



1

This is to certify that the dissertation entitled

1

DYADIC FACTORS ASSOCIATED WITH POST-DEPLOYMENT ADJUSTMENT FOR NATIONAL GUARD COUPLES

presented by

LISA A. GORMAN

has been accepted towards fulfillment of the requirements for the

Ph.D.	_ degree in _	Family and Child Ecology
	filton	~ `
	Major Prof	essor's Signature
	6/1	2009
	·	Date

MSU is an Affirmative Action/Equal Opportunity Employer

PLACE IN RETURN BO	X to remove this checkout from your record.
TO AVOID FI	NES return on or before date due.
MAY BE RECALL	ED with earlier due date if requested.

.

.

DATE DUE	DATE DUE	DATE DUE
		,
L	5/08 K:/P	roj/Acc&Pres/CIRC/DateDue.ind

DYADIC FACTORS ASSOCIATED WITH POST-DEPLOYMENT ADJUSTMENT FOR NATIONAL GUARD COUPLES

By

Lisa A. Gorman

A DISSERTATION

Submitted to Michigan State University in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Family and Child Ecology

ABSTRACT

DYADIC FACTORS ASSOCIATED WITH POST-DEPLOYMENT ADJUSTMENT FOR NATIONAL GUARD COUPLES

By

Lisa A. Gorman

This study explored dyadic factors associated with improved mental health functioning in a sample of National Guard (NG) service members and their spouses/significant others following deployment to a combat zone. Family ecology and attachment theories were used to provide a framework for couple interactions taking place during the deployment cycle. The study aimed to expand the knowledge base of how couple interactions influence relationship stability, mental health outcomes, and parental stress of both the service members and their spouses.

It was hypothesized that: greater symptom severity of PTSD would predict lower scores on dyadic adjustment for the service member and the spouse; PTSD symptom cluster avoidance would be associated with lower scores on dyadic adjustment; higher levels of PTSD, depression, and alcohol misuse for each member of the couple would be associated with lower levels of dyadic adjustment for each member; and adult attachment would mediate the effects of the service member's PTSD on dyadic adjustment and parental stress.

A total of 200 paired couples were analyzed from a data set of 332 NG members and 212 spouses who volunteered to participate in the study during reintegration activities. Participants completed assessments for posttraumatic stress disorder, depression, alcohol misuse, adult attachment, dyadic adjustment, and parental stress. Structural equation modeling and ANOVA were the primary methods of analyses for the dyadic data set.

The hypothesis that NG member PTSD would predict poorer dyadic adjustment for both the service member and his/her spouse is not supported. Using dyadic subscales, the service members' PTSD affected their own relationship satisfaction but not their spouses. The spouses' PTSD had a significant and negative effect on their own perception of dyadic adjustment but not on the service members'.

Other study hypotheses were partially supported by the data. The service members' PTSD symptom cluster avoidance, particularly the emotional numbing subscale, has a significant and negative relationship with the service members' overall dyadic adjustment, their relationship satisfaction, and their report of dyadic cohesion. However, there is no significant relationship between the service members' PTSD clusters and the spouses' perception of overall dyadic adjustment, relationship satisfaction, relationship cohesion, or relationship consensus.

The participant's own level of depressive symptoms is significantly associated to his or her own level of dyadic adjustment following deployment. Adult attachment mediates the relation between actor effects of PTSD and the spouses' and service members' dyadic adjustment. Even though there was no significant relationship between service member PTSD and parental stress, adult attachment mediates the effects of individual depression on parental stress.

Copyright by LISA GORMAN 2009

DEDICATION

This dissertation is dedicated to the men and women of the Michigan National Guard, Veterans of Foreign Wars, and their loved ones. The intent of the author is for this research to be utilized to improve the quality of life of veterans and their families.

AKNOWLEDGEMENT

Completing a dissertation and doctoral program of study takes a tremendous amount of time, effort, and patience on the part of many. Each individual has played a valuable role in this process. I would like to thank the following people for making this endeavor possible.

First, words cannot express my gratitude to my major professor Adrian Blow, Ph.D. His personal service and outreach to military families made the dissertation research possible. He has invested countless hours as my mentor, co-therapist, editor, supervisor, and principle investigator. There also is a special thank you to Barbara Ames. Ph.D. for co-chairing my committee and serving as my academic advisor. I am grateful for her investment in me and for her suggestion to narrow my focus to National Guard families. My thanks to Hiram Fitzgerald, Ph.D., Associate Provost, University Outreach and Engagement, for asking the tough questions during committee meetings and for being a strong supporter of my professional development. He is a continued source of inspiration as I embark on studying the effects of deployment on parenting and early childhood development. I am grateful to Marsha Carolan, Ph.D. and Ruben Parra, Ph.D., for their commitment to my professional growth as a therapist which has made me not only a better clinician but a better researcher and human being.

There are others at Michigan State University who contributed to the military project and to my graduate studies. I want to thank the

vi

Department of Family and Child Ecology (FCE), the Paolucci Scholarship Fund, the Evelyn Mansfield Scholarship Fund, the Helen Takken Brink Scholarship Fund, and the College of Social Sciences Dissertation Completion Fellowship for their generosity. I also want to thank Families and Communities Together (FACT) grant, Michigan State University Outreach and Engagement, FCE Family Impact Seminar, and the Department of Epidemiology for their generous support of military family research. Thanks to the Biomedical Research Informatics Core for their technical support and utilization of Research Informatics (RIX) for data management. I would also like to thank Philip Reed, Ph.D. and Naomi Breslau, Ph.D., for assisting in developing the survey instrument and Deborah Kashy, Ph.D. for her guidance in dyadic data analyses. Finally, my heartfelt thanks go out to the cohort of students who volunteered their time as Marriage and Family Therapy Interns at National Guard reintegration activities.

I would be remiss if I did not properly thank the participants of the study and the Michigan National Guard Family. These Soldiers and their spouses took the time to answer many difficult and personal questions so that research could be used to improve the programming and quality of life of other military families. In addition, I want to say thank you to Brigadier General Jim Anderson for being my staunchest supporter and advocate for military research. Thank you to Major General Cutler for giving the project your blessing. Thank you to Colonel Jim Bartolacci for always

vii

asking how my research would benefit military families and for giving me time off work to complete my dissertation. Thank you to Chaplain (Colonel) Herb Heavner, Major Lavetta Bennett, Sandy Mahoney, and members of the state family program office who assisted in various manners along the way. I also want to extend a special thank you to Vietnam veterans Tom Devine and Don Behn for being an inspiration.

Last but not least, I would like to thank my sons, David, James, and Thomas; their father and my dear friend Dave Gorman; and my parents Edd Swopes and Minnie Francis Swopes. I am grateful for my family's unconditional love and personal sacrifice. Without their support, completion would not have been possible. With sincere gratitude, thank you.

TABLE OF CONTENTS

LIST OF TABLESxii
LIST OF FIGURESxiv
CHAPTER 1
INTRODUCTION1
Statement of the Problem1
Purpose Statement
Theoretical Perspective4
Human Ecology Theory5
Attachment Theory
Conceptual Model
Research Questions and Hypotheses
Research Question 111
Hypothesis 1a11
Hypothesis 1b11
Hypothesis 1c12
Research Question 212
Hypothesis 2a12
Hypothesis 2b12
Hypothesis 2c12
Research Question 312
Hypothesis 3
Research Question 414
Hypothesis 414
Research Question 515
Hypothesis 515
Definition of Terms
Dyadic Adjustment17
Adult Attachment Style17
Posttraumatic Stress Disorder17
Depression18
Alcohol Misuse
Parental Stress18
Actor and Partner Effects18
CHAPTER 2
Introduction 20

Mental Health Disparity	
Mental Health of Service Member	
Mental Health of Spouses	
Dyadic Factors	23

Dyadic Adjustment	23
Relationship Satisfaction	24
Parental Stress	25
Attachment Constructs	26
Adult Attachment Style	26
Psychopathology, Attachment and Dyadic Adjustment	29
Human Ecology and Attachment	29
Psychopathology and Dyadic Adjustment	29
PTSD and Dvadic Adjustment	31
Depression and Dvadic Adjustment.	
Combat Stress and Intimate Partner Violence	32
Combat Induced PTSD and Dvadic Adjustment	33
Secondary Trauma	34
Adult Attachment Style Effects	35
Combat Exposure Attachment and Dyadic Adjustment	35
Attachment and Darental Stress	38
Summary	30
	11
	41
Design	
	41
	43
	44
	44
Dyadic Adjustment	44
Parental Stress	45
Independent Variables	46
Combat Experience	46
PTSD Checklist	47
Stressful Life Event Screener	48
Short Screening Scale	48
Beck's Depression Inventory II	48
Alcohol Use Disorder Identification Test	49
Mediating Variable	50
Adult Attachment	50
Data Collection	52
Data Analysis	53
Ethical Issues	59
Potential Risk	60
Risk –benefit Comparison	61
Data and Safety Monitoring	
Inclusion of Women and Minorities	62
CHAPTER 4	
RESULTS	64
	🗨 🕴

X

Sample
Analysis of Dyadic Adjustment70
Analysis of PTSD for the Service Member74
PTSD and Measures of Dyadic Adjustment78
Subscales of Dyadic Adjustment
Analysis of PTSD for the Spouse
PTSD and Measures of Dyadic Adjustment
Subscales of Dyadic Adjustment
Partners with PTSD Symptoms85
PTSD Symptom Clusters and Dyadic Adjustment
Psychopathology and Dyadic Adjustment
PTSD Symptoms, Adult Attachment, and Dyadic Adjustment
Associations between PTSD, Attachment, and Dyadic
Adjustment101
PTSD Symptoms and Dyadic Adjustment-Mediation Model103
Parental Stress
Depression and Parenting Stress-Mediation Model
Summary of Results
Research Question 1124
Research Question 2125
Research Question 3126
Research Question 4126
Research Question 5127

CHAPATER 5

DISCUSSION AND IMPLICATIONS	
Purpose of the Study	128
Summary of the Study	128
Discussion	
Implications	141
Implications for Practice	141
Implications for Policy	145
Future Research	146
Study Limitations	148
Conclusion	

APENDICES

Appendix A: MI National Guard Survey: Member Form	156
Appendix B: MI National Guard Survey: Spouse Form	178
Appendix C: Tables of Means, Distributions and Correlations	
Appendix D: IRB and Human Subjects	202
Appendix E: Survey Consent	205
Appendix F. Recruitment Script	208
BIBLIOGRAPHY	

LIST OF TABLES

Table 1	Measures Used in Study51
Table 2	Demographic Characteristics of the Sample67
Table 3	Goodness-of Fit Indicators of Models for Spouses Report of PTSD82
Table 4	Unstandardized Loadings (Standard Errors) and Standardized Loadings for 2-Factor Confirmatory Model of PTSD for Spouses83
Table 5	Descriptive Statistics: Means, Standard Deviations, Standard Errors and the Lower Bounds and Upper Bounds of the 95% Confidence Interval for Revised Dyadic Adjustment Scale
Table 6	Bivariate Correlations between RDAS and Service Members' PTSD Symptom Clusters
Table 7	Means, Standard Deviations, and Intercorrelations Among Study Measures
Table 8	Bivariate Pearson Correlations Between the Variables of PTSD, RDAS, and Attachment Subscales102
Table 9	Bivariate Pearson Correlations Between Parenting Stress and Mental Well-being Variables
Table 10	Means and Distribution for Independent Variables of Psychological Well-being196
Table 11	Correlations for Members' Independent Variables of Psychological Well-being196
Table 12	Correlations for Spouses' Independent Variables of Psychological Well-being
Table 13	Means and Distribution for Members' PCL-M Subscales197
Table 14	Correlations for Members' PCL-M Subscales197
Table 15	Means and Distribution for Dependent Variables Revised Dyadic Adjustment Score and Subscales198

Table 1	6 Correlations for Members' Revised Dyadic Adjustment Scores and Subscales	.198
Table 1	7 Correlations for Spouses' Revised Dyadic Adjustment Scores and Subscales	.198
Table 1	8 Means and Distribution for Dependent Variable Parental Stress Scale	.199
Table 1	9 Correlations for Dependent Variable Parental Stress Scale	.199
Table 2	0 Means and Distribution for Mediating Variable Adult Attachment Subscales	200
Table 2	1 Correlations for Members' Revised Adult Attachment Subscales	200
Table 2	2 Correlations for Spouses' Revised Adult Attachment Subscales	200

LIST OF FIGURES

Figure 1	A Conceptual Model of National Guard Family Adaptation11
Figure 2	Actor-Partner Interdependence Model with Psychological Well-being variables and the Revised Dyadic Adjustment Scale
Figure 3	Structural Regression Model with PTSD and Dyadic Adjustment Mediated by Attachment14
Figure 4	Structural Regression Model with Depression and Parental Stress Mediated by Attachment Construct16
Figure 5	Confirmatory Factor Analysis of Dyadic Adjustment
Figure 6	Confirmatory Factor Analysis of Posttraumatic Stress Disorder Symptom Clusters
Figure 7	Actor-Partner Interdependence Model with Psychological Well-being Variables and the Revised Dyadic Adjustment Scale
Figure 8	Nonrecursive Mediated Structural Equation Model with Psychological Well-being Variables and Revised Dyadic Adjustment Scale98
Figure 9	Structural Regression Model with PTSD and Dyadic Adjustment Construct
Figure 10	Structural Regression Model with PTSD Variable and Attachment Construct
Figure 11	Structural Regression Model with Attachment and Dyadic Adjustment
Figure 12	Structural Regression Model with PTSD and Dyadic Adjustment Mediated by Attachment110
Figure 13	Path Analysis Model of Depression and Parental Stress116
Figure 14	Structural Regression Model with Depression and Attachment Construct

Figure 15	Structural Regression Model with Attachment Construct and Parental Stress
Figure 16	Structural Regression Model with Depression and Parental Stress Mediated by Attachment Construct

CHAPTER ONE

INTRODUCTION

Statement of the Problem

Deployment to Operation Iraqi Freedom (OIF) or Operation Enduring Freedom (OEF) has implications for the post-deployment health of service members and their families. Since 2001, National Guard (NG) and Reserve soldiers have sustained the operation in unprecedented numbers, representing 40-50% of US total forces on the ground in Iraq and Afghanistan. While at the same time as they were deployed, their spouses/significant others maintained family responsibilities on the home front, often without the supports readily available to active duty spouses located near military installations (Gorman, Ames, Blow, & Anderson, 2006; MacDermid, 2006). Even though deployment places significant stress on service members and their families, there is limited research describing the effect of deployment to Irag and Afghanistan on NG members and their family relationships. Further, many of the current interventions for these families are based on anecdotal information rather than scientific rigor, and in addition evidence based programs with active duty service members and their families may not be applicable for NG members and their families because they are dispersed within civilian communities rather than on military bases.

Combat deployment places military families at risk for mental health concerns and subsequent relationship distress. A number of studies have attempted to explain the incidence of relationship distress following deployment

(Call & Teachman, 1996; Pavalko & Elder, 1990; Ruger, Wilson, & Waddoups, 2002). Some of the hypotheses studied linking veterans to increased marital instability include: psychological problems associated with military combat (Gimbel & Booth, 1994), lengthy separation during deployment, marriages formed around the timing of deployment in the life course (Pavalko & Elder, 1990; Call & Teachman, 1996), and the social and political circumstances surrounding conflicts (Ruger, Wilson, & Waddoups, 2002). Even though there has been an attempt to understand the effects of combat PTSD on relationship satisfaction and stability, research looking at mental health and relationship outcomes from previous conflicts seldom distinguishes between different military components (Karney, Ramchand, Osilla, Caldarone & Burns, 2008). Consequently, there is little empirical data that address the supportive services and interventions most appropriate for various military branches, particularly the NG. However, one United Kingdom study found that reservists who returned to civilian life following deployment to Iraq were more susceptible to behavioral and other health risks than career military (Hotopf et al., 2006).

Purpose Statement

The purpose of this study was to explore the dyadic factors associated with better functioning for the NG member and his/her spouse/significant other¹ following deployment to a combat zone. The lengthy separations from family, combined with combat experience, place the couple at risk for constricted family functioning and poorer mental health outcomes. This study is significant because

¹ For the remainder of the dissertation, the word spouse is used to indicate either a spouse or significant other.

it addresses issues of the NG, where there is limited research examining needs specific to this target population (APA, 2007). Further, it assesses not only service members, but also their spouses following the members' deployment to OIF and OEF, and it utilizes methods of analysis which take into account the interdependence and mutual influence that exists within the couple relationship. It was expected that a greater understanding of protective factors associated with better functioning for the soldier and his or her spouse would contribute to the knowledge base for developing dyadic prevention and intervention programs targeting this understudied population. It was also hoped that this study would inform theory on the interpersonal nature of Posttraumatic Stress Disorder (PTSD) (Monson & Taft, 2005), depression, and substance abuse related to combat deployment. Further, this study has the potential to contribute empirical data that could reduce health disparities among OIF/OEF veterans returning to the civilian community as well as the family members who have limited access to resources available at military installations. This study was designed to enhance scientific understanding of the psychosocial and socio-environmental factors that serve as protective factors leading to resilience; it also aimed to clarify risk factors associated with exposure to trauma leading to adverse outcomes (NIH, 2007).

This study can provide direction for intervention of mental health services for both the individual suffering from PTSD and his/her caretakers (Dekel, Goldblatt, Keidar, Solomon, & Polliack, 2005). Dekel, et al. (2005) suggested that future studies should consider how partners of PTSD members manage

stress. By identifying some of the specific relational effects of trauma, this study guides further clinical and empirical research (Nelson & Wampler, 2000), and it makes a unique contribution to the literature because it accounts for interaction effects of both partners' mental health and perceived dyadic adjustment.

Theoretical Perspective

Family ecology and attachment theoretical frameworks are utilized to conceptualize the relationship between dyadic factors and mental health outcomes for NG service members and their spouses following deployment. These frameworks provide a framing of couple interactions take place during the deployment cycle and how these interactions influence individual functioning. including relationship stability, mental health outcomes, and parental stress. Family ecology theory explains the mechanism by which various systems influence the couple dyad and contribute to mental health outcomes. Attachment theory has been added to explain how adult attachment styles contribute to the pattern of interaction in the couple relationship, thus potentially affecting the mental health outcomes of one or both partners. Further, attachment theory provides a framework that could potentially provide insight into attachment relationships that existed prior to deployment. Family ecology theory and attachment theory have been combined for use in this study in order to guide the understanding of the interpersonal and intrapersonal factors which mediate mental health variables with dyadic adjustment and parental stress of both the service member and his/her spouse.

Human Ecology Theory

The ecological model of human development conceptually guides the study hypotheses. To understand the complexity of the deployment experience for individuals, couples, and families, a theoretical model must take into account multiple levels of influence. An ecological framework considers the genetic and psychological aspects of the soldier that promote adjustment following combat service and considers the social and environmental factors that contribute to adaptation as well (White & Kline, 2002). Just as the service member brings a unique set of contributing biological, social, and psychological factors to the dyadic and family relationships, so does the spouse/significant other. Describing the causal effect of post-deployment adjustment, family functioning, and mental health outcomes is guite complex. Bronfenbrenner stated: "When one member of a dyad undergoes developmental change, the other member of the dyad will also be likely to undergo change" (1979, p 65). Over the course of deployment (up to 15 months of separation), the service member and the spouse/significant other both have undergone significant changes. They each bring a blueprint of biological, cognitive, and social experiences that influence reunion and dyadic adjustment during the service member's reintegration.

Ecological theory provides a framework for understanding how the individual develops and interacts within a number of environments (Bronfenbrenner, 1979). Human behavior and development exist within multiple interdependent systems (Bronfenbrenner, 1977; Bubolz & Sontag, 1993). An ecological model of human development emphasizes the connectedness of NG

service members to their families as well as their interdependent relationships within the communities and environments in which they live (Bronfenbrenner, 1989; Griffore & Phenice, 2001; Nickols, 2003). This perspective shows how the couple/family system is a unit of inter-related personalities within a network of systems that can support, interfere with, or damage the family (Loukas et al., 1998). Ecological theory provides a framework to understand how dyadic factors affect mental health outcomes for both individuals in the couple dyad.

Human ecology theory is described in terms of systems. Microsystems are those settings within which the service member and his/her spouse interact directly. An example of the soldier's microsystem is his/her interaction with his/her spouse. Couple interactions and communications change during unit activation. The soldier and the deployment become the focus of interaction as the couple prepares for the 12-18 month separation. During deployment, couples frequently communicate through email and telephone conversation, but the nature of information shared is always through the lens of the mission. For example, a spouse might choose to withhold information about a serious family illness or a major purchase so as not burden the soldier. The soldier on the other hand, may withhold information from the spouse to maintain operational and unit security. It is plausible that the level of trust and intimate sharing within the couple dyad is undermined during the 12-15 months of separation. Following deployment, the couple must then renegotiate roles within the family which can be challenging if a spouse or dependent child has come to enjoy their new level of responsibility and autonomy. Individuals within the couple dyad will have many

microsystems with which they interact throughout the deployment cycle. The interaction that takes place between individual microsystems is referred to as mesosytems. Bronfenbrenner (1977) suggests that strong, mutually supportive linkages between microsystems result in optimal development/negotiation of challenging circumstances.

