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Pepperdine University
Graduate School of Education and Psychology

CHILDHOOD PHYSICAL ABUSE AND ADULTHOOD MORTALITY IN
TREATMENT-SEEKING MALE VETERANS WITH COMBAT-RELATED PTSD

A clinical dissertation submitted in partial
satisfaction of the requirements for the degree of
Doctor of Psychology

by

Anna F. Leshner

June, 2011

David Foy, Ph.D.-Dissertation Chairperson

This clinical dissertation, written by

Anna Faye Leshner

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF PSYCHOLOGY

Doctoral Committee:

David Foy, Ph.D., Chairperson

Kent Drescher, Ph.D.

Robert de Mayo, Ph.D, ABPP

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DEDICATION

This dissertation is dedicated to all those who have been impacted by war and its consequences. A special dedication to the active duty military members and military veterans who serve our country, and those who live with posttraumatic stress disorder as a result of their service.

ACKNOWLEDGEMENTS

I would first like to warmly acknowledge my dissertation chair, David W. Foy, Ph.D. for his guidance and support throughout the dissertation process. His dedication to trauma research and his respect for veterans with PTSD have been an inspiration for both my dissertation and my clinical work.

I would also like to thank my fellow “Aces”, Carrie Kelly and Kerri Schutz, who kept me company, kept me laughing, and kept me on track throughout this dissertation journey.

Sincere gratitude is extended to my dissertation committee members, Kent Drescher, Ph.D. and Robert deMayo, Ph.D., ABPP who have been integral parts of this dissertation process.

Also, many thanks to David Schafer, Psy.D., not only for the use of his dissertation data as part of this study, but also for his support, supervision, and mentorship in my clinical work.

I would also like to send a big, heaping thank you to my parents, my brother, Jacob, and my extended family for their unwavering love and support. Special thanks to my Grandpa Ray and Grandpa Ervin for their military service that helped to inspire my interest in working with veterans.

Finally, I would like to acknowledge all of the faculty, supervisors, and colleagues who have provided me with the guidance and encouragement to help me get this far. This includes but is not limited to: Aaron Aviera, Ph.D., Daryl Rowe, Ph.D., Joy Asamen, Ph.D., Carolyn Keatinge, Ph.D., Shelly Harrell, Ph.D., Stephanie Woo, Ph.D., Bruce Rush, Psy.D, Steven Ganzell, Ph.D., Alexis Kulick, Ph.D., Rick Martin, Ph.D.,

Sylvia Boris, Ph.D., Susan Steinberg, Ph.D., Paul Lo, Ph.D., Sharon Jablon, Ph.D.,
Stephen Strack, Ph.D., Carole Goguen, Psy.D., Debra Sobol, Ph.D., Carolyn Feigel,
Ph.D., Kimberly Newsom, Ph.D., Carissa Klevens, Ph.D., and my entire Pepperdine
University Psy.D. cohort.

VITA

Anna F. Leshner**EDUCATIONAL HISTORY****Psy.D. Candidate, Clinical Psychology**

Pepperdine University- Los Angeles, CA

Anticipated Date of Graduation, May 2011

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Dissertation Defended: December 2010

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B.S., Psychology

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Graduated Summa Cum Laude May 2002

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CLINICAL AND PROFESSIONAL EXPERIENCE**Pre-Doctoral Intern****August 2010-Present**

VA Los Angeles Ambulatory Care Center

Los Angeles, CA

Primary Supervisor: Sharon Jablon, Ph.D.

Provide outpatient mental health services to adult veterans served by the VA Greater Los Angeles Healthcare System. Conduct individual therapy with a diverse patient population utilizing multiple treatment modalities including Cognitive-Behavioral Therapy (CBT), Prolonged Exposure (PE), Time-Limited Dynamic Therapy (TLDP), and Behavioral Medicine interventions. Co-facilitate a variety of groups using process-oriented, psychoeducational, and supportive treatment models. Groups thus far have included CBT for Anxiety Disorders, Stress Management for veterans in substance abuse recovery, and Seeking Safety for veterans with combat PTSD in recovery. Currently completing a 3-month rotation at the East LA PTSD Specialty Clinic, utilizing Cognitive Processing Theory (CPT) for individual treatment of PTSD and Acceptance and Commitment Therapy (ACT) for group treatment of PTSD. Complete weekly mental health intake assessments in order to assess diagnostic concerns and determine appropriate services for individual veterans.

Administer, score, and interpret assessment measures and integrate findings into written reports in order to complete comprehensive neuropsychological and psychodiagnostic evaluations. Participate in regular individual and group supervision to evaluate and plan clinical work with individuals and groups. Attend weekly didactic training in psychological assessment, substance use, behavioral medicine, PTSD, and law and ethics to increase competence and proficiency in these clinical areas. Complete administrative responsibilities including writing progress notes, documenting patient contact in CPRS, and scheduling patients for appointments.

Pre-Intern Practicum Student

August 2009-July 2010

VA Sepulveda Ambulatory Care Center

North Hills, CA

Primary Supervisors: Steven Ganzell, Ph.D., David Schafer, Psy.D., Louise Holt, Ph.D. & Frederick Martin, Ph.D.

Provided individual therapy to veterans with a wide range of mental health concerns using treatment approaches including Cognitive Behavioral Therapy (CBT) and Cognitive Processing Therapy (CPT). Co-facilitated two 10-week groups for depression and anxiety using Acceptance and Commitment Therapy (ACT) with an outpatient population and with veterans in the Psychosocial Rehabilitation and Recovery Center (PRRC). Conducted assessment, individual therapy, and case management services for high-risk patients with serious mental illness in the Mental Health Intensive Case Management (MHICM) program. Completed thorough intake assessments in order to determine diagnostic concerns and treatment needs. Attended weekly psychodiagnostic and neuropsychology seminars to strengthen skills in test administration, scoring, and interpretation. Administered, scored, and interpreted assessment materials and integrated findings into written reports in order to complete comprehensive neuropsychological and psychodiagnostic evaluations. Completed administrative responsibilities in a timely manner.

Pre-doctoral Practicum Student

September 2008-October 2009

Bienvenidos Children's Center

Montebello, CA

Supervisor: Bruce Rush, Psy.D.

Administered cognitive and emotional assessment measures to children and adolescents referred from a community mental health center or a nonprofit foster care agency. Scored and interpreted assessment measures as part of the evaluations, and summarized evaluation results into written reports. Provided feedback to clients, parents, and relevant members of the treatment team regarding the results from testing and evaluation reports. Participated in ongoing individual and group supervision to improve test administration, interpretation and report writing skills.

Pre-doctoral Practicum Student

September 2007-September 2009

Union Rescue Mission/Pepperdine Mental Health Clinic

Los Angeles, CA

Supervisor: Aaron Aviera, Ph.D.

Conducted individual diagnostic interviews with homeless men and women with a history of substance use disorders to assess for clinical problems including mood disorders, anxiety

disorders, and psychotic disorders. Provided ongoing individual therapy sessions utilizing primarily cognitive-behavioral interventions to increase coping skills, reduce subjective feelings of distress, and prevent relapse of symptoms. Regularly administered the Beck Depression Inventory-II (BDI-II) and Beck Anxiety Inventory (BAI) to track changes in clients' reports of mood and anxiety symptoms. Participated in ongoing group and individual supervision to improve skills in case conceptualization, diagnosis, and treatment planning. Received assessment supervision and personality assessment training from Stephen Strack, Ph.D.

Behavior Therapist

June 2006-August 2007

Autism Partnership

Los Angeles, California

Provided one-on-one behavioral interventions to children with autism spectrum disorders ages three through twelve utilizing Applied Behavior Analysis and Discrete Trial Teaching techniques. Treatment plans focused on improving language, play, and social skills. Co-facilitated a social skills group for children with autism spectrum disorders ages four through seven to provide opportunities for appropriate peer interactions, teach social skills, and foster school readiness abilities. Provided services in agency, home, and school settings. Collected and compiled data to assess behavior and skill progress. Participated in multidisciplinary team meetings to coordinate care among therapists, parents, and other service providers.

Special Education Teacher

September 2004-September 2005

High School for Legal Studies

Brooklyn, New York

Taught five self-contained special education classes in Law, Mathematics, and Global History to students in grades nine through twelve as a New York City Teaching Fellow. Managed individual behavioral and learning needs of students in the classroom to maximize student learning. Maintained student records including the review of Individualized Educational Programs (IEPs). Provided ongoing communication with parents and school administration regarding student progress and needs. Participated in faculty professional development and training activities to enhance teaching skills.

After-School Counselor

March 2004-June 2004

Henry Street Settlement, P.S. 20

New York, NY

Provided homework help and tutoring to fourth grade students in a classroom setting. Assisted in maintaining classroom management. Developed and implemented creative activities for student engagement.

Volunteer Intern

September 2001-January 2002

Sheppard and Enoch Pratt Hospital

Baltimore, Maryland

Assisted in the supervision of children with behavioral and emotional disorders in an inpatient care setting during recreational, therapeutic, and daily living activities.

RESEARCH EXPERIENCE

Dissertation Research Lab Member

March 2008-Present

Pepperdine University
Graduate School of Education and Psychology
 Encino, CA
 Supervisor: David Foy, Ph.D.

Participate in weekly meetings to discuss both quantitative and qualitative research related to PTSD in combat veterans. Collaborate with lab members and Dr. David Foy to develop dissertation research questions, hypotheses, and methods. Review literature related to PTSD in combat veterans, including critical reviews of manuscripts submitted for publication. Provide feedback to fellow lab members on projects related to health-risk behaviors and spirituality in combat veterans with PTSD. Transcribe interviews and coded data related to the topic of moral injury for a research project conducted by Dr. David Foy and Dr. Kent Drescher.

Graduate Research Assistant

October 2008-Present

Pepperdine University
Graduate School of Education and Psychology
 Los Angeles, CA
 Supervisor: Daryl Rowe, Ph.D.

Collect and review literature related to multicultural psychology and constructivist theories. Summarize and organize material into a literature table for accessible viewing. Collaborate with Dr. Rowe to develop ideas for a written article incorporating constructivist theory in the practice of multicultural psychology. Create an outline to organize literature and guide manuscript writing.

Graduate Research Assistant

January 2003-May 2004

New York University
Social Psychology Department
 New York, NY
 Supervisors: Pamela K. Smith, Ph.D. and John Bargh, Ph.D.

Contributed to the design of research experiments in social cognition. Managed participants and collected data for multiple experiments. Entered research data into SPSS and assisted in analyzing the data.

Graduate Research Assistant

September 2002-January 2003

New York University
Social Psychology Department
 New York, NY
 Supervisor: Susan Andersen, Ph.D.

Scored survey data along dimensions of attachment and relationship characteristics for research in social cognition. Entered scores into Excel spreadsheets for data analysis.

Research Assistant**September 2001-May 2002**

Towson University
Psychology Department
 Towson, MD
 Supervisor: Jan Sinnott, Ph.D.

Scored and organized survey data related to community psychology. Administered semi-structured research interviews to college students about their sense of community. Transcribed interview content for data analysis.

PUBLICATIONS AND POSTER PRESENTATIONS

Leshner, A.F., Kelly, C. M., Schutz, K., & Foy, David W. (in press). Retraumatization. In C. Figley (Ed.), *Encyclopedia of trauma*.

Drescher, K.D., Foy, D.W., Litz, B., Leshner, A.F., Kelly, C.M, & Schutz, K. (2011). A qualitative exploration of moral injury among mental health and religious professionals. *Traumatology*. Advance online publication. doi: 10.1177/1534765610395615

Kelly, C.M., Schutz, K.E., Leshner, A.F., Jakle, K., Burgoyne, M., Drescher, K.D., & Foy, D.W. (November, 2009). *Adverse childhood experiences and religious coping styles in veterans with chronic combat-related PTSD*. Poster accepted for the twenty-fifth annual meeting of the International Society for Traumatic Stress Studies, Atlanta, GA.

Jakle, K.R., Metz, S.B., Lovato, L.D., Kelly, C.M., Leshner, A.F., Drescher, K., & Foy, D.W. (November, 2008). *Forgiveness and depression in veterans with chronic combat-related PTSD*. Poster accepted for the twenty-fourth annual meeting of the International Society for Traumatic Stress Studies, Chicago, IL.

TEACHING EXPERIENCE**Graduate Teaching Assistant****April 2009-June 2009**

Pepperdine University
Graduate School of Education and Psychology
 Los Angeles, CA
 Supervisor: David Foy, Ph.D.

Graded final term papers for a Master's level Substance Abuse course. Provided feedback to students on writing style, APA format, and content of written work. Offered student support and responded to class questions on an as-needed basis.

Graduate Teaching Assistant**January 2009-April 2009**

Pepperdine University
Graduate School of Education and Psychology
 Los Angeles, CA
 Supervisor: Stephanie Woo, Ph.D.

Assisted in grading student midterm and final exams for a doctoral-level Advanced Psychopathology course. Prepared and made copies of midterm and final exam materials for course instructor.

Graduate Teaching Assistant

September 2008-December 2008

Pepperdine University
Graduate School of Education and Psychology
 Los Angeles, CA
 Supervisor: Carolyn Keatinge, Ph.D.

Corrected scoring and provided feedback on assessments for a doctoral-level Cognitive Assessment course. Assisted students in practice administrations of cognitive assessments (WISC-IV and WAIS-IV) and provided feedback to students about their performance. Prepared materials and organized scheduling for practice administrations of the WAIS-IV. Reviewed Rorschach scoring for a Master's level assessment course and provided feedback to students.

SUPERVISORY AND LEADERSHIP EXPERIENCE

Peer Supervisor

September 2009-Present

Pepperdine University
Graduate School of Education and Psychology
 Los Angeles, CA
 Supervisor: Aaron Aviera, Ph.D.

Provide one-on-one supervision for first-year doctoral students in clinical psychology. Assist new therapists in developing conceptualization, diagnosis, and treatment planning abilities while working with diverse individuals and families. Provide new therapists with feedback and support on case presentation and report writing skills.

Campus Representative

September 2009-Present

American Psychological Association Graduate Students

Serve as an advocate and representative for graduate students in psychology by distributing information to students related to policy updates and student opportunities in the field and voicing student needs to the American Psychological Association.

PROFESSIONAL ASSOCIATIONS

American Psychological Association, Student Affiliate, 2007-2011
California Psychological Association, Student Member, 2008-2011
International Society of Traumatic Stress Studies, 2008-2011
Los Angeles County Psychological Association, 2009-2011
Association for Behavioral and Cognitive Therapies, 2010-2011
Association for Contextual Behavioral Science, 2010-2011

CERTIFICATIONS AND TRAININGS

- “Acceptance and Commitment Therapy,” 16-hour training course with Adria Pearson, Ph.D., July-August 2010
- “Trauma-Focused Cognitive Behavioral Therapy” web-based learning course, October 2008
- Existential-Humanistic Lab with David Elkins, Ph.D., Pepperdine University, Los Angeles, CA, January- April 2008
- Master’s-level coursework in Special Education at Long Island University, Brooklyn as part of teacher training for the New York City Teaching Fellows, June 2004-May 2005

HONORS AND AWARDS

Colleagues Grant, Pepperdine University, 2007-Present
 Conrad N. Hilton Foundation Fellowship, Union Rescue Mission, 2007-2008
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 M.A. Scholar, New York University, 2003-2004.
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ABSTRACT

Posttraumatic stress disorder (PTSD) has been associated with increased overall risk for mortality as well as deaths due to behavioral causes in combat veterans. In addition, adverse childhood experiences, including childhood physical abuse, have been associated with many of the leading causes of death in adults. The present study investigated childhood physical punishment experiences in 1,866 U.S. military male combat veterans who had been in residential PTSD treatment in order to explore whether such experiences were related to increased risk for mortality or cause of death in this population. It was hypothesized that more physical punishment would be related to increased mortality and behaviorally-caused deaths. Possible confounding variables such as depression and substance use disorders were also taken into account in the analyses. One-way ANOVAs comparing groups found no significant differences in mortality or cause of death based on childhood physical punishment experiences. Possible explanations for these findings are discussed and treatment implications are explored.

Introduction

In a war zone, military men and women are often exposed to danger, violence, stress, and loss. Due to these intense circumstances inherent in the combat experience, it is understandable that some military men and women return home from war with trauma-related symptoms that meet criteria for posttraumatic stress disorder (PTSD). Research in the field of trauma is also finding that individuals with prior exposure to traumatic experiences are more likely to develop PTSD when exposed to later traumatic events such as combat (Breslau, Chilcoat, Kessler & Davis, 1999). This finding emphasizes a need for research to explore the potential role of pre-military trauma in veterans with combat-related PTSD. In addition, recent research has identified that the impact of posttraumatic stress disorder extends beyond only psychological distress and can have deleterious effects on health and longevity (e.g. Crawford, Drescher, & Rosen, 2009; Schnurr, Spiro, & Paris, 2000). This project aims to explore how adverse childhood experiences (specifically childhood physical abuse) might relate to mortality and cause of death in veterans with combat-related PTSD.

