervise less advanced clinical students a year earlier than peers. Supervision involved weekly individual meetings with each therapist, weekly group supervision with all summer supervisors, review of video- and audio-taped sessions, and supervision of assessment reports, and treatment plans. Supervised adult and adolescent cases dealing with a variety of problems including mood and anxiety disorders, family discord, personality disorders, and interpersonal problems.

September 2008 -July 2009 **PTSD Extern**
Veterans Affairs Medical Center, Northport, NY
Supervisors: Stephen Long, Vivian Mendelsohn, David Gately

- Co-led weekly group therapy focused on Substance Abuse & PTSD recovery with a PTSD in-patient veteran population
- Received formal training in three types of PTSD treatment including: Cognitive Processing Therapy, Interpersonal therapy, and Psychodynamic therapy
- Conducted individual weekly psychotherapy in OEF/OIF outpatient clinic for Iraq, Afghanistan, and Persian Gulf era veterans
- Attended and presented at weekly individual and group supervision with interns.

September 2007 -July 2010 **Staff Therapist**
Krasner Psychological Center, Stony Brook, NY
Supervisors: Marvin Goldfried, K. Daniel O'Leary, Susan O'Leary, Dina Vivian

- Provided weekly psychotherapy to adult, adolescent, child, and family outpatients presenting with a variety of emotional, behavioral, and personality disorders, incorporating cognitive-behavioral, emotion-focused/process-experiential, psychodynamic, and interpersonal therapeutic approaches.

- Conducted intelligence and psychoeducational testing on children and adults utilizing WAIS-IV, WJ-III, MMPI, BAI, BDI-II, CBCL, SCL-90, SCID-IV among other measures.
- Produced integrative testing reports including cognitive, psychoeducational, and psychological assessment results.

September 2007 -July 2010 **Staff Therapist**
Marital Clinic- Stony Brook University, Stony Brook, NY
Director: K. Daniel O'Leary, Ph.D.

- Provided marital/couple therapy for couples experiencing significant marital distress; cases include past infidelity, drug abuse, and role disputes.
- Conducted child custody evaluations in response to court orders from Suffolk County Family Court system; evaluations include administration and integration of SCL-90; MMPI-II, BDI-II, BHS, CTS2, DAS, MMSE, among other measures
- Provided family therapy for child visitation cases referred by Suffolk Country Family Court system in which one or both parents have been estranged from the child(ren); generate regular progress reports for the court system on an ongoing basis
- Attended and presented at weekly group supervision.

May 2009 -September 2009 Couples Therapy Practicum
Center for Couples and Families
Director: Richard Heyman, Ph.D.

- Provided weekly therapy to couples presenting with relationship distress
- Participated in didactic & applied seminar based on Kim Halford's Brief Therapy for Couples and Jacobson and Christensen's acceptance and commitment strategies.

September 2007 -August 2008 **Staff Therapist**
Stony Brook University Anxiety Clinic
Director: Greg Hajack, Ph.D.

- Provided short-term cognitive-behavioral psychotherapy to patients manifesting a range of anxiety disorders
- Performed full-scale intake assessments including the administration and interpretation of the M.I.N.I, Y-BOCS, SCID-II, among other measures

RELATED CLINICAL EXPERIENCE

November 2005 -April 2006 **Group facilitator**
Gateway Program, House of Ruth, Baltimore, MD

- Successfully completed intensive training to become a group facilitator
- Co-led batterer intervention groups of 15-20 men court-ordered to attend the program

October 2004 -December 2005 **Domestic Violence Counselor**
House of Ruth, Baltimore, MD

- Provided counseling to survivors of domestic violence
- Assisted in developing "Victim contact" program to maximize safety of patients

RESEARCH EXPERIENCE

April 2009 -December 2010 **Primary Investigator: Dissertation**
Stony Brook University/ VAMC Northport, NY

Title: "Victims who Victimize: The Association between PTSD and Intimate Partner Violence among *Operation Enduring Freedom* and *Operation Iraqi Freedom* Veterans"

Dissertation Proposal Abstract: Veterans with Posttraumatic Stress Disorder (PTSD) are more prone to perpetrating intimate partner violence (IPV) than are males in the general community or veterans who do not suffer from PTSD. However, there is relatively little research on the PTSD-IPV link (IPV) among younger OEF/OIF veterans. One way PTSD may lead to increased risk for IPV is through its impact on emotional intimacy. In order to test the hypothesis that emotional intimacy mediates the PTSD/IPV link, 110 participants was recruited from the Veterans Affairs Medical Center in Northport, NY. PTSD, IPV, and relationship functioning were assessed via a battery of standardized instruments. The results largely supported the hypothesis that poor emotional intimacy mediates the association between PTSD and IPV perpetration.

September 2007 -January 2009 **Investigator: Specialties Project**
Stony Brook University, Stony Brook, NY

Title: **"**Patterns of Psychological Aggression, Dominance, and Jealousy within Marriage"

Specialties Project Abstract: Differences in psychological aggression, dominance, and jealousy constructs were assessed in a representative sample of 453 married parents. Overall, women had significantly higher dominance, jealousy, and psychological aggression scores. Both male and female respondents in relationships, where there was bi-directional severe psychological aggression, demonstrated higher mean levels of severe psychological aggression, dominance, and jealousy than did their counterparts who were unilaterally severely aggressive. Though previous literature has demonstrated that bilateral physical aggression has more negative impact on both partners than unilateral aggression, this is the first study to demonstrate a similar trend in psychological aggression patterns. Contrary to our hypothesis, there was no differential gender impact of severe psychological aggression.

September 2008 -December 2009 **Investigator: Master's Project**
Stony Brook University, Stony Brook, NY

Title: **"**Gender Symmetry or Asymmetry in Intimate Partner Victimization? Not an Either/Or Answer

Master's Project Abstract: Gender differences in physical victimization, sexual victimization, injury, fear, and depressive symptoms were assessed in a representative community sample of 453 young couples. The prevalence of any physical victimization experienced by women and men

did not differ (29% v 30%), but men reported more severe physical victimization than women. No difference in prevalence of overall injury was observed, but more women reported severe injury than men. Almost twice as many women as men reported being sexually victimized (28% v 15%). Physically victimized females reported more fear of their partners than physically victimized men. Physically victimized men and women, sexually victimized men and women, and physically injured men and women all had more depressive symptoms than those men and women who were not victimized or injured. Severely victimized women were three times more likely than severely victimized men to have depression scores in the clinical range (27% v 9%).

PUBLIC HEALTH RESEARCH & PROGRAM DEVELOPMENT EXPERIENCE

December 2005 -June 2006
Research Associate
International Center for Research on Women
Washington, DC

- Conducted quantitative (SPSS) and qualitative (Atlas ti & Nudist) analysis on variety of internationally based violence & HIV/AIDS focused projects (Tanzania, Kenya, India)
- Developed and delivered training programs for local staff on international violence and HIV/AIDS projects (Tanzania & Kenya)

September 2004 -December 2005
Project Director
Johns Hopkins University School of Nursing
Baltimore, MD

- Directed workplace violence study (NIOSH Funded) focused on investigating prevalence and types of workplace violence experienced by nursing personnel in 3 hospital sites
- Directed domestic violence study (NIH funded) providing domestic violence intervention care within the primary health care setting to, low-income, African-American women

June 2003 -December
HIV/AIDS & Violence Technical Advisor
Johns Hopkins School of Public Health/ Muhimbili National Hospital
Dar es Salaam, Tanzania

- Trained local research staff in contextual background of HIV/AIDS & Gender-Based violence, interviewing techniques, referral protocol, qualitative data collection and data coding methods; general program & staff management
- Established data collection & data tracking system to turn over to local staff

CONSULTANCIES

June 2006
Consultant
International Center for Research on Women (ICRW)

- Developed training curriculum to be used for Kenya-based local staff on conducting qualitative research on gender, HIV/AIDS, and vaccine trials

July 2005 **Consultant**
International Center for Research on Women (ICRW)

- Developed grant proposal for the Gates Foundation, for a multi-site health-sector & community-based HIV/AIDS stigma reduction intervention in Tanzania and Botswana.
- Developed & submitted grant proposal to USAID for a health system-based project working with men and women to address domestic & sexual violence in rural (Ichchapuram) India

January 2005 -August 2005 **Consultant**
***Women's Wellness Center* of Peja, Kosovo**

- Developed program report describing gender-based violence research findings from Kosovo study undertaken in August 2002 (collaboration with the CDC)

TEACHING EXPERIENCE

September 2007 -December 2007 **Instructor**
Stony Brook University

- Taught "Research & Writing" class to advanced undergraduate psychology majors
- Prepared all course materials, conducted all grading for course
- Guided students through researching for and writing a research publication

September 2008 -December 2008 **Co- Instructor**
Stony Brook University

- Prepared and taught 6 lectures out of 16 total in undergraduate course of "Topics in Social Psychology: Children at Risk"
- Lectures included: Childhood trauma, Violence affecting children, Child psychopathology, International issues: HIV/AIDS in Africa

September 2006 -December 2006 **Teaching Assistant**
Stony Brook University

- Provided in-class assistance in Child Development undergraduate course
- Graded examinations and written assignments

January 2007 -May 2007 **Teaching Assistant**
Stony Brook University

- Provided in-class assistance in Introduction to Psychology undergraduate course
- Graded examinations and written assignments

PUBLICATIONS

Peer-reviewed Journal Articles

Kar, H. L. and O'Leary, K. D. (2010). Patterns of Psychological Aggression, Dominance, and Jealousy within Marriage. *In Preparation.*

Kar, H. L. and O'Leary, K. D. (2010). Gender symmetry or asymmetry in intimate partner victimization? Not an either/or answer. *Journal of Partner Abuse*, 1(2): 152-168.