Exosystems, on the other hand, do not have direct interaction with the individual, but have an indirect influence on quality of life. For example, environmental work conditions of the soldier in theater do not have a direct effect on the significant others back home, but the increased operation tempo has an indirect effect on marital satisfaction (Adams, Pehrson, &Hawkin, 2005). Further, the family's awareness of conditions and dangers associated with combat deployment may wear on the mental health of the spouse left behind.

Macrosystems refer to larger societal ideologies and cultural values that also affect the service member and his/her significant other. The macro systems can either foster or hinder individual and family functioning and well-being. Real and perceived threats to his/her military career may prevent the service member from receiving needed mental health care (Hoge et al., 2004; Blow, Gorman, Ames, Reed, & Anderson, 2008). The military culture and societal stigmas demonstrate the influence of the macrosystem on the couple relationship. If the service member delays treatment, the cultural context in this way impedes reintegration into the couple relationship and family life. Further, if the marriage dissolves as a result of the deployment, supportive community and government

policies can act as moderators that lead to better long term outcomes for the individual and family (Amato, 2000).

The chronosystem refers to the development within individuals and families that take place across time. While couples often experience a honeymoon period immediately following reunion, challenges faced by each individual during the 12-18 months of separation may ultimately cause marital distress, disrupt family functioning, and lead to poorer mental health outcomes. The changing political attitudes about the current combat also affect the community context of both the soldier and the family.

Relationship patterns and interactions have a direct influence on the individual's biological and psychological health and functioning and vice versa. The ecological model describes developmental outcome as a continuous, dynamic process of interchange between the individual and his/her environment over time. From this approach, stress experienced by the couple during war as they cope with separation, loss, reunion, and reintegration is understood within an ecological framework that includes individual factors, couple and family dynamics, military culture, and larger social-cultural influences (Bubolz & Sontag, 1993).

Attachment Theory

John Bowlby's (1980) theory of attachment is a useful framework to understand an individual's ability to make strong "affectual" bonds to others and to explain how the disruption of these bonds can cause emotional distress (Marrone, 1998). The function of attachment is to maintain an individual's safety

and security through contact with a caregiver or significant individual (Feeney & Collins, 2004). Though Bowlby's theory was used to describe the social orientation between a child and his/her parent, attachment in early relationships predicts patterns of interaction in adult romantic relationships (Hazan & Shaver, 1987; Simpson, Collins, Tran, & Haydon, 2007). It can be thought of in terms of adults having the capacity for "intense intimacy in relationships" while at the same time having the capacity for "independent thinking and goal oriented action" (Rovers, 2006, p. 9). Adult attachment is a reciprocal relationship, with each partner being both a contributor and recipient of care. Prototypical adult attachment generally involves the integration of three behavioral systems: "attachment, caregiving, and sexual mating" (Hazen & Shaver, 1994, p. 8).

For the purposes of the current study, attachment theory (specifically adult attachment constructs) will be used as a way to understand the interpersonal factors which contribute to mental health outcomes among NG members and their significant others. Attachment theory provides a framework for processes in the couple relationship that generate emotion (Simpson, Collins, Tran, & Haydon, 2007). Further, adult attachment style is a predictor of how one copes with separation from an intimate partner (Medway, Davis, Cafferty, Chappell, & O'Hearn, 1995). During the introduction of a crisis, traumatic event, or developmental life transition, attachment needs become activated, are heightened (Palmer, 2006), and determine how one responds to trauma (Cassidy & Mohr, 2001). A secure emotional bond between partners is associated with

both emotional and physical well-being as well as the ability to cope with stress and trauma, personality development/growth, and adaptability (Johnson, 1999).

The essence of attachment within the couple relationship is knowing that the other person cares about what happens to you, understands your experiences, and is available and willing to offer reassurance and support in times of stress (Johnson & Whiffen, 2003). In cases when a significant other is not responsive or accessible to his/her partner during this stress inducing situation, an injury to the relationship can occur (Johnson, Makinen, & Millikin, 2001), similar to an injury that would occur to a child if a parent was unavailable during a crisis or time of need. The relationship may then become redefined by insecure attachment dynamics which can influence the emotional adjustment and growth of the individuals within the couple dyad.

Conceptual Model

The model for this study is grounded in the concepts of family ecology and attachment theory. Accordingly, the family adaptation to the deployment experience will be influenced by both the systems in place to support the service member and their loved ones and the intrapersonal strengths of the individuals. Therefore, the general model of this study is that individuals with higher scores of close and depend on the adult attachment construct will be more comfortable both seeking and providing needed support during the deployment cycle. It is anticipated that these individuals will have better outcomes in terms of better dyadic adjustment, lower parental stress, and better individual functioning.



Figure 1

A Conceptual Model of National Guard Family Adaptation

Research Questions and Hypotheses

Research Questions

R1 – Does PTSD in service member, spouse, or both parties predict dyadic

adjustment for the service member and his/her spouse/significant other?

Hypothesis 1a: Greater symptom severity of PTSD in service members in

relation to a military event will predict lower scores on dyadic adjustment

(greater levels of relationship distress) for the service member and his/her

spouse/significant other.

Hypothesis 1b: Greater symptom severity of PTSD in spouses in relation to a civilian event will predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other.

Hypothesis 1c: Couples in which PTSD is diagnosed in both parties (service members and spouses) will have lower scores on dyadic adjustment when compared to couples where only one party has a PTSD diagnosis or where neither party has a PTSD diagnosis.

R2 – Do higher scores on PTSD symptom cluster emotional numbing for the soldier predict higher levels of relationship distress for both the service member and his partner?

Hypothesis 2a: Higher scores on the symptom cluster avoidance are associated with lower scores on dyadic adjustment.

Hypothesis 2b: In the avoidance cluster, higher scores on emotional numbing and purposeful avoidance are associated with actor effects and lower scores for the service member on dyadic adjustment.

Hypothesis 2c: In the avoidance cluster, only higher scores on emotional numbing for the service member is associated with partner effects and lower scores for the spouse's dyadic adjustment.

R3 – What is the relationship between psychopathology (number of mental health diagnoses), soldier's reported dyadic adjustment (actor affect), and spouse/significant other's reported dyadic adjustment (a partner affect) following deployment?

Hypothesis 3: Higher levels of PTSD, depression, and alcohol misuse for each member of the couple will be associated with lower levels of dyadic adjustment for each member.



Figure 2

Actor-Partner Interdependence Model with Psychological Well-being variables and the Revised Dyadic Adjustment Scale R4 – Does Adult Attachment style mediate the effects of PTSD on overall Dyadic Adjustment?

Hypothesis 4: Higher scores on Close and Depend combined with lower scores on Anxiety will mediate the effects of the service member's PTSD resulting in higher scores on overall Dyadic Adjustment. Conversely, higher scores on Anxiety will have a positive relationship with lower scores on Dyadic Adjustment indicative of distressed couples.



Figure 3

Structural Regression Model with PTSD and Dyadic Adjustment Mediated by Attachment

R5 – Does Adult Attachment style mediate the effects of PTSD on Parental Stress?

Hypothesis 5: Higher scores on Close and Depend combined with lower scores on Anxiety will mediate the effects of the service member's PTSD resulting in lower scores on overall Parental Stress. Conversely, higher scores on Anxiety will have a positive relationship with higher scores on Parental Stress indicative of distressed parenting.



Figure 4

Structural Regression Model with Depression and Parental Stress Mediated by Attachment Construct

Definition of Terms

Dyadic Adjustment – Dyadic adjustment is a measure of overall relationship adjustment and for the purpose of this study is used to distinguish between distressed and non-distressed couples (Busby, Christensen, Crane, & Larson, 1995). Dyadic subscales are separate concepts of relationship adjustment that describe patterns of interaction and functioning with the couple relationship. There are seven first-order concepts: decision making, values, affection, stability, conflicts, activities, and discussion. There are three second-order concepts: consensus, satisfaction, and cohesion and these will be used for this study (Busby, et al., 1995).

Adult Attachment Style – Adult attachment style is a framework for understanding the processes for close relationships and how behavior is influenced by both partners' personal and interpersonal history (Collins, 1996). For the purpose of this study adult attachment is measured by constructs close (feels comfortable with intimacy and closeness), depend (trusts and depends on others), and anxiety (fear of being unloved and abandoned) (Collins and Read, 1990). *Posttraumatic Stress Disorder* – PTSD is the development of symptoms following exposure to an extreme traumatic stressor which involved actual or threatened death to self or another of close relationship. The event must have involved an intense fear, hopelessness, or horror and included a threat to self or a significant loved one. The symptoms of persistent reexperiencing of the traumatic event, avoiding stimuli associated with the event or numbing of general responsiveness, and increased arousal are associated with PTSD. These symptoms may be

classified as PTSD if they have been present for more than a month, and they are causing significant distress or impairment either socially or occupationally (American Psychiatric Association, 2000).

Depression– Depression is an affective disorder characterized by a depressed mood, loss of interest in pleasurable activities, and a sense of worthlessness or guilt (APA, 2000). The predominance of negative affect is associated with a decline in functional domains impairing both physical and social functioning. *Alcohol Misuse* – Alcohol misuse is categorized for the purpose of this study as the identification of hazardous and harmful patterns of alcohol consumption that cause a substantial risk or harm to the individual (Barbor, Higgins-Biddle,

Sauders, & Monteiro, 2001).

Parental Stress – Parental stress is largely a reflection of the parent's perception of his/her role as parent and whether the parent-child dyad is pleasant and rewarding or contributing to additional stressors in life (Berry & Jones, 1995). Parental stress is the level of stress experienced by the parent which results from day-to-day interactions with the children. Higher levels of stress are characterized by decreased satisfaction in the parenting role and reduced quality of relationship between parent-child dyad (Berry & Jones, 1995).

Actor and Partner Effects – Actor effect are a function of individual characteristics on one's own outcomes. Partner effects are a function of one's partner's individual characteristics on one's outcomes (Kenny, Kashy, & Cook, 2006). The partner effect is considered evidence that the two persons making up the dyad
are part of an interdependent system with greater partner effects representing greater interdependence.

CHAPTER TWO

LITERATURE REVIEW

Introduction

Exposure to combat leaves the service member vulnerable to PTSD, depression, substance abuse and other mental health difficulties (cite). The symptoms associated with these mental health concerns can have a direct effect on the adaptive process in the couple relationship (Karney, 2007). The strain of these mental health problems can cause various levels of relationship disintegration. Marital disruption drains the emotional and physical resources of already stressed families, leaving little energy for attunement to the needs of children in the home and adversely affecting family functioning (Hetherington, 1989; Solomon & George, 1999). This review of literature will look not only at the individual functioning of the service member, but his/her spouse as well. Further, the review looks at confounding issues within the couple relationship that might contribute to the development or maintenance of mental health problems for one or both partners. The review summarizes those studies that consider interaction effects of both the actor and partner. Finally, studies discussing dyadic factors that moderate the effects of trauma on individual and family functioning will be reviewed.

Mental Health Disparity

Mental Health of Service Members

Reports from the Department of Defense and RAND Corporation suggest that OIF/OEF veterans are at risk for negative mental health outcomes (Hoge et

al., 2008; Tanielian & Jaycox, 2008; U.S. Department of the Army, 2008). RAND Corporation reported in *Invisible wounds of war* that PTSD, traumatic brain injury (TBI), and depression, the most common forms of affective and cognitive impairments, are identified among approximately 30% of returning veterans returning from service in Iraq and Afghanistan (Tanielian & Jaycox, 2008). The Tanielian and Jaycox study found that 7.3% of veterans reported a possible TBI and also met the criteria for PTSD or depression.

Researchers with the Department of Defense reported that 15% of service members returning from Iraq and Afghanistan have suffered a mild TBI that involved either a loss of consciousness or altered mental status (Hoge, et al., 2008). Further, the fifth report of the Mental Health Advisory Team (U.S. Department of the Army, 2008) indicates that service members with multiple deployments are at a higher risk for PTSD and other mental health concerns. These numbers suggest that a relatively large number of returning veterans have either a physical or emotional injury. The Hoge, Castro, Messer et al. study (2004) indicated that 17% of soldiers and Marines returning from duty in Irag are screening positive for PTSD, depression, or generalized anxiety. On a two-item screener, 11.8% of returning veterans reported alcohol misuse (Milliken, Auchterlonie, & Hoge, 2007). Gender seems to play a role in mental health prevalence. One study reports that women returning from Irag are at greater risk for mental health concerns, with 23.6% for women compared to 18.6% for men (Hoge, et al, 2006).

A few studies have looked at mental health disparity among NG service members compared to the active duty branches (Hoge, Auchterlonie, & Milliken, 2006; Studenicka, 2007). National Guard members (21%) screened positive for mental health concerns at a slightly higher rate than active duty (18.4%) members (Hoge, Auchterlonie, & Milliken, 2006). Suicide risk is a major concern for service members as demonstrated by strategic planning by the military to address the suicide crisis (Levin, 2009). Suicide is listed as the third leading cause of death for Army NG soldiers (Studenicka, 2007), and most suicides in 2007 involved failed relationships with a spouse/intimate partner (MHAT V, 2008).

Mental Health of Spouses

There is a strong correlation between PTSD symptoms of the soldier and the spouse's post deployment mental and physical health, social support, and intimate relationships (Fairbank & Fairbank, 2005). A comparison study of the spouses of Vietnam veterans with and without PTSD (Calhoun, Beckham, and Bosworth, 2002) suggests that there is some burden associated with caring for veterans with PTSD. In addition to caregiver burden, Calhoun and associates found spouses of veterans with PTSD had poorer psychological adjustment than did spouses of veterans without PTSD. One hypothesis for the poor psychological adjustment of the spouse is the concept of caregiver burden or secondary traumatization. The burden of caring for a spouse with PTSD from combat in Vietnam is strongly related to poor psychological adjustment of the partner (Calhoun, Beckham, Bosworth, 2002). The spouse who experiences

exhaustion and burnout in caring for or wanting to help a distressed partner who has undergone a traumatic event may be experiencing secondary traumatic stress (Figley, 1998; Dirkzwager, Bramsen, Ader, & van der Ploeg, 2005; Bramsen, Van der Ploeg, & Twisk, 2002).

Dyadic Factors

Dyadic Adjustment

A survey of 292 Marine Reservists indicated that 36 percent had significant problems with their spouses and children (Wheeler, 2007). Despite many plausible explanations, combat exposure among veterans emerges as a significant contributing factor for family disruption (Gimbel & Booth, 1994; Kulka et al., 1990; Riggs et al., 1998; Ruger et al., 2002), with combat veterans experiencing a higher rate of marital instability (Kessler, 2000) than their noncombat counterparts. Individuals exposed to combat have higher rates of PTSD (Hoge et al., 2004) and individuals with PTSD in turn consistently have higher divorce rates and more marital distress than their non-PTSD cohort (Cook et al., 2004; Jordan et al., 1992; Pavalko & Elder, 1990; Riggs et al., 1998). Jordan and associates (1992) found that Vietnam veterans with PTSD were twice as likely to experience marital dissolution of a first marriage and three times more likely to experience multiple divorces than their non-PTSD counterparts. Whisman (1999) found that individuals diagnosed with PTSD are three to six times more likely to experience divorce than those without PTSD. The existing literature links PTSD symptoms and combat exposure to higher rates of marital dissolution.

Relationship Satisfaction

PTSD symptoms like emotional numbing, sexual symptoms, and sleep disturbance predict lower relationship satisfaction for both the soldier and his/her partner (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Nelson-Goff, Crow, Reisbig, & Hamilton, 2007). Common issues are poorer marital adjustment, communication problems, and difficulties with intimacy (Whisman, 1999; Cook et al., 2004). A 14 year longitudinal study of Vietnam veterans showed a significant decline in marital satisfaction and sexual satisfaction for those veterans with PTSD (Koenen, Stellman, Sommer, & Stellman, 2008).

In addition to findings that support a positive relationship between PTSD and marital distress, Cook and colleagues (2004) studied the relationship between cluster symptoms of PTSD and relationship functioning. Emotional numbing remained a significant independent contributor for all measures of relationship functioning. Nelson-Goff et al. concluded that sexual and sleep problems accounted for the greatest variance in OIF and OEF soldier relationship satisfaction. PTSD and associated symptoms of verbal aggression and sexual dissatisfaction contributed significantly to variance in marital relations (Dekel & Solomon, 2006). Sexual discomfort was among other mental and physical health problems reported by veterans of the Persian Gulf War (Iowa Persian Gulf Study Group, 1997).

Parental Stress

Parental stress is an important outcome to consider as it is known to play a critical role in child maltreatment (Coohey, 1996) and neglect (Burke, Chandy, Dannerbeck, & Watt, 1998). A sample of 205 female spouses of both deployed and non-deployed service members demonstrated that parenting stress was significantly higher among spouses of deployed service members compared to the group of non-deployed spouses (Everson, 2005). One might expect that the absence of a significant supporter combined with additional parenting stress would predict child maltreatment. This is a possible explanation for why the incidence of child maltreatment was shown to be elevated for female spouses of deployed soldiers (Gibbs et al., 2007) and the non-military caretaker during levels of increased operation tempo (Rentz et al., 2007). The rates of child maltreatment among military families were twice as high during deployment than they were prior to war-time deployments (Rentz et al., 2007).

Problems in the family are further complicated by PTSD when the service member returns from combat. For example, Jordon and colleagues (1992) demonstrated complicating factors associated with PTSD by the severity of parenting problems in the study of Vietnam veterans. The 14-year longitudinal study of Vietnam Veterans (Koenen et al., 2008) demonstrated that persisting PTSD was associated with worse family functioning. Other invisible injuries like acquired brain injury also place families at risk for social isolation (Butera-Prinzi & Perlesz, 2004). Yet, social support was found to be an important buffer to parental stress (Greenberger & O'Neil, 1993). Marital satisfaction and marital

commitment also are associated with lower levels of parental stress (Berry & Jones, 1995). The problems veterans deal with in relation to their children are not unique to Vietnam Veterans but extend to those participating in current combat as well (Wheeler, 2007).

Attachment Constructs

Adult Attachment Style

A secure attachment is characterized by an individual who values self and others and feels valued by others and worthy of affection (Bowlby, 1980; Collins, Guichard, Ford, & Feeney, 2004). A secure emotional bond between partners is associated with both emotional and physical well-being as well as the ability to cope with stress and trauma, personality development/growth, and adaptability (Johnson, 1999). A secure individual generally perceives his/her intimate partner as receptive, concerned, and dependable. A secure attachment style between two partners is represented by both individuals perceiving his/her mate to be available and responsive when needed (Davila, 2003). Care-giving is directly related to the social support that is provided by the adult attachment figure. The ability to seek care requires that the person in distress is able to communicate his/her needs to their partner and then accept their partner's attempts to provide comfort. The role of the caregiver is to be both physically and psychologically available to his/her partner's signals of distress. When partners are able to provide reciprocal caregiving in their relationships, it indicates their availability and fosters security in the attachment figure (Davila, 2003).

There are two underlying dimensions that explain actions of insecure attachments. The first is anxiety, and it reflects the degree to which an individual will worry about rejection or abandonment from the significant relationship. Avoidance, the second dimension, reflects the degree that an individual will limit intimacy and interdependence with others. Within the continuum of attachment, an individual high in anxiety and low in avoidance would be classified as *preoccupied*, having an inflated desire for closeness but lacking confidence in the intimate partner to be responsive to his/her needs (Collins, et al., 2004, p. 199). *Fearful-avoidant* individuals are high in both anxiety and avoidance, leaving them uncomfortable with intimacy, distrusting those relationships with a heightened expectation of rejection. *Dismissing-avoidant* individuals on the other hand are low in anxiety and high in avoidance. The individual would view himself/herself as assured, invulnerable to other's feelings, maintaining positive self-image even facing rejection, and this individual would restrain expression of emotion.

Attachment styles also can predict sexuality patterns that begin to develop with both secure and insecure attachments (Schachner, Shaver, & Mikulincer, 2003). Partners with a secure attachment tend to seek long term relationships with mutual initiation and enjoyment of sexual relations. An anxious attachment would be predictive of preoccupation with one's romantic partner. These relationships, though passionate, tend to be shorter in duration with lower satisfaction. The partner with a high anxiety attachment style would be more apt to participate in sexual activity to please his/her partner even though their personal desire is for the affection. In contrast, the avoidant or dismissive

partner's relationships are characterized by lower levels of intimacy yet a greater openness to casual sexual relationships. They are less likely to fall in love. Partners with a fearful attachment style are both high in anxiety and avoidance. They have a deep longing for close emotional and physical attachment but often see themselves as unworthy.