Dating back to veterans of the Civil War, there is evidence to suggest that trauma resulting from combat exposure is associated with negative physical health and increased rates of mortality (Pizarro, Silver, & Prause, 2006). Multiple studies have found PTSD to be associated with poor physical health and increased rates of specific diseases and medical conditions (e.g. Barrett et al., 2002; Beckham et al., 1998; Buckley, Mozley, Bedard, Dewulf, & Greif, 2004; Jacupcak, Luterek, Hunt, Conybeare, & McFall, 2008; O'Toole & Catts, 2008; Schnurr et al., 2000; Wagner, Wolfe, Rotnitsky, Proctor, & Erickson, 2000). Furthermore, the majority of recent research investigating PTSD and

mortality rates has found PTSD to be associated with an increased overall risk for mortality (Boscarino 2006a, 2006b, 2008; Crawford et al., 2009; Drescher, Rosen, Burling, & Foy, 2003; Johnson, Fontana, Lubin, Corn, & Rosenheck, 2004; Schafer, 2007). Specifically, several studies examining post-service mortality in Vietnam and Gulf War veterans have found that those who served in theater have higher rates of death from external causes (e.g., accidents, intentional deaths, drug-related deaths, etc.) compared to those who did not serve in theater (Boehmer, Flanders, McGeehin, Boyles, & Barrett, 2004; Kang & Bullman, 1996, 2001; MacFarlane et al., 2005; Watanabe & Kang, 1995). For veterans with PTSD, there appears to be a similar excess of deaths due to external, behavioral causes (Drescher et al., 2003; Schafer, 2007), suggesting that combat veterans are particularly at risk for these types of deaths.

Prior childhood trauma may further contribute to the health risks and mortality patterns seen in veterans with PTSD. In the general population, exposure to adverse childhood experiences (ACEs) has been positively associated with health risk behaviors and a variety of disease conditions (Felitti et al., 1998). ACEs is a term that includes: childhood physical abuse as well as sexual abuse, neglect, household substance abuse, household mental illness, household incarceration, witnessing maternal battering, and/or parental divorce or separation. Research into ACEs has found a graded relationship between the number of different adverse childhood experiences and a variety of negative health outcomes including increased rates of psychotropic prescriptions, chronic obstructive pulmonary disease, depressive disorders, suicide attempts, drug use, multiple sexual partners, sexually transmitted diseases, cigarette smoking, alcoholism, somatic symptoms, altered immune functioning, and mental health concerns (Anda et al., 1999,

2006, 2007, 2008; Chapman et al., 2004; Dube et al., 2001, 2003; Dube, Anda, Felitti, Edwards, & Croft, 2002; Dube, Felitti, Dong, Giles, & Anda, 2003; Edwards, Holden, Felitti, & Anda, 2003; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000; Surtees et al., 2003). These findings provide strong evidence for an association between ACEs and negative health outcomes. However, each of these studies looks at the cumulative effects of multiple adverse childhood experiences, rather than the individual effects of specific ACEs. The current study will attempt to parse out the relationship between specific ACEs and health outcomes in veterans by looking independently at childhood physical abuse as an adverse experience that may impact mortality and cause of death.

Recent research looking specifically at this form of adverse experience has found childhood physical abuse to be associated with a variety of health risk behaviors (Bensley, Van Eenwyk, & Simmons, 2000), as well as increases in diagnosed illnesses, physical symptoms, anxiety, anger, alcohol dependence, and depression in adulthood (Afifi, Brownridge, Cox, & Sareen, 2006; Springer, Sheridan, Kuo, & Carnes, 2007). Similarly, in adolescents, childhood physical abuse has been positively associated with aggression, anxiety, depression, PTSD symptoms, and social withdrawal (Lansford et al., 2002), all of which could potentially negatively impact adulthood health.

Overall, the majority of the research suggests that both PTSD and adverse childhood experiences negatively impact health. Furthermore, research indicates that military men and women have higher rates of adverse childhood experiences than the general population (Rosen & Martin, 1996), which indicates that the veteran population may be at increased risk for the negative health outcomes associated with ACEs. In fact, studies estimate that 90-96% of veterans with PTSD have experienced some type of non-

combat related victimization throughout their lifetime (Clancy et al., 2006; Lapp et al., 2005).

Some researchers in the field suggest that ACEs may even pose as a risk factor for veterans in developing PTSD. A history of childhood physical abuse is associated with more severe psychological symptoms and more psychological distress in military soldiers (Rosen & Martin, 1996). Furthermore, a recent study found that military members who reported a history of prior physical or sexual assault had double the risk of developing PTSD symptoms after their deployment compared to military personnel who did not report any prior assault (Smith et al., 2008). More specifically, both childhood trauma in general and childhood physical abuse in particular have been found to be associated with PTSD in veterans and active duty soldiers (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Gahm, Lucenko, Retzlaff, & Fukuda, 2007; King, King, Foy, Keane, & Fairbank, 1999). In addition, a history of ACEs has been specifically associated with PTSD symptoms after combat exposure (Cabrera, Hoge, Bliese, Castro, & Messer, 2007). This suggests that traumatic experiences throughout the lifetime may be cumulative, increasing one's risk for developing PTSD with each traumatic exposure. Similarly, the negative health outcomes related to PTSD and ACEs discussed in the literature may also be cumulative, such that veterans with PTSD who have prior childhood trauma may be at an even increased risk for mortality compared to veterans without childhood trauma. Given that many of the excess deaths seen in veterans with PTSD have been due to behavioral causes (Drescher et al., 2003; Schafer, 2007), it is possible that a similar excess will be observed when investigating veterans with PTSD who also have a history of childhood physical abuse.

The purpose of this study was to investigate this relationship between childhood physical punishment, mortality, and cause of death in male veterans with PTSD. Since variables such as substance abuse and depression may confound the relationship between childhood physical abuse and mortality outcomes, these variables were also considered as part of the study. Specifically, the study aimed to explore the following three research questions:

1. After accounting for depressive symptoms and substance abuse, does a history of childhood physical abuse predict mortality in male veterans with combat-related PTSD?

Hypothesis: Higher levels of childhood physical punishment will be significantly predictive of mortality.

2. After accounting for depressive symptoms and substance abuse, does a history of childhood physical abuse predict cause of death in male veterans with combat-related PTSD who are deceased?

Hypothesis: Higher levels of childhood physical punishment will be significantly predictive of behaviorally-caused deaths in the sample.

3. Among those male combat veterans with PTSD who have a history of childhood physical abuse, does severity of physical abuse predict mortality or cause of death (behavioral versus natural)?

Hypothesis: Increased severity of childhood physical abuse will be significantly associated with increased mortality rates and increased deaths due to behavioral causes in the sample.

Method

Participants

This archival study used participant data from 1,866 male U.S. veterans with combat-related PTSD admitted to a residential PTSD rehabilitation treatment program run by the U.S. Department of Veterans Affairs (VA). The treatment program was operated by the VA Palo Alto Medical Center, associated with the National Center for PTSD (NC-PTSD). The program utilized predominantly group therapy approaches to administer behavioral and cognitive-behavioral techniques to treat PTSD symptoms and prevent relapse. Participants admitted to the residential rehabilitation program were referred by their clinicians for PTSD treatment and were required to be abstinent from substances for 15-30 days prior to their admission. At the time that vital status was determined, 1,597 participants had been identified as living and 268 participants had been identified as deceased.

Design and Procedures

The present study utilized an archival research approach to explore the relationship of childhood physical abuse to adulthood mortality and cause of death. Participants in the study included male veterans with PTSD who were admitted consecutively in the VA NC-PTSD inpatient treatment program between January 1, 1990 and December 31, 1998. Upon intake to the program, participants provided informed consent that allowed for their clinical data to be used for research purposes. This consent allows for the participants' public death data to be matched up with their de-identified clinical data. This protocol was reviewed and approved by the Stanford University and Department of Veterans Affairs Institutional Review Boards (IRB). Prior to gaining

access to the de-identified data archive, approval for human subject research was received from the Pepperdine University Graduate and Professional Schools IRB (see Appendix C) and written permission was obtained from the principal investigator of the original research study at the NC-PTSD (see Appendix D).

Measures

Participants were administered a number of measures upon their intake to the residential PTSD treatment program. Data from these measures have been collected and archived by the NC-PTSD, and a subset of this archive was accessed for the present study. Participants' death data gathered from a subsequent archival study (Schafer, 2007) was also utilized for this study.

Childhood physical abuse. Childhood physical abuse was assessed using data from the Physical Punishment scale of the Assessing Environments- III (AE-III). The AE-III is a 164-item self-report questionnaire designed to assess a variety of childhood experiences. The Physical Punishment scale incorporates 10 true-false self-report items intended to assess physical acts ranging from mild physical discipline to severe physical abuse (Berger, Knutson, Mehm, & Perkins, 1988). Scores on the scale can range from 0-10, with higher scores indicating exposure to more types of physical punishment experiences. Prior research has considered a score of four or more on the Physical Punishment scale to reflect a history of physical abuse (Zaidi & Foy, 1994). The current study aimed to look at data from this measure primarily as a continuous variable (0-10), but also to dichotomize the variable (physically abused versus not physically abused) in order to conduct frequency counts of childhood physical abuse in the sample. Items included on the Physical Punishment scale include, "I required medical attention (at least

once) for injuries caused by my parents,” and “I was severely beaten by my parents.” Internal consistency reveals KR-20 coefficients ranging from .65 to .79 on the AE-III for all but three scales, and KR-20 coefficients ranging from .48 to .52 for the remaining three scales (Berger et al., 1988).

Depression. Depression has been associated with increased rates of mortality in veterans (Kinder et al., 2008), and with increased rates of behaviorally-caused deaths such as suicide (Zivin et al., 2007). In order to explore the possible role of depression in the relationship between childhood abuse and mortality or cause of death in the proposed study, data from the Beck Depression Inventory (BDI) was also utilized and incorporated into the analyses. The BDI is a 21-item self-report measure of depressive symptoms in which items are presented in a multiple choice format, where scores on each item can range from 0 to 3, for a minimum total score of zero and maximum total score of 63. A score range of 14-19 is considered mild depression, 20-28 is considered moderate depression, and 29-63 is considered severe depression. The items are designed to assess multiple symptoms of depression including pessimism, self-dislike, lack of satisfaction, sleep disturbance, and suicidal thoughts, with higher scores indicative of more depressive symptoms (Beck, Steer, & Garbin, 1988). Psychometric properties include an average Cronbach’s alpha coefficient of 0.86 for psychiatric patients and 0.81 for non-psychiatric patients, indicating high internal consistency on this measure (Beck et al., 1988).

Substance Dependence. Substance use disorders have also been associated with increased rates of mortality in veterans, and specifically with increased rates of death due to alcohol or drug dependence, liver disease, hepatitis, overdose, and HIV/AIDS (Rosen, Kuhn, Greenbaum, & Drescher, 2008). In order to explore the role that substance

dependence plays in the relationship between childhood physical abuse and mortality outcomes in veterans with PTSD, the current study also took into account data from the Structured Clinical Interview for DSM-III-R and DSM-IV Axis I Disorders (SCID-I). The SCID-I is a semi-structured interview that is used to make diagnoses for major Axis I disorders. Reliability studies have found the SCID-I to have kappa values of .76 to 1.0 for diagnosing alcohol and other substance use disorders (Zanarini & Frankenburg, 2001; Zanarini et al., 2000), indicating strong reliability for these diagnoses. A study examining the concurrent, discriminant, and predictive validity of the SCID-I for diagnosing substance use disorders found validity to be good to excellent (Kranzler, Kadden, Babor, Tennen, & Rounsaville, 1996).

Mortality. Vital status and cause of death for the participants in the study were obtained as part of a previous research study (Schafer, 2007) and included in the data archive. Vital status and dates of death were first screened through a review of VA records. They were then further assessed using a search of the Social Security Death Master File (DMF), which provided vital status and dates of death based on participants' social security numbers. The National Death Index was then contacted to obtain death certificates to determine the causes of death for deceased participants.

As part of the Schafer (2007) research study, causes of death were coded as either behavioral or natural. Behavioral causes of death were defined as deaths that resulted from: (a) accidents (e.g., motor vehicle accidents, fires, falls, and injuries), (b) direct effects of drug or alcohol use (e.g., overdose, liver disease, and other causes in which substances are listed as the primary or secondary cause of death), (c) intravenous use or high-risk sexual behavior (e.g., HIV, Hepatitis C, or other associated blood-borne

diseases), or (d) intentional deaths (e.g., suicide, homicide, or deaths by police). Deaths due to lung cancer and diabetes were not included in the definition of behavioral causes of death because although they are associated with specific health risk behaviors, there are alternative natural explanations for their development that could be ruled out with the available data.

Natural causes of death included all causes of death that were not explicitly outlined in the definition of behavioral causes. These included cancer, cardiovascular disease, respiratory system failure, and diabetes. Causes of death were coded using the *International Classification of Diseases-Tenth Revision (ICD-10)*.

Data Analysis

Data was analyzed using Predictive Analytics SoftWare (PASW) version 17.0. The first step in data analysis was to clean the data and check whether assumptions of normality and homogeneity of variance are met for each variable. This consisted of examining the data to identify any missing data, outliers, or skewness, and managing any problems that arose. Then, descriptive statistics were run for all study and demographic variables. The next step in the process was to conduct analyses of variance (ANOVAs) or Chi Square tests to determine if there were significant differences in childhood physical punishment experiences, depressive symptoms, or substance use disorders between the mortality groups (living versus deceased) or the cause of death groups (behavioral versus natural). If either depression or substance use was found to significantly differ between groups, it would have been considered as a predictor variable in the next analysis step, along with childhood physical abuse. In initial data analysis plans, this next step would have included using logistic regressions to ascertain the

contribution of predictor variables on mortality and cause of death. However, ANOVAs revealed no significant differences in childhood physical punishment based on mortality status of cause of death, demonstrating that there was no predictive value in this variable. Therefore, it was determined that it was not necessary to run additional logistical regressions. Results reflect the analyses of variance conducted to investigate differences in study variables between mortality groups (living versus deceased) and cause of death (behavioral versus natural).

Results

General Characteristics of the Sample

Archival data from 1,866 male combat veterans were included in the data analyses. Demographic characteristics of the sample are presented in Table 1. The average age for participants was approximately 47 years ($SD = 5.08$), with a range of 21.41 to 73.63 years. The majority of participants (66%) identified as Caucasian, and most participants (62.9%) reported more than 12 years of education. Most of the participants reported that they were either divorced (43%), or were married or in a domestic partnership (33.9%). Approximately 50% of participants reported earning less than \$10,000. In regards to service branch, most of the veterans in the sample served in the Army (65.3%), with 24.3% serving in the Marines, and 10.4% serving in the Navy or Air Force.

The sample's response patterns to the childhood physical abuse, depression, and substance abuse measures are displayed in Table 2. The veterans' scores on the Physical Punishment subscale of the AE-III ranged from 0 to 10, with a mean of 2.42 ($SD=1.83$). Using a cutoff score of 4 positive responses to physical punishment experiences, 20.3% of the participants met criteria for childhood physical abuse. On the BDI, 5.5% of the participants met criteria for mild depression, 17.2% met criteria for moderate depression, and 43.6% met criteria for severe depression. In regards to the SCID, 67.7% of the veterans met the threshold of criteria for Alcohol Dependence, while 49.9% of veterans met criteria for Substance Dependence.

With respect to mortality, 85.6% of the participants were living at the time of the study and 14.4% of the participants were deceased. Among the deceased veterans, 48.5%

died from behavioral causes, 47.4% died from natural causes, and 4.1% died from unknown causes.

Psychometric Characteristics

Analyses of the psychometric properties of the AE-III in the present study revealed a Chronbach's alpha score of .74, indicating relatively high internal consistency on this measure for this sample.

Relationships Among Study Variables

Correlational analyses and analyses of variance (ANOVAs) were performed to explore the relationships between childhood physical punishment and the potential covariates measured in this study: depression and alcohol/drug dependence. A significant positive correlation was found between total BDI score and AE-III PP score ($r = .080, p = .041$). However, a one-way ANOVA revealed no significant relationship between substance use diagnoses and AE-III PP scores.

Analyses were also conducted to examine the relationship between BDI, alcohol/drug dependence, and vital status. An analysis of variance (ANOVA) revealed no significant main effect of mortality on BDI scores in the sample. However, a Chi-square analysis found a significant relationship between vital status and alcohol/drug dependence, $\chi^2(1, N = 1402) = 14.64, p < .01$, with the proportion of deceased participants in the group of participants with alcohol/drug dependence (15.4%) being higher than in the group of participants with neither alcohol nor drug dependence (7.0%).

In regard to behavioral versus natural causes of death, no significant relationships were found between BDI score or SCID diagnosis and cause of death.

Mortality and Cause of Death

The relationships between mortality and cause of death, and childhood physical punishment are displayed in Tables 4 and 5. A one-way ANOVA performed on these data revealed no significant differences between living and deceased participants on their AE-III PP scores. The average number of childhood physical punishment experiences reported for living veterans was 2.45 ($SD = 1.84$), as compared to 2.15 ($SD = 1.60$) for deceased veterans. Among deceased participants, a one-way ANOVA also found no significant differences between those who died of behavioral versus non-behavioral or natural causes on PP score. The mean PP score for veterans who died of behavioral causes was 2.05 ($SD = .97$), while the mean PP score for those who died of natural causes was 2.24 ($SD = 2.00$).

Item Level Analysis

In order to explore participants' responses to the types of childhood physical punishment experienced in more depth, descriptive analyses were performed on one specific AE-III PP item: "I required medical attention (at least once) for injuries caused by my parents." This item was chosen because it clearly indicates physical injury, fitting with the legal definition of childhood physical abuse (U.S. Department of Health and Human Services, 2008). On this item, 4.8% of the participants responded positively. Of those participants who responded positively to this item, response patterns on other items indicate that they were most likely to also respond positively to the items, "My parent(s) used to spank me" (95.8%) and "My parent(s) used to hit me with something other than their hands when I did something wrong" (91.7%). Participants who responded positively to this item were least likely to also respond positively to "When I did

something wrong, my parent(s) sometimes tied me up” (29.2%) and “When I was bad, my parent(s) used to lock me in a closet” (16.7%). These response patterns could be said to outline the more common and less common forms of physical punishment experienced by respondents who were physically abused in childhood.