H. Lary, S. Maman, M. Katebalila, A. McCauley, J. Mbwambo. *Explaining the Association between HIV and Violence: Young men's experiences with infidelity, violence, and forced sex in Dar es Salaam, Tanzania,* International Family Planning Perspectives, *30(4): 200-206, 2004.*

H.Lary, S. Maman, J. Mbwambo, M. Katebalila, Working with young men to address violence and HIV in young women: A community-based intervention study in Dar es Salaam, Tanzania, *Sexual Health Exchange*, 3&4, 2004.

Weiss, E., S. Maman, **H. Lary**, J. Mbwambo, A. McCauley. (2004). Preventing HIV and Partner Violence: Research guides design of peer education and drama components in Tanzania, Horizons Report-Young Men and HIV Prevention. Horizons/The Population Council, 2004.

M. Yonas, N. Fredland, **H.Lary**, G. Shelley, J. Kub, P. Sharps, N. Glass, K. Kemp, T. Araya, K. Lawal-Muhammad, K. Bates, S. Dougherty, K. Cephas, J. Campbell. (*2007*). Dating Violence in African American adolescents: Theoretical foundation, program components and lessons learned. In L. Reese, D. Whitaker, G. Shelley (Eds). Culturally competent violence prevention demonstration projects: A monograph. Atlanta, Georgia: Centers for Disease Control and Prevention.

Book Chapters

O'Leary, K., D. & **Kar, H. L**. (*2010*). Partner Abuse: Assessment and Treatment. In Hersen & Thomas (Eds.), *Handbook of Clinical Psychology Competencies* (pp. 1039-1062). Washington, DC: SpringerLink.

Kar, H.L., & Garcia-Moreno, C. Intimate partner violence across cultures. In O'Leary, K. D., & Woodin, E. M. (Eds). (*2009). Understanding psychological and physical aggression in couples: Existing evidence and clinical implications.* Washington, DC: American Psychological Association.

SELECT PRESENTATIONS

Kar. H.L. Victims who Victimize: A Multifactorial model of the PTSD/IPV association in OEF/OIF Veterans. *Poster Presentation*. International Society for Traumatic Stress Studies, November 2010, Montreal, CA.

Kar, H.L. Cross-Cultural Predictors of Partner Aggression: India. *Oral Presentation*. Association for Behavioral and Cognitive Therapy, November 2009, New York, NY.

Kar, H.L. & O'Leary, K. D. Psychological Aggression, Dominance, and Jealousy Patterns of Husbands and Wives. *Poster Presentation.* Association for Behavioral and Cognitive Therapy, November 2009, New York, NY.

Kar, H.L. & O'Leary, K. D. Gender Differences in Prevalence of Intimate Partner Violence Victimization, Injury and Fear in a Randomized Community Sample. *Poster Presentation.* Association for Behavioral and Cognitive Therapies, November 2008, Orlando, FL

Kar, H.L. & O'Leary, K. D. Gender Differences in Prevalence of Intimate Partner Violence Victimization, Injury, and Fear in a Randomized Community Sample. *Poster Presentation*. International Society for Traumatic Stress Studies, November, 2007, Chicago, IL.

Lary, H., & Duvvury, N. Violence, Trauma, and Masculinity: Findings from the MSM community in India. *Poster Presentation*, International Society for Traumatic Stress Studies, November 2007, Baltimore, M.D.

Lary, H., Maman, S., Mbwambo, J, Katebalila, M., McCauley, A. Complicated Roads to HIV: Young women, Poverty, and Romance in Dar es Salaam. *Oral Presentation*, American Public Health Association, November 2004, Washington, D.C.

Lary, H., Maman, S., Mbwambo, J., Katebalila, M., McCauley, A. Explaining the Association between HIV and Violence: Young men's experiences with infidelity, violence and forced sex in Dar es Salaam, Tanzania, *Poster Presentation*, World AIDS Conference, July 2004, Bangkok, Thailand.

Lary, H., Maman, S., Mbwambo, J, Katebalila, M. HIV & Violence Prevention Among Young Men in Dar es Salaam, Tanzania, *Oral Presentation*, 6th World Psychiatric Association, East African Congress, April 2004, Arusha, Tanzania.

Victims Who Victimize:
A Multifactorial Model of the PTSD/ IPV Link in OEF/OIF Veterans

While the psychological impact of PTSD on returning veterans has been well-studied, the secondary impact of the PTSD on the veteran's close relationship functioning is an area that is less well understood. A wealth of research has demonstrated that veterans with PTSD experience a multitude of relational problems including marital/relationship dissolution, intimate partner violence, marital dissatisfaction, and emotional distancing or "numbing." In their results from the National Survey of Families and Households, Ruger, Wilson, and Waddoups (2002) found that experiencing military combat in any war between 1930 and 1984 increased the risk of later marital dissolution by 62 percent in veterans (Ruger, Wilson & Waddoups, 2002). Societal concern about the impact of intimate partner violence (IPV) among veteran populations first peaked in 2002 when news aired of four spousal homicides perpetrated by returned OEF Special Forces stationed at Fort Bragg, North Carolina. While around 12% of American men in the general population perpetrate IPV annually (Straus & Gelles, 1990), approximately 33% of Vietnam veterans with PTSD have perpetrated IPV (Jordan, Marmar, Fairbank, Schlenger, Kulka et. al., 1992). Though PTSD in conjunction with emotional intimacy, marital satisfaction, and aggression have been studied individually, to our knowledge the current study is the first study to investigate the specific association of PTSD, emotional intimacy, and aggression. Until the mechanism of PTSD symptomatology which is associated and appears to lead to partner aggression is better understood, our ability to address and prevent IPV in this population is severely hampered.

Differences among Veteran eras

The vast majority of research on the familial impact of the Veteran's PTSD has been with Vietnam Veterans. It is evident from this literature that there was considerable marital distress in the Vietnam veteran's family upon his return. Though substantial knowledge from the literature base on returning Vietnam veterans exists, the differing demographics and experience of the typical male who has served in Iraq with *Operation Iraqi Freedom* (OIF) or in Afghanistan with *Operation Enduring Freedom* (OEF), makes our ability to generalize these findings across Veteran groups questionable. The National PTSD Center showed that soldiers in Iraq have been exposed to an unprecedented amount of ongoing stress due to guerilla warfare. The specific types of guerilla warfare in urban Iraq and Afghanistan environments have lasted the longest period of time in history (Litz, 2007). Combat in Vietnam has been described as much more organized and planned whereas the type of combat taking place in Iraq and Afghanistan has consisted of small-scale ambushes, bombings, use of improvised explosive devices (IEDs), and assassinations against U. S. and coalition forces (Record & Terrill, 2001). This type of guerrilla warfare is thought to be experienced in a very different way than previous types of combat.

A second marked difference in studies of returning OEF/OIF veterans, as compared to Vietnam veterans, is age. The vast majority of studies of Vietnam veterans assessed the veterans decades after their return. OEF/OIF veterans are being accessed within (months/weeks) of their return from combat. As shown in both cross-sectional (Straus, Gelles, & Steinmetz, 1980; O'Leary & Woodin, 2005) and longitudinal (Feld & Straus, 1990; Fritz & O'Leary, 2004) studies, age is negatively correlated with intimate partner aggression. Basically, the evidence demonstrates that prevalence of physical aggression peaks in young adulthood and becomes less frequent at older ages in both representative civilian and military samples (O'Leary & Woodin,

2005). Therefore, it may be expected that intimate partner violence will be more likely in Iraq and Afghanistan veterans than in Vietnam veterans in part because the assessment of the violence would be conducted with younger veterans.