Following the Gulf War, preliminary findings from a study of Israeli students suggest a relationship between attachment styles, fear of death (Mikulincer, Florian, & Tomacz, 1990), coping strategies, and psychological distress following trauma (Mikulincer, Florian, & Weller, 1993). Ambivalent style attachment is associated with more overt signs of fear of death and fear of not being missed in their death (Mikulincer, Florian, & Tomacz, 1990), and avoidant attachment style was associated with fearing the unknown nature of death. Two weeks following missile attacks, persons with ambivalent attachment styles reported greater levels of distress (Mikulincer, Florian, & Weller, 1993), and persons with avoidant attachment style reported higher levels of somatization, hostility, and trauma-related avoidance compared to persons with a secure attachment style. Because attachment style affects an individual's perceptions of a partner's availability, those with insecure attachment styles may be less likely to confide in their spouses about the traumatic experience. The lack of confiding in significant others means that the service member is less likely to assimilate the traumatic event and more likely to develop symptoms of PTSD (Guay et al., 2006). Therefore, it is expected that the findings of this study would show those with the ability to be close and depend on their spouses would have fewer

incidence of PTSD. Conversely, if the trauma victims confide in their loved ones and are met with negative responses, the lack of safety surrounding the disclosure can result in negative effects on PTSD (Guay et al., 2006).

Psychopathology, Attachment, and Dyadic Adjustment Human Ecology and Attachment

Human growth, development, and adaptation is a product of both early experiences and current circumstances (Sroufe, Carlson, Levy, & Egeland, 1999). In accordance with an integrated attachment style, an individual not only interprets the current experience based on early attachment experiences but may elicit responses from others in his/her environment that are consistent with early attachment relationships. Sroufe and associates demonstrate how early and subsequent attachment relationships are dynamic processes that lead to adaptation or psychopathology during times of extreme stress (1999). During these times, the actions of others are viewed as supportive or rejecting. If the individual anticipates that the current attachment figure will be unavailable, he/she will create a positive feedback cycle so that others in the environment will support his/her beliefs that one cannot depend on others.

Psychopathology and Dyadic Adjustment

Research findings suggest that psychopathology is linked to marital satisfaction (Whisman, Uebelacker, & Weinstock, 2004). Beach, Sandeen, and O'Leary (1990) propose that individuals develop symptoms in response to relationship problems. McCrady and Epstein (1995) infer that those symptoms are developed as a way of coping with problems in the relationship. In contrast,

some theorists suggest that marital distress is a consequence of psychopathology (Benazon & Coyne, 2000; Coyne & Benazon, 2001). There is a significant negative correlation between dyadic adjustment and depression (Trevino, Wooten, & Scott, 2007). Other studies show evidence that depression burdens the spouse (Coyne et al., 1987; Benazon & Coyne, 2000), a concept consistent with caregiver burden (Figley, 1998).

Comorbid mental health problems between partners also contribute to poorer outcomes in dvadic adjustment. For example, Trevino et al found a significant positive correlation between depression in one member of the couple dyad and depression in the partner. Significant negative correlations were found for depression and dyadic adjustment and the subscales for both husbands and wives (Treviño, Wooten, & Scott, 2007). Marital and family conflicts also are found in studies in which the male partner has alcohol-related problems (Jacob, Leonard, & Haber, 2001; Leonard et al., 2000; O'Farrell, Murphy, Neavins, & Van Hutton, 2000) as well as maternal alcohol use, depression, and history of antisocial behavior (Nolen-Hoesksema, Wong, Fitzgerald, & Zucker, 2006). Prevalence studies of substance use disorders among veterans (Wagner, Harris, Federman, Dai, Luna, 2007) suggest that alcohol misuse may be an important variable with this population. Correlation studies like the Treviño study suggests that causality cannot be inferred. The interactional theory of depression (Benazon & Coyne, 2000) says that depressive symptoms are not merely a product of cognitive distortion, but surface within the context of unsupportive

relationships. This further emphasizes the need to understand the complex interaction of relationship adjustment and psychopathology.

PTSD and Dyadic Adjustment

Studies with the military population have shown a significant association between PTSD and couple relationship problems (Cook et al., 2004; Gimbel & Booth, 1994; Jordan et al., 1992; Riggs, Byrne, Weathers, & Litz, 1998; Whisman, 1999). The strain of invisible injuries like PTSD and TBI cause various levels of relationship disintegration. Marital disruption and divorce is higher among couples in which one partner suffers from PTSD and TBI compared to similar cohorts without a diagnosis (Gimbel & Booth, 1994; Jordan et al., 1992; Kulka et al., 1990 Riggs et al., 1998; Urbach, 1989). Divorced service members returning from Iraq and Afghanistan reported higher levels of depression, also an invisible wound (Lapierre, Schwegler, & LaVauve, 2007). Further, depression is often comorbid with PTSD, TBI, suicidal ideation, chronic pain associated with physical injury, and caregiver burden (Lapierre, Schwegler, & LaVauve, 2007; Zivin et al., 2007).

Depression and Dyadic Adjustment

There is an association between relationship distress and depression (Beach, 2001; Coyne et al., 2002; Whisman et al., 2004). Among Kessler, Walters, and Forthofer (1998) showed an association between depressive symptoms and marital dissolution indicating that veterans with a combat injury are at increased risk for divorce. Depression is often comorbid with other psychiatric concerns among veterans (Institute of Medicine, 2008) including TBI.

Depression is the most common mood disturbance seen in clinical practice, with incidence between 25 and 50 percent when the patients are survivors of TBI (Lux, 2007). Veterans with head injury sustained during World War II were more likely to report depression (18.5%) compared to veterans without head injury (13.4%) (Holsinger, Steffens, Phillips, et al., 2002). Further, Holsinger and colleagues found that the lifetime risk for depression increased with the severity of head injury.

Combat Stress and Intimate Partner Violence

Studies reveal some association between an invisible combat injury and intimate partner violence. The aggressive behaviors associated with PTSD symptomology and the loss of impulse control associated with TBI place service members at risk for perpetrating violence against his/her intimate partner (Dyer et al., 2006; Jordan et al., 1992; Kim, 2002; Orcutt, King, & King, 2003; Taft et al., 2005). Regarding the risk associated with invisible injuries, Marsh and Martinovich (2006) found among men receiving treatment for intimate-partner violence that there was a 58% prevalence rate of TBI. . Taft and associates found an association between PTSD symptoms and intimate partner violence (Taft, Street, Marshall, Dowdall, & Riggs, 2007). Calhoun, Beckham, and Bosworth, (2002) found some association between violence and increased caregiver burden. Further, veterans diagnosed with PTSD and/or depression perpetrated more violence against their partners than did veterans with adjustment/V-code diagnosis. (Sherman, Sautter, Jackson, Lyons, & Han, 2006).

From the above review, it seems quite plausible to find lower levels of dyadic adjustment in cases where the service member has PTSD, depression, or both. *Combat induced PTSD and Dyadic Adjustment*

The literature indicates that veterans who have PTSD experience higher levels of relationship distress (Cook et al., 2004; Riggs, 1998). Further, there is some evidence to suggest that couple interactions contribute to each individual's mental health, adjustment, and relationship satisfaction following deployment (Bramsen et al., 2002; Brooks, 1991; Browne et al., 2007; Byrne & Riggs, 2002; Solomon et al., 1987; Solomon et al., 1988). Studies have further attempted to tease out particular PTSD symptoms that might be contributing to relationship distress (Cook et al., 2004; Dekel & Solomon, 2006; Iowa Persian Gulf Study Group, 1997; Nelson-Goff et al., 2007).

Dyadic adjustment also may be affecting the onset or maintenance of combat related PTSD. A study of UK reserve armed forces found poorer health and PTSD among service members closely related to problems at home during and following deployment (Browne et al., 2007). This is consistent with the interdependent nature of partner adjustment following a traumatic event (Bramsen, Henk, van der Ploeg, & Twisk, 2002; Gold et al., 2007). The dynamics of the couple relationship may partially explain the delayed onset of PTSD (Brooks, 1991). Brooks hypothesized that it was not only the emotional numbing of the veteran contributing to his/her under-functioning, but also the resistance of the system to restructure and adapt to new patterns of interaction. Further, high levels of expressed emotion in the family can impede improvement of PTSD

symptoms (Solomon, Mikulincer, Fried & Wosner, 1987). Unsupportive partners lead to worsened mental health outcomes for survivors of trauma (Byrne & Riggs, 2002). Alternatively, high levels of social support are associated with decreased intensity of PTSD symptoms (Solomon, Mikulincer, & Avitzuer, 1988). *Secondary Trauma*

Emotional and social alienation, depression, and anxiety are common among spouses in the course of chronic and severe PTSD suffering veterans (Beckham, Braxton, & Kudler, 1997). The caregiver may even begin to experience PTSD-like symptoms or secondary traumatization (Figley, 1998). The burden of caring for a spouse with PTSD (Beckham, Lytle, & Feldman, 1996; Dirkzwager Bramsen, Ader, & vand der Ploeg, 2005), TBI (Ben Arzi, Solomon, & Dekel, 2000), and depression (Joiner & Coyne, 1999) negatively affects the caregiver's psychological well-being.

Some potential hypotheses for the interaction effects of the veteran's PTSD and the psychological well-being of the spouse or significant other have been explained in the following studies. The "family schema" is said to shape the families' interpretation of the invisible injury and predicts adaptation (Kosciulek, 1994; Kosciulek, McCubbin, & McCubbin, 1993). Hence, the family beliefs, values, goals, and perceptions of themselves in the context of their community determine whether the family views their circumstances as manageable. Stebbins and Pakenham (2001) studied the beliefs of spouses and parents who were caretakers of a brain injured individual. They found cognitive interpretation of the injury to play a major role in their own psychological readjustment,

suggesting irrational schemas contribute to poorer outcomes for the caretaker. Stebbins and Pakenham found worrying explained the greatest variance in adjustment of the caretaker (2001). Problem avoidance or pretending that the injury did not happen is also related to lower psychological health of the caregiver (Sander et al., 1997; Stebbins & Pakenham, 2001).

Adult Attachment Styles Effects

Combat Exposure, Attachment, and Dyadic Adjustment

The linear relationship of combat exposure and PTSD has significant implications for service members and their families. PTSD combined with combat level has explained 51.8% of the variance in marital adjustment and 33.6% of the variance of the veterans' perceived child behavior problems (Caselli & Mott, 1995).

Individual attachment style has some relationship to symptoms of anxiety and depression and characteristics of self-perceived social competence (Crowell & Treboux, 1995). Following the Gulf War, preliminary data from a study of Israeli students suggest a relationship between attachment style, fear of death (Mikulincer, Florian, & Tomacz, 1990), coping strategies, and psychological distress following trauma (Mikulincer, Florian, & Weller, 1993). Ambivalent attachment style also is associated with more overt signs of fear of death and fear of not being missed in their death (Mikulincer, Florian, & Tomacz, 1990), and avoidant attachment style was associated with fearing the unknown nature of death. Two weeks following missile attacks, persons with ambivalent attachment style reported greater levels of distress (Mikulincer, Florian, & Weller, 1993), and

persons with avoidant attachment style reported higher levels of somatization, hostility, and trauma-related avoidance compared to persons with a secure attachment style.

Constructs of dyadic adjustment are related to constructs of adult attachment style. For example, a correlation is shown between patterns of attribution and behavior in non-distressed couples and emotional response patterns and behavior intentions of partners with a secure attachment (Collins, 1996). Cooks et al. (2004) found that World War II veterans with PTSD were nearly three times as likely to experience difficulties in intimate relationships. Seventy percent of Vietnam veterans with PTSD and their partners reported clinically significant relationship distress (Riggs, Byrne, Weathers & Litz, 1998).

The "couple adaptation to traumatic stress" is a theoretical model developed to help clinicians understand the systemic processes that occur when couples present with trauma (Nelson-Goff & Smith, 2005). This model includes attachment as one of the mechanisms to provide understanding of traumatic stress and trauma transference in couples. Trauma can disrupt a person's ability to form an attachment with his/her partner. Individual symptoms of PTSD like isolation, numbing, and anger may result in secondary trauma to the partner who empathically feels the symptoms of his/her partner's PTSD. If the spouse experiences distress when the soldier reveals details of the event, he/she may express negative behaviors like criticism, denial, or avoidance (Guay et al., 2006). The negative patterns in the couple relationship may contribute to the development or maintenance of PTSD symptoms.

Attachment theory is an important component of this study because of its relationship to marital satisfaction and arousal of attachment style during times of stress. The attachment behavior systems are linked to emotional expression and to cognitive processes associated with both memory and narrative production (Crowell & Treboux, 1995). Securely attached individuals experience positive emotions when their spouses/significant others interact in positive ways, indicating that they are available, responsive, and supportive (Simpson, et al., 2007). Securely attached individuals within the couple relationship are able to use adaptive processes like problem-solving, social support, forgiveness and showing affection that are associated with marital satisfaction (Gottman et al. 1998; Huston et al., 2001; Karney & Bradbury, 2000; Neff & Karney, 2004; Simpson et al., 1996). In contrast, an individual with an avoidant attachment style will be less likely to perceive positive interactions from his/her partner as positive. less likely to accommodate his/her partner's preferences, and more likely to feel his/her autonomy is threatened (Simpson, et al., 2007). This has significant implications for couples who have experienced the stress of deployment. Anxiously attached individuals might attribute feelings of abandonment to a partner's inability to meet his/her needs for security rather than to the circumstances of deployment. Since the attachment system regulates negative affect, one could anticipate that challenges of the deployment cycle like fatigue, injury, fear, chronic stress, or distance in the intimate relationship would leave lingering attachment effects on the couple relationship.

Attachment and Parental Stress

Adult attachment theory maintains that attachment style not only affects interactions between intimate adult partners, but attachment style also influences how one interacts with his/her children (Rholes, Simpson, & Friedman, 2006). Individuals with an avoidant attachment style may find it difficult to provide supportive care to their children (Rholes, Simpson, & Blakely, 1995). Mothers, in the Rholes study (1995) with an avoidant attachment style, also felt more detached and less emotionally connected to their children.

Summary

PTSD symptoms of the service member predict relationship satisfaction for the service member and his/her spouse/significant other (Nelson Goff, Crow, Reisbig, & Hamilton, 2007). Studies have attempted to look at the effects of depression (Coyne, Thompson, & Palmer 2002) or PTSD (Cook, et al., 2004; Nelson-Goff, Crow, Reisbig, & Hamilton, 2007) on relationship functioning. Individual levels of psychopathology predict lower levels of dyadic adjustment for the individual (Chambless et al., 2002; Whisman, 1999) and mixed effects of dyadic adjustment for the partner (Benazon & Coyne, 2000; Coyne et al., 2002; Whisman, Uebelacker, & Weinstock, 2004). Further, partner effects have been studied to evaluate the relationship of burden for those caring for a spouse/significant other with a mental health problem. The mental health of both members jointly influences the relationship (Whisman, Uebalacker, & Weinstock, 2004) and should be taken into account when considering dyadic adjustment following war time deployment. Additionally, the interaction effects of individual

psychopathology, partner's psychopathology, and perceptions of dyadic adjustment should be taken into account.

Assuming that high levels of trauma symptoms make it more difficult for the service members to be emotionally available to their partners (Nelson Goff et al., 2007), this interpersonal behavior could activate negative cognitive and emotional processes in partners with preoccupied attachment styles (Collins, 1996). A spouse who attributes PTSD symptoms to something about the relationship or to negative attitude or motivation of the service member is likely to display negative emotional responses. When PTSD symptoms are attributed to negative attitude of partner rather than symptoms of illness, the outcome may be conflictual interactions (Collins, 1996). It is therefore necessary to explore the possibility that adult attachment style may mediate the effect of PTSD on dyadic adjustment and individual functioning.

Dyadic adjustment and attachment style may have an effect on parental stress. Emotionally close and nurturing relationships affect the mother's sense of well-being and her interaction with the child. Not only do neglectful mothers have fewer emotional resources, they perceive those supports as being less available (Coohey, 1996). The very nature of the deployment cycle infuses a great deal of ambiguity into the couple relationship, which is likely to be the primary attachment relationship for each partner. Some examples of how the extra-familial conditions of deployment affect those intra-familial processes include: a 12-18 month separation from the primary attachment relationship, infidelity or rumors of infidelity within the unit, and changing roles and expectations of both

the citizen soldier and the partner left behind. All of this is amplified by the uncertainty of the soldier's return. Deployment is further complicated when the unit faces a difficult combat experience. A soldier's total reliance on a fellow comrade for survival may displace a spouse from the role of primary attachment figure for the soldier. The uncertainty of knowing whether the soldier will develop PTSD following deployment may invoke a constant state of hyperactivating or deactivating states of mind for the spouse (Roisman, 2007).

In reviewing the complexity of processes that occur throughout all stages of deployment, a family ecological framework serves as a guide to framing the research questions. Influenced by concepts of general systems and human ecology, family ecology (Bubolz & Sontag, 1993) provides a model for research which takes into account the interactions of genetics and environment on psychopathology. The framework also consider the necessary adaptations within the couple or family system as the soldier enters a hostile combat environment and then return to roles that require nurturance. Further, the theoretical framework is broad enough to account for processes of change within extrafamilial systems that will be necessary to promote human growth and development as opposed to psychopathology.

CHAPTER THREE

METHODOLOGY

Design

This study used a quantitative cross sectional survey research design using multiple survey instruments. Succinct measures with good reliability were selected. A minimum sample size of 200 dyads was determined sufficient to provide meaningful statistical power. Structural equation modeling was used as the primary data analysis method because it provides a mechanism for taking into account measurement error in both the independent and dependent variables as well as measuring both direct and indirect effects (Raykov & Marcoulides, 2006).

Sample

Participants were recruited from a convenience sample of NG and family members participating in one of eight reintegration programs between October 2007 and August 2008 at conference centers in various geographic locations in the Midwest. The two day reintegration programs took place approximately 45-90 days following the service member's return home. Service members were returning from a 12 month deployment in a combat zone, with additional time away from family during the unit pre-mobilization and demobilization. Premobilization separation usually consisted of an additional three months away from family at a military installation within the continental United States. Most soldiers were away from home for at least 15 months. Iraq, Afghanistan, and Kuwait were the most recent deployment locations of study participants. The sample included the following Military Occupational Specialties (MOS) or job classifications: infantry, transportation, service personnel, medical, military police, embedded training teams, and one change in operational status from field artillery to security force.

Attendance at the nine reintegration programs included 826 NG members and 588 family members. Of the 1,414 NG and family members present during study recruitment, 332 NG members (40%) and 212 spouses/significant others (36%) volunteered and met the criteria for study participation. Parents of single soldiers, adult children, grandparents, and extended family such as cousins were excluded from this study even though they were represented in the 588 family members participating in the event. Respondents with a paired partner were included in the dvadic data set if a) subjects indicated their relationship status was married; b) subjects indicated their relationship status was engaged. cohabitating, separated, or divorced and they responded to questions about their couple relationship; c) or subjects relationship status was single participants, but they responded to guestions about their couple relationship and their significant other also completed the survey. The final dyadic data set of 200 couples was analyzed for this study. Four dual-career military couples were represented in this data set. For the analyses, the service member most recently returning from deployment was considered the service member, and the partner remaining behind in the recent deployment was considered the spouse. The returning service member completed the member form, and the service member remaining on the home front during deployment completed the spouse form.

Instrumentation

The study assessed unit variables, demographic variables, dyadic functioning, attachment constructs, and mental health outcomes of the service member and his/her spouse. The unit variables were available based upon recruitment date and unit participation in the reintegration activity. Participants completed a self-report Survey Questionnaire which included demographic variables, dyadic factors, attachment constructs, and assessments of PTSD, depression, alcohol use, and parental stress. The independent variable PTSD, in relation to a military event, was measured by the PTSD Checklist (Weathers et al., 1993). Screening instruments for mental health, for the purpose of this study, are considered independent. The screening for mental health concerns were measured by the following instruments: the Beck Depression Inventory (Beck, Steer, & Brown, 1996); the Breslau Short Screening Scale for PTSD in reference to a non-military stressful life event (Breslau, Peterson, Kessler, & Schult, 1999); the Alcohol Use Disorders Identification Test (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The dependent variable, parental stress, was measured with the Parental Stress Scale (PSS) (Berry & Jones, 1995). The dependent variable, dyadic adjustment, was measured with the Revised Dyadic Adjustment Scale (Busby et al., 1995). The mediating variable adult attachment style was measured with the Revised Adult Attachment Scale (Collins & Read, 1990).