Discussion

Numerous studies have found a relationship between ACEs and negative health outcomes as well as PTSD and negative health outcomes (including mortality). The present study sought to examine whether the ACE of childhood physical abuse could predict mortality or cause of death in combat veterans with PTSD. Since the initial literature review, additional studies have added support to the body of research associating ACEs with negative health outcomes (e.g. Brown, et al., 2009; Chartier, Walker, & Naimark, 2010). Recent research has also specifically found a positive relationship between childhood physical abuse and heart disease in adulthood (Fuller-Thomson, Brennenstuhl, & Frank, 2010), associating this ACE with risk for mortality. Together, these studies provide further support for the hypothesis that CPA would be associated with increased risk for mortality in this sample of veterans with combat-related PTSD. However, the results of this study do not support the hypotheses that childhood physical abuse predicts mortality or cause of death in this sample. No significant differences were found in childhood physical punishment experiences between living and deceased veterans, nor between veterans who died of behavioral versus natural causes. Given that no significant differences were found, severity of childhood physical abuse was not further explored for those veterans with a physical abuse history. These findings suggest that for combat veterans with PTSD, the additional exposure to childhood physical abuse does not further compound the already-present increased risk for mortality or the increased risk for death due to preventable causes. There are several practical possibilities that might explain such results.

One possible explanation for this finding could be that severe PTSD is associated with mortality and behavioral causes of death regardless of the number or type of different traumas experienced. Prior research has tended to find that exposure to multiple traumas or adverse experiences has a cumulative impact on psychological and physical health functioning (Felitti et al., 1998; Green et al., 2000). Nevertheless, perhaps very severe or extreme combat-related PTSD is sufficient to contribute to the observed impact on mortality and cause of death, regardless of prior trauma history. This study utilized data from a sample of combat veterans with PTSD who had been in a residential treatment program, which is one of the highest levels of PTSD care available in the VA system. Therefore, the severity of PTSD was very high for this particular group of veterans. It is possible that after a certain threshold of combat-related PTSD symptom severity was reached for these veterans, the possible cumulative impact of childhood traumatic experiences was inconsequential.

In a related vein, another possibility is that ACEs can increase the risk of mortality above and beyond combat-related PTSD, but that such an impact requires an accumulation of multiple ACEs. Recently, Brown et al. (2009) found that exposure to six or more different ACEs was associated with increased risk for death, such that individuals with six or more ACEs died an average of 20 years earlier than individuals with no ACE exposure. However, this study found that individual ACEs (including childhood physical abuse) were not independently associated with increased risk for mortality (Brown et al., 2009). These findings support the hypothesis that mortality may only be related to the experience of multiple ACEs, rather than a singular adverse childhood experience.

An additional possibility could be that childhood physical punishment was not associated with increased risk for mortality or behavioral causes of death in this sample because other childhood adverse experiences or premilitary traumas confounded the relationship between physical punishment and mortality outcomes. That is, it is possible that the group of veteran participants who did not have a CPA history had a history of other ACEs and/or premilitary trauma that could have impacted their mortality or cause of death. In fact, research indicates that veterans with childhood or premilitary trauma are more likely to develop PTSD subsequent to combat exposure (Smith et al., 2008). Therefore, there is a high likelihood that the veterans in this sample had some prior traumatic experiences. Since this study did not control for the presence of other premilitary traumatic experiences (e.g. childhood sexual abuse, adulthood assault, exposure to community violence, etc.), it remains unclear whether these factors might have confounded the measurement of the associations between childhood physical punishment and mortality outcomes.

Despite the nonhypothesized findings, the study provides some valuable information about characteristics of this sample of military veterans with combat-related PTSD. For instance, a significant relationship was found between substance dependence and mortality, providing empirical support for the dangers of drug and alcohol use disorders in this population. This study also provides descriptive information about the presence of childhood physical punishment and abuse in military combat veterans with PTSD. Overall, 20.3% of the sample reported four or more experiences of childhood physical punishment, qualifying them as experiencing childhood physical abuse (Zaidi & Foy, 1994). This rate of childhood physical abuse in the sample is similar to those in

other studies of veterans (Lapp et al., 2005; Clancy et al., 2006), and is higher than rates found in the general population (Rosen & Martin, 1996). Therefore, the abuse rates in this study add additional support to research findings that suggest veterans with PTSD are more likely to have experienced CPA than the general population.

In addition, the study found a significant positive relationship between childhood physical punishment and level of self-reported depressive symptoms in adulthood. This finding suggests that CPA may be associated with adulthood depression, which is consistent with prior research in the field (Affifi et al., 2006; Chapman et al., 2004).

Implications for Treatment

Although there were no significant differences between groups in regards to mortality or cause of death, the research literature upon which this study was based provides strong support for the integration of behavioral medicine and health-related interventions into PTSD treatment. This implication is further supported by the finding of higher rates of CPA in this sample and the research that associates CPA history with negative health outcomes. In addition, the significant relationship between substance dependence diagnosis and mortality found in the present study further emphasizes the need to address issues of physical health and health-risk behaviors in this population. Together, these data suggest that veterans with PTSD and veterans with a CPA history may benefit from preventative care and health-based interventions, in addition to psychotherapeutic and/or pharmacological treatment for PTSD. This could include psychoeducational classes, behavioral medicine interventions and/or increased assessment and monitoring of health risk behaviors, including substance use.

In recent years, the military has seen a surge in suicide rates of active duty military personnel, bringing this type of preventable cause of death to the forefront of national attention (Kuehn, 2009). Steps have already been taken to try to reduce suicide in military servicemen and women by implementing changes such as creating a national crisis hotline for suicide prevention, holding suicide awareness events, and screening veterans for suicide risk factors (Sundararaman, Panangala, & Lister, 2008). In addition to these changes, considerations to prevent deaths due to other preventable causes of death could be also incorporated into the Veteran's Health Administration. For instance, outreach efforts and treatment for problems such as alcohol and substance abuse, aggressive driving, diabetes, and other common preventable causes of death could be made easily accessible for veterans. Adopting a preventative stance for these issues by providing education and assessment of such problems could also be adopted in order to further promote health in military veterans.

This study also points to the potential importance of addressing ACEs in populations of veterans with PTSD. Although no significant associations between childhood physical punishment and mortality or cause of death were found in the present study, the consistently higher rates of childhood physical punishment in this population in combination with the research literature associating ACEs with negative mental and physical health outcomes warrant attention placed on this issue. The connection between adverse childhood experiences and adulthood mental health diagnoses adds further importance to exploring these issues in clinical settings. Recent research highlights this association, finding a relationship between two or more ACEs and increased risk for postdeployment PTSD in military populations (LeardMann, Smith, Besa, & Ryan, 2010).

Furthermore, the present study found a significant relationship between childhood physical punishment and depressive symptoms in veterans with PTSD, adding to the research that supports a positive association between ACEs and adulthood mental health outcomes. Addressing ACEs could include both assessment and screening of ACEs in VA settings, as well as the adoption of efforts to prevent ACEs in the population at large. This might mean incorporating questions about ACEs in initial assessments and screenings within VA settings. It might also include the integration of preventative efforts to reduce the occurrence of ACEs for young people. Accessible community and VA services such as parenting classes, anger management programs, substance abuse treatment, and couples counseling are potential ways to prevent these problems, by providing veterans with the resources and skills to better parent their own children and reduce the likelihood of ACEs for the generations to come.

Limitations

One limitation of the current study is that the childhood physical punishment data is dependent on the participants' retrospective self-reports of their experiences. Since the study relies only on participants' memories, there may be intentional or unintentional biases in recall that would result in inaccurate reports of childhood physical abuse experiences. Prior research has found good test-retest reliability in adult retrospective self-reports of adverse childhood experiences (Dube, Williamson, Thompson, Felitti, & Anda, 2004); however, it is unknown how reliable participants' accounts are in the proposed study. Another limitation includes the study's reliance on death certificates as the source for participants' causes of death. Some research suggests that death certificates may overreport deaths due to coronary heart disease and underreport deaths

due to alcohol-related causes (Pollock, Boyle, DeStefano, Moyer, & Kirk, 1987; Lloyd-Jones, Martin, Larson, & Levy, 1998), which could underestimate the number of deaths due to behavioral causes and overestimate the number of deaths due to natural causes.

Another limitation is that since the study specifically investigated male veterans with chronic combat-related PTSD, the results cannot be generalized to other populations such as female veterans, veterans with less chronic PTSD symptoms, or civilians. In addition, since the study lacked a non-clinical comparison group and examined only veterans with severe PTSD in one inpatient setting, the results are limited to this specific sample. As mentioned previously, another limitation exists in that the study did not control for other ACEs or premilitary traumatic experiences, which means that these variables could have confounded any possible relationship between CPA and mortality or cause of death. Another limitation of this study is that although data was accessed for over 1,800 veterans, there was a much smaller amount of data available for the specific measures we were investigating. Overall, this greatly reduced the statistical power of our analyses, particularly when looking at causes of death within the small number of deceased veterans in our sample. A final limitation of the study is that the AE-III, the measure used to assess childhood physical punishment, specifically phrases items beginning with the sentence stem “*My parents...*”. It is quite possible that veterans might have experienced childhood physical punishment and/or abuse by adults who were not identified as their parents (e.g. other family members, foster parents, or non-relative caregivers). This could have contributed to a number of false negative responses on this measure based on the wording of the items.

Directions for Future Research

Given the limitations of this study, this area of research would benefit from future research that investigates a wider, more inclusive sample of veterans. As mentioned above, this study did not include a non-clinical comparison group to explore the relationship between childhood physical punishment, mortality, and cause of death in veterans without PTSD. Without such a comparison group to contrast with the veterans in this sample, it is unknown how the causes and rates of death might be associated with a PTSD diagnosis. In addition, this study used archival data from one residential PTSD treatment program within the VA. It is possible that some unknown factors related to this treatment site may have impacted mortality rates or causes of death for the veterans in the sample. Additional research utilizing a broader sample of veterans with PTSD could increase the generalizability of the findings and help to rule out the possibility of confounding variables related to the treatment facility. In addition, future research that includes veterans with a broader range of PTSD symptom severity and incorporates female veterans with PTSD would further increase generalizability. Finally, a study design that controls for the presence of other ACEs or premilitary traumatic experiences could be helpful to better understand the direct relationship between a singular ACE and mortality outcomes.

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Table 1

Demographic Information

| | <i>N</i> | % | Mean | SD | Number Missing (%) |
|------------------------|----------|------|-------|------|-----------------------|
| Age (at intake) | 1866 | | 46.94 | 5.08 | 0 |
| Years of Education | 1318 | | | | 588 (69.2) |
| Less than 12 years | 164 | 12.5 | | | |
| 12 years | 326 | 24.7 | | | |
| More than 12 years | 828 | 62.9 | | | |
| Ethnicity | 1842 | | | | 14 (0.8) |
| Caucasian | 1226 | 65.7 | | | |
| Hispanic | 248 | 13.3 | | | |
| African American | 219 | 11.7 | | | |
| Asian/Pacific Islander | 21 | 1.1 | | | |
| Native American | 68 | 3.7 | | | |
| Other* | 70 | 3.8 | | | |
| Income | 1207 | | | | 699 (36.7) |
| < 10,000 | 608 | 50.4 | | | |
| 10,000-30,000 | 432 | 35.8 | | | |
| 30,001-50,000 | 132 | 10.9 | | | |
| > 50,000 | 35 | 2.9 | | | |
| Branch of Service | 1249 | | | | 617 (33.1) |
| Army | 816 | 65.3 | | | |
| Marines | 303 | 24.3 | | | |
| Navy | 89 | 7.1 | | | |
| Air Force | 41 | 3.3 | | | |

Note. *Other=Includes Mixed Ethnicity and Other

Table 2

Study Variables

| Instrument | N | % | Mean | SD | Range | Number Missing (%) |
|------------------------|------|------|-------|-------|-------|--------------------|
| AE-III | | | | | | |
| PP Scale | 497 | | 2.42 | 1.83 | 0-10 | |
| BDI | 1314 | | 31.56 | 10.24 | 1-63 | |
| SCID | | | | | | |
| Alcohol Use Disorder | 1401 | 67.7 | | | | 505 (26.5) |
| Substance Use Disorder | 1404 | 49.9 | | | | 502 (26.3) |

Note. BDI=Beck Depression Inventory; SCID=Structured Clinical Interview for the DSM-III or DSM-IV

Table 3

Frequencies of Reported Childhood Physical Punishment on AE-III (PP Scale)

| Number of items endorsed | <i>N</i> | % |
|--------------------------|----------|------|
| 0 | 38 | 7.6 |
| 1 | 128 | 25.8 |
| 2 | 156 | 31.4 |
| 3 | 74 | 14.9 |
| 4 | 43 | 8.7 |
| 5 | 24 | 4.8 |
| 6 | 8 | 1.6 |
| 7 | 14 | 2.8 |
| 8 | 7 | 1.4 |
| 9 | 3 | .6 |
| 10 | 2 | .4 |

Note. AE-III (PP Scale)=Assessing Environments-III (Physical Punishment)

Table 4

ANOVA Table: AE-III Physical Punishment Score, BDI Score, and Vital Status

| Source | <i>df</i> | SS | MS | F | <i>p</i> |
|--------------|-----------|----------|-------|-------|----------|
| BDI | 1 | 9.637 | 9.637 | 0.087 | 0.087 |
| Vital Status | 1 | 3.395 | 3.395 | 1.034 | 0.310 |
| Error | 473 | 1552.773 | 3.283 | -- | -- |
| Total | 476 | 4359.00 | -- | -- | -- |

Note. BDI = Beck Depression Inventory

Table 5

ANOVA Table: AE-III Physical Punishment Score, BDI Score, and Cause of Death

| Source | <i>df</i> | SS | MS | F | <i>p</i> |
|----------------|-----------|---------|-------|-------|----------|
| BDI | 1 | 5.741 | 5.741 | 2.291 | 0.137 |
| Cause of Death | 1 | 0.194 | 0.194 | 0.077 | 0.782 |
| Error | 43 | 107.771 | 2.506 | -- | -- |
| Total | 46 | 327.00 | -- | -- | -- |

Note. BDI = Beck Depression Inventory

Appendix A

Literature Review (Written)

Search Criteria

In order to examine the existing research on the relationships between ACEs, mortality, and cause of death in male combat veterans with PTSD, a literature review was conducted using specific search criteria to identify articles of relevance. The search criteria required that the literature search include only quantitative, peer-reviewed research articles. Search criteria also demanded that articles include male participants and have a sample size equal to or greater than 30 participants. In addition, search parameters were limited to include only articles published during or after 1993, in order to focus on the most recent research in the field.

In order to obtain the most relevant articles, a combination of search terms were utilized based on the variables of interest. Search terms in the literature search included: childhood physical punishment (or childhood physical abuse, adverse childhood experiences, childhood abuse, child maltreatment); health (or death, mortality), posttraumatic stress disorder (PTSD), and veterans (or combat veterans, military). Searches that included at least two of these terms and multiple combinations of search terms were attempted in order to yield a comprehensive range of possible articles exploring the relationship between some or all of these variables. Databases accessed for the search included PsycINFO, ScienceDirect, EBSCOhost, PubMed, Google Scholar, Academic Search Elite, Published International Literature on Traumatic Stress (PILOTS), and articles obtained through Pepperdine University Libraries' Interlibrary Loan (ILL). A total of 49 articles were acquired through the literature search, each of which included at least two of the aforementioned search terms. For articles that fit the search criteria,

eighteen articles were located that looked at ACEs/childhood abuse and health/mortality, twenty-three articles on veterans with PTSD and health/mortality, 6 articles on veterans/active duty military, PTSD, and ACEs, 1 article on active duty military and ACEs, and 1 article on PTSD and childhood abuse. A summary of the major findings based on these articles is included below.

Veterans with PTSD and Physical Health/Mortality

A review of the literature yielded ten recent studies related to PTSD and health outcomes in the veteran population. All ten of these studies found PTSD to be associated with negative physical health outcomes. In general, PTSD was associated with a wide range of deficits in physical health functioning (Jacupcak, Luterek, Hunt, Conybeare, & McFall, 2008; Buckley, Mozley, Bedard, Dewulf, & Greif, 2004; O'Toole & Catts, 2008; Barrett et al. 2002 ; Wagner, Wolfe, Rotnitsky, Proctor, & Erickson, 2000; Beckham et al., 1998; Hoge, Terhakopian, Castro, Messer, & Engel, 2007; Spiro, Hankin, Mansell, & Kazis, 2005). More specifically, PTSD symptoms among combat veterans were associated with arterial disorders, lower gastrointestinal disorders, dermatologic disorders, and musculoskeletal disorders (Schnurr, Spiro, & Paris, 2000). Compared to the general population, veterans with PTSD were found to have higher rates of asthma, arthritis, tuberculosis, diabetes, stroke, cancer, myocardial infarction, cirrhosis of the liver, and smoking behavior, as well as functional impairment due to physical health problems (Buckley, Mozley, Bedard, Dewulf, & Greif, 2004). Compared to veterans with alcohol dependence, veterans with PTSD were found to have higher blood cholesterol, higher triglycerides, higher BMI, and higher rates of osteoarthritis, diabetes, and heart

disease (David, Woodward, Esquenazi, & Mellman, 2004), which could contribute to negative health conditions.

In terms of the relationship between PTSD and mortality, five identified studies found a positive relationship between PTSD and mortality in veteran populations (Boscarino, 2006a, 2006b; Drescher, Rosen, Burling, & Foy, 2003; Schafer, 2007; Johnson, Fontana, Lubin, Corn, & Rosenheck, 2004). One study found that PTSD was not associated with increased mortality in veterans when depression and medical conditions were controlled for (Kinder, Bradley, Katon, Ludman, McDonell, & Bryson, 2008). However, this study examined primary care patients who were not being primarily treated for PTSD and assessed PTSD decades after duty, during which time many veterans who would have met criteria for PTSD could have died.