Theoretical Background

Intimate partner violence in veteran populations. Rates of IPV among active duty and veteran military personnel range from 13.5% to 58%, across studies, depending on whether the sample was recruited based on psychopathology factors or not (Marshall, Panuzio, & Taft, 2005). Whereas the NVVRS (Kulka et al., 1990) found that an estimated 13.5% of Vietnam Veterans without PTSD self-reported perpetrating IPV in the past year, Jordan et al reported that according to partner reports, an estimated 33% of Vietnam Veterans with PTSD perpetrated IPV against a partner in the past year (1992). Non-representative samples of Vietnam Veterans have yielded higher rates.

Temporal stability of intimate partner aggression. A central tenet of psychology is that past behavior is one of the best predictors of future behavior. This tenant applies to IPV as well as other types of aggression (e.g. Monahan, 1981; O'Leary, 1999). More specifically, IPV has been shown to be stable across a wide range of samples including adolescent samples (O'Leary & Slep, 2003), newlywed couples (O'Leary et al., 1989), and severely aggressive samples (Jacobson, Gottman, Gortner, Berns, & Shortt, 1996).

Based on a wealth of prior research in community samples (*e.g*. Schumacher & Leonard, 2005), one of the best predictors of current physical aggression within a relationship is past physical aggression. In other words, physical aggression is often a stable factor across time *within* a relationship (Huesmann, Eron, Lefkowitz & Walder, 1984), though the evidence about stability of IPV *across* relationships is less clear than stability within relationships (O'Leary &

Slep, 2011). Since there is no theoretical reason to assume this pattern would not hold in a Veteran population, we hypothesize that IPV in an ongoing relationship prior to developing combat- PTSD will independently predict IPV in the relationship following the development of PTSD.

To our knowledge, no research exists on the potential role that prior IPV may play in future IPV among a Veteran population with PTSD. The present study attempts to extend findings on the stability of aggression over time from community samples to a veteran sample.

Post-traumatic stress disorder. According to the National Comorbidity Survey (Kessler, Sonnega, Bromet, Hughes & Nelson, 1995), the prevalence rate of PTSD in the general population was 7.8%, and it was approximately 3.5% according to more recent estimates (Narrow, Rae, Robins, Regier, 2002). Studies of Vietnam Veterans conducted years after the Veterans' return demonstrated current prevalence of PTSD of 15% and a lifetime prevalence rate of 30% for males (Schlenger, Kulka, & Fairbank, 1992). Current prevalence of PTSD among returned Persian Gulf Veterans has been reported to hover around 10% (Kang, Natelson, Mahan, Lee, & Murphy, 2003) whereas a 12% prevalence rate has been found among returning Iraq Veterans (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004). Though it is tempting to compare these prevalence rates across veteran groups, the difference in timeframes across studies make direct comparisons impossible.

Seventeen separate PTSD symptoms have been identified and are described in the DSM-IV. These symptoms are captured by three cluster categories: "re-experiencing symptoms", "avoidance symptoms", and "hyperarousal symptoms". DSM-V workgroups have suggested that PTSD symptoms be broken down into four categories. The new categories include "Intrusions", "Avoidance", "Hyperarousal", and "Dysphoria" where the numbing symptoms are included

within the "Dysphoria" category (Simms, Watson, & Doebbeling, 2002). There are other 4-factor models that have been suggested, but since they did not use the same PTSD measure and direct comparisons with this data is not possible, discussion of those results is not included herein (King, Leskin, King, & Weathers, 1998). Some studies investigating the link between PTSD and IPV have used overall PTSD diagnosis as their variable. Others have focused on specific symptom clusters to achieve a more specific understanding of what aspects of PTSD may be associated both with IPV (e.g. King & King, 2004) and with marital distress (e.g. MacDonald, Chamberlain, Long, & Flett, 1999). The current study will utilize both approaches.

Emotional intimacy. Several of the symptoms of PTSD may logically impact relationship functioning negatively. Feelings of detachment, outbursts of anger, feelings of mistrust, and restricted range of affect may lead to a decline in relationship quality and to an increase in discord. Vietnam veterans with PTSD report more problems with intimacy and sociability as compared to veterans without PTSD and to non-veterans (Roberts, Penk, Gearing, et al., 1982). Related studies have found that Veterans with PTSD have problems expressing caring (Egendorf, Kaduschin, Laufer, Rothbart, & Sloan, 1981) and that they often have lower levels of emotional expression and self-disclosure (Carroll, Rueger, Foy, & Donahoe, 1985). Carroll and colleagues found that among a sample of Vietnam veterans, those with PTSD reported less expressiveness and less disclosure to their partners (Carroll, Rueger, Foy, & Donahue, 1985).

Though many studies have assessed marital satisfaction as an indicator of relationship quality, fewer have specified emotional closeness to partner as the variable of interest. Past research suggests that the emotional numbing symptom of PTSD may have a strong relationship to overall martial satisfaction (MacDonald, Chamberlain, Long & Flett, 1999; Riggs et al., 1998;

Wilson & Kurtz, 1997). As such, this study aims to assess both overall marital satisfaction (via the DAS) but also the specific construct of emotional closeness to see if this particular aspect of relationship functioning has a stronger association with IPV than overall marital satisfaction. Specifically, we hypothesize that emotional intimacy will prove most central in explaining the association between PTSD symptomatology and IPV than will overall marital satisfaction.

Veterans with PTSD seem to have more problems across a wide range of relationship concerns than their fellow veterans without PTSD. Empirical studies have shown these veterans with PTSD report poorer family adjustment have more relationship problems, more problems with parents, lower family cohesiveness, more relational distress, and poorer communication, and more problems with intimacy than do veterans without PTSD (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Jordan et al., 1992; Riggs, Byrne, Weathers, & Litz, 1998). Interestingly, studies with Vietnam veterans have demonstrated that veterans without PTSD report marital satisfaction in line with reports from the general community (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Riggs, Byrne, Wathers, & Litz., 1998) while veterans with PTSD have significantly lower marital satisfaction scores. Riggs and colleagues found that among a sample of 50 cohabitating Veteran couples, 70% of those couples in which the Veteran suffered from PTSD reported relationship distress as opposed to only 30% of couples in which the Veteran did not suffer from PTSD. Additionally, this study demonstrated that degree of relationship distress related significantly to severity of PTSD symptomatology (Riggs, Byrne, Weathers, & Litz, 1998).

Current Study

Hypotheses.

We predict that the hypothesized path analytic model will be significant.

Specifically:

1) Past aggression will positively associate with current partner aggression and negatively associate with emotional intimacy.

2) Emotional intimacy will mediate the association between PTSD symptomatology and current aggression, and emotional intimacy will be a better mediator than marital satisfaction. (see Figure 1 for hypothesized model)

3) Both marital satisfaction and emotional intimacy will negatively associate with Current Aggression

Based on the fact that no prior research has suggested any association between prior IPV and current PTSD symptomatology, we do not anticipate any association.

Method

Participants

This study analyzes data from a sample of 110 male OEF/OIF veterans recruited from the Northport Veterans Affairs Medical Center medical records database from January-May 2010. Out of the 1500 male OEF/OIF veterans who we attempted to contact, 298 were reached via phone calls (it is important to note many of the registered veterans may have been on deployment or have moved and not provided updated contact information). Of the 298 veterans contacted, 135 were eligible to participate. The largest reason for ineligibility was not being involved in a romantic relationship for at least 6 months. Out of the 135 eligible participants, 110 agreed to participate (82% participation rate). Participants must have had at least one deployment for either Operation Enduring Freedom or Operation Iraqi Freedom, must be either married or co-habitating with a female partner for at least 6 months, and finally, must have been in a committed relationship with a female partner prior to their first deployment. Exclusion criteria for this study included current hospitalization for PTSD, as it is important to ensure the participant is having daily contact with his partner to allow for any existing IPV patterns to occur.

Procedure

Participants were recruited by three methods: flyers posted throughout the medical center, letters sent to all OEF/OIF veterans in the NVAMC medical records database, and phone calls from the research coordinator to all OEF/OIF veterans listed in the medical records database. Interested participants were screened for eligibility over the phone. Participants who met all inclusion criteria for the study attended one interview session at the NVAMC. During the session, the research coordinator explained the study in detail, obtained the participant's consent

to participate in the present study, administered the battery of questionnaires, and paid the participant $25.

Materials

Conflict Tactics Scale, Revised (CTS2; Straus et al., 1996). The CTS2 is a 78-item self-report questionnaire assessing behaviors that partners engage in during relationship conflict. Thirty nine items assess for perpetration and 39 items assess for parallel victimization within the past year. Subscales of this measure include negotiation, psychological aggression, physical assault, injury, and sexual coercion. In the present study, coefficient alpha for the full scale (perpetration and victimization) was .92 with subscale reliability for individual scales including: physical aggression perpetration (*Cronbach's alpha* = .75), physical aggression victimization (*Cronbach's alpha* = .84), psychological aggression perpetration (*Cronbach's alpha* = .82), psychological aggression victimization (*Cronbach's alpha* = .79), sexual aggression perpetration (*Cronbach's alpha* = .56), sexual aggression victimization (*Cronbach's alpha* = .50), and injury perpetration (*Cronbach's alpha* = .40), and injury victimization (*Cronbach's alpha* = .63).