Demographic Information

The survey questionnaire included the following demographic information: age, gender, ethnicity, education, military rank, marital status, family income, and number of deployments since 2001.

Dependent Variables

Dyadic Adjustment. The observed variable for an overall measure of relationship/dyadic adjustment was measured by the Revised Dyadic Adjustment Scale (RDAS) (Busby et al., 1995). Observed variables for Dyadic Subscales measured by the RDAS include dyadic satisfaction, dyadic cohesion, and dyadic consensus. The RDAS is a 14-item Likert-type scale and has multiple response choices. The total RDAS has a Cronbach's alpha of .90. The Guttman split-half reliability coefficient for the RDAS was .94. The total RDAS Cronbach's alpha for this study was .88 for both service members and spouses. The RDAS has three subscales with acceptable internal reliability: consensus (Cronbach's alpha is .81), satisfaction (Cronbach's alpha is .85), and cohesion (Cronbach's alpha is .80). Further, the RDAS has 7 first-order concepts: Decision Making, Values, Affection, Stability, Conflict, Activities, and Discussion. A criterion cutoff score to distinguish between distressed and non-distressed couples was established for the RDAS (Crane, Middleton, & Bean, 2000), with a score of 47 and below representing distressed, and a score of 48 and above representing nondistressed couples.

RDAS Subscales. The RDAS has three subscales (Busby et al., 1995): consensus, satisfaction, and cohesion. Again, the purpose of the research is to

understand "why" mental health and dyadic adjustment are related. Dyadic adjustment is conceptualized and measured on information related to functioning in several domains of the relationship (Busby et al., 1995; Fincham & Bradbury, 1987; Spanier, 1976). Dyadic satisfaction is a global evaluation of the relationship (Fincham & Bradbury, 1987). Dyadic cohesion considers the sense of togetherness or emotional bonding experienced by the dyad. Cohesion is considered to be an important component of the circumplex model of family functioning (Olsen, 1993) suggesting that there is a curvilinear relationship between cohesion and adaptability in relation to family functioning. Even though there appears to be a curvilinear relationship between dyadic cohesion and marital satisfaction, marital cohesion and adaptability have been found to have a linear relationship with overall dyadic adjustment (James & Hunsley, 1995). Finally, dyadic consensus is defined as the couple's agreement on matters of importance to relationship functioning (Busby et al., 1995; Spanier, 1976). In addition to commitment to the relationship, willingness to sacrifice for the benefit of one's partner has been demonstrated to account for a significant proportion of dyadic adjustment (Van Lange, Rusbult, Drigotas et al., 1997). Drawing upon the theoretical underpinnings of family ecology, the study hypothesizes that these subscales of dyadic adjustment may explain why some family systems show great resilience in their adaptations to complicated deployments while others struggle with reintegration.

Parental Stress. Parental stress was measured with the Parental Stress Scale (Berry & Jones, 1995). This measure contains 18 Likert-type items

grouped into four subscales including: closeness with children, positive and negative emotions associated with being a parent, difficulties associated with being a parent, and satisfaction with parenting. Participants chose from responses ranging from 1=strongly disagree to 5=strong agree. Some questions on the PSS require reverse scoring. Higher scores indicate higher levels of parenting stress. The test-retest reliability for this scale has been established as r=.81. The PSS has been used with a study of military spouses with a Cronbach's alpha of r=.86 (Everson, 2005). It is expected that higher scores on PSS are associated with more negative emotions and less role satisfaction (Berry & Jones, 1995). The Cronbach's alphas for the PSS for this study were .86 and .85, respectively, for service members and spouses.

Independent Variables

Combat experience. Data were collected on service members' combat experience in most recent and previous deployments. Combat trauma was assessed with five questions in relation to their most recent deployment and repeated in relation to previous deployments. (1) "How many times were you in serious danger of being injured or killed?" (2) "How many times did you engage the enemy in a firefight?" (3) "Did you know someone who was seriously injured or killed?" (4) "Were you directly responsible for the death of an enemy combatant?" (5) "Were you wounded or injured?" Service members were further asked to identify the most distressing deployment related event they had ever experienced. In reference to their most distressing deployment experience, combat related PTSD symptoms were assessed using the PTSD Checklist (Weathers, Litz, Herman, Huska, & Keane, 1993).

PTSD Checklist (PCL-M). The observed variable for PTSD in relations to a military event was measured using the PCL-M. Observed variables for specific clusters of PTSD symptoms were reexperiencing, avoidance, and increased arousal. The avoidance cluster was further represented by numbing (emotional restriction, detachment from others, and loss of interest) and effortful avoidance (attempts to avoid reminders and attempts to avoid thoughts and feelings). The 17-item self report military version of PTSD Checklist (Weathers et al., 1993) was used to measure PTSD symptoms. Respondents were asked to indicate in relation to their most distressing military event the extent they had experienced a list of problems during the last 30 days on a 5-point Likert type scale ranging from not at all (1) to all the time (5). The PCL-M can be used as a continuous measure of symptoms' severity by summing scores across the 17 items. Congruent with similar studies, participants were identified as meeting the criteria for PTSD diagnosis in relation to combat experience if they met the stringent cutoff score of 50 or higher (Hoge et al., 2004; Weathers et al., 1993). The PCL-M has excellent test-retest reliability. Among Persian Gulf veterans, the PCL-M has an internal consistency of .96 for all 17 symptoms (Weathers et al., 1993). The PCL-M correlates strongly with other measures of PTSD such as the Mississippi Scale, the PK scale of the MMPI-2, and the Impact of Event Scale (Weathers et al., 1993). For this study, the Cronbach's alpha for the PCL-M was .95.

Stressful Life Event Screener was used to identify and reference traumatic life events of the spouses in relation to non-military events. Using a list of 15 items, respondents checked *Yes* or *No* as to whether they had ever experienced the life event. Respondents were then asked to identify their most distressing life event. Examples of the items are "having witnessed someone being seriously injured or killed," "having been raped," and "having learned about the sudden, unexpected death of close friend or relative". In reference to their most distressing life event, participants were assessed for PTSD symptoms for a non-military event using the Short Screening Scale (Breslau, Peterson, Kessler, & Schultz, 1999).

Short Screening Scale. The Short Screening Scale for DSM-IV PTSD (Breslau et al., 1999) is a 7-item self-report measure of PTSD symptomology. This scale is used to determine if spouses met the criteria for PTSD in relation to a stressful life event. Participants were identified as meeting the criteria for PTSD diagnosis if they met the cutoff score of 4 or higher with sensitivity=80%, specificity=97%, positive predictive value=71%, and negative predictive value=98% (Breslau et al., 1999). The Cronbach's alpha for the SSS was .84 for this sample of spouses.

Beck's Depression Inventory II. The BDI was used to identify behavioral manifestations of depression. This 21 item self report inventory has been found to be effective in discriminating among individuals with various levels of depression, ranging from minimal to severe. The BDI also has the capability to show changes in the intensity of depression within an individual when

administered at different points across time. Cronbach's alpha was used for each subscale to assess the internal consistency reliability of the instrument. Internal consistency for the BDI ranges from .73 to .92, with a mean of .86. Test/ re-test reliabilities ranged from .48 to .86. This measure is dependent on the interval between re-testing and type of population. A total score of 14 or greater on the BDI was considered positive for meeting the criteria for depression. The Cronbach's alphas for the BDI were .90 and .92, respectively, for service members and spouses in the dyadic data set.

Alcohol Use Disorders Identification Test. The AUDIT was used to assess for hazardous drinking. This ten item self-report measure has been found to provide good discrimination across multiple cultures, socio-economic groups, and genders. The AUDIT showed a high reliability (r=.86) with a sample of nonhazardous, drug abusers, and alcoholics (Babor et al., 2001). Respondents chose from a set of responses that best described their use of alcohol. For example, "How often during the last year have you been unable to remember what happened the night before because you had been drinking?", with responses ranging from "Never"= 0 to "Daily or almost daily" = 4. Total scores of eight or more were used as indicators of hazardous and harmful alcohol use. The Cronbach's alphas for the AUDIT in the present study were .80 for service members and .77 for spouses.

Mediating Variable

Adult Attachment. The observed variables for Adult Attachment were measured using the Revised Adult Attachment Scale (Collins & Read, 1990) which has three observed indicators: close, depend, and anxiety. The RAAS is an 18-item measure. Respondents rated their feelings about romantic relationships on a 5-point Likert type scale. The RAAS yields scores on three factors: Close (comfort with closeness), Depend (capacity to depend on others), and Anxiety (fear of being abandoned). The use of adult attachment for the purpose of this study was not to distinguish between secure and insecure attachment style. This would be considered a moderating variable distinguishing "for whom" the predictor is more strongly related to an outcome. Rather, the intent of this study was to understand "how" or "why" there is a relationship between the predictor and outcome (Frazier et al., 2004).

Table 1

Measures Used in Study

Name of Measure	Description
DEPENDENT VARIABLES	
Revised Dyadic Adjustment Scale (RDAS: Busby et al., 1995	The 14-item scale provides an overall measure of dyadic adjustment as well as three subscales (consensus, satisfaction, and cohesion with acceptable internal reliability.
Parental Stress Scale (PSS: Berry & Jones, 1995).	This 18-item scale provides an assessment of parental stress measuring closeness with children, positive and negative emotions associated with being a parent, difficulties associated with being a parent, and satisfaction with parenting.
INDEPPENDENT VARIABLES	
Posttraumatic Stress Disorder Checklist-Military (PCL-M: Weathers et al., 1993)	The 17-item measure was used to assess service members' symptoms of PTSD in relation to their combat experience. Scores of 50 or higher were classified as having PTSD in relation to a military event.
Short Screening Scale (SSS: Breslau et al., 1999)	The 7-Item measure was used to assess the spouses' symptoms of PTSD in relation to a stressful life event. Scores of 4 or higher were classified as having PTSD.
Beck's Depression Inventory II (BDI II: Beck, Steer, & Brown, 1996)	The 21-item measure was used to identify behavioral manifestations of depression. The BDI is effective in discriminating among individuals with various levels of depression, ranging from minimal to severe.
Alcohol Use Disorders Indentification Test (AUDIT: Babor, de la Fuente, Saunders & Grant 1992)	A 10-item measure of alcohol use which includes a cut- off score for hazardous or harmful alcohol consumption.
MEDIATING VARIABLE	
Revised Adult Attachment Scale (RAAS: Collins & Read, 1990)	The 18-item scale yields scores on three factors: Close (comfort with closeness), Depend (capacity to depend on others), and Anxiety (fear of being abandoned).

Data Collection

The study used a sample of NG members and their spouses following deployment to a combat zone in OIF/OEF. The survey consisted of seven instruments for the spouse/significant other and nine instruments for the member as well as demographic questions data and questions to assess traumatic events in relation to a military event and stressful life event.

An expert advisory group with representation from academic experts as well as the NG provided feedback in survey development. An advisory group of ten family members and ten service members recently returning from deployment made recommendations for survey revisions.

The study was conducted with consideration for human subject protection and followed the protocol of the university Institutional Review Board at Michigan State University. Participants were recruited during a mandatory two day reintegration program approximately 45-90 days post-deployment. The research roundtable where participants were recruited was an elective workshop describing the program. Informed consent documents were provided to potential subjects, and they were informed of their rights as participants, potential risks associated with participation, and the voluntary nature of the study. Couples received a packet with a survey for the service member and a survey for the spouse. Survey instruments were labeled with unique numbers which linked individual surveys to a unique couple number. Participants were encouraged to seat themselves in such a way to maintain privacy. The survey took

approximately 30-40 minutes to complete. All data were collected anonymously without any identifying information. Participants received a \$10 gift certificate as a thank you for their voluntary participation.

Data Analysis

A database application of research informatics (RIX) was used for data management, which included double pass data entry, justification, and scoring of assessments. After data cleaning, random checks were done on 10% of surveys to ensure a high quality of control procedures. SPSS software (version 17.0) was used to conduct the analyses. The individual data set was restructured using SPSS 17 to create a dyad data set and a pairwise data set where the couple was the unit of analysis.

The data analyses employed the standard statistical tests, including frequency distributions, measures of central tendency and dispersion, correlation, and F-test. Descriptive statistics were used to summarize sample observations and to show the relationship among variables. T-test, ANOVA, structural equation modeling, and multi-level modeling were used to test the hypotheses. R1 – Does PTSD in service member, spouse, or both parties predict dyadic adjustment for the service member and his/her spouse/significant other?

Hypothesis 1a: Greater symptom severity of PTSD in service members in relation to a military event will predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other.

Hypothesis 1b: Greater symptom severity of PTSD in spouses in relation to a civilian event will predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other.

Hypothesis 1c: Couples in which PTSD is diagnosed in both parties (service members and spouses) will have lower scores on dyadic adjustment when compared to couples where only one party has a PTSD diagnosis or where neither party has a PTSD diagnosis.

A one-way analysis of variable (ANOVA), using SPSS 17 (Arbuckle, 2008), was completed to determine the predictive contributions of the service member's PTSD in relation to a military event, as measured by the PCL-M, to current dyadic adjustment (RDAS scores) for both the service member and his/her spouse. It is expected that the independent variable, PTSD, will be associated with change in the dependent variable, dyadic adjustment, for both service members and their spouses/significant others (Nelson Goff et al., 2007). Likewise, ANOVA was utilized to determine the association between PTSD and current dyadic adjustment for both the service member and his/her spouse.

Hypothesis 2a: Higher scores on the symptom cluster avoidance are associated with lower scores on dyadic adjustment.
Hypothesis 2b: In the avoidance cluster, higher scores on emotional numbing and purposeful avoidance are associated with actor effects and lower scores for the service member on dyadic adjustment. *Hypothesis 2c:* In the avoidance cluster, only higher scores on emotional numbing for the service member is associated with partner effects and lower scores for the spouse's dyadic adjustment.

To examine the differences among the three clusters of PTSD symptoms, Pearson correlation coefficients were computed between dyadic adjustment and the subscales of PTSD. To further examine the association of relationship quality to PTSD symptoms clusters, a regression analysis was conducted in which dyadic adjustment scores were regressed on the three PTSD symptom clusters scores.

Emotional numbing and effortful avoidance symptoms are included in the avoidance cluster of PTSD but appear to be distinct (Foa, Riggs, & Gershuny, 1995; Riggs, Byrne, Weathers, & Litz, 1998). A confirmatory factor analysis was conducted exploring the association between emotion numbing and effortful avoidance symptoms and dyadic adjustment. The couple was the unit of analysis and this strategy was used to examine actor and partner effects of symptom clusters scores on dyadic adjustment scores.

R3 –What measures of mental health were associated with soldier's reported dyadic adjustment (actor affect) as well as spouse/significant other's reported dyadic adjustment (a partner affect) following deployment??

Hypothesis 3: Higher levels of psychopathology for each member of the couple will be associated with lower levels of dyadic adjustment for each member.

A dyadic data set was created in accordance with Kenny, Kashy, and Cook (2006) to measure the non-independence of the service member and spouse data. Structural equation modeling (SEM) was used to estimate the actor and partner effects of psychopathology on the dyadic adjustment of both the NG member and the spouse. The computer program AMOS 17 was used to compute the structural model indices.

Each of the dependent variables (Cook & Kenny, 2005), NG member dyadic adjustment and partner dyadic adjustment, had an equation. The member and spouse mental health variables are the predictor variables in these equations. The regression coefficients for the member's mental health variables estimate the actor effect for members; the regression coefficients for the spouse's mental health variables estimate the partner effects for the spouse on the member. The spouse dyadic adjustment outcome is the dependent variable in the second equation, and the predictor variables are the member and spouse mental health variables. In this case, the regression coefficients for the member variables estimate the partner effects of the member on the spouse, and the regression coefficients for the spouse variables estimate the spouse actor effects. There is residual variance for each equation, representing the effect of all the other variables not included in the equation plus errors of measurement. The residual effects from the member and spouse equations were allowed to

correlate to control for other sources of non-independence. The independent variables (member's and spouse's measures of mental health) were also allowed to correlate so that partner effects would be estimated while controlling for actor effects and vice versa.

Further analysis compared parameters to determine whether the actor effect for the member is equal to the partner effect for the member and whether the actor effect for the spouse is equal to the partner effect for the spouse. The size of two parameters was compared by forcing the parameters to be equal. The chi-square goodness-of-fit value for the model with the two parameters equal was compared to the chi-square goodness-of-fit value for the model without the parameters set to be equal. If the difference between the two chi-square values were statistically significant, then it was inferred that the parameters are not equal.

Research questions four and five involve mediation models (Frazier, Tix, & Barron, 2004). A model was conceptualized using an adult attachment construct as mediating the effects of PTSD on dyadic adjustment. Another model was conceptualized where adult attachment would mediate the effects of depression on parental stress.

R4 – Does Adult Attachment style mediate the effects of PTSD in relation to a military event on overall Dyadic Adjustment?

Hypothesis 4: Higher scores on Close and Depend combined with lower scores on Anxiety will mediate the effects of the service member's PTSD, resulting in higher scores on overall Dyadic Adjustment. Conversely higher

scores on Anxiety will have a positive relationship with lower scores on Dyadic Adjustment indicative of distressed couples.

Structural regression modeling was used to examine mediating effects in this study. Logic for the analysis is based on Baron and Kenny (1986) procedures for modeling. The first part refers to the effect of the predictor (PTSD) on the outcome (dyadic adjustment). Testing the direct effects of the model establishes that there is an effect that can be mediated (Hoyle & Smith, 1994). The second part refers to testing the effects of the predictor (PTSD) on the mediator (adult attachment). Step three and four refer to the effect of the mediator (adult attachment) on the outcome (dyadic adjustment), controlling for the predictor variable. Assuming that *X* represents predicting variables, *M* represents mediating variables, and *Y* represents an outcome variable, the model was tested using Amos software (Arbuckle, 2008).

R5 –Does Adult Attachment style mediate the effects of PTSD in relation to a military event on Parental Stress?

Hypothesis 5: Higher scores on Close and Depend combined with lower scores on Anxiety will mediate the effects of the service member's PTSD, resulting in lower scores on overall Parental Stress. Conversely, higher scores on Anxiety will have a positive relationship with higher scores on Parental Stress indicative of distressed parenting.

Structural regression modeling was used to estimate the effects of the mediation variable attachment with PTSD and Parental Stress. Logic for the analysis is based on Baron and Kenny (1986) procedures for modeling. The first

part refers to the effect of the predictor (PTSD) on the outcome (parental stress). Testing the direct effects of the model establishes that there is an effect that can be mediated (Hoyle & Smith, 1994). The second part refers to testing the effects of the predictor (PTSD) on the mediator (adult attachment). Step three and four refers to the effect of the mediator (adult attachment) on the outcome (parental stress) controlling for the predictor variable. Assuming that *X* represents an outcome variables, *M* represents mediating variables, and *Y* represents an

Ethical Issues

The primary institution review board (IRB) for the participation of human subjects in this project was the Michigan State University Committee for Research Involving Human Subjects (UCRIHS). Since 18 is the age requirement to join the NG, all NG members participating in the survey are age 18 and older. Because of member age requirements, length of basic and specialized training prior to deployment, current deployments of 3-18 months, and maximum time of 18 months post-deployment for study inclusion, there were no spouses of the NG members less than 18 years of age at the time of data collection. Further, it is anticipated that the health status of respondents to be representative of the overall NG population as represented on the PDHA (Hoge, Auchterlonie, & Milliken, 2006).

Data collected in this study were obtained directly from participants. The data were obtained through self-report questionnaires completed in person. Participants were asked to complete the survey independent from their

spouse/partner so that responses would not be influenced by the presence of their significant other. All information collected was anonymous, with no identifying information. Data were coded by ticket number and couple number rather than name. The researchers had no means for linking ticket numbers to specific participants. All information was seen only by those directly involved in the conduct of the project.

Potential Risks

During the survey, respondents were asked questions about their deployment experience and stressful events during the deployment cycle, including post-deployment. The recalling of past events, particularly if the individual perceived the event to be traumatic, could have been distressing to the respondents. Respondents were informed that they could discontinue the survey at any time without penalty. Mental health professionals were available at each data collection site. Respondents were told of availability of mental health professionals should they become distressed while completing the survey. Because the survey took 30-40 minutes to complete, some participants might have been at risk for becoming restless or tired during the survey. Because of the sensitive nature of some of the questions, NG members could have been concerned about mental health stigma and/or career advancement if they responded honestly to the questions (Hoge, et al., 2004). Measures to address these risks are described in detail in the following protections against risk.

Risk-benefit Comparison

Risk-benefit comparison suggests that participants in this study would receive direct benefit. Even though there is some minimal risk of experiencing emotional distress as a result of recalling a stressful event, measures were taken to provide additional resources while maintaining the respondent's anonymity. Comparing these costs to the expected benefits for a large number of NG families who will be involved in future combat deployments and receiving NG supported prevention and intervention programming, as well as to the scientific community, lead the researcher to believe that the benefits of the study outweighed the risk.