For those articles that examined cause of death among veterans, research showed that veterans who served in Vietnam or the Gulf War were more likely to die from external causes (e.g. suicide, accidents, and drug-related causes) than Vietnam era or Gulf War era veterans who did not serve in the war zone (Boehmer, Flanders, McGeehin, Boyle, & Barrett, 2004; Kang & Bullman, 1996, 2001; MacFarlane, Hotopf, Maconochie, Blatchley, Richards, & Lunt, 2005; Watanabe & Kang, 1995). Although not specifically looking at PTSD, these studies imply a difference between combat and noncombat veterans. Among veterans with PTSD, the identified research suggests that they are at increased risk for death due to behavioral causes (e.g. accidents, suicide, deaths by police, effects of chronic substance use, or hepatitis) as compared to the general population (Drescher et al., 2003; Schafer, 2007). However, for both veterans with and without PTSD, the risk for externally caused deaths seems to decrease over time (Kang &

Bullman, 2001) and may be specific to the first 5 to 7 years after discharge from service (Boehmer et al., 2004; MacFarlane et al., 2005).

ACES and Physical Health/Mortality

Adverse childhood experiences have been associated with a wide range of negative health outcomes. For individuals, a higher number of different adverse childhood experiences has been associated with increased rates of psychotropic prescriptions, COPD, depressive disorders, chance of attempting suicide, drug use, multiple sexual partners, sexually transmitted diseases, cigarette smoking, alcoholism, somatic symptoms, and mental health problems (Anda et al., 1999, 2006, 2007, 2008; Chapman et al., 2004; Dube et al., 2001; Dube, Anda, Felitti, Edwards, & Croft, 2002; Dube, Felitti, Dong, Chapman, et al., 2003; Dube, Felitti, Dong, Giles, & Anda, 2003; Edwards, Holden, Felitti, & Anda, 2003; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000). ACEs have also been associated with altered immune functioning in adulthood (Surtees et al., 2003).

Furthermore, research specifically on childhood physical abuse has been associated with both health risk behaviors and negative health outcomes such as increases in diagnosed illnesses, physical symptoms, mental health problems, alcohol dependence, and heart disease (Afifi, Brownridge, Cox, & Sareen, 2006; Bensley, Van Eenwyk, & Simmons, 2000; Lansford et al., 2002; Springer, Sheridan, Kuo, & Carnes, 2007).

At the time of the literature review, only one study was identified specifically examining the relationship between ACEs and mortality. Surprisingly, this study found no significant differences in mortality rates or causes of death between adults who had a documented history of childhood abuse and/or neglect and adults without such histories

(White & Widom, 2003). However, several methodological limitations may have contributed to this finding. For instance, the study only included abuse or neglect cases that were documented by the court system. Thus, the abused individuals likely experienced some legal intervention that may have mediated the effects of the abuse, while individuals in the non-abused comparison group may have experienced abuse that was not recognized by the authorities and may have received no intervention. Also, there were only a small number of deaths in the sample and a cause of death was not identifiable in 30% of the cases, limiting the conclusions that can be drawn from the data.

Veterans/Active Duty Military, PTSD, and ACEs

Studies examining prior trauma in veterans with PTSD estimate that 90-96% of veterans with PTSD have experienced some type of non-combat related victimization throughout their lifetime (Clancy et al., 2006; Lapp et al., 2005). In addition, multiple studies have found a positive association between childhood trauma and PTSD in veterans (Cabrera, Hoge, Bliese, Castro, & Messer, 2007; Gahm, Lucenko, Retzlaff, & Fukuda, 2007; King, King, Foy, Keane, & Fairbank, 1999). Looking at childhood physical abuse specifically, research has found that veterans with PTSD are more likely to report a history of childhood physical abuse than veterans without PTSD (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993).

Active Duty Military and ACEs

The one identified study examining ACEs in active duty military members found that a history of childhood physical abuse was positively associated with psychological symptoms and psychological distress including somatization, obsessive-compulsive symptoms, depression, anxiety symptoms, etc. (Rosen & Martin, 1996).

PTSD and Childhood Abuse

The one study investigating only PTSD and childhood abuse found that individuals with prior trauma were more likely to have PTSD as a result of subsequent trauma than those with no past trauma (Breslau, Chilcoat, Kessler, & Davis, 1999).

Summary

Forty-nine articles were identified that examined the relationship between the variables of interest for the present study. Eighteen articles were found exploring the relationship between physical health or mortality and ACEs. Seventeen of those articles found an association between ACEs and negative health outcomes and one article found no association between childhood abuse and mortality outcomes. Twenty-three articles were obtained that found a relationship between physical health or mortality and PTSD in veterans. Of those articles examining physical health and PTSD, all ten identified studies found an association between PTSD and negative health outcomes. Six articles investigated mortality and veterans with PTSD, with all but one of those articles finding an association between PTSD and risk for mortality. Six of those articles examined the relationship between PTSD and cause of death, with four studies finding that veterans who served in warzones were more likely to die from behavioral causes than veterans who did not serve in warzones, and two studies finding that veterans with PTSD were more likely to die from behavioral causes as compared to the general population. Six articles examined veterans or active duty military persons, PTSD, and ACEs. Of those articles, two studies identified prevalence rates of ACEs and childhood abuse in veterans with PTSD and four studies found a positive relationship between childhood trauma/ACEs and PTSD. One article studied PTSD and childhood abuse in a nonveteran

population, finding a relationship between prior trauma and PTSD after subsequent trauma. One article examined veterans or active duty military and childhood abuse/ACEs and found that not only do veterans have higher rates of ACEs than the general population, but also that a history of childhood physical abuse is associated with more psychological symptoms and distress. Together, these articles demonstrate that veterans with PTSD and veterans with ACE histories are both at increased risk for negative health outcomes, and likely at increased risk for mortality, particularly from external or behavioral causes. This project attempts to explore whether childhood physical punishment histories could predict risk for mortality or behaviorally-caused deaths in this population of veterans with combat-related PTSD.

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Appendix B

Tabled Literature Review

| Sample Character-istics | Relationships Between Variables of Interest | Childhood Abuse | Health/Mortality | Other Study Character-istics | General Outcomes |
|--|---|---|---|--|--|
| <p><i>Size:</i></p> <p>(3) 30-100 (5) 101-500 (4) 501 - 1000 (13) 1001 - 5000 (8) 5001-10000 (16) 10001+</p> <p><i>Participants:</i></p> <p>(12) Vietnam era vets (10) Other era vets (6) Unspecified/ Comb. of U.S. veterans (2) Active duty military (18) Non-vet adults (1) Youth (10-24)</p> | <p>(18) Childhood Abuse/ACES and Physical Health/Mortality</p> <p>(23) Veterans w/ PTSD and Physical Health/Mortality</p> <p>(1) Veterans/Active Duty Military and Childhood Abuse/ACES</p> <p>(6) Veterans/Active Duty Military, PTSD and Childhood Abuse/ACES</p> <p>(1) PTSD and Childhood Abuse</p> | <p><i>Forms of Childhood Abuse*:</i></p> <p>(15) Number of ACEs (4) Childhood Physical Abuse only (7) Multiple forms of Childhood Abuse/Trauma</p> <p><i>Child Abuse Measures*:</i></p> <p>(12) ACE Study questionnaire (4) Interview (3) Conflict Tactics Scale (CTS) (4) Measure created for study</p> <p>(2) Childhood Trauma Questionnaire (1) Checklist of Stressful and Traumatic Events (1) Traumatic Life Events Questionnaire (1) Navy's Recruitment Assessment Program Questionnaire (ACE questions) (1) Juvenile court petitions and adult criminal court records (1) Sexual Abuse Exposure Questionnaire (SAEQ)</p> | <p><i>Forms of Health/Mortality*:</i></p> <p>(14) Vital Status/Cause of Death (7) Physical symptoms (10) Medical conditions (16) Health risk behaviors (5) Physical health functioning/Quality of Life (1) Suicide Attempts (2) General Physical Health/Nutrition (1) Prescription rates</p> <p><i>Health/Mortality Measures*:</i></p> <p>(12) Mortality Databases and death certificates (BIRLS, DMF, NDI Plus, etc.) (6) Medical records (8) Measure developed for study (7) Self-Report (4) Interview (2) Medical prescriptions (2) CAGE (2) SF-36 Health Survey (3) Physical exam (2) BMI (13) Other (See Note)</p> | <p><i>Other relevant variables examined:</i></p> <p>(11) Combat exposure (9) Depression (7) Substance use or abuse</p> | <ul style="list-style-type: none"> • Combat-related PTSD is associated with negative health outcomes • According to most studies, combat-related PTSD is associated with increased mortality risk • Veterans with PTSD are at increased risk for death due to behavioral causes • ACEs and childhood physical abuse are associated with a wide variety of negative health outcomes and health risk behaviors • Childhood trauma is associated with increased risk for combat-related PTSD |

*Summary of Articles in Literature Review (N = 49)**

*Articles may include multiple forms or measures for one variable

Note. Health measures used only once: Medical Outcomes Study Short Form, Patient Health Questionnaire, MMPI-2 MAC-R scale, Health Risk Appraisal (HRA), ACE Study Questionnaire, Behavioral Health Risk Factor Survey, Nutritional Examination Survey, Cornell Medical Index, Comorbidity Index, Somatic scale of Brief Symptom Inventory, Health Symptom Checklist, Alcohol Use Disorders Identification Test (AUDIT), Drug Abuse Screening test (DAST)