Demographic Information Sheet. The demographic questionnaire assessed for common socio-demographic variables such as marital status, number of children, highest level of education, number of tours of duty, conflict era, and time back from most recent deployment.

Post-Traumatic Stress Disorder Checklist-Military (PCL-M). *Bliese, Wright, Adler, Cabrera, Castrol, & Hoge, 2008); Weathers, Litz, Huska, & Keane, 1993).* This 17-item self-report measures the 17 DSM-IV symptoms of PTSD. Respondents rate how much they were "bothered by that problem in the past month". Items are rated on a 5-point scale ranging from 1 (not at all) to 5 (extremely). The three subscales (B, C, and D) correspond to the criteria clusters in the DSM-IV. Previous research on the PCL-M indicated mean scores of 64.2 (SD=9.1) for

PTSD participants and 29.4 (SD= 11.5) for non-PTSD participants (Weathers et al., 1993). A cutoff score of 50 had a sensitivity of .82 and specificity of .83 when compared to the SCID diagnosis. In the current sample, the Cronbach's alpha was .96. The subscale measures of internal consistency were as follows: .93 for the Re-experiencing subscale, .87 for the Avoidance subscale, and .90 for the Hyperarousal subscale. With regard to the internal consistency of the subscales for the proposed DSM-V 4-cluseter model, the following alphas were demonstrated: .93 for Intrusions subscale, .915 for Dysphoria subscale, .73 for Avoidance subscale, and .86 for the Hyperarousal subscale.

Personal Assessment of Intimacy in Relationships (PAIR). Schaefer & Olson, 1981. This measure assesses both the degree of perceived intimacy in the relationship as well as desired level of intimacy for each subscale. The 6-item emotional intimacy subscale assesses closeness of feelings (e.g., "I can state my feelings without him/her getting defensive") and the 6-item intellectual intimacy subscale assesses sharing of ideas (e.g., "My partner helps me clarify my thoughts"). The PAIR subscales have adequate convergent and discriminant validity, internal consistency, and split-half reliability (Schaefer & Olson, 1981). Cronbach's alpha for the current sample was .91, corresponding exactly to the internal consistency from Schaefer & Olson's community sample (1981).

Dyadic Adjustment Scale (DAS; Spanier, 1976). This 32 item scale measuring dyadic adjustment (measured by dyadic consensus, dyadic satisfaction, dyadic cohesion and affectional expression) has a range of 1 to 151. By convention those with scores of 97 and below are interpreted to have low levels of relationship satisfaction. The DAS has also been shown to distinguish distressed and non-distressed couples (Eddy, Heyman, & Weiss, 1991). Using the present sample, coefficient alpha for the total scale was .86. In this sample, the mean full DAS

score was 64.4 (*SD* = 13.8), indicating overall highly distressed relationships based on conventional cutoffs.

Results

Descriptive Statistics

The average age of this sample was 36.98 years (*SD* = 9.93 years). At the time of evaluation, 61.8% of participants reported being married and 38.2% were unmarried but currently co-habitating with a female partner. Forty-seven of the participants were in a relationship with the same partner pre/post deployment, while the remaining 57 participants were in different relationships pre/post deployment. Two of the veteran participants were currently in relationships with female veterans.

While 38.2% of Veterans identified their highest level of education as High School/GED, 55.5% had completed at least some college, and 5.5% had completed some graduate training. With regard to ethnicity, 68.2% of the sample self-identified as Caucasian while the remaining 31.8% identified as some minority group with the largest minority group represented by Hispanic/Latino veterans (17.3%; N=19) and the second largest group consisting of African-Americans (6.4%, N=7). In terms of socioeconomic status, 9.4% of participants reported family income below $20,000/year, 32.3% reported family income between $20,000 and $70,000, 23.9% reported family income between $70,000 and $85,000 and finally 34.4% of participants reported family income above $85,000.

The vast majority (81.5%) of the veterans had participated in 1 (41.8%) or 2 tours (38.2%) of duty during their military service and the mean time back from most recent deployment of the sample was 3 yrs, 8 months.

Prevalence of Aggression

As reflected by Table 1, the annual prevalence rate of psychological perpetration and victimization was approximately 90%. Prevalence rates for physical aggression ranged from 39.1% (victimization) to 30.9% (perpetration). Rates for sexual aggression and injury, as well as the frequency of perpetration and victimization for each subtype of aggression are also presented in Table 1 (root transformed rating scale). Subjects reported that physical victimization occurred more frequently than perpetration, but that sexual perpetration occurred more frequently than victimization. No significant difference was found in the frequency of injury perpetration compared to victimization. (Appendix A reports the prevalence and frequency of each of the psychological aggression and physical assault subscale items, as well as the prevalence of each of the sexual coercion and injury items in this sample).

PTSD Symptomatology

The five most strongly endorsed PTSD symptoms included: 1) being super-alert/watchful and on guard (n = 95); 2) trouble falling or staying asleep (n = 109), 3) avoiding thinking or talking about a stressful military experience or avoiding having feelings related to it (n = 86), 4) having difficulty concentrating (n= 92), and 5) feeling irritable or having angry outbursts (n= 93). Using a diagnostic cutoff of a score of greater than 40 on the PCL-M scale, 50.9% of veterans in the sample met criteria for PTSD.

Bivariate Correlations

Table 2 includes the mean and standard deviation of each variable described here. Above the diagonal are the bivariate correlations between specified variables, and their significance levels. Except for one path, patterns of correlation reflect paths hypothesized in the tested models. Specifically, a significant association of $r = .62$ exists between the DAS (Spanier, 1976) and the PAIR (Schaefer & Olson, 1981), both of which measure somewhat different aspects of relationship quality. As hypothesized, both scales also exhibited significant bivariate associations with current physical aggression, and PTSD symptomatology. Though not originally hypothesized, these scales are also significantly correlated with current physical victimization. The present study analyzes models using the PAIR and the DAS in an attempt to compare which measure of relationship quality has the best model fit.

Though not part of the original hypotheses, it is notable that this measure of PTSD was also associated with current physical victimization. Finally, physical perpetration and victimization variables, as measured by the CTS2 (Straus et al., 1996) were significantly and highly correlated with each other ($r = .51$). Contrary to the original hypothesis, a history of prior physical aggression was not significantly associated with current emotional intimacy.

Additional Analyses: PTSD & Emotional Intimacy

To obtain a more nuanced idea about the role of emotional intimacy as one aspect of a romantic relationship with regard to its role in aggression and PTSD symptomatology, the sample was divided into two groups, those with a total PTSD symptomatology score of less than 40 and those with a score of 40 or above (the median of the sample). Forty was selected as a midpoint due to the fact that we have no theoretical reason to believe utilizing any specific diagnostic clinical cutoff for PTSD diagnosis would be meaningful. As such, those with lower

PTSD symptom scores were compared to those with higher PTSD symptom scores with regard to reports of emotional intimacy. The extent of endorsement of individual PAIR (Schaefer & Olson, 1981) items as well as overall PAIR score was assessed. An Independent samples t-test indicated that there was a significant difference in the scores for the group with PTSD scores less than 40 (M=26.39, SD=9.50) and the PTSD scores of 40 or above (M=34.20, SD=10.66) group; $t(108)= 4.03$, $p = .000$).

To further examine the association between PTSD numbing symptoms and emotional intimacy, the independent correlations of the two PCL-M symptoms related to emotional numbing and the full PAIR scale were examined. Results indicate highly significant correlations between these two numbing items, "Feeling distant or cut off from other people" ($r = .368$, $p = .000$) and "Feeling emotionally numb or being unable to have loving feelings for those close to you" ($r = .448$, $p = .000$) and the PAIR full scale. In fact, these two numbing symptoms of the PCL-M scale were 2 of the three most highly correlated symptoms with the PAIR scale of all PTSD symptom items. The additional symptom was "Loss of interest in the activities you used to enjoy" ($r = .414$, $p = .000$). The two next highest correlations were for "Repeated, distressing dreams of a military nature" ($r = .291$, $p = .002$) and "Trouble falling or staying asleep" ($r = .275$, $p = .004$). Utilizing the DSM-IV 3-cluster model of PTSD, the "Avoidance" factor had the highest correlation with the full scale PAIR ($r = .394$, $p = .000$), followed by the "Hyperarousal" factor ($r = .276$, $p = .004$) and lastly, the "Re-experiencing" factor ($r = .249$, $p = .009$). Utilizing the proposed 4-cluster model of PTSD, the cluster which incorporates "Avoidance" and "Numbing" symptoms, "Dysphoria" had the highest correlation ($r = .395$, $p = .000$). The other three cluster correlations for "Avoidance", "Hyperarousal" and "Intrusions" were $r = .236$, $p =$

.013, $r = .201$, $p = .035$, and $r = .249$, $p = .009$, respectively. There was no evidence of any statistical differences between these correlations.