Data and Safety Monitoring Plan

An adequate data safety and monitory plan was designed and implemented. The principal investigator and co-investigators have access to quantitative SPSS data files. Since the research team does not have the names of participants, personal identifying information that might represent a risk for the confidentiality of participants is not maintained. The original data survey assessments are locked in the NG Readjustment lab. Only the principal investigator and personnel authorized have access to this information. The principal investigator and researcher complied with policies, procedures, and recommendations indicated by UCRIHS. Rigorous control of data was implemented, and all necessary provisions were made according to UCRIHS requirements.

Inclusion of Women, Minorities, and Children

For the dyadic data set used in this study, women were under represented in the sample of service members (3%) and over represented in the sample of spouses (97%).The total sample represented 13.1% female service members compared to the Army NG population where 12.8 % are women (2005 Demographic Report). The discrepancy between female service members represented in the dyadic data set (3%) and the total sample (13.1%) reflects the lack of male spouse significant others participating in the reintegration weekends as well as single female service members represented in the population. For example, in the Army National Guard, 52% of men compared to 30.5% of women are married (2005 Demographic Report).

Participants included in study recruitment were geographically dispersed throughout the state, representing both rural and urban populations. Minorities were somewhat underrepresented in the study. The total minority representation of service members was 21.6% in the dyadic data set compared to total minority representation of 25.9% in the Army National Guard (2005 Demographic Report). However, university faculty and family and child clinic representatives participated in outreach efforts for NG families representing diverse populations following deployment. Outreach efforts include psycho-educational workshops, group facilitation, and clinical representation at all stages of the deployment cycle.

The research topic addressed dyadic issues and mental health outcomes of NG members and their spouse/significant other. Even though the parent-child

relationship is assessed in the Parental Stress Scale, data were collected only from the parent. Because of the research topic and targeted population, children under the age of 18 were not included in the study. However, because of the age of enlistment eligibility for service members, it is possible that a spouse/significant other of a deployed service member could have been under the age of 21 and thus included in the study.

As indicated in the data analysis section of the proposal, all analyses examined the effects of the deployment experience by gender. Each of the analyses highlighted gender differences in protective factors and mental health outcome measures. Previous research has focused on mental health outcomes of service members after combat in a predominantly male population. In addition, this study examined whether variables of interest varied proportionally in racial/ethnic subgroups.

CHAPTER FOUR

RESULTS

The purpose of this study was to investigate the influence of deployment to a combat zone on individual, family, and couple relationship functioning of NG families. The couples were the unit of analyses. The study was exploratory in nature and aimed to understand family experiences with regard to individual functioning (posttraumatic stress disorder, depression, and alcohol abuse) as well as dyadic adjustment, and parental stress.

This chapter has been organized into three sections. The first includes descriptive statistics and demographic characteristics for the sample. The second section incorporates statistical findings related to the research questions and associated hypotheses. This section also incorporates the examination and analyses of additional questions that were generated from the results of earlier analyses. The final section of this chapter summarizes the study findings.

Sample

The information in Table 1 provides the demographic characteristics of the sample in terms of gender, age, ethnicity, education, family income, rank, military operational status, and the number of deployments for the service member. The percentages for all demographic data are given for the portion of total respondents by category.

The final sample consisted of 400 participants equaling 200 linked dyads as the units of analysis. Four couples were dual-career military, and in these cases, the service member data was reflective of the partner recently returning

from deployment while the non-deploying service member was analyzed as the spouse in the couple unit of analyses.

The returning service members in this sample were overwhelmingly male (97%). Most of the sample fell between the ages of 22 and 50 (91%), with less than 10% representation from 18-21 years of age or over the age of 50. In regard to education, 84% of service members and 79.5% of spouses had received additional education beyond a high school diploma, with 27.5% of service members and 30.5% of spouses completing a bachelor's degree or higher. The sample ethnicity representation was 9.8% African Americans, 81.4% Caucasian, and 8.8% representing all other ethnic groups combined.

Family income was reported by both the service member and the spouse. A comparison with the poverty guidelines (U.S. Department of Health and Human Services, 2009) showed that 2.5% of the study sample met the criteria for poverty taking into account the number of individuals living within the household. Another 10% could not be definitively classified but were living at or near poverty. For example, according to the poverty guidelines, a family of three making \$18,310 meets the poverty criteria if they live within the 48 contiguous states. A family of three reporting an income below \$20,000 in this study could not be definitively classified at or below the poverty line, but was classified in the additional 10% living at or near poverty.

It should be noted that there was some discrepancy in the raw data between the service member and spouse/significant other's report of family income. It could be the result of the service member not sharing information

about additional income earned during deployment. It also may be a reflection of engaged couples not yet combining households, or cohabitating couples who do not pool finances.

Rank was broken down into the following categories: 26% enlisted (E1-E4); 54% enlisted non-commissioned officer (E5-E9); and 20% officer (O1-O9) or warrant officer (WO1-5). The sample was represented by the following military occupational specialties (MOS): 43% military police, 19% security force (originally field artillery), 13.5% medical, 12.5% infantry, and 1.5% service personnel or embedded training team members. Service members also were asked what deployment number this represented in their military career. It was the first deployment for 57.7% of the sample, the second deployment for 30%, the third deployment for 10.5%, and 2% of the sample had experienced four or more deployments.

		Service Member N=200 Count (%)	Spouse N=200 Count (%)	Service Member Total Sample N=332 Count (%)	Spouse/SO Total Sample N=212 Count (%)	National Demographic NG 2005 N=333,177 Percent
Gender	Female	6 (3%)	194 (97%)	43 (13.1%)	201 (96.6%)	12.8%
	Male	194 (97%)	6 (3%)	284 (86.9%)	7 (3.4%)	87.2%
	Gender Total	200 (100%)	200 (100%)	327 (100%)	208 (100%)	
Age	18-21	(%0) 0	7 (3.5%)	16 (4.8%)	7 (3.3%)	Age 18-25 = 37.0%
	22-30	49 (24.5%)	60 (30%)	93 (27.9%)	64 (30.3%)	Age 26-30 = 14.6%
	31-40	68 (34%)	73 (36.5%)	101 (30.3%)	77 (36.5%)	Age 31-40 = 27.1%
	41-50	69 (34.5%)	46 (23%)	102 (30.6%)	48 (22.7%)	Age over 41 = 21.4%
	Over 51	14 (7%)	14(7%)	21 (6.3%)	15 (7.1%)	
	Age Total	200 (100%)	200 (100%)	333 (100%)	211 (100%)	
Education	Some high school	. (%0) 0	1 (0.5%)			
	GED	7 (3.5%)	4 (2%)			*E=4.4%; *O=.1%
	High school diploma	25 (12 5%)	35 (17.5%)	55 (16.5%)	40 (19.1%)	*E=86.4%; *O=10.6%
	Some college	76 (38%)	64 (32%)	125 (37.5%)	70 (33.3%)	
	Technical certificate	15 (7.5%)	11 (5.5%)	23 (6.9%)	12 (5.7%)	
	Associate degree	22 11%)	23 (11.5%)	37 (11.1%)	24 (11.4%)	
	Bachelor's degree	42 (21%)	47 (23.5%)	74 (22.2%)	50 (23.8%)	*E=7.0%; *O=53.8%

 Table 2

 Demographic Characteristics of the Sample

-
Ъ
÷
2
0
Ü
\sim
N
0
ble

*E=.9%; *O=31.7%	13.7% 74.1% 7.4% 1% 2.1% 1.8%	
11 (5.2%) 3 (1.4%) 210 (100%)		19 (9.3%) 29 (14.1%) 33 (16.1%) 28 (13.7%) 42 (20.5%) 29 (14.1%) 29 (14.1%) 25 (12.2%) 205 (100%)
15 (4.5%) 4 (1.2%) 333 (100%)		30 (9.1%) 42 (12.8%) 57 (17.3%) 52 (15.8%) 75 (22.8%) 36 (10.9%) 37 (11.2%) 329 (100%)
11 (5.5%) 3 (1.5%) 199 (100%)	17 (8.5%) 165 (82.5%) 3 (1.5%) 2 (1%) 4 (2%) 7 (3.5%) 198 (100%)	18 (9%) 27 (13.5%) 31 (15.5%) 27 (13.5%) 40 (20%) 29 (14.5%) 27 (13.5%) 199 (100%)
11 (5.5%) 2 (1%) 200 (100%)	22 (11.1%) 22 (11.1%) 159 (80.3%) 3 (1.5%) 4 (2%) 6 (3%) 3 (1.5%) 198 (100%)	10 (5%) 23 (11.6%) 37 (18.6%) 27(13.6%) 49 (24.6%) 27 (13.6%) 26 (13.1%) 199 (100%)
Master's degree MD, JD, PhD, etc. Education Total	African American Caucasian Hispanic Native American Asian American Multi-Ethnic/Other Other	Below \$20,000 \$20,001 to \$30,000 \$30,001 to \$40,000 \$40,001 to \$50,000 \$50,001 to \$75,000 \$75,001 to \$100,000 Over \$100,000 Family Income Total
Education (cont'd).	Ethnicity	Family Income

•

Table 2 (con	t'd). cE4	52 (26%)	102 (30.6%)	47.3%
Rank *	E5-E6	77 (38.5%)	119 (35.7%)	31.9%
	E7-E9	31 (15.5%)	50 (15.0%)	9.8%
	01-03	21 (10.5%)	37 (11.1%)	5.4%
	04-09	18 (9%)	23 (6.9%)	3.5%
	W01-5	1 (0.5%)	2 (0.6%)	2.0%
	Rank Total	200 (100%)	333 (100%)	
Military	Infantry	21 (10.5%)	30 (9%)	
Occupational	Transportation	25 (12.5%)	47 (14.2%)	
Specialty	Service Personnel	1 (0.5%)	8 (2.4%)	
	Medical	27 (13.5%)	58 (17.4%)	
	Military Police	86 (43%)	136 (40%)	
	Security Force	38 (19%)	49 (14.8%)	
	Embedded Training	2 (1%)	4 (1.2%)	
	Team			
	MOS Total	200 (100%)		
Number of	1.00	115 (57.5%)	332 (100%)	
Deployments	2.00	60 (30%)		
	3.00	21 (10.5%)		
	4 or more	4 (2%)		
	N. of Deployment	200 (100%)		

*(E1-E4) enlisted: (E5-E9) endlisted non-commissioned officer. (O1-O9) officer: (WO1-5) warrant officer. Education * E=Enlisted & *O=Officers

Analysis of Dyadic Adjustment

For this study, 198 service members (M = 50.47, SD = 9.20) and 199 spouses (M = 48.96, SD = 9.59) completed the Revised Dyadic Adjustment Scale. Of the 198 service members completing the RDAS, 66 reported a distressed relationship (M = 40.55, SD = 7.71) and 132 reported that their relationship was not distressed (M = 55.44, SD = 4.84). Of the 199 spouses completing the RDAS, 72 reported a distressed relationship (M = 38.58, SD =7.13) and 127 reported that their relationship was not distressed (M = 54.84, SD= 4.41). Chi-square tests were run to compare the difference between distressed and non-distressed couples on demographic variables. There were no significant differences between distressed and non-distressed couples on all demographic variables.

The Revised Dyadic Adjustment Scale included missing data on three percent of responses. Participant's missing data on only one variable of the 14item measure had data imputation. These items were considered missing at random, and the raw scores from within that individual's dyadic subscale were summed. The average of the raw subscale scores were then added to the dyadic subscale for that individual. It should be noted that with this imputation, there were no changes in report of relationship distress. Individuals who had a missing variable either scored low enough that his or her report of dyadic adjustment remained distressed after inputting an additional raw score, or the score was high enough that even without the imputed raw score on the missing data point, the individual still scored high enough to be within the level of a non-distressed

relationship. The raw data set was maintained for structural equation models because FIML is considered a superior method of imputation for estimation of parameters in (Olinsky, Chen, & Harlow, 2003).

This study also examined in differences of reports within the unit of analysis, the couple dyad. Paired sample T tests were utilized to compare within dyad differences between the service member and spouse on dyadic subscales of satisfaction, cohesion, and consensus as well as the overall scores on dyadic variables. It is worth noting that the difference between the service members' and spouses' reports of dyadic adjustment are statistically significant with *t*(196) = 2.15, *p*=.03. Subscales differences within the couple dyad were not statistically significant.

A factor analysis, based on the data with the couple as the unit analysis, was performed using Amos 17 (Arbuckle, 2008) on the three subscales of the Revised Dyadic Adjustment Scale (RDAS) (Busby et al., 1995) for the service member and his/her spouse. The hypothesized model is presented in Figure 4 where circles represent latent variables (the dyadic adjustment constructs) and rectangles represent measured variables. The RDAS subscales of cohesion, satisfaction, and consensus serve as indicators of the dyadic adjustment factor. The assumptions of multivariate normality and linearity were evaluated through SPSS. Due to missing data, full information maximum likelihood estimation (FIML) was employed to estimate all models.

The model was fitted to the data to obtain point and interval estimates of the latent construct correlations. The correlation between service members' and

spouses' report of dyadic adjustment is of interest to the study and in particular the standard errors and confidence intervals. The correlation represents measures of linear relationship between the partners' dyadic adjustment constructs. Substantive theory suggests there will be a significant correlation between the service members' dyadic adjustment and the spouses' dyadic adjustment. The factor analysis model fit the data well when disturbances of measurement error were allowed to correlate between service members' and spouses' subscales: X^2 (5, N = 200) = 4.886, p = .430, comparative fit index (CFI) = 1.0, and root-mean-square error of approximation (RMSEA) = 0.0. A major concern is finding out information about the actual measurement process by which the data came into being, i.e. to know whether a given set of indicators evaluate the same underlying construct in the same units of measurement often referred to as true score equivalent or alternatively tau-equivalent measures (Raykov, 2007). For each of the latent variables, the assumption of true score equivalence for the corresponding indicators was tested using confirmatory factor analysis (CFA). This was tested by imposing restrictions on the latent variable loadings and using the likelihood ratio test (LRT) chi-square difference test. The first step was testing whether the indicators of service members' dyadic adjustment are true-score equivalent. The output shows that this restricted model is nested in the preceding full model and associated with a chi-square value of $X^2 = 7.886$ with df = 7. It exhibits only insignificantly worse fit than the first fitted model for couple dyadic adjustment. The LRT statistic ΔX^2 (2) = 2.458 is not significant when judged against the pertinent chi-square distribution critical

value (5.99, $p \le .05$). The result leads to the suggestion that there is not enough evidence in the data to warrant rejection of the restriction of identical factor loadings for the service members' dyadic adjustment construct. It is plausible that these are true-score equivalent measures of service members' dyadic adjustment. Given the non-significant fit decrement findings, the loading equality restriction was maintained in the next fitted model.

The next step was testing whether the indicators of spouses' dyadic adjustment are true-score equivalent. The output shows that this restricted model is nested in the preceding full model and associated with a chi-square value of T=7.962 with df=9. It exhibits only insignificantly worse fit than the first fitted model for couple dyadic adjustment. The LRT statistic is 7.962-7.344=.618 which is not significant when judged against the pertinent chi-square distribution 9-7=2 degrees of freedom (5.99, $p\leq.05$). This result leads to the suggestion that there in not enough evidence in the data to warrant rejection of the restriction of identical factor loadings for the spouses' dyadic adjustment construct. It is plausible that these are true-score equivalent measures of spouses' dyadic adjustment. Given the non-significant fit decrement findings, the loading equality restriction was maintained.

To summarize, the results presented indicate that there is not sufficient evidence in the data to disconfirm the tau-equivalence hypothesis for any of the subscale measures assessing dyadic adjustment for either the service members or the spouses. It is suggested that the indicators of cohesion, consensus, and satisfaction evaluate their underlying latent variables in the same units of

measurement. This analysis resulted in a more parsimonious, tenable model. The final model, including significant coefficients in standardized form, is illustrated in Figure 5.





Analysis of PTSD for the Service Member

For this study, 196 service members completed the PTSD Checklist (PCL-

M). There were four service members who elected to skip the PCL-M checklist

and were classified as missing data points. The PCL-M questions also appear

on the post-deployment health assessments at the time of demobilization, and therefore the researcher assumed that these data points are not missing completely at random. These cases were carefully reviewed for both deployment experiences and demographic factors. Two of the cases had deployments indicative of low risk for personal injury and had not experienced loss of comrade within their units. However, the MOS of these two cases indicated that they were likely to have been in positions of caring for other injured service members. The other two cases of missing data on the PCL-M involved deployments where they were "often" in serious danger of being injured or killed: one of the two service members had experienced a unit loss, and both were the highest rank (E7-E9) of enlisted personnel. Full information maximum likelihood was utilized to address issues of missing data in accordance with Amos 17 (Arbuckle, 2008). This method utilized to compute maximum likelihood estimates (Anderson, 1957) assumes the missing data values are missing at random. This method is preferred to other forms of imputation which are consistent only when the missing data are missing completely at random (Little & Rubin, 1989; Olinsky, Chen, & Harlow, 2003). Like all other missing data, if the PCL-M variables were not missing at random, the fact that they are missing is informative (Raykov, 2007). The data were examined for fit between distributions and the assumptions of multivariate analysis. PTSD in relation to a military event as measured by the PCL-M indicated a positively skewed distribution. To reduce the skewness and kurtosis, the PCL-M score was logarithmically transformed and utilized in analysis relating to research questions later in the chapter. An additional

categorical variable which included PTSD in relation to a military event and no PTSD in relation to a military event was also created for data analysis. The category for PTSD in relation to a military event for this study replicated previous studies (Weathers et al., 1993), with a score of \geq 50 labeled as PTSD in relation to military event and a score < 50 labeled as no PTSD in relation to military event. Based on soldier responses, 24 met the screening criteria on the PCL-M ($T \geq$ 50) for PTSD in relation to a military event (M = 61.13, SD = 9.59) and 172 were classified as no PTSD in relation to a military event (M = 27.69, SD = 8.54).

A chi-square test was used to determine if there was a significant difference between those with and without PTSD in demographic factors. Analyses reveal age as the only significant difference in demographic characteristics between service members with PTSD in relation to a military event and those with no PTSD in relation to a military event. Age was a significant factor, with younger soldiers having greater representation proportionally of those service members with PTSD, $X^2(3) = 11.45$, $p \le .01$. While not statistically significant, it is worth noting that all members reporting PTSD in relationship to a military event were enlisted service members. No officers reported clinically significant levels of PTSD symptoms even though they represented 20% of this sample.

A factor analysis, based on the data with the couple as the unit of analysis, was performed using Amos 17 (Arbuckle, 2008) on the three symptom clusters of the PCL-M (Weathers et al., 1993) for the service member PTSD. The hypothesized model is presented in Figure 6 where circles represent latent

variables of posttraumatic stress disorder, and rectangles represent measured variables. The DSM IV (American Psychiatric Association, 2000) symptom clusters arousal, avoidance, and reexperiencing serve as indicators of the PTSD factor in the CFA model. Due to missing data, full information maximum likelihood estimation (FIML) was employed to estimate all models.

The model was fitted to the data to obtain point and interval estimates of the latent construct correlations. The factor analysis model fit the saturated model. It is of special interest to know whether a given set of PTSD symptom clusters (indicators) evaluate the same underlying construct in the same units of measurement, tau-equivalent measures (Raykov, 2007). For the latent variable PTSD, the assumption of true score equivalence for the corresponding indicators was tested using confirmatory factor analysis (CFA). This was tested by imposing restrictions on their loadings and using the likelihood ratio test (LRT) chi-square difference test. The first step was testing whether the indicators of PTSD are true-score equivalent. The output shows that this restricted model is nested in the preceding full model and associated with a chi-square value of T=.847 with df=2. It exhibits only insignificantly worse fit than the saturated model. The LRT statistic is not significant when judged against this model. The results lead to the suggestion that there is not enough evidence in the data to warrant rejection of the restriction of identical factor loadings for the PTSD construct. It is plausible that these are true-score equivalent measures of service members' PTSD in this population. Given the non-significant fit decrement findings, the loading equality restriction was maintained. To summarize, the

result indicates that there is not sufficient evidence in the data to disconfirm the tau-equivalence hypothesis for the three DSM IV symptom cluster measures assessing PTSD for the service members. It is suggested that the indicators of hyperarousal, reexperiencing, and avoidance evaluate their underlying latent variable in the same units of measurement. This analysis resulted in a more parsimonious, tenable model with a X^2 (2) = .847, *p* = .655, a CFI of 1.00 and RMSEA of .00. The final model, including significant coefficients in standardized form, is illustrated in Figure 6.