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|--|---|--------------------|--|---|--|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Afifi, Brownridge, Cox, & Sareen (2006). Physical punishment, childhood abuse and psychiatric disorders. | <ul style="list-style-type: none"> 5,877 men and women from National Comorbidity Survey Representative of the U.S. population on census indicators | To explore whether physical punishment alone is associated with adult psychopathology | Survey design | None | <ul style="list-style-type: none"> Conflict Tactics Scale (CTS) | <ul style="list-style-type: none"> Psychiatric disorders: Composite International Diagnostic Interview (CIDI) | <ul style="list-style-type: none"> Respondents who were physically abused or physically punished in childhood were significantly more likely to have MDD, alcohol use or dependence, and externalizing problems than those w/o physical punishment or abuse histories The association was stronger for physical abuse than physical punishment |
| Anda, Brown, Felitti, Bremner, Dube & Giles (2007). Adverse childhood experiences and prescribed psychotropic medications in adults. | <ul style="list-style-type: none"> 15,033 adult members of a large HMO in CA 54% women; 46% men Mean age 57 76% Caucasian; 11% Hispanic; 4% Asian; 7% African American | To explore the relationship between adverse childhood experiences and rates of prescribed psychotropic medications throughout adulthood | Survey design | <ul style="list-style-type: none"> Rates of Psycho-tropic Prescriptions: Kaiser pharmacy database | <ul style="list-style-type: none"> ACE questionnaire (some questions adapted from the CTS) | None | <ul style="list-style-type: none"> As ACE score increased, rates of psychotropic prescriptions also increased in a graded fashion for antidepressant, anxiolytic, antipsychotic, and lithium-based medications This trend was consistent across all age groups and classes of medication, except antipsychotic prescriptions in older adults (65-89 years old) |
| Anda, Brown, Dube, Bremner, Felitti, Giles (2008). Adverse childhood experiences and chronic obstructive pulmonary disease in adults. | <ul style="list-style-type: none"> 15,472 adult members of a large HMO in CA 54% women; 46% men 76% Caucasian; 12% Hispanic; 4% African American; 7% Asian | To explore the relationship between adverse childhood experiences and chronic obstructive pulmonary disease (COPD) | Survey design | <ul style="list-style-type: none"> COPD Status: Based on self-reports, hospital discharge records, and use of prescription meds used for COPD treatment | <ul style="list-style-type: none"> ACE Study questionnaire (some questions adapted from the CTS) | None | <ul style="list-style-type: none"> There was a graded relationship between the number of ACEs and COPD self-report, COPD hospitalization, and rates of taking prescription medication for COPD The strength of the association between ACEs and COPD was still significant (though reduced) when adjusted for smoking |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|--|--|--------------------|--|---|-------|---|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Anda, Croft, Felitti, Nordenberg, Giles, Williamson, & Giovino (1999). Adverse childhood experiences and smoking during adolescence and adulthood. | <ul style="list-style-type: none"> • 9,215 adult members of a large HMO in CA • 4,958 women (Mean age 55.3 yrs; 77% White) • 4,257 men (Mean age 58.1 yrs; 81% White) | <ul style="list-style-type: none"> • To assess the relationship between ACES and smoking behaviors | Survey design | <ul style="list-style-type: none"> • Question-naire to assess early smoking initiation, ever smoked, current smokers, and heavy smokers | <ul style="list-style-type: none"> • ACE Study questionnaire (some questions adapted from the CTS) | None | <ul style="list-style-type: none"> • All ACEs were sig. associated w/ ever smoking and heavy smoking • Positive graded relationship btwn frequency of exposure to CPA, emotional abuse, and maternal battery and early smoking and current smoking • Sig. graded relationship btwn # of ACES and each smoking behavior • <i>Limitations:</i> reliance on retrospective self-report data |
| Anda, Felitti, Bremner, Walker, Whitfield, Perry, Dube, & Giles (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. | <ul style="list-style-type: none"> • 17,337 adult members of a large HMO in CA • 46% male • Mean age 56 • 75% Caucasian | To use the ACE Study as an case example to explore the convergence of epidemiological and neurobiological evidence about the effects of childhood abuse on brain functioning | Case study | <ul style="list-style-type: none"> • <i>Multiple somatic symptoms:</i> medical review of systems • Sub-stance abuse, Early intercourse, & Promiscuity via ACE study questionnaire • Severe obesity via physical examination | ACE Study Question-naire | None | <ul style="list-style-type: none"> • As the ACE score increased, the risk for somatic health disturbances, substance use and abuse, sexual promiscuity, and difficulty controlling anger also increased in a graded manner. |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|--|--|--------------------------|---|-------------|---|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Barrett, Doebbeling, Schwartz, Voelker, Falter, et al. (2002). Posttraumatic stress disorder and self-reported physical health status among U.S. military personnel serving during the Gulf War period. | <ul style="list-style-type: none"> • 3,682 lowan military personnel who served during the Gulf War • 91% male • 96% white | To explore the relationship between PTSD and perceived physical health in Gulf War theater and era veterans | Telephone survey | <ul style="list-style-type: none"> • List of 37 physical health symptoms & 57 medical conditions (presence of condition in past year) • <i>Health-Related Quality of Life: Medical Outcomes Study Short Form-36 (SF-36)</i> | None | <ul style="list-style-type: none"> • PTSD: PTSD Checklist- Military Version (PCL-M) | <ul style="list-style-type: none"> • Participants w/ PTSD reported sig. more sx's and medical conditions that those w/o PTSD • # of physical sx's reported was positively correlated w/ PTSD severity • Participants w/ PTSD reported sig. lower levels of functioning and quality of life than those w/o PTSD • Limitations: reliance on self-report data; brief PTSD screen; low # of participants who were PTSD+; predominantly white men in sample (limits generalizability) |
| Beckham et al. (1998). Health status, somatization, and severity of posttraumatic stress disorder in Vietnam combat veterans with posttraumatic stress disorder. | <ul style="list-style-type: none"> • 276 help-seeking male Vietnam combat vets • 51 PTSD+ | <ul style="list-style-type: none"> • To compare vets with and without PTSD on health behaviors and health problems • To explore the relationship between health status and PTSD symptom severity, depression, somatization, and health behaviors in vets with PTSD | Descriptive, Correlation | <ul style="list-style-type: none"> • <i>Self-Reported Health: 22 symptoms, 37 chronic health problems, pack- yrs smoking, CAGE, and MMPI-2 MAC-R scale</i> • VA medical chart review | None | <ul style="list-style-type: none"> • Davidson Trauma Scale • Summarization: MMPI-2 hypochondriasis scale • BDI | <ul style="list-style-type: none"> • Vets with PTSD were rated with more health probs than vets w/o PTSD (even after controlling for age, SES, combat , and smoking) • Increased PTSD sx severity was associated with more health problems by both self- and physician-report • <i>Limitations:</i> correlational design ≠ causation, comorbid dx could be a confound, no assessment of exposure to trauma other than combat, can only generalize to help-seeking combat vets |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|---|--|-------------------------------|---|--|-------|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Bensley, Van Eenwyk, & Simmons (2000). Self-reported childhood sexual and physical abuse and adult HIV-risk behaviors and heavy drinking. | <ul style="list-style-type: none"> 3,473 English-speaking Washington state non-institutionalized adults Predominantly Caucasian Sample weighted to approximate the WA state population in age and gender | <ul style="list-style-type: none"> To explore the associations between childhood abuse (physical, sexual, or combined) and self-reported HIV-risk behaviors and heavy drinking in adult men and women | Survey design | <ul style="list-style-type: none"> <i>HIV-Risk Behaviors:</i> Assessed via interview <i>Heavy Drinking:</i> Defined as 5+ drinks on any occasion four or more times in past month | Telephone interviews in which participants were directly asked about CPA and CSA | None | <ul style="list-style-type: none"> Individuals with a history of childhood physical abuse were three times more likely to engage in HIV-risk behaviors and heavy drinking than those with no abuse history <i>Limitations:</i> Self-report data; low response rate (66%); individuals who did not speak English or did not own phones were excluded from the study |
| Boehmer, Flanders, McGeehin, Boyle, & Barrett (2004). Postservice mortality in Vietnam veterans: 30 year follow-up. | <ul style="list-style-type: none"> 9,324 Vietnam veterans - 86.8% White 8,989 Non-Vietnam veterans - 86.5% White | <ul style="list-style-type: none"> To follow up on a previous study to further investigate the long-term relationship between Vietnam experience and cause-specific mortality | Archival descriptive research | <ul style="list-style-type: none"> <i>Vital Status:</i> Three national mortality databases: VA BIRLS, SSA DMF, and NDI Plus and death certificates, as needed <i>Cause of Death:</i> NDI Plus | None | None | <ul style="list-style-type: none"> No sig. differences between Vietnam and non-Vietnam vets for disease-related mortality Vietnam vets had sig. higher mortality rates due to external causes than non-Vietnam vets The excess deaths due to external causes was specific to the first 5 yrs after discharge <i>Limitations:</i> Vital status databases and death certificates may have inaccuracies |
| Boscarino (2006a). Posttraumatic stress disorder and mortality among U.S. army veterans 30 years after military service. | <ul style="list-style-type: none"> 15,288 male U.S. army veterans 7,924 Vietnam theater veterans 7,364 Vietnam era veterans 82% Caucasian, 11% African American, 5% Hispanic, 2% Other | <ul style="list-style-type: none"> To explore the long-term health consequences of PTSD in Vietnam veterans by investigating their post-service causes of death | Archival descriptive research | <ul style="list-style-type: none"> <i>Vital status:</i> Three national mortality databases: VA BIRLS, SSA DMF, and NDI Plus <i>Cause of death:</i> NDI Plus | None | None | <ul style="list-style-type: none"> For both Vietnam era vets and theater veterans, vets with PTSD were more likely to have died than those without PTSD Vietnam theater veterans with PTSD were found to be at increased risk of death from cardiovascular disease, cancer, and external causes Vietnam era veterans were found to be at increased risk of death from external causes |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|--|--|---|------------------------------------|---|--|--|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Boscarino (2006b). External-cause mortality after psychological trauma: The effects of stress exposure and predisposition. | <ul style="list-style-type: none"> • 15,288 male U.S. Army veterans (7,924 Vietnam theater veterans; 7,364 Vietnam era veterans) • 82% White, 11% African American, 5% Hispanic | <ul style="list-style-type: none"> • To investigate whether external causes of death in combat veterans with PTSD are the result of the PTSD, combat exposure, or predisposing factors | Archival descriptive research | <ul style="list-style-type: none"> • <i>Vital status</i>: Department of Veteran's Affairs BIRL Death File, SSA DMF, and NDI Plus • <i>Cause of death</i>: NDI Plus | None | None | <ul style="list-style-type: none"> • For both Vietnam era and theater veterans, PTSD diagnosis positively associated with all causes of death and external causes of death • In Vietnam theater veterans, history of drug abuse and dishonorable discharge were associated with all-cause mortality |
| Boscarino (2008). A prospective study of PTSD and early-age heart disease mortality among Vietnam veterans: Implications for surveillance and research. | <ul style="list-style-type: none"> • 4,328 male Vietnam veterans • Mean age 54 yrs • 82% White; 11% Black; 5% Hispanic; 2% Other | <ul style="list-style-type: none"> • To investigate the prevalence of early-age heart disease (HD) in a national random sample of male Vietnam veterans | Archival descriptive research | <ul style="list-style-type: none"> • <i>Vital Status</i>: VA BIRL Death File, NDI Plus • <i>Cause of death</i>: NDI Plus • Medical history • Physical examination | None | <ul style="list-style-type: none"> • DSM-III PTSD measure (D-PTSD) • Keane PTSD (K-PTSD) scale from the MMPI-2 | <ul style="list-style-type: none"> • PTSD sig. associated with HD mortality, theater veterans, lifetime alcohol use/dependence, and lifetime depression • PTSD on K-PTSD measure sig. associated with HD mortality, pack-yrs cigarette smoking, and obesity • Limitations: Death cert.s may overreport some conditions; PTSD measures based on earlier nomenclature; new-onset HD rate was low, limiting analyses |
| Bremner, Southwick, Johnson, Yehuda, & Charney (1993). Childhood physical abuse and combat-related posttraumatic stress disorder in Vietnam veterans. | <ul style="list-style-type: none"> • 66 Vietnam combat veterans at a VA medical center • 38 veterans with PTSD (Mean age 47.3 yrs; 89% Caucasian) • 28 veterans without PTSD (Mean age 46.6; 78% Caucasian) | To compare rates of childhood physical abuse (CPA) between veterans with combat-related PTSD and combat veterans without PTSD | Quantitative, Descriptive research | None | <ul style="list-style-type: none"> • <i>Childhood physical and sexual abuse</i>: Checklist of Stressful and Traumatic events and structured interview | <ul style="list-style-type: none"> • Brief Symptom Inventory- Global Index • Combat Exposure Scale • Addiction Severity Index | <ul style="list-style-type: none"> • Vets w/ PTSD reported higher rates of CPA than those w/o PTSD • Within veterans with PTSD, no sig. differences in PTSD sx, psychiatric sx, or combat exposure between those who reported abuse and those who didn't • <i>Limitations</i>: Small group size; retrospective self-report data; vets may underreport childhood trauma to assert combat trauma as the cause of their PTSD |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|---|--|----------------------------|--|--|-------|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Breslau, Chilcoat, Kessler & Davis (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: Results from the Detroit area survey of trauma. | <ul style="list-style-type: none"> • 2,181 randomly selected individuals ages 18-45 from the Detroit area • Weighted to represent population in age, sex, race, income, and education based on 1990 U.S. census | To explore how prior exposure to trauma may influence the risk of PTSD from a subsequent trauma in a large representative sample | Survey design | None | Computer assisted telephone interview to assess for exposure to 19 different traumatic experiences in childhood or adulthood | None | <ul style="list-style-type: none"> • Individuals w/ any prior trauma more likely to have PTSD as the result of later trauma than individuals with no prior trauma • Of variables studied, assaultive violence associated w/ highest risk of developing PTSD from subsequent events • <i>Limitations:</i> Subjects w/ PTSD sx's may overreport traumatic events, data are retrospective, common risk factors for both PTSD & trauma exp. may account for association |
| Brown, Anda, Tiemeier, Felitti, Edwards, Croft, & Giles (2009). Adverse childhood experiences and the risk of premature mortality | <ul style="list-style-type: none"> • 17,337 adult members of a large HMO | To examine the relationship between the cumulative impact of ACEs and premature mortality in adults | Prospect-vie cohort design | NDI for vital status; Standard expected years of life lost (YLL); Years of potential life lost (YPLL), Relative risk of death from all causes at ≤ 75 | ACE Study Questionnaire | None | <ul style="list-style-type: none"> • ACE scores of 6 or more were associated w/ risk of death • People w/ 6 or more ACES died an avg of 20 yrs earlier than those w/o ACES; Those with 6+ ACES also had an avg of 3x more YLL per death than those w/o an ACE • <i>Limitations:</i> ACEs may be underreported, relatively few deaths, may be measurement error in covariates, data analysis emphasis was on estimates not sig. for interference |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|--|---|--|------------------------------------|---|---|---|---|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Buckley, Mozley, Bedard, Dewulf, & Greif (2004). Preventative health behaviors, health-risk behaviors, physical morbidity, and health-related role functioning impairment in veterans with post-traumatic stress disorder. | <ul style="list-style-type: none"> • 826 outpatients at a VA PTSD clinic • Mean age 51.69 • 81.9% Caucasian | To examine the relationships between health behaviors, physician-diagnosed medical problems, role-functioning impairment because of physical morbidity, and PTSD | Archival descriptive research | <ul style="list-style-type: none"> • <i>Health Risk:</i> Health Risk Appraisal (59-item self-report instrument) • <i>Self-Reported Medical Sxs:</i> Medical Info. Form • BMI • <i>Alcohol/Drug Use:</i> AUDIT • <i>Role Functioning:</i> SF-36 | None | <ul style="list-style-type: none"> • Clinician Administered PTSD Scale (CAPS) and Structured Clinical Interview for DSM-IV | <ul style="list-style-type: none"> • Compared to the age-adjusted general population, rates of asthma, arthritis, tuberculosis, diabetes, stroke, cancer, myocardial infarction, cirrhosis of the liver, and smoking behavior were elevated in the sample • Compared to the age-adjusted general population, rates of role-functioning impairment due to physical morbidity were elevated |
| Cabrera, Hoge, Bliese, Castro, & Messer (2007). Childhood adversity and combat as predictors of depression and post-traumatic stress in deployed troops. | <ul style="list-style-type: none"> • 4,529 male soldiers who had not been deployed to Iraq • 64.6% 18-24 yrs • 70.2% Caucasian • 2,392 male soldiers 3 mo.s after returning from Iraq • 56.8% 18-24 yrs • 69.3% Caucasian | <ul style="list-style-type: none"> • To explore the relationship btwn ACE, depression, and PTSD in male soldiers who have not been deployed to Iraq and those who recently returned from Iraq | Quantitative, Descriptive research | None | <ul style="list-style-type: none"> • Modified version of the ACE Study questionnaire (assessed six ACEs) | <ul style="list-style-type: none"> • <i>Depress-ion:</i> Patient Health Questionnaire (PHQ) • <i>PTSD:</i> PTSD Checklist (PCL) • <i>Combat exposure:</i> 29-item Likert measure scale | <ul style="list-style-type: none"> • PTSD rates higher in post-Iraq sample • ACE and combat exposure sig. predictors of depression and PTSD sx's. • Interaction btwn ACE and combat exposure also a sig. predictor of depression and PTSD sx's • <i>Limitations:</i> retrospective self-report ACE data, part of pre-deployment sample had been to Afghanistan |
| Chapman, Whitfield, Felitti, Dube, Edwards, & Anda (2004). Adverse childhood experiences and the risk of depressive disorders in adulthood. | <ul style="list-style-type: none"> • 9,460 members of a large HMO in the U.S. who responded to two sets of surveys • 46% men; 54% women • Mean age 56.6 yrs • 75% Caucasian | To investigate the relationship between types and number of adverse childhood experiences and lifetime risk of depressive disorders | Survey design | None | ACE Study Questionnaire (some questions adapted from the CTS) | None | <ul style="list-style-type: none"> • More than half of respondents reported at least one ACE; 20.8% of women and 14% of men reported experiencing 3 or more ACES • The number of ACEs was found to be related to both lifetime risk for depressive disorders and risk for a recent depressive disorder in a graded fashion for both men and women |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
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| | | | | Health/ Mortality | Child Abuse | Other | |
| Chartier, Walker, & Naimark (2010). Separate and cumulative effects of adverse childhood experiences in predicting adult health and health care utilization | <ul style="list-style-type: none"> • 9,953 men and women living in Ontario, Canada > age 15 • 51% women • 59% 12+ years ed | <ul style="list-style-type: none"> • To explore the contributions of ACEs to adult health and health care utilization • To assess the cumulative impact of ACEs on adult health and health care utilization | Survey design | <ul style="list-style-type: none"> • Survey questions to assess: # of health probs, self-rated health, pain that restricts daily activity, & disability d/t phys health • Adult healthcare utilization based on # of visits to gen. prac., ER, or other professional in past 12 mos. | <ul style="list-style-type: none"> • CPA questions adapted from the CTS • CSA questions adapted from the National Pop. Survey of Canada | <ul style="list-style-type: none"> • Survey questions to assess low parental education, psychopathology, marital conflict, and poor parent-child relationship | <ul style="list-style-type: none"> • 26% of sample reported CPA • Increased risk for adult health problems increased with each ACE reported • CPA and CSA had a stronger influence than other ACEs on adult health • <i>Limitations</i>: Retrospective self-reports of abuse, cross-sectional design |
| Clancy et al. (2006). Lifetime trauma exposure in veterans with military-related posttraumatic stress disorder: Association with current symptomology. | <ul style="list-style-type: none"> • 422 male veterans diagnosed with PTSD at a VA PTSD clinic • Mean age 54 yrs • 41% White; 55% African American; 1% American Indian; 2% Hispanic; 1% Other • 78% Vietnam veterans; 11% Persian Gulf War veterans | <ul style="list-style-type: none"> • To examine whether exposure to trauma before, during, and/or after military service contributed to current levels of PTSD and adjustment • To investigate whether pre-military trauma was mediated or moderated by military trauma and its effects on current PTSD and adjustment | Archival descriptive research | <ul style="list-style-type: none"> • Self-reported health (assessing symptoms and chronic health problems) | <ul style="list-style-type: none"> • Traumatic Life Events Questionnaire | <ul style="list-style-type: none"> • CAPS-Diagnostic Version • Davidson Trauma Scale (DTS) • Combat Exposure Scale • Alcohol Use Disorders Identification Test • Beck Depression Inventory (BDI) • Cook-Medley Hostility Scale | <ul style="list-style-type: none"> • 22% of the sample reported a history of CPA • Childhood physical violence sig. associated with increased total health complaints • Total # of premilitary trauma categories sig. associated with increased scores on the DTS, combat exposure, and postmilitary traumas • <i>Limitations</i>: Retrospective self-report, causality cannot be determined, sample are homogenous and all help-seeking, trauma exposure not independently verified |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
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| | | | | Health/ Mortality | Child Abuse | Other | |
| Crawford, Drescher, & Rosen. (2009). Predicting mortality in veterans with posttraumatic stress disorder thirty years after Vietnam. | <ul style="list-style-type: none"> • 79,551 male PTSD+ Vietnam veteran outpts. seeking mental health tx at a VA • 58.8% white, non-Hispanic, 21.6% non-white and/or Hispanic • Mean age ~49 yrs | <ul style="list-style-type: none"> • To establish a model of predictors of mortality in veterans with PTSD who served in the Vietnam era | Archival, Descriptive | <ul style="list-style-type: none"> • <i>Vital Status</i>: VA BIRLS • <i>Cause of death</i>: NDI | None | <ul style="list-style-type: none"> • VA tx utilization, psychiatric, medical dxs, and demographics from VA files | <ul style="list-style-type: none"> • Mortality in the sample was nearly 2x the mortality rate of the general US population • Best predictor for mortality was recent medical hospitalization, then severity of med dx, and then presence of substance use d/o • Limitations: no assessment of validity/reliability of pt. dxs; smoking data not available; sample limited to male, PTSD+ Vietnam-era vets |
| David, Woodward, Esquenazi, & Mellman (2004). Comparison of comorbid physical illnesses among veterans with PTSD and veterans with alcohol dependence. | <ul style="list-style-type: none"> • 93 male veterans with in residential treatment • 55 with PTSD (Mean age 49.7; 62% White) • 38 with alcohol dependence; no PTSD or combat exposure (Mean age 48.3; 71% White) | <ul style="list-style-type: none"> • To investigate whether the prevalence of certain health problems differed between veterans with chronic PTSD and veterans with alcohol dependence | Quantitative, Descriptive research | <ul style="list-style-type: none"> • Structured interview to assess smoking and drug use • Medical history • Physical examination (incl. blood tests) | None | <ul style="list-style-type: none"> • Structured Clinical Interview for DSM-III-R (SCID) | <ul style="list-style-type: none"> • Pt.s with PTSD had significantly higher blood cholesterol, triglyceride levels, BMI, and were more likely to be obese than pt.s with alcohol dependence • Pt.s with PTSD were more likely to have osteoarthritis, diabetes, and heart disease than pt.s with alcohol dependence • <i>Limitations</i>: Small sample size; Veterans with PTSD may report more symptoms to acquire service-connected disability |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
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| | | | | Health/ Mortality | Child Abuse | Other | |
| Drescher, Rosen, Burling, & Foy (2003). Cause of death among male veterans who received residential treatment for PTSD. | <ul style="list-style-type: none"> • 1,866 male veterans who received residential PTSD treatment through the VA • Mean age at discharge 47 yrs • 66% Caucasian, 12% African American, 13% Hispanic, 4% Native American, 5% Other | <ul style="list-style-type: none"> • To ascertain whether external causes of death continue to be high in Vietnam veterans with PTSD • To explore how stress-related health risks contribute to behavioral and disease-related deaths in this population | Archival descriptive research | <ul style="list-style-type: none"> • <i>Vital status</i>: Internet search of the Social Security Death Index (SSDI) • <i>Cause of death</i>: NDI | None | None | <ul style="list-style-type: none"> • Veterans with PTSD at increased risk for death due to behavioral causes (accidents, suicide, deaths by police, effects of chronic substance use, or hepatitis) compared to the general pop. • Rates of death from non-behavioral causes (cancer, heart disease, and other diseases) were consistent with the general population |
| Dube, Anda, Felitti, Chapman, Williamson, & Giles (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the lifespan: Findings from the adverse childhood experiences study | <ul style="list-style-type: none"> • 17,337 adult members of a large HMO in CA • 46% male • Mean age 56 • 75% Caucasian | To examine the relationship between suicide attempts and number of adverse childhood experiences (ACEs) | Survey design | <ul style="list-style-type: none"> • Self-reported Lifetime Suicide Attempt: • Self-reported Alcoholism | <ul style="list-style-type: none"> • ACE Study Questionnaire (with some questions adapted from the CTS) | <ul style="list-style-type: none"> • <i>Depressed Affect</i>: Defined by a "Yes" response to, "Have you had or do you now have depression or feel down in the dumps?" | <ul style="list-style-type: none"> • Risk of suicide attempt was increased by exposure to any ACE • Graded relationship between the # of ACEs and ever attempting suicide • 2.2% of individuals w/o physical abuse ACE attempted suicide versus 7.8% of individuals w/ physical abuse ACE • <i>Limitations</i>: Retrospective self-report, Persons who report suicide attempts may recall childhood more negatively; No data about temporal relationship between ACEs and suicide attempts |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
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| | | | | Health/ Mortality | Child Abuse | Other | |
| Dube, Anda, Felitti, Edwards, & Croft (2002). Adverse childhood experiences and personal alcohol abuse as an adult. | <ul style="list-style-type: none"> • 17,337 adult members of a large HMO in the U.S. • 54% women (Mean age 56 yrs; 73% Caucasian) • 7,970 men (Mean age 58 yrs; 76% Caucasian) | To investigate the relationship between adverse childhood experiences and later risk of heavy alcohol use, self-reported alcohol abuse, alcoholism, and risk of marrying an alcoholic, stratified by a history of parental alcohol abuse | Survey design | <ul style="list-style-type: none"> • <i>Alcohol Use</i>: Self-reported heavy drinking, alcohol abuse, alcoholism, and marriage to an alcoholic | <ul style="list-style-type: none"> • ACE Study Questionnaire (with some questions adapted from the CTS) | None | <ul style="list-style-type: none"> • Risk of heavy drinking, self-reported alcohol problems, alcoholism, and marrying an alcoholic higher among individuals w/ one ACE than those w/ none • Strong graded relationship between ACE score and alcohol use outcomes (w/ or w/o an alcoholic parent) • 4+ ACEs and an alcoholic parent= highest risk for heavy drinking • <i>Limitations</i>: Retrospective self-report data |
| Dube, Felitti, Dong, Chapman, Giles & Anda (2003). Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: The adverse childhood experiences study. | <ul style="list-style-type: none"> • 8,613 adult members of a large HMO in CA • 54% women (Mean age 55 yrs; 73% white) • 46% men (Mean age 57 yrs; 75% white) | To explore the influence of stressful or traumatic experiences on the initiation and development of drug abuse. | Survey design; Retrospective cohort approach | <ul style="list-style-type: none"> • Lifetime drug use, age at initiation, drug problem, drug addiction, and IV drug use assessed via survey questions | <ul style="list-style-type: none"> • ACE Study question-naire (with some questions adapted from the CTS) | None | <ul style="list-style-type: none"> • Each indiv. ACE category increased the likelihood of early drug initiation and lifetime use • AS ACE score increased, so did likelihood of drug problems, drug addiction, and IV drug use in a dose-response manner • <i>Limitations</i>: reliance on retrospective self-report data; low # of ACEs in older pt.s may be due to premature mortality; no info. about the temporal rel. between ACES and drug use before 19 yrs |