Path Analytic Strategy and Model Fit

Mplus 6.0 statistical software (Muthen & Muthen, 2009) with maximum likelihood estimation was used to conduct the path analyses. Chi-square is the conventional measure of fit (non-significant values indicate good model fit), but following Hu and Bentler's (1998) guidelines, model fit was evaluated with multiple indices including the Comparative Fit Index (CFI; Bentler, 1990), Standardized Root Mean Square Residual (SRMR; Bentler, 1995), and chi-square. Model fit was evaluated with the following criteria: CFI > .95, SRMR < .08 and a non-significant chi-square each signifying adequate fit. Additional fit indices can be found in Appendix A.

The hypothesized model is presented in Figure 1. The CTS-II was used to assess for domestic violence perpetration and victimization, as this measure is considered the gold-standard measure for recording behavioral reports of violence. Emotional Intimacy was assessed using emotional intimacy subscale of the PAIR (Schaefer & Olson, 1981). Relationship quality was assessed using the full DAS (Spanier, 1976). Presence and degree of PTSD symptomatology was assessed using the PCL-M (*Weathers, Litz, Huska, & Keane, 1993).*

Path analytic results.

Original hypothesized model (A). The first model (A) tests the hypothesized model of aggression identified in Figure 1. For the original hypothesized model, good-to-excellent fit was indicated for most indices. Specifically, CFI = 0.984 and SRMR = .03 while Chi-square was 1.93 *(df = 1; p = .24).* All path coefficients reflect standardized values. All hypothesized paths were significant except the path from past physical aggression to current emotional intimacy. PTSD

symptomatology was significantly related to emotional intimacy and emotional intimacy was significantly related to current physical aggression. The AIC for Model A was 1797.82.

Two alternative models were tested, based on post-hoc theoretical arguments.

Alternative model (B). In the interests of parsimony, this alternative model did not include the path from past aggression to emotional intimacy. Model B showed significant paths from PTSD symptomatology to emotional intimacy, from past aggression to current aggression and from emotional intimacy to current aggression. Overall model fit was excellent. Specifically, CFI = .96 and SRMR = .04 while chi-square was 3.03 (df = 2; p = .22). The AIC for Model B was 1796.96.

Comparison of model fit (Models A & B).

Since both Models A and B are nested models, a Chi Square difference test can be used to compare model fit between the two models. The test demonstrated that there was no statistically significant difference between the fit of Model A and Model B. (1.1, $df = 1$, $p = .32$). Hence A is not a significantly better model fit than B, and as such, the principle of parsimony dictates that B is the better model.

Alternative model (C). Model C differed from Model B only in its substitution of the DAS total score for the emotional intimacy construct. This substitution was carried out in order to understand if, indeed, focusing on emotional intimacy as opposed to the more often used representation of relationship quality, martial satisfaction, was supported by actual evidence. The overall model fit of this third model was inadequate. Specifically, CFI = .88 and SRMR = .05 while chi-square was 4.82 ($df = 2; p = .09$). The CFI result of .88 is not adequate for model fit. As such, DAS is clearly not an adequate mediator in the model.

Combined model (D). Though tempting to compare the model fit of Models B

and C to understand whether or not emotional intimacy is a better-fitting construct than marital satisfaction, comparison of models with differing constructs is not possible. In order to compare the fit of these two constructs, a combined model incorporating both constructs was tested. Model D differs from all other models in that it simultaneously tests the constructs of emotional intimacy and marital satisfaction within a model. This combined approach was designed to understand which, if either, one of these constructs is better at explaining the relationship between PTSD symptomatology and current aggression. The overall model fit of this fourth model was good. Specifically, CFI = .97 and SRMR = .05 while chi-square was 4.33 *(df = 3; p = .23).* Of particular interest is the fact that the relationship between DAS and IPV was insignificant, once Emotional Intimacy was added to the model. Though both emotional intimacy and marital satisfaction were associated with PTSD, only emotional intimacy retained its significant association with current aggression, when marital satisfaction was included.

Mediation analyses. A priori hypotheses included a mediation model with PTSD symptomatology predicting current aggression via emotional intimacy as presented in Figure 1. The guidelines provided by Baron and Kenny (1986) were used to determine whether the hypothesized and two revised mediation models met the criteria for mediation. The first criterion for mediation is that PTSD symptomatology significantly predicts the current aggression when examined without the mediator. As noted above, the zero-order correlation between PTSD symptomatology was significantly associated with current aggression (see Table 2). Therefore, the first step of mediation was met. A second criterion is that PTSD symptomatology should be associated with emotional intimacy. Results in Table 2 presented above indicated that these two constructs were significantly associated. In addition, marital satisfaction (as measured by the DAS) was also significantly associated with PTSD

symptomatology, as tested in Model C. The third criterion for mediation is that emotional intimacy (or martial satisfaction in the case of Model C) predicts current aggression. The final criterion is that there is a significant reduction in the association between PTSD and current aggression after controlling for emotional intimacy/marital satisfaction. This can be illustrated by a significant reduction in the direct effect from PTSD symptomatology to current aggression after the mediation path is included (significant Sobel's Z). Mediation is also supported if the model allowing for direct paths from PTSD symptomatology to current aggression does not result in a significantly better model fit than the model without direct effects. To accomplish these steps, I adopted a multiple step approach detailed below.

As Model B demonstrated the best possible mediation effect of emotional intimacy on the association between PTSD symptomatology and current aggression, formal *post-hoc* tests of mediation were performed. Mediation analyses were conducted on Model B using bias-corrected Bootstrapping with 1000 re-samples in Mplus 5.0 (Muthen & Muthen, 2009). Bootstrapping is a technique that re-samples the dataset multiple times with replacement; it is the preferred method of determining mediation.

There was evidence that emotional intimacy significantly mediated the association between PTSD symptoms and physical aggression perpetration (Model *B*: 0.27; *95% CI* = .09 to 0.45). As such, Model B demonstrated that PTSD is associated with emotional intimacy, emotional intimacy is associated with physical aggression perpetration, and past aggression perpetration is associated with current aggression perpetration. In addition to demonstrating the significance of all these associations, emotional intimacy was clearly shown to mediate the association between PTSD symptomatology and current physical aggression perpetration. The overall model had excellent model fit.

Discussion

Research has consistently indicated that veterans suffering from PTSD have a variety of marital problems overall, including higher rates of domestic violence than any other veteran group (Jordan et al., 1992). Theoretical work on PTSD suggests that the emotional numbing component of the disorder would produce a lessening of the emotional connection and an increased "emotional distancing" of the veteran from his partner. Studies have documented that veterans with PTSD have far greater problems at achieving intimacy in their relationships than do veterans without PTSD or do non-veterans (Roberts et al, 1982). Past research has demonstrated a solid association between PTSD among veterans and physical aggression perpetration (e.g. Jordan et al., 1992) as well as between low marital satisfaction and physical aggression (O'Leary et al., 1994). Additionally, past research suggests that the emotional numbing symptom of PTSD may have a strong relationship to overall martial satisfaction (MacDonald, Chamberlain, Long & Flett, 1999; Riggs et al., 1998; Wilson & Kurtz, 1997). Though these associations between PTSD, emotional intimacy, and aggression have been studied in pieces throughout the literature, to our knowledge the current study is the first study to investigate the specific association of PTSD, emotional intimacy, and aggression. More specifically, no previous study has examined emotional intimacy as a mediator of the association between PTSD symptomatology and physical aggression perpetration despite theoretical explanations often pointing to problems with intimacy and connection with others as one of the detrimental effects of PTSD. Results supported emotional intimacy as the better construct to explain the association between PTSD symptomatology and current aggression and as a significant mediator of the PTSD symptomatology – physical aggression link.

Emotional Intimacy as a Mediator

For the most part, significance (and non-significance) of paths was consistent across models. As hypothesized, PTSD symptomatology predicted emotional intimacy (Models A & B), marital satisfaction (Model C), and physical aggression in all models. PTSD symptomatology predicted physical aggression perpetration; this relationship was mediated by low emotional intimacy. One explanation for the observed associations is that PTSD symptoms lead to increased physical aggression perpetration through their negative impact on emotional intimacy between partners. Couples with low emotional intimacy may also be less likely to successfully communicate to resolve conflicts due to difficulty understanding each other's emotions and feeling disconnected from each other.