Figure 6 Confirmatory Factor Analysis of Posttraumatic Stress Disorder Symptom Clusters

PTSD and Measures of Dyadic Adjustment

This section presents the results of the analyses for dyadic adjustment (RDAS) and PTSD as they relate to the following research question: Do PTSD symptoms in service member, spouse, or both parties predict dyadic adjustment for the service member and his/her spouse/significant other?

Because one's psychological well-being influences both one's own and one's spouse's marital satisfaction (Whisman, Uebelacker, & Weinstock, 2004), the influence of psychological well-being on dyadic adjustment following deployment was of particular interest with the military population. The initial hypothesis stated that greater symptom severity of PTSD in service members in relation to a military event will predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other. For this particular analysis, PTSD in relation to a military event was converted into a categorical variable. This was done to compare the dyadic adjustment of those couples in which service members had a PTSD diagnosis to those couples where the service members did not have a PTSD diagnosis in relation to their military experience The outcome dichotomies were created: PTSD in relation to a military event and No PTSD in relation to a military event. The research hypothesis then stated that PTSD in relation to a military event would predict lower levels of marital adjustment for service members and their spouses compared to no PTSD in relation to a military event.

A one-way analysis of variance (ANOVA) was calculated for military related PTSD effect on dyadic adjustment using the Revised Dyadic Adjustment Score (RDAS) for the service member and his/her spouse. The analysis was significant for neither the effect of military PTSD on the service member's RDAS score: F(1, 191) = 1.47, p > .05 (r = .09) or the effect of military PTSD on the spouse's RDAS score: F(1, 193) = .47, p > .05 (r = .05). The initial findings seem to diverge from earlier studies that suggested veterans with PTSD were at

risk for significant relationship problems (Jordan et al., 1990) and reported clinically significant levels of relationship distress (Riggs et al., 1998). For example, Nelson Goff and colleagues (2007) found that PTSD symptoms predicted lower marital/relationship satisfaction. For this reason, it was determined beneficial to run additional analyses of the RDAS subscales. The subscales are satisfaction, consensus, and cohesion. It was anticipated that analyses of subscales may explain the divergence from earlier studies and provide greater understanding of the impact of PTSD in relation to a military event on the dynamics of the couple relationship for NG members deployed in OIF/OEF.

Subscales of Dyadic Adjustment

A one-way analysis of variance (ANOVA) was computed comparing the dyadic subscales (relationship satisfaction, cohesion, and consensus as measured with the RDAS) for those couples in which the service member met the criteria for PTSD in relation to a military event with those couples without PTSD. Findings for consensus and cohesion subscales were not significant for either service members or spouses. The analysis for satisfaction subscale was significant for service members but not spouses. The results of the satisfaction subscale of RDAS are F(1, 192) = 6.10, p=.014 for service members satisfaction and F(1, 194) = .31, p > .05 for spouse satisfaction. Service members with PTSD in relation to a military event scored lower on relationship satisfaction (M = 13.63, SD = 4.29) compared to those service members without PTSD in relation to a military event (M = 15.41, SD = 3.15). Data were collected approximately

45-90 days following the service members' return from combat. Within this time frame for this sample, PTSD in relation to a military event has an effect on relationship satisfaction for the service member but not his/her spouse.

Analysis of PTSD for the Spouse

For this study, 197 spouses completed the 15-item stressful life event screener. It was determined based on participant responses to this screener combined with responses on the Short Screening Scale (Breslau et al., 1999) that 31 spouses met the DSM-IV screening criteria for PTSD based on a civilian/stressful life event (M = 5.03, SD = 1.02).

A factor analysis, based on the data with the couple as the unit analysis, was performed using Amos 17 (Arbuckle, 2008) on the three symptom clusters of the Short Screening Scale (Breslau et al., 1999) for the spouses' PTSD. Goodness of fit indices for single, two, and three factor models are presented in Table 3. The DSM IV (American Psychiatric Association, 2000) symptom clusters of arousal and avoidance serve as indicators of the PTSD factor in the CFA model. Due to missing data, full information maximum likelihood estimation (FIML) was employed to estimate all models.

Model	X ²	df	X²/df	χ^2_{diff}	CFI	RMSEA
Single Factor	35.773	14	2.55		.943	.088
Two Factor	17.389	13	1.34	18.384**	.988	.041
Three Factor	15.452	11	1.405	1.937	.988	.045

Table 3Goodness-of Fit Indicators of Models for Spouses Report of PTSD

The goodness of fit indicators are listed in Table 3 and show that a two factor model for PTSD symptoms cluster, avoidance and arousal, have the best fit to the data. All of the unconstrained path coefficients are large enough to be statistically significant, with R^2 ranging from .282 to .578.

The standardized estimates of the factor loadings range from .53 to .76 for latent variable avoidant and .72 to .75 for latent variable arousal. The covariance and correlations between the two latent variables are .081 and .749 respectively.

Table 4

	b (SE)	λ	Item
Avoidant			
	1	.73	Did you avoid being reminded of event by staying away from certain places, people or activities?
	.849 (.103)	.68	Did you lose interest in activities that were once important or enjoyable?
	1.01 (.112)	.76	Did you begin to feel more isolated or distant from other people?
	.789 (.097)	.67	Did you find it hard to have love or affection for other people?
	.429 (.066)	.53	Did you begin to feel that there was no point in planning for the future?
Arousal			
	1	.75	Were you having more trouble than usual falling asleep or staying asleep?
	.784 (.113)	.72	Did you become jumpy or get easily startled by ordinary noises or movements?

Unstandardized Loadings (Standard Errors) and Standardized Loadings for 2-Factor Confirmatory Model of PTSD for Spouses

PTSD and Measures of Dyadic Adjustment

It was hypothesized that greater symptom severity of PTSD in spouses in relation to a stressful life event would predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other.

A one-way analysis of variance (ANOVA) for the effect of the spouses' PTSD on dyadic adjustment was calculated using the Revised Dyadic Adjustment Score (RDAS) for both individuals in the couple relationship. The first analysis conducted for this hypothesis was the effect of the spouses' PTSD in relation to a stressful life event on dyadic adjustment. The findings were significant for the spouse RDAS, F(1, 194) = 6.51, p < .05 but not for service member RDAS, F(1, 193) = 2.94, p > .05. Following the deployment, spouses without PTSD in relation to a stressful life event reported higher levels of dyadic adjustment (M = 49.61, SD = 9.13) than spouses with PTSD in relation to a stressful life event (M = 44.87, SD = 11.20). The spouses' PTSD has a negative effect on their perception of dyadic adjustment but not on the service members' perception of dyadic adjustment.

Subscales of Dyadic Adjustment

The same analyses of variance were calculated to compare individual dyadic subscales of consensus, satisfaction, and cohesion between couples where the spouses had PTSD in relation to a stressful life event with couples where the spouses did not have PTSD in relation to a stressful life event. A significant difference was found between couples where the spouses had PTSD in relation to a stressful life event on the spouses reports of relationship consensus, *F* (1, 194) = 6.33, *p* < .05 and relationship satisfaction *F* (1, 195) = 9.64, *p* < .01. The service members also reported lower relationship satisfaction when their spouses were experiencing symptoms of PTSD in relation to a stressful life event (*F* (1, 193) = 9.54, *p* < .01).

Overall, the spouse's report of PTSD for life event results in lower levels of relationship satisfaction for the service member (M = 13.43, SD = 4.50) and the spouse (M = 13.16, SD = 3.94). This is compared to the means and standard deviation of associated test where the spouse did not report PTSD in relation to a

life event (M = 15.44, SD = 3.00) for service member's relationship satisfaction and (M = 15.10, SD = 3.03) for spouse's relationship satisfaction.

Partners with PTSD Symptoms

It was hypothesized that couples in which PTSD symptoms are experienced by both individuals (service member and spouse) will have lower scores on dyadic adjustment when compared to couples in which only one partner experiences PTSD symptoms or when neither party has PTSD.

Data were transformed to create an additional variable to depict the number of individuals within each of the dyads experiencing PTSD. The categorical variables for service member PTSD in relation to a military event, and spouse PTSD in relation to stressful life event were utilized to create an additional categorical variable for couples' PTSD. Within the new variable, four categories depict the following couple characteristics: (1) no PTSD, (2) PTSD spouse only, (3) PTSD service member only, and (4) both individuals with PTSD. There were 193 couples with complete data on service members' and spouses' PTSD. Of these couples, 145 had no PTSD, 42 couples had one partner with PTSD, and both individuals were experiencing PTSD symptoms in six couples.

The hypothesis was tested using a one-way analysis of variance (ANOVA) to calculate the effects of both partners meeting the criteria for PTSD on the perception of dyadic adjustment for the service member and his/her spouse. The findings were significant for the service members' (F(3, 186) = 3.77, p < .05) and the spouses' (F(3, 189) = 3.64, p < .05) report of overall dyadic adjustment using the RDAS scale. The six couples where both partners were experiencing PTSD

symptoms have RDAS scores indicative of clinically distressed couples. When both partners are experiencing PTSD symptoms, each individual's' report of dyadic adjustment is statistically significant and lower (service members' M =39.33, SD = 7.74; spouses' M = 37.00, SD = 6.93) than couples in the other categories. The service members' dyadic adjustment is not significantly different when only the service member has PTSD (M = 51.83, SD = 6.85), only the spouse has PTSD (M = 51.86, SD = 6.42), or when there is no PTSD within the couple dyad (M = 50.81, SD = 9.03). The spouses' dyadic adjustment is not significantly different when only the service member has PTSD (M = 50.89, SD =6.03), only the spouse has PTSD (M = 46.54, SD = 11.42), or when there is no PTSD within the couple dyad (M = 49.06, SD = 9.86).

Table 5

Descriptive Statistics: Means, Standard Deviations, Standard Errors and the Lower Bounds and Upper Bounds of the 95% Confidence Interval for Revised Dyadic Adjustment Scale

						95%	CI
		Ν	Mean	SD	SE	LB	UB
Member RDAS	No PTSD	144	50.81	9.03	.75	49.32	52.29
	Spouse only w/ PTSD	22	51.86	6.42	1.37	49.02	54.71
	Member only w/ PTSD	18	51.83	6.85	1.62	48.43	55.24
	Both partners PTSD	6	39.33	7.74	3.16	31.21	47.45
	Total	190	50.66	8.75	.63	49.41	51.92
Spouse RDAS	No PTSD	145	49.06	9.86	.82	47.44	50.67
•	Spouse only w/ PTSD	24	46.54	11.42	2.33	41.72	51.36
	Member only w/ PTSD	18	50.89	6.03	1.42	47.89	53.89
	Both partners PTSD	6	37.00	6.93	2.83	29.73	44.27
	Total	193	48.54	9.92	.71	47.13	49.95

PTSD Symptom Clusters and Dyadic Adjustment

This section presents the results of the analyses for the symptom clusters of PTSD and dyadic adjustment (RDAS) as they relate to the following research question: Do higher service member scores on PTSD symptom cluster emotional numbing predict higher levels of relationship distress for both the service member and partner?

The *PTSD-Checklist* was used to measure PTSD symptoms. Frequency and severity of symptoms were recorded for each symptom, with 17 variables used in analyses. A series of confirmatory factor analyses (CFA) were conducted to examine the latent factors of PTSD using the 17 indicator variables in the PCL-M. The study population was a non-clinical sample of OIF and OEF veterans, and both a three-factor cluster model according to the DSM-IV (American Psychiatric Association, 2000) and the four-factor cluster model found to be relevant with veteran populations were considered (Foa, Riggs, & Gershuny, 1995: Riggs, Byrne, Weather, & Litz, 1998).

A three-factor cluster was computed in accordance with the *DSM-IV* with five reexperiencing symptoms, seven avoidance-numbing symptoms, and five hyperarousal symptoms. These subscales of the PTSD symptoms clusters had high internal consistency. The subjects'' responses were summed, with higher scores reflecting greater symptoms on the DSM-IV symptom clusters. The Reexperiencing subscale had a high internal consistency reliability based on Cronbach's alpha value of .89. The Arousal subscales internal consistency reliability was high, with Cronbach's alpha value .874. Finally, the Avoidance/Numbing subscale exhibited a high internal consistency; reliability also was high, with Cronbach's alpha of .896.

A four-symptom cluster also was computed because of the findings from earlier studies that suggested that emotional numbing has a unique and independent relationship to problems of intimacy in couples (Cook, et al., 2004; Lunney & Schnurr, 2007). The avoidance symptoms were divided into effortful avoidance and emotional numbing (Cook, et al., 2004). Effortful avoidance included the avoidance of thoughts or feelings associated with the trauma and avoidance of people or places that might be reminders of the trauma. The emotional numbing score included symptoms of diminished interest, detachment,

numbing, and a sense of a shortened future (King, Leskin, King, & Weathers, 1998; McDonald, Beckham, Morey, Marx, Tupler, & Calhoun, 2008).

A series of analyses were conducted to examine the association of PTSD symptoms and dyadic adjustment. Pearson correlation coefficients were computed between continuous measures of PTSD symptom clusters and the dyadic adjustment (RDAS) for the service member and his/her spouse. Dyadic adjustment scores were related to the avoidance-numbing cluster for the service member but not his/her spouse. The avoidance-numbing cluster had a significant and negative relationship with the service members RDAS scores (r (190) = -.163, p < .05). Therefore, the research hypothesis that higher scores on the symptom cluster avoidance are associated with lower scores on dyadic adjustment for the service member held true. The Pearson correlation coefficient examining the relationship between the spouse's RDAS scores and the avoidance-numbing cluster of the service member's PCL-M was not significant (r (193) = -.100, p > .05). The data do not support the research hypothesis that the service member's PTSD symptoms on the avoidance-numbing cluster had a negative relationship with the spouse's perception of dyadic adjustment for this sample.

When the avoidance cluster symptoms were computed separately, only the service member's emotional numbing subscale had a mild significant and negative relationship with the service member's RDAS score (r (190) = -.197, $p \le$.05). The Pearson correlation coefficient for effortful avoidance was not significant (r (191) = -.079, p > .05).

Clusiers							
	1	2	3	4	5	5a	5b
1.Member RDAS							
2.Spouse RDAS	.448**						
3. PCL-M Reexperiencing	062	063					
4. PCL-M Hypervigilence	095	092	.771**				
5. PCL-M Avoidance	163*	100	.741**	.774**			
5a.Effortful avoidance	079	063	.749**	.692**	.886**		
5b.Emotional numbing	197**	110	.632**	.726**	. 9 42**	.680**	

 Table 6

 Bivariate Correlations between RDAS and Service Members' PTSD Symptom

 Clusters

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

To further examine the association of dyadic adjustment to PTSD symptom clusters, a multiple linear regression was calculated to predict dyadic adjustment scores for the service member based on the PTSD symptom subscales, effortful avoidance and emotional numbing. A significant regression equation was found *F* (2,189) = 4.338, p < .05, with r = .044. The service member's predicted RDAS score is equal to 53.394 + .325(EA) - .647(EN). Only emotional numbing was a significant predictor. RDAS scores decreased .647 for each incremental increase in PTSD symptom subscale of emotional numbing.

The association between relationship quality and PTSD symptoms was examined by looking at the subscales of the RDAS in relation to PTSD symptom clusters. The service members' relationship satisfaction scores were significantly correlated with their PTSD symptom clusters. The service members' emotional numbing scores also were correlated with their own report of dyadic cohesion.
However, the service member's PTSD symptoms were not correlated with their partner's overall dyadic adjustment, satisfaction, cohesion, or consensus.

Psychopathology and Dyadic Adjustment

This section presents the results of the analyses for measures of mental health and dyadic adjustment (RDAS) as they relate to the following research question: What measures of mental health were associated with the soldier's reported dyadic adjustment (actor affect) as well as spouse's reported dyadic adjustment (partner affect) following deployment? Only analyses which pertain to related hypotheses are included in this chapter. It was hypothesized that higher levels of psychopathology (higher scores on depression, PTSD, and alcohol use) would be associated with lower levels of dyadic adjustment for each individual in the dyad.

Table 7 presents descriptive statistics for the service members and spouses on variables of interest for this research question. Approximately 22% of participants fell within the clinical range of depression on the BDI II (Beck et al., 1996). Individuals in the dyadic data set are experiencing PTSD at the following rate: 11% of service members and 16% of spouses. Further, service members are five times more likely to be struggling with hazardous and harmful alcohol use than their spouses.

Table 7

Measures	Service Member	Spouse	Paired t test	df	Within- couple correlations
Depression (BDI)					
M (SD)	8.52(7.53)	8.67(8.62)	-0.22	199	.244**
% above clinical cutoff T>14	22	22			
Correlation with PTSD	.675**	.362**			
Correlation with Alcohol	.156*	0.049			
PTSD Civilian Event (PTSD SS)					
M (SD)		1.22(1.86)			
% above clinical cutoff T>4		16			
Correlation with Alcohol		0.093			
Alcohol (AUDIT)					
M (SD)	4.32(4.35)	2.55(2.86)	5.50**	198	.254**
% above clinical cutoff T <u>></u> 8	17	3			
Correlation with PTSD/Mil	.156*				
PTSD Military Event (PCL-M)					
M (SD)	31.78(13.98)				
% above clinical cutoff $T \ge 50$	12				
Dyadic Adjustment (RDAS)					
M (SD)	50.61(8.67)	48.77(9.6)	2.61**	196	.419**
% above clinical cutoff T>48	33	36			
Correlation with Depression	367**	461**			
Correlation with PTSD/	119	231**			
Correlation with Alcohol	-192**	0.053			

Means, Standard Deviations, and Intercorrelations Among Study Measures

** Significant at the 0.01 level

* Significant at the .05 level

In this study, the reports of psychopathology from both partners were utilized to predict the level of dyadic adjustment for both the service member and his/her spouse. Prior to analysis, the variables for depression, PTSD, and alcohol use were examined for normal distribution. Each variable having a positively skewed distribution required normalizing transformations. Power transformation was used for the depression scale and logarithmic transformations were employed on the measures for alcohol and PTSD. Structural Equation Modeling (SEM) was the data-analytic strategy utilized to model and account for non-independence in the couple relationship. This method allows for multiple predictor variables to be examined simultaneously in the actor-partner interdependence model (APIM) (Kenny, Kashy, & Cook, 2006). Maximum likelihood (ML) in AMOS 17 (Arbuckle, 2008) was utilized for parameters estimation. A series of nested path models were tested to determine the most parsimonious model that provided a fit to the data. The models tested along with indices of model will be described. The path coefficients and other statistics will be presented for the most parsimonious model that provided a fit to the data not significantly different from models with fewer constraints.

To test the hypothesis that higher levels of psychopathology would be associated with lower levels of dyadic adjustment for the service member and the spouses, the full model in Figure 7 was proposed. Directional paths were specified from the service members' exogenous variables (depression-BDI, PTSD-PCLM, and alcohol-AUDIT) to the service members' dyadic adjustment score (RDAS) and from the spouses' exogenous variables (depression-BDI, PTSD-Breslau screener, and alcohol-AUDIT) to the spouses' dyadic adjustment score (RDAS) accounting for actor effects in the APIM. Directional paths were also specified from the service members' exogenous variables (depression-BDI, PTSD-PCLM, and alcohol-AUDIT) to the spouses' dyadic adjustment score (RDAS) accounting for actor effects in the APIM. Directional paths were also specified from the service members' exogenous variables (depression-BDI, PTSD-PCLM, and alcohol-AUDIT) to the spouses' dyadic adjustment score (RDAS) and from the service members' exogenous variables (depression-BDI, PTSD-PCLM, and alcohol-AUDIT) to the spouses' dyadic adjustment score

Breslau screener, and alcohol-AUDIT) to the service members' dyadic adjustment score (RDAS) accounting for partner effects in the APIM.

The service members' and spouses' scores for depression, PTSD, and alcohol were allowed to correlate with one another. The spouses' scores for depression, PTSD, and alcohol also were allowed to correlate with one another. Because couples in committed relationships are considered to have influence over one another, the service members' depression, PTSD, and alcohol scales were allowed to correlate with the spouses' depression, PTSD, and alcohol scales. Further, the disturbances of the service members' and spouses' dyadic adjustment scale were allowed to correlate with one another. The error variance represents the amount of variance in these two variables not accounted for by the model. This model provided acceptable good fit to the data, X^2 (8, N=200) = 7.958, p=.438, the comparative fit index (CFI=.1.00), the normed fit index (NFI=.978), and the root mean square error of approximation (RMSEA=.00). A CFI greater than .90 (Bentler, 1990), a NFI greater than .90 (Kline, 1998), and a RMSEA less than .05 (Raykov, 2007) are all indicators that the model was a good fit to the data.