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| | | | | Health/ Mortality | Child Abuse | Other | |
| Dube, Felitti, Dong, Giles, & Anda (2003). The impact of adverse childhood experiences on health problems: Evidence from four birth cohorts dating back to 1900. | <ul style="list-style-type: none"> • 17,337 adult members of a large HMO in the U.S. • 9,367 women/ 7,970 men • Mean ages: women 56 yrs; men 58 yrs • 75% Caucasian | <ul style="list-style-type: none"> • To investigate the graded relationship between the number of adverse childhood experiences and various health problems across different cohorts dating back to 1900 | Survey Design | <ul style="list-style-type: none"> • Survey questions to assess lifetime suicide attempt, 30+ sexual partners, STD, and identification as a cigarette smoker or alcoholic | <ul style="list-style-type: none"> • ACEs: Standardized Health Appraisal Center ACE questionnaire | <ul style="list-style-type: none"> • Survey questions to assess depressed affect | <ul style="list-style-type: none"> • As number of ACEs increased, participants were found to be at increased risk for depressed affect, suicide attempts, multiple sexual partners, STDs, cigarette smoking, and alcoholism in all four cohort groups • No significant differences were found between cohorts in the strength of these graded relationships |
| Edwards, Holden, Felitti, & Anda (2003). Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: Results from the adverse childhood experiences study. | <ul style="list-style-type: none"> • 8,667 adult members of a large HMO • 54.2% women • Mean age 55 yrs • 73.7% Caucasian; 10.9% Hispanic | To identify the prevalence of various combinations of ACEs and explore their relationship with adult mental health | Survey Design | <ul style="list-style-type: none"> • Family health history questionnaire (including current health behaviors and conditions) | <ul style="list-style-type: none"> • Family health history questionnaire • Q's about CSA, CPA, and witnessing maternal battering (some from CTS) • Emotional abuse subscale on the Childhood Trauma Questionnaire | <ul style="list-style-type: none"> • Mental health scale of the Medical Outcomes Study 36-item Short-Form Health Survey | <ul style="list-style-type: none"> • Prevalence of CPA was 20.6% (21.7% in men); Prevalence of CPA + CSA was 4.5% in men • Mental health score decreased in a dose-response manner as the number of abuse types increased • <i>Limitations:</i> HMO sample may not generalize; overrepresentation of older and Caucasian respondents; cannot make conclusions about the temporal sequence of abuse; reliance on self-report data |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
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| | | | | Health/ Mortality | Child Abuse | Other | |
| Felitti, Anda, Nordenberg, Williamson, Spitz, Edwards, Koss, & Marks. (1998). Relationship of child abuse and household dysfunction to many of the leading cause of death in adults. | <ul style="list-style-type: none"> 9,508 adults All participants had received prior medical evaluation at Kaiser Permanente <ul style="list-style-type: none"> 54% women Mean age 56 yrs 84% Caucasian | To describe relationships between adverse childhood experiences and public health problems such as disease risk, quality of life, health care utilization, and mortality | Survey Design | <ul style="list-style-type: none"> <i>Health Behaviors and Health Problems</i>: Behavioral Health Risk Factor Surveys and Third National Health and Nutrition Examination Survey | <ul style="list-style-type: none"> Author-generated ACE Study Questionnaire | None | <ul style="list-style-type: none"> Increased exposure to ACEs associated with increased risk for: smoking, severe obesity, physical inactivity, depressed mood, suicide attempts, alcoholism, use of illicit drugs, 50+ sexual intercourse partners, and a history of STDs Increased exposure to ACEs also associated with risk for diseases (incl. heart disease, cancer, chronic bronchitis, emphysema, hepatitis, jaundice, skeletal fractures), and self-reported poor health |
| Fuller-Thomson, Brennenstuhl, & Frank (2010). The association between childhood physical abuse and heart disease in adulthood: Findings from a representative community sample | <ul style="list-style-type: none"> 13,093 Canadian adults <ul style="list-style-type: none"> 51.6% women 86.4% White 39.1% ages 12-39 | To assess the relationship between childhood physical abuse and adulthood heart disease, while controlling for co-occurring childhood stressors, adult health risk behaviors, adult stressors, adult depression, and high blood pressure | Cross-sectional Survey Design | <ul style="list-style-type: none"> Survey question to assess heart disease diagnosis | <ul style="list-style-type: none"> Survey questions assessing self-reported CPA | <ul style="list-style-type: none"> Survey questions to assess childhood stressors (parental divorce, unemployment, & addiction), smoking status, physical activity, alcohol use, dx of depression, BMI, & Adult stressors: (educational attainment, self-perceived stress, diabetes) | <ul style="list-style-type: none"> CPA was associated with significantly more risk for heart disease, even when controlling for demographics and risk factors <i>Limitations</i>: Cross-sectional design, CPA data based on retrospective self-report, adults with unhealthy behaviors/stressors may be more or less likely to report CPA |

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| | | | | Health/ Mortality | Child Abuse | Other | |
| Gahm, Lucenko, Retzlaff, & Fukuda (2007). Relative impact of adverse events and screened symptoms of posttraumatic stress disorder and depression among active duty soldiers seeking mental health care. | <ul style="list-style-type: none"> • 1,626 active duty military men and women seen in an outpatient mental health clinic • 80% men • Mean age 29.8 yrs • 61% White, 13% African American, 13% Hispanic, 13% Other | <ul style="list-style-type: none"> • To explore the impact of demographics and childhood/adulthood trauma on PTSD and depression symptoms | Survey Design | None | <ul style="list-style-type: none"> • ACEs: ACE items in the Navy's Recruitment Assessment Program questionnaire | None | <ul style="list-style-type: none"> • 60.8% of participants reported childhood physical abuse; 45.2% reported witnessing violence between their parents; 11.6% reported childhood sexual abuse • Exposure to ACEs was found to be positively associated with PTSD and depression in the participants |
| Hillis, Anda, Felitti, Nordenberg, & Marchbanks (2000). Adverse childhood experiences and sexually transmitted diseases in men and women: A retrospective study. | <ul style="list-style-type: none"> • 9,323 adult members of a large U.S. HMO • 4263 men (80.9% White; 7.5% Asian) • 5060 women (77.2% White; 5.9% Asian) | <ul style="list-style-type: none"> • To examine the association between self-reported ACEs and STDs in both men and women | Survey design | <ul style="list-style-type: none"> • STDs: Self-report of "venereal disease" as part of standard medical history | <ul style="list-style-type: none"> • ACE study questionnaire | None | <ul style="list-style-type: none"> • Risk of STD was higher for men than for women • For men and women, prevalence of reporting an STD increased as ACEs increased • This finding weakened when behavioral risk factors (e.g. # sex partners, drug use, etc.) were considered • <i>Limitations:</i> self-report data, use of outdated term "venereal", ppl w/ incomplete ACE data classified as having no ACEs, no temporal data of STDs in rel. to ACEs |

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| | | | | Health/ Mortality | Child Abuse | Other | |
| Hoge, Terhakopian, Castro, Messer, & Engel (2007). Association of posttraumatic stress disorder with somatic symptoms, health care visits, and absenteeism among Iraq war veterans | <ul style="list-style-type: none"> • 2,863 Army soldiers • 80.5% < 30 yrs • 97.2% male | <ul style="list-style-type: none"> • To explore the relationship between PTSD and physical health in veterans one year after deployment, controlling for combat injury | Survey design | <ul style="list-style-type: none"> • Soldiers' ratings of overall health, # sick call visits, and # missed workdays in last month • Somatic Symptoms: Patient Health Questionnaire | None | <ul style="list-style-type: none"> • PTSD: National Center for PTSD Checklist • Depression: Patient Health Questionnaire Scale • Alcohol Misuse: 2-item screening instr. | <ul style="list-style-type: none"> • Poor self-rated health, 2+ sick visits, 2+ workdays, and somatic sx's all endorsed sig. more often in those w/ PTSD than those w/o • Results remained significant after controlling for combat injury • Limitations: cross-sectional, self-report data, data based only on soldiers from high-risk combat infantry units cannot generalize to all soldiers, study group was not randomly selected. |
| Jacupcak, Luterek, Hunt, Conybeare, & McFall (2008). Posttraumatic stress and its relationship to physical health functioning in a sample of Iraq and Afghanistan war veterans seeking postdeployment VA health care. | <ul style="list-style-type: none"> • 108 Iraq or Afghanistan War veterans who sought medical and/or mental health treatment at a VA clinic • Mean age 33.3 yrs • 96.3% male • 64.8% Caucasian; 5.6% African American; 4.6% Asian/Pacific Islander; 2.8% Hispanic; 10.2% Other | <ul style="list-style-type: none"> • To explore the relationship between PTSD and physical health in a sample of Iraq and Afghanistan War veterans seeking health care after deployment | Archival descriptive research | <i>Physical health functioning: SF-36 Health Survey (assesses physical functioning, role functioning, bodily pain, and general health)</i> | None | <ul style="list-style-type: none"> • <i>Combat exposure:</i> Items from Laufer's Combat Exposure Questionnaire & the Desert Storm Trauma Questionnaire • <i>Smoking status:</i> self-report • <i>Problem drinking:</i> Patient History Questionnaire | <ul style="list-style-type: none"> • PTSD status was significantly negatively associated with all measures of health functioning • Results were consistent even after controlling for demographic variables, combat and chemical exposure, and health risk behaviors |

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| | | | | Health/ Mortality | Child Abuse | Other | |
| Johnson, Fontana, Lubin, Corn, & Rosenheck (2004). Longterm course of treatment-seeking vietnam veterans with posttraumatic stress disorder: mortality, clinical condition, and life satisfaction. | <ul style="list-style-type: none"> • 51 treatment seeking male warzone veterans w/ PTSD <ul style="list-style-type: none"> • Mean age 42.7 yrs • 86% Caucasian | <ul style="list-style-type: none"> • To better understand the long term course of PTSD in male warzone veterans by investigating the clinical and overall health status of the population over the course of six years | Longitudinal study | <ul style="list-style-type: none"> • <i>Cause of death</i>: Interview with family member • Veteran's ratings of functioning (physical health, substance abuse, PTSD symptoms, etc.) | None | <ul style="list-style-type: none"> • War Stress Interview- Follow-up Version (WSI) • CAPS • Combat Exposure Scale (CES) | <ul style="list-style-type: none"> • 17% of the population had died during the 6-year course of the study (a rate higher than the expected rate in the gen. pop.) • Causes of death included drug overdose, MVA, stroke, heart failure, and liver disease • Combat exposure and severity of PTSD symptoms were not associated with vital status • <i>Limitations</i>: small, selective sample may not generalize |
| Kang & Bullman (1996). Mortality among U.S. veterans of the Persian Gulf War. | <ul style="list-style-type: none"> • 695,516 Persian Gulf War veterans <ul style="list-style-type: none"> • 92.8% male; • 67.6% Caucasian, • 22.6% African American • 746,291 non-Gulf War veterans who served in the same era <ul style="list-style-type: none"> • 86.7% male; • 69.6% Caucasian, • 21.5% African American | <ul style="list-style-type: none"> • To explore postwar mortality rates between veterans who served in the 1990-1991 Persian Gulf War and veterans who served other duties in 1990-1991 | Retrospective cohort study | <ul style="list-style-type: none"> • <i>Vital Status</i>: BIRLS with records matched against deaths reported to SSA; • <i>Cause of Death</i>: Death certificates from VA, Federal Records Center, and state vital statistics offices | None | None | <ul style="list-style-type: none"> • Gulf War veterans found to have significantly higher mortality rates than non-Gulf War veterans • Increased mortality was due to excess deaths via accidents • Gulf War veterans and non-Gulf War veterans both had sig. lower mortality rates than the general population • <i>Limitations</i>: Ill military personnel excluded from deployment to the Persian Gulf, reliance on death certificates; lack of data on potential risk factors |