The past physical aggression variable was predictive of current physical aggression in all three models described here. However, contrary to predictions, past physical aggression was not predictive of emotional intimacy in the path models despite the initial hypothesis. There exist a number of possible explanations for this null effect.

A first possibility is that in a sample in which almost half of the participants were not in the same relationship now as they had been when they reported on past aggression, the prediction that past aggression would predict emotional intimacy in the current relationship presumes that past aggression is stable across relationships. While the phenomena of stability of intimate aggression have been studied in a number of different studies, the stability has been studied largely within relationships. Though the literature base as to the stability of aggression across relationships is limited, it appears that stability of intimate partner aggression is less stable across relationships than within relationships (O'Leary & Slep, 2010). Relatedly, analyses which separated those Veterans who were still in a relationship with the original partner vs. those who

were in a different relationship demonstrated a correlation between the overall Intimacy scale and past aggression for those Veterans with the same partner (r=.299, p =.024). However, no significant association existed between the two constructs for those in a different relationship.

A second possibility regarding the lack of a relationship between past partner aggression and current intimacy lies in the issue of retrospective bias. All of the variables in the proposed models are current constructs except for the prior physical aggression variable. As such, men in the sample may be recalling prior relationships as more or less distressed as they would have reported it to be at the time of the past relationship.

The combined model, Model D, analysis indicated that that emotional intimacy was a stronger mediator of the PTSD-aggression link in this population than general marital satisfaction. The fact that association between marital satisfaction and current aggression lost its significance while emotional intimacy maintained that significant association, points to this possibility. While both marital satisfaction and emotional intimacy were correlated with partner aggression, it was emotional intimacy that had a unique association with partner aggression when both were assessed simultaneously.

Secondary Findings

Prevalence & context of aggression.

Perpetration of physical aggression in this sample was reported by 30.9% of the men; 39.1% of the men reported that they were victimized by their partners. These rates are lower than those seen in many clinic samples which demonstrate rates of male perpetration and victimization hovering between 53-55% (e.g. O'Leary, Vivian & Malone, 1992; Cascardi, Langhinrichsen & Vivian, 1992). Sexual coercion rates in this sample indicated 25.5% of men reporting perpetration in the past year and 20.9% reporting sexual victimization in the past year.

Finally, injury rates were markedly higher in this sample than in other community samples with 13.6% reporting perpetration of injury, and 12.7% reporting being injured by their partner. These rates are much higher to the reported rates in community samples- around 3% injury rate for females and 0.4% injury rate for males that have been reported in community samples (Stets & Straus, 1990).

One very important aspect of these aggression data is the clear bilateral nature of the aggression within these couplings. Across psychological, physical, and sexual aggression reports, it seems clear that there are very high rates of female-to-male perpetration of aggression. Though recent community sample research has demonstrated somewhat higher rates of female-to-male aggression that previously thought (e.g. Archer, 2000), this gendered aspect of aggression has not been well-documented in veteran populations. As such, it is important to realize that male veterans are at high risk not only for perpetrating partner aggression but also for becoming victims of partner aggression themselves.

PTSD numbing symptoms & intimacy.

Analyses indicated that those veterans with higher overall PTSD symptomatology (i.e. > 40) demonstrated significantly lower scores on the full scale PAIR. This finding suggests that the greater the PTSD symptom severity, the more impaired a veteran's emotional relationship with his partner becomes. Additionally, when each PTSD symptom's association with intimacy (full scale and subscales) was evaluated independently, as expected, the two numbing symptom items were most strongly correlated with the emotional intimacy construct. This result offers an additional level of support linking the strong and consistent association between these specific symptoms of PTSD with emotional intimacy problems in the romantic relationship of the veteran. Additionally, analyses utilizing both the 3-cluster and 4-cluster

models of PTSD demonstrated in both cases that the cluster incorporating the numbing systems, (i.e. "Avoidance" cluster in the 3-cluster model and "Dysphoria" in the 4-cluster model) had the highest correlation with the overall emotional intimacy scale relative to the other clusters.

Additional Considerations

A very salient point we would be remiss to not discuss is the overall very low marital satisfaction reports of the current sample (i.e. DAS scores). Whereas the general population's mean or "average" score on the DAS from community a sample from the same geographic area has been reported as 104 (O'Leary, Slep, & O'Leary, 2007) , this sample's overall mean was 64.4. Only 1 participant reported a DAS score over 100 (105). This low mean score is indicative of relationships characterized by extremely low marital satisfaction. While this finding may be correctly reflective of those veteran relationships with PTSD, the relative lack of variance in these scores within the sample can affect the statistical analysis results reported herein. In other words, if there was a larger range of DAS scores present in the sample, our ability to test the association between IPV and marital satisfaction may be increased and may have demonstrated a stronger relationship between these two constructs.

Secondly, though the models hypothesized and presented herein attempt to describe the relationship between the key constructs of past/current IPV, marital satisfaction, emotional intimacy, and PTSD symptomatology, it is important to realize a more ecologically valid model would probably have a more reciprocal quality. Whereas the presented models hypothesize and test the pattern of PTSD symptomatology leading to an indicator of relationship functioning and hence to perpetration of physical aggression, in reality, it would make sense to hypothesize that physical aggression may also simultaneously impact PTSD symptom severity and marital satisfaction. As such, the work presented herein should be considered an initial glance into the

potential relationships between these variables- as opposed to an ecologically-valid model which successfully addresses the reciprocal relationships among many of the constructs.

Limitations and Future Directions

One limitation of the present study was that it included one measure of intimate partner aggression about a past relationship prior to the veteran's first combat employment. And, in fact, that relationship had less association with any of the reports about current relationship. In addition, all measures that were used were self-reported and only the male partner's report was obtained. Due to the range in ages of participants as well as range of length of time in the service, remembering past aggression for some was more difficult and probably less accurate for older than for younger veterans.

In addition to the above limitations, future directions include further research that addresses the association of the veteran's PTSD symptomatology and his female partner's aggression. Whether most female partner aggression is in response to increased stress and frustration at caring for their partner with PTSD or wholly unrelated to their partner's diagnosis is important to know for treatment and for furthering our conception of the ways in which PTSD or mental illness interacts with individual behavior and dyadic interactions.

Third, future research using veteran and partner reports together would improve identification of specific risk factors for aggression in relationships. As the percentage of female veterans continues to grow, research with the veteran population necessarily must begin to include female veterans in addition to their male counterparts – as similarity or dissimilarity in these types of relationship functioning areas cannot be assumed.

Finally, future research should investigate whether the original, hypothesized model is a better fit within a larger sample of Veterans who are in the same relationship at Time 1 and Time

2. If so, this may indicate that past aggression and current emotional intimacy are related constructs in those stable types of relationships.

Clinical Implications

A major implication for this study is that these findings demonstrate evidence for a multivariate conceptualization of partner aggression with a strong theoretical rationale, which incorporates mental health symptoms, individual factors (aggression perpetration) and dyadic factors (emotional intimacy/marital satisfaction). As such, this study suggests the importance that both individual mental health factors and dyadic/relationship factors play in the occurrence of intimate-partner violence among OEF/OIF veterans.

By virtue of the nature of recruitment and inclusion/exclusion criteria, the findings from this particular sample can be generalized to male, OEF/OIF veterans who have served 1-2 deployments and have a history of involvement in committed relationships (i.e. pre and post-deployment relationships of at least 6 months in length). When compared to overall VA utilization data of OEF/OIF Veterans, the mean age of this sample was older (i.e. 37years) whereas overall VA utilization rates demonstrate the majority of veterans seeking help at the VA are between 20-25 years (National Center for Veteran Analysis, 2008).

The largest obvious disparity in this sample's demographic statistics is in marital status. Though Dugal et al, 2010, report only 37% of their sample to be married, the current sample demonstrated a rate of 64% of married participants. Since this study's focus is on understanding the effects of PTSD symptomatology on relationships and which required participants to be co-habitating, it is logical to assume more participants will be married than in other study samples which are not focused on relationship dynamics. However, this relationship focus of the study means that generalizing results to male OEF/OIF veterans who are not in relationships (and

many of whom may not have been successful at remaining in their relationships) must be done with caution. It is important to note the most prevalent reason for veterans' not meeting the inclusion criteria was that they were not currently in a relationship. This means there is a large group of male OEF/OIF veterans who may have experienced similar or probably more acute relationship concerns (potentially including IPV issues) that have led to relationship dissolution whose data are not reflected in these results. The most common reason for ineligibility of those veterans reached by the phone screening call was relationship dissolution. Many of these veterans explained that they had been in relationship that lasted throughout their deployments but then dissolved upon their return home and reintegration into the relationship.

Furthermore, this study unearthed the very important finding that while many of these male veterans are perpetrators of intimate-partner violence, they are also victims of the same. Though a growing body of research indicates there is a great deal, if not more, female-to-male intimate-partner violence, this pattern has not been the focus of violence research in veteran samples. The rates of physical, psychological, and even sexual victimization of these male veterans within their relationships are alarmingly high. As a result, a major treatment implication of this study is that assessment of victimization of veterans with PTSD is crucial.