Inspection of the output indicates that only the correlations between service members' depression and spouses' depression; service members' alcohol use and spouses' alcohol use; the spouses' depression and spouses' PTSD; and the correlations between error variance of service members' and spouses' RDAS were significant. Recall the hypothesis of interest says that there are both actor and partner effects for psychopathology on dyadic

adjustment following deployment. In the model shown in Figure 7, the significance of the directional path coefficients provide a test of the association between psychopathology (depression, PTSD, and alcohol) and dyadic adjustment in both the service member and his/her spouse. As illustrated in Figure 7, the service members' depression (b = -4.955, p < .001), and alcohol (b = -1.539, p= .015) scales have significant and negative actor effects for service members' dyadic adjustment. PTSD as measured by the PCLM had significant and positive actor effects (b = 2.899, p <= .001). The spouses' depression score was significantly and negatively related to the spouses' dyadic adjustment (b = -4.023, p < .001). Depression was the only significant actor effect for the spouses' dyadic adjustment scores. There were no significant partner effects for psychopathology variables depression, PTSD, or alcohol abuse.



Figure 7 Actor-Partner Interdependence Model with Psychological Well-being variables and the Revised Dyadic Adjustment Scale

In summary, the research hypothesis stating "higher levels of psychopathology for each member of the couple will be associated with lower levels of dyadic adjustment for each member" was only partially supported. Higher levels of psychopathology for the service members were associated with lower levels of dyadic adjustment for the service members, but did not predict lower dyadic adjustment for spouses. Likewise, higher levels of psychopathology in spouses predicted lower dyadic scores for spouses only.

While actor effects may account for some variation between service members' and spouses' report of dyadic adjustment, the earlier paired sample *t* test showed a difference between the service member's and spouse's report of dyadic adjustment which was statistically significant at the p<.05 with (t = 2.15, df = 196). Also relevant to the research question, the APIM shows a significant amount of variance in the service members' and spouses' dyadic adjustment that is not explained.

A second model was analyzed in an effort to explain the variance not accounted for in the actor-partner interdependence model. The alternative theoretical model utilized was the nonrecursive mediation structural equation model NMSEM (Martens, 2006) also described as a mutual-influence model (Kenny, Kashy, & Cook, 2006). This model substantively supports the reciprocal relationship within a couple relationships. For this sample, it would imply that the service members' and spouses' perceptions of dyadic adjustment are reciprocal and imbedded in a feedback loop (Bandura,1977,1978). A reciprocal, and cyclical, feedback loop between partners in a committed relationship requires a model that will take the reciprocity of two variables into account. Nonrecursive structural mediation equation models incorporate reciprocal feedback loops between variables (Martens & Haase, 2006). A nonrecursive model for the hypothesis of interest is illustrated in Figure 8.



Figure 8

Nonrecursive Mediated Structural Equation Model with Psychological Well-being Variables and Revised Dyadic Adjustment Scale

The model was estimated using Amos 17 (Arbuckle, 2008). The model was a good fit to the data with a X^2 (13, *N*=200) = 10.109, *p* = .685, CFI = 1.0, and RMSEA = .00 representing a plausible description of the population. The stability index for the nonrecursive subset (service members and spouses RDAS) was .045 (Bentler & Freeman, 1983). Since the stability indices for the model is less than one, the systems of linear equations for this model is considered "stable" (Fox, 1980).

Similar to the findings in the APIM, service members' depression (b = -

4.541, p < .001) and alcohol use (b = -1.515, p = .005) significantly and negatively predicted the service members' dyadic adjustment. An increase in depressive symptoms and alcohol use was associated with a decrease in dyadic adjustment. The service members' PTSD in relation to a military event (b = 2.599, p < .001) significantly and positively predicted the service members' dyadic adjustment. An increase in PTSD symptoms in relation to a military event was associated with an increase in dyadic adjustment. The spouses' depression (b = -3.913, p < .001) significantly and negatively predicted the spouses' dyadic adjustment. Therefore, an increase in depressive symptoms was associated with a decrease in dyadic adjustment. The spouses' dyadic adjustment (b = .322, p < .001) significantly and positively predicted the service members' dyadic adjustment. An increase in the spouses' dyadic adjustment score predicted an increase in the service members' dyadic adjustment. Service members' dyadic adjustment scores do not predict the spouses' dyadic adjustment scores (p > p.01).

The nonrecursive model shown in Figure 8 explains 36% of variance in service members' dyadic adjustment and 30% of the variance in spouses' dyadic adjustment. This is compared to 23% of the variance in service members' dyadic adjustment and 22% of the variance in spouses' dyadic adjustment by the actor partner-interdependence model illustrated in Figures 7. The nonrecursive model is unique from the other model in that it allows for reciprocity between partners in the couple relationship and provides an opportunity to measure the influence of

not only their partners' influence on them but also the indirect effects of their own dyadic adjustment which is reciprocated by the partner. The standardized total (direct and indirect) effect of spouses' dyadic adjustment on service members' dyadic adjustment is .349. The standardized total (direct and indirect) effect of service members' on spouses dyadic adjustment is .141. The standardized total (direct and indirect) effect of spouses' and service members' dyadic adjustment on their own dyadic adjustment is .047. That is, due to both direct (unmediated) and indirect (mediated) effects of dyadic adjustment on their own dyadic adjustment, the increase in one standard deviation, results in an addition increase of 0.047 standard deviations.

PTSD Symptoms, Adult Attachment, and Dyadic Adjustment

In this section, the purpose of the analysis was to determine whether the association between couple PTSD and relationship distress was mediated by the service members' and the spouses' adult attachment style. A secure emotional bond between partners is associated with both emotional and physical well-being as well as ability to cope with stress and trauma, personal growth, and adaptability (Johnson, 1999). Further, a secure attachment style between two partners is represented by both individuals perceiving their mate to be available and responsive when needed (Davila, 2003). Because PTSD symptoms predict lower relationship satisfaction (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Nelson-Goff, Crow, Reisbig, & Hamilton, 2007), it seems plausible that the adult attachment style might have a mediating role in the association between PTSD and dyadic adjustment.

The findings in this sample suggest that PTSD for a military event is related to service members' marital satisfaction but not overall dyadic adjustment. However, when both members of the dyad were suffering from PTSD, both the service members and the spouses reported lower scores on overall dyadic adjustment. The chi-square for this group compared to couples with only one partner with PTSD or no PTSD in couple relationship was statistically significant for a clinically distressed relationship. The original research question of interest was revised accordingly and states: Does Adult Attachment style mediate the effects of couple PTSD on overall dyadic adjustment following deployment? The hypothesis states that higher scores on Close and Depend scales combined with lower scores on the Anxiety scale will be associated with higher scores on dyadic adjustment for the service members and the spouses. Conversely, higher scores on the Anxiety scale will be associated with lower scores on dyadic adjustment for both. Further, higher levels of PTSD, depression, and alcohol misuse for each member of the couple will be associated with lower levels of dyadic adjustment for each member. Associations between PTSD, Attachment, and Dyadic Adjustment

Table 8 presents bivariate correlations between PTSD, attachment, and dyadic adjustment variables. As seen in Table 8, the correlation analysis indicated that for both the service member and the spouse, actor effects for PTSD were related to dyadic adjustment but not partner effects of PTSD. Actor effects of PTSD for the service members were significantly related to lower levels of the attachment subscales for Depend and Close.

 Table 8

 Bivariate Pearson Correlations Between the Variables of PTSD, RDAS, and Attachment

	10										1	
	ი									I	278**	
	ø								I	392**	.549**	
	7							ł	.076	218**	.091	
	9						I	106	131	.205**	158*	
	5					1	284**	.448**	.111	299**	.147*	
	4				ł	.189**	298	.154*	.327"	417**	.300**	toilod)
	e			I	.448**	.267**	286**	.236**	.113	217**	.061	
			ł	064	171*	077	.103	029	276**	.206**	171*	
	-	1	860.	087	047	187**	.152*	179**	072	660.	.008	
Subscales	Variable	1. <i>M P</i> TSD	2. S PTSD	3. M RDAS	4. S RDAS	<i>Member</i> 5.Depend	6. Anxiety	7. Close	Spouse 8.Depend	9. Anxiety	10. Close	i acitalanao t

Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Further, actor effects of PTSD for the spouses were significantly related to lower levels of depend and close and higher levels of anxiety. The service members' dyadic adjustment scores were positively related to their own depend and close subscales and negatively related to their own and their partners' anxiety subscales. On the other hand, the spouses' dyadic adjustment was positively related to their own and their partners' depend and close subscales. Spouses' dyadic adjustments also were negatively related to their own and their partners' anxiety subscales.

PTSD Symptoms and Dyadic Adjustment-Mediation Model

Structural Equation Modeling was utilized because it allowed for use of latent variables with multiple indicators, categorical variables, and additionally, it permits modeling of complex relationships between variables (Raykov, 2006). The variable, service member PTSD, is a categorical variable representing PTSD diagnosis if the service member met the screening criteria for PTSD in relation to a military event (Weathers et al., 1993) or a stressful life event (Breslau et al., 1999). Likewise, the variable for spouse PTSD is a categorical variable representing PTSD diagnosis if the spouse met the screening criteria for PTSD for a stressful life event (Breslau et al., 1999). The categorical variables were recoded according to Arbuckle's (2008) guidelines on how to fit a factor analysis model to rank ordered categorical variables. Latent variables were used in the analysis to represent the attachment and dyadic adjustment constructs according to Raykov and Marcoulides (2006). This determination was made since they are not directly observable, and they were measured with self-report instruments.

The Sca vari RD var for out tha pa atti att vai me tes wh Fig an the anc inte pre(The latent variables for attachment utilized the subscales of Adult Attachment Scale (AAS) (Collins & Read, 1990): Close, Depend, and Anxiety as indicator variables. The latent variables for dyadic adjustment utilized the subscales of the RDAS (Busby et al., 1995): consensus, satisfaction, and cohesion as indicator variables.

Logic for the analysis is based on Baron and Kenny's (1986) procedures for modeling. The first part refers to the effect of the predictor (PTSD) on the outcome (dyadic adjustment). Testing the direct effects of the model establishes that there is an effect that can be mediated (Hoyle & Smith, 1994). The second part refers to testing the effects of the predictor (PTSD) on the mediator (adult attachment). Steps three and four refer to the effect of the mediator (adult attachment) on the outcome (dyadic adjustment), controlling for the predictor variable. Assuming that *X* represents predicting variables, *M* represents mediating variables, and *Y* represents an outcome variable, the model was tested using Amos software (Arbuckle, 2008).

The first step was an examination of the direct effect model ($Y = i_1 + cX$) where *i* is an intercept coefficient. The structural equation model illustrated in Figure 9 describes the pattern of relationships between the variables for PTSD and dyadic adjustment (RDAS scores). The model produced an acceptable fit to the data: χ^2 (28, *N*=200) = 58.326, *p*=.001, comparative fit index (CFI) = .9956, and root-mean-square error of approximation (RMSEA) = .052 with a confidence interval .033-.071. Actor effects for PTSD were significantly and negatively predictive of spouses' (critical ratio=-2.73; *p*=.006) own perception of dyadic

adjustment. Partner effects for PTSD were significant and also negatively predictive for the spouses' (critical ratio = -2.13; p=.033) on service members' dyadic adjustment but not the service members' PTSD (p>.05) on spouses' dyadic adjustment.





Structural Regression Model with PTSD and Dyadic Adjustment Construct

The second step was a test to see if PTSD (X) significantly predicts attachment (*M*) by estimating the following equation: $M = i_2 + aX$. The structural equation model describing the pattern of relationships between the variables for PTSD and adult attachment subscales (close, depend, and anxiety) is illustrated in Figure 10. It produced adequate fit to the data: χ^2 (36, *N*=200) = 65.143, *p*=.002, comparative fit index (CFI) = .920, and root-mean-square error of approximation (RMSEA) = .045. Actor effects for PTSD significantly predicted service members' (*r* = -.23, *p* = .004) and spouses' (*r* = -.31, *p* < .001) adult attachment subscales. The actor effects for PTSD were significantly negatively associated with the Close and Depend subscales and positively associated with the Anxiety subscale of adult attachment.





The next step was to look at the relationship between the attachment construct and dyadic adjustment. The structural equation model describing the pattern of relationships between the mediation variables for adult attachment subscales (close, depend, and anxiety) and the outcome variable, dyadic adjustment, (consensus, satisfaction, and cohesion) is illustrated in Figure 11. It produced adequate fit to the data: χ^2 (92, *N*=200) = 165.011, *p*<.01, CFI = .935, and RMSEA = .045. Actor effects for the attachment construct significantly predicted service members and spouses' dyadic adjustment as seen (*rs* = .468 and .538, *ps* < .001, respectively). The partner effects for service members' attachment on spouses' perception of dyadic adjustment were significant (*r* = .252, *p* = .015). The actor effects for the spouses' attachment on the service members' dyadic adjustment were not significant.





The equation $Y=i_3 + c'X + bM$, was utilized to assess the mediation effect. The fit of the overall model was calculated when the $X_7 \rightarrow Y_7$ and $X_2 \rightarrow Y_2$ paths were constrained to zero. The model produced acceptable fit to the data: χ^2 (130, *N*=200) = 210.704, *p*<.001, comparative fit index (CFI) = .931, and rootmean-square error of approximation (RMSEA) = .039. The next iterative step included freeing the $X_2 \rightarrow Y_2$ path producing a model fit of χ^2 (128, *N*=200) = 210.183, *p*<.001, comparative fit index (CFI) = .930, and root-mean-square error of approximation (RMSEA) = .040. The overall fit of the *X-M*-Y model produced a model that indicated there were no significant improvements in fit on the basis of the difference between the two model chi-squares, $\Delta \chi^2(2) = .521$. The next iterative step included freeing the $X_1 \rightarrow Y_1$ path producing a model fit of χ^2 (126, *N*=200) = 210.100, *p*<.001, comparative fit index (CFI) = .929, and root-meansquare error of approximation (RMSEA) = .041. The overall fit of the *X-M-Y* model produced a model that indicated there was no significant improvement in fit on the basis of the difference between the two model chi-squares, $\Delta \chi^2(2) =$.083. In other words, there is not enough evidence in the data to warrant rejection of the restriction of 0 for direct effects of PTSD on dyadic adjustment. Therefore, the mediation model is plausible suggesting the adult attachment construct mediates the effect of PTSD on dyadic adjustment.



Figure 12



Dyadic adjustment for the service member was predicted by service members' attachment (b = .425, p < .01). Service members' PTSD, spouses' PTSD, and spouses' attachment did not significantly predict the service members' report of dyadic adjustment. Dyadic adjustment for the spouse was predicted by spouses' attachment (b = .418, p < .01) and the service members'

attachment (b= .254, p = .012). The spouses' PTSD did not significantly predict the spouses' report of dyadic adjustment. There was a significant and negative relationship with attachment for both the service members (b = -.602, p < .05) and the spouses (b = -.718, p < .001) in relation to their own PTSD diagnosis. Attachment was not predicted by the partners' PTSD.

For this model, approximately 26 percent of the variance in service members' dyadic adjustment and 36 percent of the variance in spouses' dyadic adjustment was accounted for by attachment and PTSD within the couple dyad. Figure 12 illustrates the attachment construct (subscales of the Adult Attachment Scale: close, anxiety, and depend) mediating the relation between actor effects of PTSD and the spouses' and service members' perception of dyadic adjustment (subscales of the Revised Dyadic Adjustment Scale: satisfaction, cohesion, and consensus). The indirect effect of X on Y is defined as the product of the $X \rightarrow M$ path (a) and the $M \rightarrow Y$ path (b), or ab. In the mediation model for this research question there are 2 direct paths for actor effects $(X_1 \rightarrow Y_1, X_2 \rightarrow Y_2)$; 2 direct paths for partner effects $(X_1 \rightarrow Y_2, X_2 \rightarrow Y_1)$, and 8 indirect paths $(X_1 \rightarrow Y_2, X_2 \rightarrow Y_1)$ $M_1 \rightarrow Y_1, X_1 \rightarrow M_2 \rightarrow Y_1, X_1 \rightarrow M_1 \rightarrow Y_2, X_1 \rightarrow M_2 \rightarrow Y_2, X_2 \rightarrow M_2 \rightarrow Y_2, X_2 \rightarrow M_2 \rightarrow Y_1, X_1 \rightarrow M_2 \rightarrow Y_1, X_1 \rightarrow M_2 \rightarrow Y_2, X_2 \rightarrow M_2 \rightarrow Y_1, X_1 \rightarrow M_2 \rightarrow Y_2, X_2 \rightarrow Y_2, Y_2 \rightarrow Y_2 \rightarrow Y_2, Y_2 \rightarrow Y_2 \rightarrow Y_2 \rightarrow Y_2, Y_2 \rightarrow Y_2$ $X_2 \rightarrow M_1 \rightarrow Y_1 X_2 \rightarrow M_1 \rightarrow Y_2$) for mediated effects. The total standardized direct and indirect (mediated) effect of spouses' PTSD on their own perception of dvadic adjustment is -.325. The total standardized direct and indirect (mediated) effect of service members' PTSD on their own perception of dyadic adjustment is -.278. In fact, after accounting for the impact of the attachment construct on

dyadic adjustment, the actor effects of PTSD on dyadic adjustment are no longer significant. Attachment partially mediated the effects of PTSD symptoms on dyadic adjustment.

Parental Stress

Parenting demographics also are relevant for this study. Of the 200 couples represented in the sample, 166 indicated that they also were parents/step-parents. The number of children under the age of 18 living in the homes of these military families is 332. There are 62 children birth to three years of age, 49 children ages four to five, 106 children ages six to ten, 44 children ages eleven to thirteen, and 71 children ages fourteen to eighteen. The mean number of children in the home under the age of 18 was 2.25.

Parenting demographics that may cause additional stress during the deployment were represented in the sample: 12 couples (8%) experienced the birth of a child during deployment, 23 couples (14%) indicated that they had a special needs child, and 42 (25%) service members and 41 (25%) spouses indicated that they were a step-parent. At the time of the assessment 66 (40%) service members and 62 (37%) spouses met the criteria for being distressed in their parenting, as measured by the Parenting Stress Scale (PSS) (Berry & Jones, (1995). Further, 58 (33%) service members and 69 (37.8%) spouses who were parents perceived their couple relationship as distressed.

Table 9 Bivariate Pearson Cc	orrelation	s Betwee	en Parer	iting Stre	ss and	Mental V	Vell-bein	g Variabl	9S		
Variable	-	2	ю	4	5	9	7	ω	6	10	11
<u>Member</u> 1. Parental Stress											
2. Depression	.323**										
3. Suicidal Ideation	.127	.218**	I								
4. PTSD Military	.033	.731**	.143								
5. PTSD Life Event	002	.372**	.113	.430**	l						
6. Alcohol	023	.144	.142	.125	.118	I					
<u>Spouse</u> 7. Parental Stress	.218*	.130	.032	045	146	095	I				
8. Depression	.086	.231**	.003	.222**	.048	098	.447	Į			
9. Suicidal Ideation	.054	.054	.018	.025	.018	034	.261**	.551**	I		
10. PTSD Life Event	.121	.103	038	.121	059	074	.198*	.374**	.269**	1	
11. Alcohol	.068	.027	.179*	.066	095	.251**	.203*	670.	.017	.120	I
**. Correlation is significan *. Correlation is significan	nt at the 0. nt at the 0.	01 level (2 05 level (2	-tailed). :-tailed).								

Table 9 presents bivariate associations between parental stress and mental well-being variables. The correlation analysis indicated that for both the service member and the spouse, parental stress was significantly and positively related to their own depression (r=.323, p<.01). There also is a positive relationship between the service members' parenting stress and the spouses' parenting stress (r=.218, p<.05). Further, the spouses' parental stress had a positive relationship with all variables of their own mental well-being: suicidal ideation (r=.261, p<.01), PTSD for stressful life event (r=.198, p<.05), and alcohol (r=.218, p<.05). There was no significant relationship between PTSD in relation to a military event and parental stress for either the service members or their spouses.

The original research question was, "Does adult attachment style mediate the effects of PTSD in relation to a military event on Parental Stress?" However, with the new findings that there is a positive and significant relationship between depression for both the service members and the spouses and parental stress combined with an insignificant relationship between parental stress and PTSD in relation to a military event, the research question has been revised. It now reflects the mental health concerns of the service members and spouses following deployment that are associated with parental stress. The revised question is as follows: Does adult attachment style mediate the effects of depression on parental stress?

The hypothesis of the study regarding parental stress and attachment follows: Higher scores on the subscales of Close and Depend combined with lower

scores on the Anxiety scale will mediate the effects of depression resulting in lower scores on parenting stress for both service members and spouses. Conversely, service members and spouses who have higher depressive symptoms and higher scores on the Anxiety scale also will have higher scores on the parental stress scale indicative of distressed parenting.