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| | | | | Health/ Mortality | Child Abuse | Other | |
| Kang & Bullman (2001). Mortality among U.S. veterans of the Persian Gulf War: 7 year follow-up. | <ul style="list-style-type: none"> 621,902 Persian Gulf War veterans <ul style="list-style-type: none"> 93% male; 67.4% Caucasian, 23% African American; 746,248 non-Gulf war veterans <ul style="list-style-type: none"> 86.7% male; 69.6% Caucasian, 21.5% African American | To investigate long-term health consequences in 1991 Persian Gulf War veterans by comparing mortality rates and cause of death with non-Gulf war veterans who served during the same time period | Retrospective cohort design | <ul style="list-style-type: none"> <i>Vital Status:</i> VA BIRLS and SSA Master Beneficiary Record <i>Cause of Death:</i> Death certificates from VA regional office, federal record center, or National Death Index | None | None | <ul style="list-style-type: none"> For males, Gulf War vets had lower mortality rates from overall and natural causes but were at increased risk for death due to all accidents and motor vehicle accidents (MVAs) compared to non-Gulf War vets Gulf War vets and non-Gulf War vets both had sig. lower overall mortality rates than the general pop. In Gulf War vets, risk of death due to MVAs was found to decrease over time, while death due to disease steadily increased <i>Limitations:</i> Excess deaths due to HIV in non-Gulf vets; Reliance on death certificates; Lack of data on potential risk factors |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
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| | | | | Health/ Mortality | Child Abuse | Other | |
| Kinder, Bradley, Katon, Ludman, McDonell, & Bryson (2008). Depression, posttraumatic stress disorder, and mortality. | <ul style="list-style-type: none"> 35,715 primary care outpt.s from 7 VA medical centers <i>No depression or PTSD</i> = 96.2% male; mean age 64 yrs; 72.7% Caucasian <i>Depression only</i> = 94.8% male; mean age 60 yrs; 78.2% Caucasian <i>PTSD only</i> = 99.5% male; mean age 58 yrs; 72.3% Caucasian <i>Both PTSD and Depression</i> = 97% male; mean age 55 yrs; 77.9% Caucasian | To find out whether depression and/or PTSD was related to all-cause mortality in a veteran patients | Archival Descriptive research | <ul style="list-style-type: none"> <i>Mortality</i>: Vital status and date of death available in AQUIP archive, determined by: Veteran's Health Information Systems and Technology Architecture (VISTA) and VA's Beneficiary Identification and Records Locator System (BIRLS) | None | None | <ul style="list-style-type: none"> Pts with a history of depression alone at increased risk for death compared to those with neither depression nor PTSD When controlling for covariates and current depressive symptoms, depression and PTSD associated with lower risk of death compared to pts w/o a history of either diagnosis Pts with a history of PTSD w/o depression were not found to be at increased risk for death <i>Limitations</i>: No data about duration of PTSD or depression; PTSD assessed decades after duty so many PTSD+ vets may have already died; Comparison group with neither PTSD or depression is limited to other vet outpt.s, not general pop. |
| King, D., King, L., Foy, Keane, & Fairbank (1999). Posttraumatic stress disorder in a national sample of female and male vietnam veterans: risk factors, war-zone stressors, and resilience-recovery variables. | <ul style="list-style-type: none"> 1,632 Vietnam theater veterans 1,200 men; 432 women | To investigate an integrated model using prewar risk variables, war-zone stressors, postwar resilience-recovery variables, and PTSD. | Archival, cross-sectional descriptive research | None | <ul style="list-style-type: none"> Survey data to assess early trauma history (index of traumatic experiences) | <ul style="list-style-type: none"> Prewar SES, rel. w/ father, childhood antisocial beh., warzone/ life stressors, hardiness, social support <i>PTSD</i>: Keane's Mississippi Scale & adapted Diagnostic Interview Schedule | <ul style="list-style-type: none"> For men, prewar early trauma history was sig. associated w/ PTSD Early trauma history also directly associated w/ postwar stressful life events <i>Limitations</i>: reliance on cross-sectional and retrospective self report data; cannot make conclusions about the directions of the relationships between variables |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|--|---|---|------------------------------------|----------------------|--|--|---|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Lansford, Dodge, Pettit, Bates, Crozier, & Kaplow (2002). A 12-year prospective study of the long-term effects of early childhood physical maltreatment on psychological, behavioral, and academic problems in adolescence | <ul style="list-style-type: none"> • Random community sample of 585 children approached at start of kindergarten • 52% male • 82% Caucasian, 16% African American, 2 % other racial backgrounds | <ul style="list-style-type: none"> • To investigate whether childhood physical abuse has long-lasting psychological, behavioral, or academic effects | Longitudinal study | None | Developmental interview with child's mother | <ul style="list-style-type: none"> • Retro-spective Infant Characteristics Questionnaire (completed by mother) • Official school records from 9th-11th grades • Child Behavior Checklist and Youth Self-Report Form of the CBCL | <ul style="list-style-type: none"> • Adolescents who experienced childhood physical maltreatment were found to be more likely to exhibit aggression, anxiety, depression, dissociation, PTSD symptoms, social problems, thought problems, and social withdrawal than non-maltreated peers • The above findings were not found to be dependent on other ecological characteristics associated with maltreatment |
| Lapp, Bosworth, Strauss, Stechuchak, Horner, Calhoun, Meador, Lipper, & Butterfield (2005). Lifetime sexual and physical victimization among male veterans with combat-related posttraumatic stress disorder | <ul style="list-style-type: none"> • 133 male veterans with PTSD who were admitted to a VA inpatient psychiatric unit • Mean age 50.04 yrs • 50% Caucasian; 47% African American, 4% other ethnic background | <ul style="list-style-type: none"> • To find out the lifetime prevalence of victimization, what stage of life the men were victimized in, and what the rates of physical versus sexual victimization were among a sample of male veterans with combat-related PTSD | Quantitative, Descriptive research | None | <ul style="list-style-type: none"> • <i>Childhood Sexual Trauma: Sexual Abuse Exposure Questionnaire (SAEQ)</i> • <i>Childhood Physical Abuse: Three questions from the violence subscale of the Conflicts Tactics Scale (CTS)</i> | <ul style="list-style-type: none"> • <i>Adult Trauma History: Physical assault and sexual assault subscales from the CTS</i> | <ul style="list-style-type: none"> • 96% of participants had experienced some type of victimization throughout their lifetime • 60% reported childhood physical abuse; 41% reported childhood sexual abuse • 93% reported adulthood physical abuse; 20% reported adulthood sexual abuse • <i>Limitations: Measures of PTSD symptoms severity based on self-report; PTSD diagnoses not confirmed</i> |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|--|---|--|------------------------------------|--|--|--|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| LeardMann, Smith, & Ryan (2010). Do adverse childhood experiences increase the risk of postdeploy-ment posttraumatic stress disorder in US Marines? | <ul style="list-style-type: none"> • 8,391 men who responded to the Marine Recruit Assessment Program Survey and were deployed between 2001 and 2004. • 63.8% White, 54% aged 17-18 | <ul style="list-style-type: none"> • To prospectively explore the relationships btwn ACEs and PTSD in Marines following OIE/OEF deployments | Prospective cohort design | None | <ul style="list-style-type: none"> • Questions adapted from the ACE Study Questionnaire | <ul style="list-style-type: none"> • Survey questions assessing demographics, alcohol use, smoking, self-reported mental health status, visiting a MH professional, prior trauma • Defense Manpower Data Center to access info about deployment • Pt. med records to assess PTSD dx | <ul style="list-style-type: none"> • Marines who reported childhood physical neglect were more likely to have a dx of PTSD after deployment • 2 or more ACEs was associated with increased risk for postdeployment PTSD and other MH disorders • Other ACEs (including CPA) were not independently assoc. w/ increased risk for PTSD • <i>Limitations:</i> Only studied 2 years postdeployment, not possible to control for predeployment PTSD, ACEs were based on retrospective self-report |
| MacFarlane, Hotopf, Maconochie, Blatchley, Richards, & Lunt (2005). Long-term mortality among Gulf war veterans: Is there a relationship with experiences during deployment and subsequent morbidity? | <ul style="list-style-type: none"> • 51,753 UK Gulf War veterans • 50,808 non-deployed UK military personnel • Groups matched for age, sex, service branch, and rank | <ul style="list-style-type: none"> • To investigate longer term mortality and cause of death in Gulf War veterans • To examine whether there is a relationship between self-reported deployment experiences and morbidity or mortality | Quantitative, Descriptive research | <ul style="list-style-type: none"> • <i>Vital Status and Cause of Death:</i> Office for National Statistics; National Health Service central register • Survey to assess general health, reproductive health, smoking, alcohol use, etc. | None | <ul style="list-style-type: none"> • Survey to assess self-reported experiences during the Gulf War | <ul style="list-style-type: none"> • No overall diff.s in mortality rates btwn groups, but slightly lower disease-related deaths and sig. higher externally-caused deaths in Gulf war vets • Excess external deaths occurred pre-1997 rather than post-1997 • Strongest relationship w/ transport accident deaths • No sig. relationship btwn self-reported Gulf War experience and mortality or cause of death |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|---|--|------------------------------------|---|---|--|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| O'Toole & Catts (2008). Trauma, PTSD, and physical health: An epidemiological study of Australian Vietnam veterans. | <ul style="list-style-type: none"> • 641 male Australian theater veterans from a random sample of 1000 Australian vets. • Mean age 46.6 years • almost all Caucasian | <ul style="list-style-type: none"> • To explore how combat exposure and PTSD contribute to physical health, when examined separately | Quantitative, Descriptive research | <ul style="list-style-type: none"> • <i>Health Status</i>: Standardized interview used by the Australian Bureau of Statistics National Health Survey | None | None | <ul style="list-style-type: none"> • Vets had significantly more recent healthcare usage, health actions, recent and chronic medical conditions than the general population • Findings were not impacted by physical exercise, BMI, smoking, or alcohol use • PTSD was found to be more consistently related to negative health outcomes than combat exposure alone or subjective experience of exposure (via peritraumatic dissociation) |
| Pizarro, Silver, & Prause (2006). Physical and mental health costs of traumatic war experiences among civil war veterans. | <ul style="list-style-type: none"> • 15, 027 Civil War veterans | <ul style="list-style-type: none"> • To explore the role of traumatic war experiences in predicting post-war nervous and physical diseases and mortality using archives from Civil War veterans | Archival Descriptive research | <ul style="list-style-type: none"> • Pension files: number of self-reported disease claims, post-military health records, and age of death | None | <ul style="list-style-type: none"> • Military records: age of enlistment, SES, traumatic exposure | <ul style="list-style-type: none"> • Greater %age of company killed associated with GI and cardiac disease and comorbid physical and nervous disease • POW experience associated with increased risk for early death |
| Rosen & Martin (1996). Impact of childhood abuse history on psychological symptoms among male and female soldiers in the U.S. army. | <ul style="list-style-type: none"> • 1,365 soldiers on active duty at three different Army posts in the U.S. • 78% male (Mean age 26.6; 24% African American) • 22% female (Mean age 25.3; 41% African American) | <ul style="list-style-type: none"> • To explore the effects of different types of childhood abuse on adult psychological symptoms in men and women soldiers | Survey Design | None | <ul style="list-style-type: none"> • Shortened version of the Childhood Trauma Questionnaire | <ul style="list-style-type: none"> • Brief Symptom Inventory | <ul style="list-style-type: none"> • 50% of male soldiers and 48% of female soldiers met criteria for childhood physical abuse • All types of abuse were significantly associated with all of the psychological symptom outcomes • Physical-emotional abuse was associated with the strongest effects on psychological outcome • <i>Limitations</i>: Reliance on self-report data |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|--|--|------------------------------------|---|-------------|---|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Schnurr, Spiro, & Paris (2000). Physician-diagnosed medical disorders in relations to PTSD symptoms in older male military veterans. | <ul style="list-style-type: none"> • 605 male combat veterans from the VA Normative Aging Study (NAS) • 98% White • Mean age 43.9 yrs • 85% served in WWII (remainder served in Korean conflict) | <ul style="list-style-type: none"> • To investigate the relationship between PTSD and physician-diagnosed physical health | Descriptive research | <ul style="list-style-type: none"> • <i>Health Risk Behaviors:</i> Cornell Medical Index (smoking), CAGE, BMI • <i>Medical Diagnoses:</i> Made by NAS physicians during routine health exams scheduled every 3 yrs since 1985 | None | <ul style="list-style-type: none"> • <i>Combat exposure:</i> Keane's Combat Exposure Scale (CES) plus 2 additional items • <i>PTSD:</i> Mississippi Scale for Combat-Related PTSD | <ul style="list-style-type: none"> • PTSD sx's moderately correlated w/ health risk variables (smoking, alcohol consumption, BMI) • Increased PTSD sx's associated with increased risk for arterial disorders, lower gastrointestinal disorders, dermatologic disorders, and musculoskeletal disorders • <i>Limitations:</i> NAS men were initially selected for good health; study only included participants who lived long enough to participate; small # of participants had elevated PTSD scores; PTSD not measured until 1990 |
| Spiro, Hankin, Mansell, & Kazis. (2005). Posttraumatic stress disorder and health status: The veterans health study. | <ul style="list-style-type: none"> • 2,425 male VA ambulatory care pts • 456 Dep only (Mean age 61 yrs) • PTSD w/ or w/o depression (Mean age 56 yrs) • No Dep or PTSD (Mean age 64 yrs) | <ul style="list-style-type: none"> • To examine the association between PTSD and health status in male veterans | Longitudinal, descriptive research | <ul style="list-style-type: none"> • SF-36 (36-item measure assessing 8 domains of functioning and well-being) • Comorbidity Index to assess 30 physical/medical conditions | None | <ul style="list-style-type: none"> • <i>PTSD:</i> PTSD Checklist for Civilians (PCL-C), Traumatic Stress Schedule, Combat Scale • <i>Depression:</i> Center of Epidemiological Studies-Depression scale | <ul style="list-style-type: none"> • For all health status scales, pt.s with PTSD scored significantly lower than pt.s with depression and pt.s with neither depression nor PTSD • Pt.s with PTSD also reported more medical conditions than either group • <i>Limitations:</i> self-report measures, cross-sectional data |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|--|---|---|---|--|--|---|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Springer, Sheridan, Kuo, & Carnes (2007). Long-term physical and mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. | <ul style="list-style-type: none"> • 2,051 men and women of the WI Longitudinal Study (a sample of siblings who graduated from WI high schools in 1957) who responded to a 1994 survey • Over half female • Almost all Caucasian • Mean age 55 yrs | <ul style="list-style-type: none"> • To explore how childhood physical abuse impacts different aspects of adult health | Survey design | <ul style="list-style-type: none"> • <i>Physical Health</i>: Modified version of the Duke Older Adults Research Survey | <ul style="list-style-type: none"> • <i>CPA and childhood adversity</i>: questions based on the CTS and self-report questionnaires | <ul style="list-style-type: none"> • <i>Mental Health</i>: <ul style="list-style-type: none"> • Depression: Center for Epidemiological Studies Depression Scale (CES-D) • Anxiety and Anger: Spielberger's Anxiety and Anger scales | <ul style="list-style-type: none"> • 11.4% of respondents reported CPA • CPA associated with poorer adult health (more diagnosed illnesses, physical sx's, anxiety, anger, and depression) • Heart disease was found to be significantly greater in those with a history of CPA than those w/o; diabetes and cancer were not found to be greater |
| Surtees, Wainwright, Day, Brayne, Luben, & Khaw (2003). Adverse experience in childhood as a developmental risk factor for altered immune status in adulthood. | <ul style="list-style-type: none"> • Men and women ages 40-74 from the UK • 11,367 participants attended the first health check; 11,857 attended the second health check | <ul style="list-style-type: none"> • To explore whether adverse childhood experience is associated with immune system status (peripheral leukocyte count) in adulthood | <ul style="list-style-type: none"> • Population-based cohort study, Quantitative | <ul style="list-style-type: none"> • Non-fasting blood samples: white blood cell counts and leukocyte differentiation counts | <ul style="list-style-type: none"> • Questions about parental divorce, parental unemployment, traumatic experience, being sent away from home, parental substance abuse, and childhood physical abuse | <ul style="list-style-type: none"> • Personality Deviance Scale (PDS-R) • Structured self-assessment of psychiatric sx's • Blood pressure, height, weight, forced expiratory volume of gas, vitamin C concentration • Alcohol use and lifetime smoking | <ul style="list-style-type: none"> • Positive association between early adverse experiences and lymphocyte counts at both health checks • Lifestyle factors (incl. smoking and BMI) accounted for about 1/2 of this association • <i>Limitations</i>: retrospective self-report data, possible confounding variables not considered, failure to exclude those w/ minor immune-related med conditions |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|---|---|---|--|---|-------------|--|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| Wagner, Wolfe, Rotnitsky, Proctor, & Erickson (2000). An investigation of the impact of posttraumatic stress disorder on physical health. | <ul style="list-style-type: none"> • 2,301 Gulf War veterans • 92% male • Mean age males 30.8 yrs • Males 86.7% Caucasian; 5.4% African-American; 3.7% Hispanic; 4.2% Other | <ul style="list-style-type: none"> • To study the relationship among PTSD symptoms, gender, and self-reported health problems both at one given point in time, and two years later | Quantitative descriptive | <ul style="list-style-type: none"> • <i>Physical Health Problems:</i> Somatic scale of the Brief Symptom Inventory; subset of the Health Symptom Checklist (at follow-up only) | None | <ul style="list-style-type: none"> • Mississippi Scale for Combat-Related PTSD • Combat Exposure Scale | <ul style="list-style-type: none"> • PTSD symptomology at initial assessment was predictive of self-reported health problems 2 years later, even after controlling for demographics, combat exposure, and initial health problems • <i>Limitations:</i> Health Symptom checklist was not administered at initial assessment; results may not generalize to different populations; health measures relied only on self-report |
| Watanabe & Kang (1995). Military service in Vietnam and the risk of death from trauma and selected cancers. | <ul style="list-style-type: none"> • 10,716 veterans who served in Vietnam • 90% White; 8.8% Black • 9,346 veterans who never served in Vietnam • 91.9% White; 7.2% Black | <ul style="list-style-type: none"> • To investigate the postservice mortality of Marine Vietnam veterans and Marine veterans who did not serve in Vietnam | Retrospective cohort design, archival research | <ul style="list-style-type: none"> • <i>Vital Status:</i> VA BIRLS; random subset matched against NDI • <i>Cause of Death:</i> Death certificates coded via ICD-8 | None | None | <ul style="list-style-type: none"> • Both groups of Marines had mortality rates that were significantly lower than the general population • Vietnam Marines had significantly more deaths from all causes and external causes compared to non-Vietnam Marines • Excess all-cause deaths for Vietnam veterans slightly higher in the first 5 yrs of follow-up; external causes and deaths from MVA did not show this pattern |

| Author/ Year/Title | Population/ Sample | Research Objective | Research Design | Variable Measures | | | Relevant Findings/Limitations |
|--|---|---|-----------------------------|--|--|-------|--|
| | | | | Health/ Mortality | Child Abuse | Other | |
| White & Widom (2003). Does childhood victimization increase the risk of early death? A 25-year prospective study | <ul style="list-style-type: none"> • 908 participants w/ history of abuse and/or neglect as documented in county court records (49% male; 35% Black; Mean age at follow-up 32.6 yrs) • 667 matched controls (50% male; 31% Black; Mean age at follow-up 32.5 yrs) | <ul style="list-style-type: none"> • To compare adulthood mortality rates and causes of death between individuals with a history of court-documented abuse/neglect and a matched group of individuals without such history | Quantitative, Cohort design | <ul style="list-style-type: none"> • <i>Vital Status</i>: NDI • <i>Cause of death</i>: Death certificates; corroboration with family members when possible | <ul style="list-style-type: none"> • <i>Physical Abuse, Sexual Abuse & Neglect</i>: Juvenile court petitions and adult criminal court records | None | <ul style="list-style-type: none"> • No sig. mortality differences btwn the abused/neglected group and control group • Some differences in cause of death were observed but none were statistically significant • <i>Limitations</i>: Sample relatively young at follow up; small # of deaths; only 83% of original sample was found; Cause of death was only known for 70% of sample; validity probs w/ NDI; intervention may have protected the abused/neglected sample; members in the control grp may have experienced abuse w/o their case coming through the courts |

Abbreviations:

ACE = Adverse Childhood Experience
 AUDIT = Alcohol Use Disorders Identification Test and Drug Abuse Screening Test
 BIRLS = Beneficiary Identification Record Locator Subsystem
 CAPS = Clinician Administered PTSD Scale
 CPA = Childhood physical abuse
 CSA = Childhood sexual abuse
 CTS= Conflict Tactics Scale
 DMF = Death Master File
 Dx = Diagnosis
 NDI= National Death Index
 SSA = Social Security Administration
 Sx = Symptom
 VA = Veterans Administration

Appendix C

Pepperdine University IRB Approval

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

February 16, 2010

Ann Lushner
[REDACTED]**Protocol #: P1209D09****Project Title: *Childhood Physical Abuse and Adulthood Mortality in Treatment-Seeking Male Veterans with Combat-Related PTSD***

Dear Ms. Lushner:

Thank you for submitting your application, *Childhood Physical Abuse and Adulthood Mortality in Treatment-Seeking Male Veterans with Combat-Related PTSD*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. David Foy, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - <http://www.nhtrairing.com/ohs/site/guide/ines/45cfr46.htm>) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(4) states:

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

Category (4) of 45 CFR 46.101, research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRE as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy manual" at <http://www.pepperdine.edu/irb/graduate/>).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,



Doug Leigh, Ph.D.
Associate Professor of Education
Pepperdine University
Graduate School of Education and Psychology
6100 Center Dr. 5th Floor
Los Angeles, CA 90045
dleigh@pepperdine.edu
(310) 569-2389

cc: Dr. Leu Kala, Associate Provost for Research & Assistant Dean of Research, Seaver College
Ms. Ann Kratz, Human Protections Administrator
Dr. Doug Leigh, Chair, Graduate and Professional Schools IRB
Ms. Jean Kang, Manager, Graduate and Professional Schools IRB
Dr. David Foy
Ms. Cheryl Saunders

Appendix D

Data Use Agreement

DATA TRANSFER AGREEMENT

AGREEMENT FOR EXCHANGE BETWEEN VETERANS HEALTH ADMINISTRATION (VHA), VA PALO ALTO HEALTH CARE SYSTEM AND PEPPERDINE UNIVERSITY

Purpose:

This Agreement establishes the terms and conditions under which the VA PALO ALTO HEALTH CARE SYSTEM will provide, and DR. DAVID FOY AND HIS RESEARCH TEAM AT THE PEPPERDINE UNIVERSITY will collaborate on data analysis and publication. The following research information will be shared with Dr. Foy and his team for 360 days:

- 1) De-identified PTSD clinical data and mortality data on participants in the PTSD Residential Treatment program between the years 1990-2000. These data include patients' symptoms and functioning, demographics, and mortality status. **It includes no PHI.**
- 2) These data will be used for student dissertations (Kerri Schutz, Carrie Kelly, Anna Leshner) and possibly to collaborate on analysis and publication of VA research for 360 days. The study has IRB and R&D approval at the Palo Alto and is pending IRB approval at the Pepperdine site.