It is important to develop an understanding of the route through which PTSD leads to IPV in order to enhance VAMC care to veterans and their families. Research aimed at uncovering the unique factors that may predispose Veterans and specifically, those with PTSD, to perpetrate both moderate and severe forms of IPV are essential to understand how to prevent this type of aggression in the future. The results described herein offer a chance to understand more about the documented association of PTSD symptomatology and IPV perpetration of aggression among this veteran population. These findings may suggest that the emotional

relationship between a veteran and his spouse may, in fact, be the most important aspect to focus on with regarding to preventing partner violence among veterans with PTSD. A focus on strengthening the emotional connection between the partners may serve in preventing or curtailing partner abuse from occurring in this population.

Finally, the recent policy change (Secretary of Health's Information Letter, 08.30.2010) within the VAMC system that now formally allows psychologists and other clinical practitioners to treat family members of Veterans if their treatment would benefit the Veterans' health now provides much greater availability of mental health professionals to conduct couples and family therapy. As clearly enunciated in this policy document, "In providing marital and family counseling, the Department of Veterans Affairs (VA) recognizes that each Veteran lives within a network of relationships and that the health of these relationships may be a key component in the Veteran's treatment plan." As such, investigation into methods of adapting existing therapies and methods targeting couple and family issues, while taking into account specific issues affecting these veteran families, is necessary and now formerly sanctioned within the VAMC system.

Table 1

12-Month Prevalence and Frequency of Aggression

Prevalence of Aggression

	Male Perpetration (%)	Male Victimization (%)
Psychological	90.0	90.0
Physical	30.9	39.1
Sexual	25.5	20.9
Injury	13.6	12.7

Frequency of Aggression

	Male Perpetration Mean (SD)	Male Victimization Mean (SD)	*P-value*
Physical	.17 (.34)	.31 (.59)	**.005**
Psychological	1.42 (1.10)	1.44 (1.05)	.761
Sexual	.20 (.47)	.03 (.17)	**.000**
Injury	.06 (.19)	.08 (.29)	.303

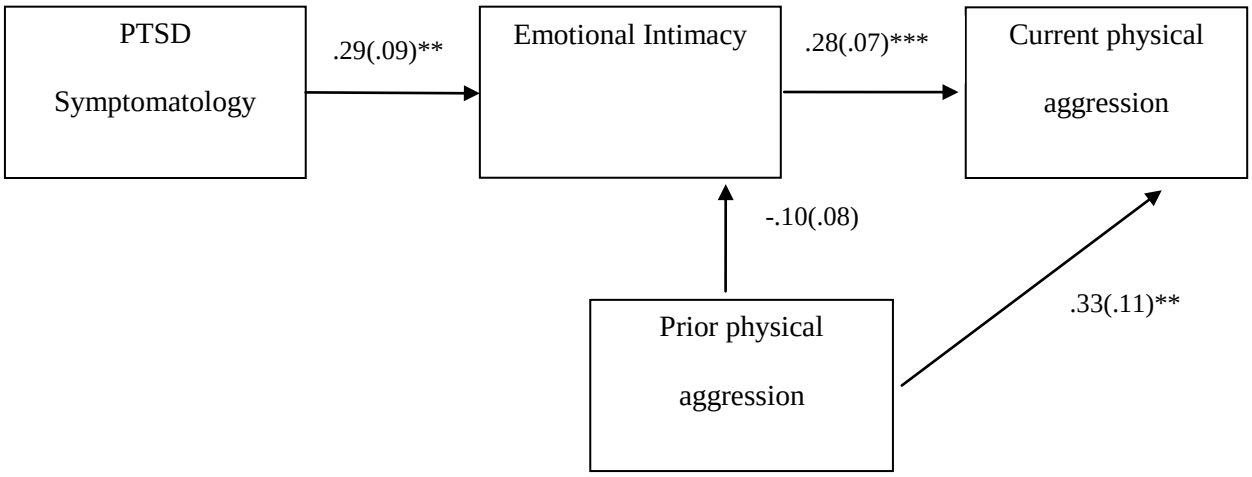
Table 2

Means, Standard Deviations, and Correlations among All Variables

	PTSD	Past Perpetration	Emotional Intimacy	Current Perpetration	Marital Satisfaction	Current Victimization
PTSD	42.78 (17.41)	.08	.29**	.25*	.30**	.28**
Past Perpetration		0.10 (0.22)	-.06	.39**	-.03	.11
Emotional Intimacy			15.07 (5.91)	.26**	.62**	.39**
Current Perpetration				.17 (.34)	.18	.51**
Marital Satisfaction					64.37 (13.82)	.42**
Current Victimization						0.31 (.59)

***p <.001, ** p <.01, *p<.05

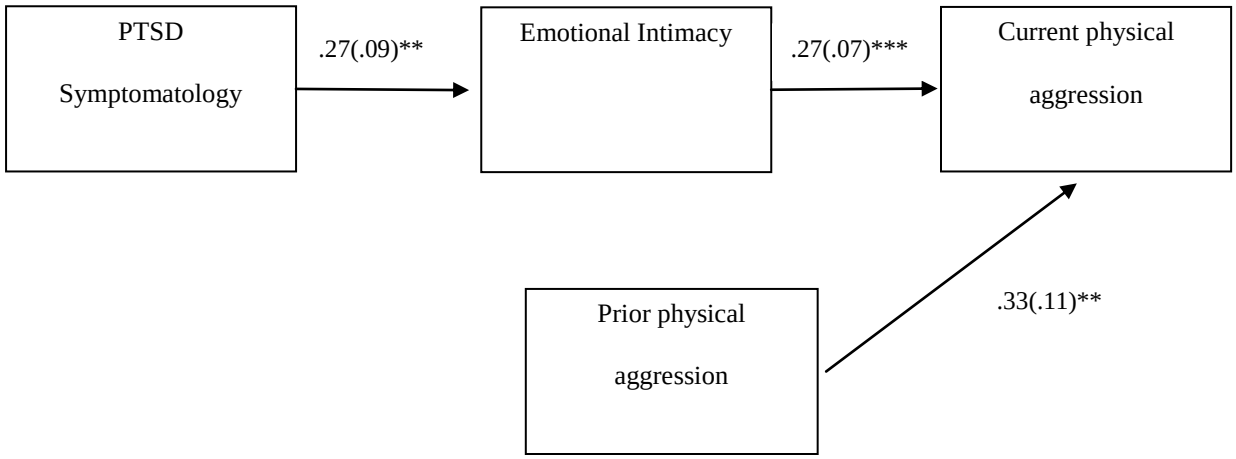
Figure 1: Model A



Standardized path coefficients are provided with standard errors in parentheses.

***p <.001, ** p <.01, *p<.05

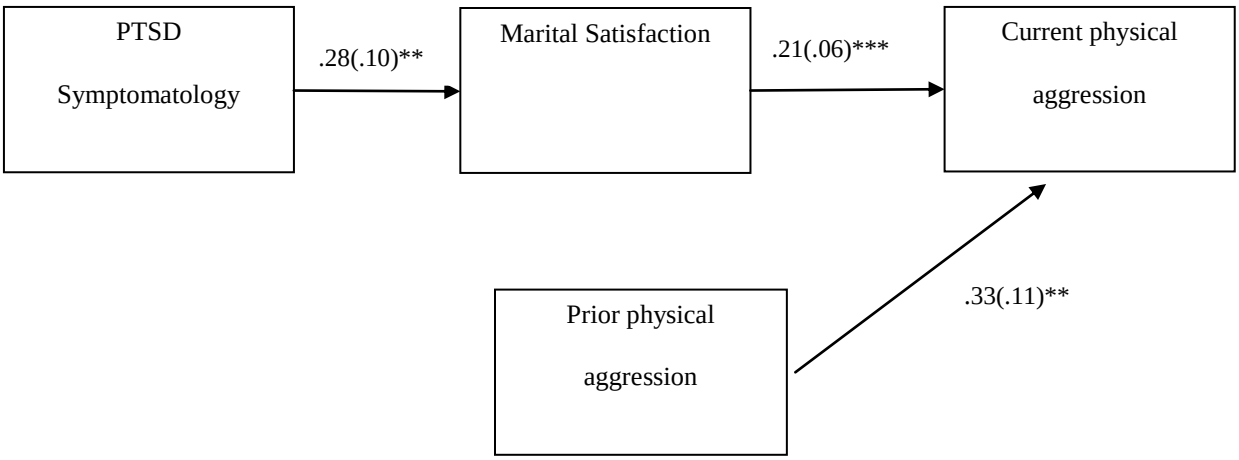
Figure 2: Model B



Standardized path coefficients are provided with standard errors in parentheses.

***p <.001, ** p <.01, *p<.05

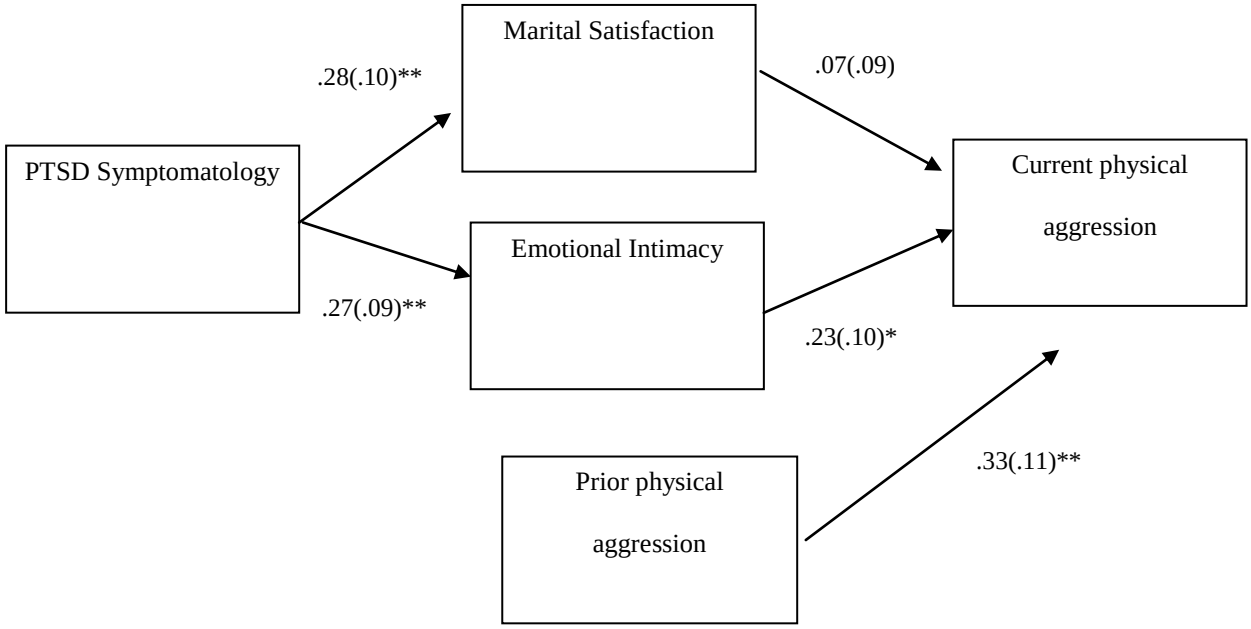
Figure 3: Model C



Standardized path coefficients are provided with standard errors in parentheses.

***p <.001, ** p <.01, *p<.05

Figure 4: Model D



Standardized path coefficients are provided with standard errors in parentheses.

***p <.001, ** p <.01, *p<.05

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APPENDIX A

A.1 12-Month Prevalence of Psychological Aggression, Item Data

Item	Prevalence (%)	
	Perpetration	Victimization
Insulted or swore at	69.8%	73.4%
Called fat or ugly	20.2%	22%
Destroyed property	17.4%	16.5%
Shouted or yelled at	82.6%	86.3%
Stomped out	57.8%	54.1%
Accused of being a lousy lover	15.6%	13.8%
Said something to spite	47.7%	45.9%
Threatened to hit or throw something	19.3%	15.6%

A.2 12-Month Frequency of Psychological Aggression, Item Data

Item	Mean (SD)		*p-value*
	Perpetration	Victimization	
Insulted or swore at	2.93(2.28)	2.97(2.26)	.831
Called fat or ugly	.72(1.59)	.71(1.58)	.942
Destroyed property	.35(.85)	.41(1.01)	.570
Shouted or yelled at	3.39(2.14)	3.57(2.04)	.102
Stomped out	1.67(1.81)	1.66(1.84)	.956
Accused of being a lousy lover	.41(1.05)	.36(.98)	.624
Said something to spite	1.25(1.62)	1.40(1.80)	.213
Threatened to hit or throw something	.55(1.35)	.39(1.03)	.153

A.3 12-Month Prevalence of Physical Assault, Item Data

Item	Prevalence (%)	
	Perpetration	Victimization
Threw something that could hurt	12.9%	23%
Twisted arm or hair	7.4%	11%
Pushed or shoved	23%	33%
Used a knife or a gun	0	0.9%
Punched or hit with something that could hurt	3.7%	12.9%
Choked	5.5%	1.9%
Slammed against a wall	5.5%	2.8%
Beat up	0	1.8%
Grabbed	23%	20.2%
Slapped	5.5%	20.2%
Burned or scalded	0	0
Kicked	4.6%	10.1%

A.4 12-Month Frequency of Physical Assault, Item Data

Item	Mean (SD)		*p-value*
	Perpetration	Victimization	
Threw something that could hurt	.28(.88)	.64(1.33)	**.003**
Twisted arm or hair	.11(.44)	.29(.89)	**.046**
Pushed or shoved	.55(1.19)	.91(1.50)	**.003**
Used a knife or a gun	----	.028(.29)	.320
Punched or hit with something that could hurt	.065(.37)	.34(.98)	**.003**
Choked	.083(.39)	.037(.30)	.198
Slammed against a wall	.11(.50)	.056(.36)	.357
Beat up	----	.064(.48)	.163
Grabbed	.57(1.19)	.54(1.18)	.710
Slapped	.12(.56)	.54(1.22)	**.000**
Burned or scalded	----	----	*NA*
Kicked	.12(.68)	.25(.83)	**.022**

A.5 12-Month Prevalence of Sexual Coercion, Item Data

Item	Prevalence (%)	
	Perpetration	Victimization
Used force to have oral/ anal sex	2.8%	1.8%
Used force to have sex	.9%	0
Insisted on sex (no physical force)	22.9%	17.3%
Used threats to have oral/ anal sex	0	0
Insisted on oral/ anal sex (no physical force)	9.2%	3.7%
Used threats to have sex	.9%	1.8%

A.6 12-Month Prevalence of Injury, Item Data

Item	Prevalence (%)	
	Perpetration	Victimization
Sprain, bruise, or small cut	10.1%	11%
Passed out from being hit on the head	0	0
Went to a doctor	1%	1%
Needed to see a doctor, but didn't	1.9%	1%
Broken bone	0	0
Physical pain that still hurt the next day	9.2%	9.2%

A.7 Previous Month PTSD symptom endorsement, Item Data

Item	Prevalence	Mean(SD)
Repeated, disturbing memories, thoughts, or images	72.7%	2.47(1.25)
Repeated, disturbing dreams	63.6%	2.27(1.29)
Suddenly acting or feeling as if a stressful military experience were happening again)	53.6%	1.99(1.11)
Feeling very upset when something reminded you	77.3%	2.59(1.22)
Having physical reactions (e.g. heart pounding, trouble breathing, sweating, when reminded	63.6%	2.32(1.33)
Avoiding thinking or talking or having feelings	78.2%	2.72(1.31)
Avoiding activities or situations	55.5%	2.22(1.36)
Trouble remembering important parts	48.2%	1.93(1.22)
Loss of interest in activities	67.3%	2.49(1.41)
Feeling distant or cut off from people	75.5%	2.71(1.37)
Feeling emotionally numb/unable to have loving feelings	64.5%	2.45(1.41)
Feeling future will be cut short	52.7%	2.15(1.40)
Trouble falling or staying asleep	80.0%	3.08(1.43)
Feelings irritable or having angry outbursts	84.5%	2.83(1.25)
Difficulty concentrating	83.6%	2.80(1.32)
Being “super-alert” or on guard	86.4%	3.22(1.34)
Feeling jumpy/easily startled	69.1%	2.53(1.39)

APPENDIX B

B.1 Model Fit Indices (Complete) for Models 1, 2, 3, & 4

Model	1	2	3	4
PTSD symptomatology	PCL-M	PCL-M	PCL-M	PCL-M
Relationship Quality Variable	PAIR	PAIR	Full DAS	PAIR/DAS
Current Aggression	CTS	CTS	CTS	CTS
Past Aggression	P_CTS	P_CTS	P_CTS	P_CTS
RMSEA	0.061	0.070	0.116	0.065
RMSEA 90% CI	0.00/0.276	0.00/0.219	0.00/0.253	0.00/0.188
CFI	.98	0.96	0.88	0.97
TLI	0.92	0.89	0.70	0.92
SRMR	.033	.044	.051	.045
Chi-Square (*df*)	1.39(1)	3.03(2)	4.82(2)	4.33(3)
Chi-Square Significance	0.24	0.22	0.09	0.23