Any other uses will be subject to prior approval by the VA PALO ALTO HEALTH CARE SYSTEM Director, Dr. Elizabeth Freeman.

TERMS OF THE AGREEMENT:

1. This Agreement is by and between the Dr. David Foy of the Pepperdine University and the VA Palo Alto Health Care System, a component of the U.S. Department of Veterans Affairs.
2. This data transfer agreement covers the transfer and use of data by Dr. Foy and his research team and Dr. Craig Rosen and his team, for the project specified in this agreement. This Agreement supersedes any and all previous data.
3. The terms of this Agreement can be changed only by a written modification of the agreement by the agency signatories (or their designated representatives) to this Agreement or by the parties adopting a new agreement in place of this Agreement.
4. The VA PALO ALTO HEALTH CARE SYSTEM retains all ownership rights to the data file(s) and VHA retains all ownership rights to the VHA data file(s) provided to Dr. Foy under this Agreement.
5. Dr. David Foy and the Pepperdine University will be designed as custodians of the VA data for the VA PALO ALTO HEALTH CARE SYSTEM and will be responsible for complying with all conditions of use and for establishment and maintenance of security arrangements as specified in this Agreement to prevent unauthorized use and disclosure of the Owner's data provided under this agreement

The User agrees to notify the Owner within fifteen (15) days of any change of custodianship.
Technical Representative for VA PALO ALTO HEALTH CARE SYSTEM
 Craig Rosen, Ph.D. 650-493-5000 x22812

Custodian for PEPPERDINE UNIVERSITY
 David Foy, Ph.D. (818)-501-1611

6. The following named individuals are designated as their agencies' Points of Contact for performance of the terms of the Agreement.

Point-of-contact on behalf of VA PALO ALTO HEALTH CARE SYSTEM
 Craig Rosen, Ph.D. 650-493-5000 x22812

Point-of-contact on behalf of PEPPERDINE UNIVERSITY
 David Foy, Ph.D. (818)-501-1611

7. Except as VHA shall authorize in writing, the User shall not disclose, release, reveal, show, sell, rent, lease, loan, or otherwise grant access to the VHA data covered by this Agreement to any person beyond Dr. Foy's study team. The User agrees that, access to the data covered by this Agreement shall be limited to the minimum number of individuals who need the access to Owner's data to perform this Agreement.

8. The parties mutually agree that any derivative data or file(s) that is created from the original data may be retained by the User until the project specified in this DTA has been completed. The use of the data will be for the time period covered by the study entitled "Mortality Among Treatment-Seeking Veterans and Community Controls (SQL 81002)" for 360 days after the signing of this agreement. At the end of this period, Dr. Foy will return all data files used for analyses to Dr. Rosen at VHA. Dr. ROSEN may retain these de-identified files until the study is completed and the VA R&D protocol closed.

9. The Agreement may be terminated by either party at any time for any reason upon 30 days written notice. Upon such notice, the Owner will notify the User to destroy or return such data at Users expense using the same procedures stated in the above paragraph of this section.

10. The User will provide appropriate administrative, technical, and physical safeguards to ensure the confidentiality and security of the Owner's data and to prevent unauthorized use or access to it. VA sensitive information must not be transmitted by remote access unless VA-approved protection mechanisms are used. All encryption modules used to protect VA data must be validated by NIST to meet the currently applicable version of Federal Information Processing Standards (FIPS) 140 (See <http://csrc.nist.gov/cryptval/140-1/1401val.htm> for a complete list of validated cryptographic modules). Only approved encryption solutions using validated modules may be used when protecting data during transmission. Additional security controls are required to guard VA sensitive information stored on computers used outside VA facilities. All VA data must be stored in an encrypted partition on the hard drive and must be encrypted with FIPS 140 validated software. The application must be capable of key recovery and a copy of the encryption key(s) must be stored in multiple secure locations. Further, the User agrees that the

data must not be physically moved or transmitted in any way from the site indicated in item number 5 without first being encrypted and obtaining prior written approval from the data owner.

a. If the data user becomes aware of the theft, loss or compromise of any device used to transport, access or store VA information, or of the theft, loss or compromise of any VA data, Dr. Foy must immediately report the incident within one hour to inform Perry Ungson, Information Security Officer (650-493-5000 x 69909) and Dr. Elizabeth Freeman, Director (650-858-3939), VA PALO ALTO HEALTH CARE SYSTEM. The ISO will promptly determine whether the incident warrants escalation, and comply with the escalation requirements for responding to security incidents.

11. The authorized representatives of VHA and the Inspector General will be granted access to premises where the data are kept by the User for the purpose of confirming that the User is in compliance with the security requirements.

12. No findings, listing, or information derived from the data with or without identifiers, may be released if such findings, listing, or information contain any combination of data elements that might allow the deduction of a veteran without first obtaining written authorization from the appropriate System Manager or the person designated in item number 18 of this Agreement. Examples of such data elements include but are not limited to social security number, geographic indicator, age, sex, diagnosis, procedure, admission/discharge date(s), or date of death. The Owner shall be the sole judge as to whether any finding, listing, information, or any combination of data extracted or derived from its files provided under this Agreement identifies or WOULD, with reasonable effort, permit one to identify an individual or to deduce the identity of an individual. The Owners' review of the findings is for the sole purpose of assuring that data confidentiality is maintained and that individuals cannot be identified from the findings. The Owner agrees to make this determination about approval and to notify the User within two weeks after receipt of findings. The Owner may withhold approval for publication only if it determines that the format in which data are presented may result in identification of individual.

13. The User may not reuse the Owner's original or work file(s) for any other purpose.


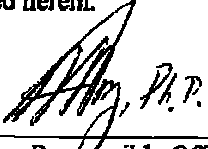
14. In the event that the Owner determines or has a reasonable cause to believe that the User disclosed or may have used or disclosed any part of the data other than as authorized by this Agreement or other written authorization from the appropriate System Manager or the person designated in item number 18 of this Agreement, the Owner in its sole discretion may require the User to: (a) promptly investigate and report to the Owner the User's determinations regarding any alleged or actual unauthorized use or disclosure; (b) promptly resolve any problems identified by the investigation; (c) If requested by the Owner, submit a formal response to an allegation of unauthorized disclosure; and (d) if requested return the Owner's data files to the Owner. If the Owner reasonably determines or believes that unauthorized disclosure of the Owner's data in the possession of User have taken, the Owner may refuse to release further data to the User for a period of time to be determined by the Owner, or may terminate this Agreement.

15. The User hereby acknowledges that criminal penalties under §1108(a) of the Social Security Act (42 U.S.C. §1306(a), including a fine not exceeding \$10,000 or imprisonment not exceeding 5 years or both. May apply to disclosures of information that are covered by §1106 and that are not authorized by regulation or by Federal law. The User further acknowledges that criminal penalties under the Privacy Act (S U.S.C. §552a(i)(1) may apply if it is determined that the User, or any individual employed or affiliated therewith knowingly and willfully discloses Owner's data. Any person found guilty under the Privacy Act shall be guilty of a misdemeanor and fined not more than \$5,000. Finally, the user acknowledges that criminal penalties may be imposed under 18 U.S.C. §641 if it is determined that the User, or any individual employed or affiliated with therewith, has taken or converted to his own use data file(s), or received the file(s) knowing that they were stolen or converted.

16. All questions of interpretation or compliance with the terms of this Agreement should be referred to the VHA official name in Item 18 (or his or her successor).

17. Authority for VHA to share this data for the purpose indicated is under the HIPAA Privacy Rule, Is 45 CFR 164.512(k)(6)(ii), under the Privacy Act is routine Use 30 In VA system d records, 121VA19, entitled National Patient Databases--VA and under 38 USC 5701(b)(3) and (e).

18. On behalf of both parties the individuals hereby attest that he or she is authorized to enter into this Agreement and agrees to all the terms specified herein.

| | | | |
|--|----------|---|--------|
|  | 2/1/2010 |  | 2/1/10 |
| _____ Transferring Responsible Official Date Organization Transferring Data | | _____ User Responsible Official Date Organization Receiving Data | |

Concur / Non-Concur:

| | |
|---|------------|
|  | 02/01/2010 |
| _____ Transferring Agency ISO Name Date Organization | |

Appendix E

Measures

Demographic Background

| | | |
|----------------------------|-----------------|--|
| AdmitID [][][][][] | Admin [0][1] | Enter Today's Date [][] / [][] / [][] |
|----------------------------|-----------------|--|

I. DESCRIPTION AND BACKGROUND

1. Gender 1. Male 2. Female
2. Marital Status (**Check one**)
 1. Married 3. Widowed 5. Divorced
 2. Remarried 4. Separated 6. Never Married
3. Race / Ethnic Ancestry (**Check one**)
 1. Asian / Pacific Islander 4. Caucasian 7. Other
 2. African American 5. Native American / Alaskan Native
 3. Hispanic / Latino 6. Mixed Ethnicity
- 4-6 Service Connected Disability
4. For PTSD (Pre-1980; PTSD often diagnosed as Psychoneurosis) No Yes
5. For Psychiatric, other than PTSD No Yes
6. For Medical, non-Psychiatric No Yes
7. 8. Percent service connection: (**Leave blank if not service connected**)
7. For Psychiatric (including PTSD) [][]
8. For Physical [][]
9. Veteran's living situation for most of the last 4 months? (**Check one**)
 a house or apartment in jail
 a rooming house a shelter
 a halfway house, group home or domiciliary on the street (no regular place)
 a hospital or other inpatient treatment unit

V. EMPLOYMENT / INCOME / EDUCATIONAL STATUS

10. What was the highest level the veteran completed in school?
(e.g., completed high school - 12; GED = 12, BA - 16) [][]
11. Please estimate your family's income/social status while you were growing up:
 Very Poor Lower Middle Middle Class Upper Middle Upper Class (wealthy)
12. What was your total household income last year?
 < \$10K \$10K-\$20K \$20K-\$30K \$30K-\$40K \$40K-\$50K > \$50K+
13. Are you currently seeking some form of monetary compensation? No Yes
14. Is the veteran working now? (**Check one**)
 0. No 1. Part-time 2. Full-time
15. Approximately how many jobs have you held since you left the military? (**Check one**)
 None 1-5 6-12 13-50 50 or more

II. MILITARY / TRAUMA EXPOSURE

12. Period of service (**Check all that apply**)
 1. Pre-WW II 4. Korean War 7. Post-Vietnam War
 2. World War II 5. Between Korea/Vietnam 8. Persian Gulf War
 3. Pre-Korean War 6. Vietnam War
- 12A. Since September 11, 2001 (9/11) did the veteran serve in the United States military in:
Afghanistan No Yes
Iraq No Yes
- 12B. Did the veteran ever serve in the United States military in a peace-keeping operation
(such as in Lebanon, Somalia, Bosnia, Kosovo)? No Yes

400CG



Demographic Background

13. Branch of service **(Check all that apply)**
- | | |
|---------------------------------------|---|
| <input type="checkbox"/> 1. Army | <input type="checkbox"/> 4. Marines |
| <input type="checkbox"/> 2. Navy | <input type="checkbox"/> 5. Coast Guard |
| <input type="checkbox"/> 3. Air Force | |
14. Did the veteran ever serve in a war zone? No Yes
15. Did the veteran ever receive friendly or incoming fire from small arms, artillery, rockets, mortars or bombs? No Yes
16. Was the veteran ever a Prisoner of War? No Yes
17. Did the veteran ever observe others or participate him/herself in atrocities, such as torturing prisoners, mutilating enemy bodies, or harming civilians? If veteran **both** observed and participated, select "Participated." **(Check one)**
- | | |
|---|--|
| <input type="checkbox"/> 0. No | <input type="checkbox"/> 2. Participated |
| <input type="checkbox"/> 1. Observed others | <input type="checkbox"/> N. Don't know |
18. Were you exposed to a blast(s) while you were deployed? No Yes
19. Did you have any injury(ies) during your deployment from any of the following? **(Check all that apply)**
- Fragment
 - Bullet
 - Vehicular (any type of vehicle, including airplane)
 - Fall
 - Blast (Improvised explosive device, RPG, Land mine, Grenade, etc)
 - Other Specify: _____

VI. FAMILY BACKGROUND

20. What state were you born in? 21. What state did you grow up in?
22. How many children were in your family growing up? (include yourself)
22. What was your Birth Order: (i.e. if you were the 5th of 6 children - enter a 5)
24. Were you adopted or raised in foster care? No Yes
25. Did your parents get divorced before you were 18? No Yes
26. Was anyone in your family hospitalized for emotional or psychiatric reasons? No Yes
27. Did anyone in your family attempt suicide? No Yes
28. Did anyone in your family complete suicide? No Yes
29. Did either of your parents abuse drugs/alcohol. No Yes
30. Please rate your **childhood happiness** on the scale below: . . .
- Never Happy Rarely Happy Sometimes Happy Very Happy Extremely Happy
31. Please rate your **adolescent happiness** on the scale below: . . .
- Never Happy Rarely Happy Sometimes Happy Very Happy Extremely Happy
32. During the **past 30 days**, how many times did you get together with one or more friends or relatives?
- 32a. Friends/relatives visited at your home. times
- 32b. Got together with friends/relatives outside your home. times
33. About how many close friends do you have, people you feel at ease with and can talk to about personal problems? (Write in number). friends
34. In the past 30 days, how many days have you had serious conflicts with your family (such as with your spouse/sexual partner, mother, brother, sister, or other family member)? days
35. How troubled or bothered have you been in the past 30 days by family problems?
- Not at all Slightly Moderately Considerably Extremely

40006



Beck-D

| AdmitID | Location | Admin | Date |
|--|---|---|---|
| <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | <input type="text"/> 0 <input type="text"/> 1 | <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> |

INSTRUCTIONS: The following pages contain groups of statements. Please read each group of statements carefully. Then pick out the **one statement** in each group which best describes the way you have been feeling in the **PAST WEEK, INCLUDING TODAY!** Fill in the box next to the statement you have picked. Be sure to read all the statements in each group before making your choice.

1. I do not feel sad
 - I feel sad
 - I am sad all of the time and I can't snap out of it
 - I am so sad or unhappy that I can't stand it
2. I am not particularly discouraged about the future.
 - I feel discouraged about the future.
 - I feel I have nothing to look forward to.
 - I feel that the future is hopeless and that things can't improve.
3. I do not feel like a failure.
 - I feel I have failed more than the average person.
 - As I look back on my life, all I can see is a lot of failures
 - I feel I am a complete failure as a person.
4. I get as much satisfaction out of things as I used to.
 - I don't enjoy things the way I used to.
 - I don't get real satisfaction out of anything anymore.
 - I am dissatisfied or bored with everything.
5. I don't feel particularly guilty.
 - I feel guilty a good part of the time.
 - I feel quite guilty most of the time.
 - I feel guilty all of the time.
6. I don't feel I am punished.
 - I feel I may be punished.
 - I expect to be punished.
 - I feel I am punished.
7. I don't feel disappointed in myself.
 - I am disappointed in myself.
 - I am disgusted with myself.
 - I hate myself.
8. I don't feel I am any worse than anybody else.
 - I am critical of myself for my weaknesses or mistakes.
 - I blame myself all the time for my faults.
 - I blame myself for everything bad that happens.
9. I don't have any thoughts of killing myself.
 - I have thoughts of killing myself, but I would not carry them out
 - I would like to kill myself.
 - I would kill myself if I had the chance.
10. I don't cry any more than usual.
 - I cry more now than I used to.
 - I cry all the time now.
 - I used to be able to cry, but now I can't cry even though I want to





17497

AE-3
 Revised Version
 Version 7.0
 Rev. 4/21/01

| AdmitID | Location | Admin | Date |
|--|---|---|---|
| <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> | <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> |

32. When I was bad, my parent(s) used to lock me in a closet. True False
45. I required medical attention (at least once) for injuries caused by my parent(s). True False
49. My parent(s) used to punch me when they got angry with me. True False
58. I was severely beaten by my parent(s). True False
66. My parent(s) used to hit me with something other than their hands when I did something wrong. True False
79. My parent(s) used to spank me. True False
104. My parent(s) used to kick me when they got angry with me. True False
107. When my parent(s) were angry, they sometimes grabbed me by the throat and started to choke me. True False
123. When I did something wrong, my parent(s) sometimes tied me up. True False
36. I never received any kind of injury from the discipline used by my parent(s). True False