Depression and Parenting Stress-Mediation Model

Structural Equation Modeling (Arbuckle, 2008) was utilized because it allowed for use of latent variables with multiple indicators, categorical variables, and additionally permits modeling of complex relationships between variables (Raykov, 2006). The variable, depression, is an observed variable that was measured by BDI-II (Beck et al, 1996). The depression variable had a positively skewed distribution which required normalizing transformations on the raw data. Power transformation was used for the depression scale. Latent variables were used in the analysis to represent the attachment construct (Raykov and Marcoulides, 2006). This determination was made since the latent variables for service member and spouse adult attachment are not directly observable and they were measured with self-report instruments. The latent variables for attachment utilized the AAS subscales (Collins & Read, 1990): close, depend, and anxiety as indicator variables. The observed variables for parenting stress utilized the Parental Stress Scale (PSS) (Berry & Jones, 1995).

Logic for the analysis is based on Baron and Kenny's (1986) procedures for modeling. The first part refers to the effect of the predictor (depression) on the outcome (parental stress) illustrated in Figure 13. Testing the direct effects of

the model establishes that there is an effect that can be mediated (Hoyle & Smith, 1994). The second part refers to testing the effects of the predictor (depression) on the mediator (adult attachment). Steps three and four refer to the effect of the mediator (adult attachment) on the outcome (parenting stress) controlling for the predictor variable depression. Assuming that *X* represents predicting variables, *M* represents mediating variables, and *Y* represents an outcome variable, the model was tested using Amos software (Arbuckle, 2008).

The first step was an examination of the direct effect model ($Y = i_1 + cX$) where *i* is an intercept coefficient. The structural equation model describing the pattern of relationships between the variables for depression and parenting stress produced a good fit to the data: χ^2 (2, *N*=166) = .320, *p*=.852 comparative fit index (CFI) = 1.00, and root-mean-square error of approximation (RMSEA) = .00. Actor effects for depression were significantly and positively predictive of service members' (critical ratio = 4.155; *p*<.001) and spouses' (critical ratio = 6.022; *p*<.001) parental stress. Since there was no relationship between partner effects for depression and parental stress, partner effects were not maintained for the meditational model.



Figure 13 Path Analysis Model of Depression and Parental Stress

The second step was a test to see if *X* significantly predicts *M* by estimating the following equation: $M = i_2 + aX$. The structural equation model describing the pattern of relationships between the variables for depression and adult attachment subscales (close, depend, and anxiety) is illustrated in Figure 14. The results: χ^2 (19, *N*=166) = 46.092, *p*=.011, comparative fit index (CFI) = .868, and root-mean-square error of approximation (RMSEA) = .093, confidence interval .059-.127 suggests that only marginal support was found for the hypothesized model. Actor effects for depression significantly predicted service members (*r* = -.574, *p* < .001) and spouses' (*r* = -.627, *p* < .001) adult attachment subscales. The actor effects for depression were significantly negatively associated with the Close and Depend subscales and positively associated with the Anxiety subscale of adult attachment.





The relationship between the attachment construct and parental stress was examined. The structural equation model describing the pattern of relationships between the mediation variables for adult attachment subscales (close, depend, and anxiety) and the outcome variable, parental stress, is illustrated in Figure 15. It produced adequate data fit: χ^2 (19, *N*=166) = 40.063, *p*=.003, comparative fit index (CFI) = .862, and root-mean-square error of approximation (RMSEA) = .082 with a confidence interval of .046 - .117. Actor effects for the attachment construct significantly predicted service members (*r* = .400, *p* < .001) and spouses' (*r* = -.437, *p* < .001) parental stress.





The next step was assessed by estimating the following equations: $Y_1=i_{31} + cX_1 + bM_1$ and $Y_2=i_{32} + cX_2 + bM_2$. The model with free parameters produced good fit to the data: χ^2 (31, N=166) = 62.44, p<.01, comparative fit index (CFI) = .887 and root-mean-square error of approximation (RMSEA) = .073 with a confidence interval .145-.101. To assess the mediation effect, the fit of the overall model was calculated when the $X_2 \rightarrow Y_2$ paths were constrained to zero. The constrained path produced a model fit of χ^2 (32, N=166) = 61.47, p<.01, comparative fit index (CFI) = .888, and root-mean-square error of approximation

(RMSEA) = .074 with a confidence interval .045-.102. The overall fit of the X_{2} - M_2 -Y₂ model produced a model that indicated there was a significant improvement in fit on the basis of the difference between the two model chisquares, $\Delta \chi^2(1) = 4.73$ (critical values 3.84, $p \le .05$). There is enough evidence in the data to warrant reject that the direct effect of spouses' depression on parental stress is equal to zero. The next iterative step was to assess the mediation effect of service members' attachment. The fit of the overall model was calculated when the $X_1 \rightarrow Y_1$ paths were constrained to zero, which produced a model fit of X^2 (32, N=166) = 57.958, p<.01, comparative fit index (CFI) = .900, and root-mean-square error of approximation (RMSEA) = .070 with a confidence interval of .040-.099. Likelihood Ratio Test (LRT) were performed to compare the nested models with a chi-square, $\Delta X^2(1) = 1.217$ (critical value 3.84, $p \leq$.05). In other words, there is not enough evidence in the data to warrant rejection of the restriction of zero for direct effects of service members' depression on parental stress. This constraint was maintained for a more parsimonious model as is illustrated with standardized regression weights in Figure 16.



Figure 16

Structural Regression Model with Depression and Parental Stress Mediated by Attachment Construct

Parental stress for the service member was predicted by service members' attachment (b = -1.283, p < .001). Parental stress for the spouse was predicted by spouses' attachment (b = 2.255, p < .001). There was a significant and negative relationship with attachment for both the service member (b = -1.745, p < .0-1) and the spouse (b = -2.203, p < .001) in relation to their own level of depression.

For this model, approximately 18% of the variance in service members' parental stress and 25% of the variance in spouses' parental stress was accounted for by individual attachment style and level of depressive symptoms. Figure 14 illustrates the attachment construct (subscales of the Adult Attachment Scale: close, anxiety, and depend) mediating the relation between actor effects of depression and the service members' and spouses' parental stress. The indirect effect of X on Y is defined as the product of the $X \rightarrow M$ path (a) and the $M \rightarrow Y$ path (b), or ab. In the mediation model for this research question there are 2 direct paths for actor effects $(X_1 \rightarrow Y_1, X_2 \rightarrow Y_2)$ and 2 indirect paths $(X_1 \rightarrow Y_1, X_2 \rightarrow Y_2)$ $M_1 \rightarrow Y_1$ and $X_2 \rightarrow M_2 \rightarrow Y_2$) for mediated effects. In addition to any direct effects, the standardized indirect (mediated) effect of spouses' depression on their own parental distress is .185. The standardized indirect (mediated) effect of service members' depression on their own parental stress is .267. This is in addition to any direct (unmediated) effect that spouses' depression may have on their own parental stress. The standardized regression coefficient for the total direct and indirect effect of service members' depression on their own parental stress is -

.621. The standardized regression coefficient for the total direct and indirect

effect of spouses' depression on their own parental stress is -.628. This suggests that as the level of depressive symptoms rises for both the service members and their spouses, the level of individual parental stress also increases. When accounting for the impact of the attachment construct on dyadic parental stress, the actor effects of depression on parental stress were no longer significant for service members. Attachment partially mediates the effects of depressive symptoms on parental stress for both the service members and the spouses.

When attachment is tested as a mediator of parental depression (Figure16), there was a close fit to the data X^2 (32, *N*=166) = 57.958, *p*<.01; CFI=0.900; RMSEA=.70 with a confidence interval of .040-.099; and the model explained 18% (service member) and 25% (spouse) of variance in parenting stress. The path from depression to attachment was negative and significant (service members b =-0.621, *p*<0.001; spouses b =-0.628, *p*<0.001) and in turn, the path from attachment to parental stress was negative and significant (service members b =-0.430, *p*<0.001; spouses b =-0.295, *p*=0.024).

Summary of Results

The final section of this chapter has been devoted to summarizing the results of the analyses of the hypotheses and research questions. A p value \leq .05 was used to reject the null hypotheses. Results are organized by research questions and hypotheses.

R1 – Does PTSD in service member, spouse, or both parties predict dyadic adjustment for the service member and his/her spouse/significant other?

Hypothesis 1a: Greater symptom severity of PTSD in service members in relation to a military event will predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other. There was not enough evidence in the data to reject the null hypothesis. The analysis was significant for neither the effect of military PTSD on the service member's RDAS score: F(1, 191) = 1.47, p > .05 (r = .09) or the effect of military PTSD on the spouse's RDAS score: F(1, 193) = .47, p > .05 (r = .05).

Hypothesis 1b: Greater symptom severity of PTSD in spouses in relation to a civilian event will predict lower scores on dyadic adjustment (greater levels of relationship distress) for the service member and his/her spouse/significant other. The data only partially supported the hypothesis. The findings were significant for the spouse RDAS, F(1, 194) = 6.51, p <.05 but not for service member RDAS, F(1, 193) = 2.94, p > .05. *Hypothesis 1c:* Couples in which PTSD is diagnosed in both parties (service members and spouses) will have lower scores on dyadic adjustment when compared to couples where only one party has a PTSD diagnosis or where neither party has a PTSD diagnosis. The null hypothesis was rejected. The findings were significant for the service members' (F(3, 186) = 3.77, p < .05) and the spouses' (F(3, 189) = 3.64, p < .05) report of overall dyadic adjustment using the RDAS scale.

R2 – Do higher scores on PTSD symptom cluster emotional numbing for the soldier predict higher levels of relationship distress for both the service member and his partner?

Hypothesis 2a: Higher scores on the symptom cluster avoidance are associated with lower scores on dyadic adjustment. The null hypothesis was rejected. The avoidance-numbing cluster had a significant and negative relationship with the service members RDAS scores (r (190) = - .163, p < .05).

Hypothesis 2b: In the avoidance cluster, higher scores on emotional numbing and purposeful avoidance are associated with actor effects and lower scores for the service member on dyadic adjustment. The data only partially supported this hypothesis. The service member's emotional numbing subscale had a mild significant and negative relationship with the service member's RDAS score (r(190) = -.197, $p \le .05$). The Pearson correlation coefficient for effortful avoidance was not significant (r(191) = -.079, p > .05).

Hypothesis 2c: In the avoidance cluster, only higher scores on emotional numbing for the service member is associated with partner effects and lower scores for the spouse's dyadic adjustment. There was not enough evidence in the data to reject the null hypothesis. The Pearson correlation coefficient examining the relationship between the spouse's RDAS scores and the avoidance-numbing cluster of the service member's PCL-M was not significant (*r* (193) = -.100, *p* > .05).
R3 – What is the relationship between psychopathology (number of mental health diagnoses), soldier's reported dyadic adjustment (actor affect), and spouse/significant other's reported dyadic adjustment (a partner affect) following deployment?

Hypothesis 3: Higher levels of PTSD, depression, and alcohol misuse for each member of the couple will be associated with lower levels of dyadic adjustment for each member. The data only partially supported this hypothesis. The service members' depression (b = -4.541, p < .001) and alcohol use (b = -1.515, p = .005) significantly and negatively predicted the service members' dyadic adjustment. The service members' PTSD in relation to a military event (b = 2.599, p < .001) significantly and positively predicted the service members' dyadic adjustment. The spouses' depression (b = -3.913, p < .001) significantly and negatively predicted the spouses' dyadic adjustment.

R4 – Does Adult Attachment style mediate the effects of PTSD on overall Dyadic Adjustment?

Hypothesis 4: Higher scores on Close and Depend combined with lower scores on Anxiety will mediate the effects of the service member's PTSD resulting in higher scores on overall Dyadic Adjustment. Conversely, higher scores on Anxiety will have a positive relationship with lower scores on Dyadic Adjustment indicative of distressed couples. The null hypothesis was rejected. The total standardized direct and indirect (mediated) effect of spouses' PTSD on their own perception of dyadic

adjustment is -.325. The total standardized direct and indirect (mediated) effect of service members' PTSD on their own perception of dyadic adjustment is -.278. After accounting for the impact of the attachment construct on dyadic adjustment, the actor effects of PTSD on dyadic adjustment are no longer significant. Attachment partially mediated the effects of PTSD symptoms on dyadic adjustment.

R5 – Does Adult Attachment style mediate the effects of PTSD on Parental Stress?

Hypothesis 5: Higher scores on Close and Depend combined with lower scores on Anxiety will mediate the effects of depression resulting in lower scores on overall Parental Stress. Conversely, higher scores on Anxiety will have a positive relationship with higher scores on Parental Stress indicative of distressed parenting. This hypothesis was partially supported by the data. When accounting for the impact of the attachment construct on dyadic parental stress, the actor effects of depression on parental stress were no longer significant for service members. Attachment partially mediates the effects of depressive symptoms on parental stress for both the service members and the spouses.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

Purpose of the Study

The purpose of this study was to explore the dyadic factors which are associated with better functioning for NG members and their spouses following the members' deployment to and return from a combat zone. The service member and the spouse were assessed on factors associated with the couple relationship, parental stress, manner of relating in intimate relationships, and psychological well-being. Dyadic data analyses were used to explore the association between relationship issues and mental well-being.

Summary of the Study

The couples were surveyed at reintegration events between October 2007 and August 2008 approximately 45-90 days following the service members' return home from a 12-15 month deployment in support of OIF or OEF. The total sample included 544, and in this study, a subset of the sample included 400 participants with 200 couples as the unit of analysis. Further, a subset of the data, 166 families, was utilized to answer hypotheses regarding parental stress.

The research questions for this study follow. 1) Does PTSD in service member, spouse, or both parties predict dyadic adjustment for the service member and his/her spouse/significant other? 2) Do higher scores on PTSD symptom cluster emotional numbing for the soldier predict higher levels of relationship distress for both the service member and his/her partner? 3) What is the relationship between psychopathology (number of mental health diagnoses),

soldier's reported dyadic adjustment (actor affect), and spouse/significant other's reported dyadic adjustment (a partner affect) following deployment? 4) Does the Adult Attachment construct mediate the effects of PTSD on overall Dyadic Adjustment? 5) Does the Adult Attachment construct mediate the effects of PTSD on parental stress for the service member and his/her spouse other following deployment?

The study looked at outcome variables of dyadic adjustment and parental stress. Of the total sample, approximately 33% of service members and 36% of spouses reported distressed relationships as measured by the Revised Dyadic Adjustment Scale. The study looked at psychological well-being of both the service member and the spouse of the NG family as predictors of individual and family functioning following deployment. Specifically, this study assessed soldier PTSD symptoms in relation to the Soldiers combat experience and stressful life events, and measured PTSD symptoms of the spouse in relation to a stressful life event (non-military). For the sample, 11% of the service members and 16 % of spouses met the screening criteria for PTSD. In looking at the couple as the unit of analysis, approximately 21% had one partner experiencing PTSD (12% service member only; 9% spouse only) and 3% had both partners experiencing symptoms of PTSD. Further, 22% of service members and 22% spouses were struggling with clinical levels of depression. While only 3% of spouses reported a concern of hazardous or harmful alcohol use, service members were five times more likely to have an alcohol problem (17%). It should be noted that the service members were predominantly male (97%) and the spouses were largely female

(97%). One hundred sixty-six couples in the study indicated that they also were parents/step-parents. The number of children under the age of 18 living in the homes of these military families was 332, making parental stress for these military families a relevant concern. Military families undergo normal developmental challenges and transitions during deployment that cause additional stress. Included in this sample are factors like experiencing the birth of a child during deployment (7.5%) caring for a special needs child (13.9%), and meeting the demands of blended families and step-parenting (25%). At the time of the assessment, 39.8% of service members and 37.3% of spouses met the criteria for distressed parenting.

The study hypothesized that PTSD from the service members' combat experience would predict poorer dyadic adjustment for both the service member and his/her spouse. The data for this population failed to support the proposed hypothesis. Further analyses were done to determine if PTSD would predict lower scores on any of the subscales for the Revised Dyadic Adjustment Scale: consensus, satisfaction, and cohesion. PTSD had no significant effects on dyadic consensus and cohesion for either partner. However, the service members' PTSD affected their own relationship satisfaction, but not their spouses. According to Busby (1995), the second-order factors associated with marital satisfaction are relationship stability and relationship conflict. Therefore, it is plausible that a service member experiencing symptoms of PTSD might perceive that his/her relationship stability was lessened and relationship conflict increased. For the study population, PTSD does not contribute significantly for

either partner to perceptions of consensus, which include decision making, values, and affection, or perceptions of cohesion including activities and discussion.

While the service members' PTSD had no effect on dyadic adjustment scores for either partner, the spouses' PTSD had a significant and negative effect on their own perception of dyadic adjustment, but not on the service member's report of overall dyadic adjustment. Further, the spouses' PTSD did affect their own perception of relationship consensus and relationship satisfaction. The service members also reported lower relationship satisfaction when their spouses were experiencing PTSD. It is conceivable that the spouses' PTSD influences such dyadic variables as relationship stability and conflict for both partners as well as the spouses' perception of dyadic factors like decision making, values, and affection (Busby, 1995). In the sample, when both partners were experiencing PTSD symptoms, their overall dyadic adjustment scores were indicative of clinically distressed couples.

Even though the study findings did not show a significant relationship between overall dyadic adjustment and a PTSD diagnosis for combat experience, there were significant findings for the avoidance symptom cluster. The avoidance cluster, particularly the emotional numbing subscale, had a significant and negative relationship with the service members' overall dyadic adjustment, their relationship satisfaction, and their report of dyadic cohesion. However, the service members' PTSD symptom clusters, including emotional numbing, had no significant relationship with the spouses' perception of overall

dyadic adjustment, relationship satisfaction, relationship cohesion, or relationship consensus.

The present study evaluated the association between service members' and spouses' psychopathology and dyadic adjustment, and was particularly focused in looking at both the actor and partner effects of continuous measures of depression, PTSD, and alcohol use on the dyadic adjustment for both partners. Results in the current study indicated that a person's own level of depressive symptoms were significantly associated to his or her own level of dyadic adjustment following deployment,, and greater levels of depressive symptoms were linked with lower levels of dyadic adjustment and higher levels of relationship distress. Evidence for actor effects for PTSD and alcohol misuse were more mixed, showing actor effects for the service member only.

The mediation model in the study demonstrated plausibility for the attachment constructs to mediate the effects of PTSD on dyadic adjustment. The actor effects for PTSD were significantly negatively associated with the Close and Depend subscales and positively associated with the Anxiety subscale of adult attachment. The attachment construct (subscales of the Adult Attachment Scale: Close, Anxiety, and Depend) mediated the relation between actor effects of PTSD and the spouses' and service members' perception of dyadic adjustment (RDAS). When taking into account the meditational variables of the attachment construct, the actor effects of PTSD on dyadic adjustment were no longer significant. Further, the only partner effects that were significant were the service members' PTSD effects on the spouses' perception of dyadic adjustment,

notably a positive relationship. The mediating role of attachment accounted for the majority of the effects of PTSD on dyadic adjustment.

Attachment also has a mediating effect on depression and parenting stress. Even though there was not a significant relationship between military PTSD and parental stress for either the service members or the spouses, this was not true for depression. For both the service members and the spouses, higher scores on depression predicted higher levels of parental stress. The subscales of Close and Depend mediated the effects of depression on parental stress. In other words, as the individuals' comfort with allowing others to depend on them went up, the report of parental stress went down.

Discussion

In this study, the service member's own relationship satisfaction was significantly correlated with the PTSD symptom clusters. The service members' emotional numbing scores also were correlated with their own report of dyadic cohesion. However, the service members' PTSD symptoms were not correlated with their partners' overall dyadic adjustment, satisfaction, cohesion, or consensus. These findings are consistent with earlier dyadic studies that have focused on marital satisfaction (Nelson et al., 2007; Whisman, Uebelacker, & Weinstock, 2004) as an outcome rather than overall dyadic adjustment. Further, the findings pertaining to the influence of emotional numbing of PTSD symptom clusters on the service members' perception of marital satisfaction and dyadic adjustment were anticipated (Riggs et al., 1998).

The study provides evidence that when both partners are experiencing symptoms of PTSD, their overall dyadic adjustment scores are indicative of clinically distressed couples. The relationship between PTSD related to combat and poorer couple outcomes was not supported by the data to the magnitude of earlier studies of war veterans (Jordan et al, 1992; Riggs et al, 1998; Solomon, Dekel, & Zerach, 2008). The findings of this study suggest that 45-90 days following the veterans' return from combat, a diagnosis of PTSD did not predict poor relationship adjustment. As mentioned earlier, the only significant relationship to PTSD associated with combat was with the service members' report of relationship satisfaction. Further, there were no partner effects for PTSD, including the spouses' report of overall dyadic adjustment, relationship satisfaction, cohesion, or consensus. The lack of evidence for a significant relationship between PTSD associated with combat and poorer dyadic adjustment was unexpected for the study population.

The variability in findings across studies is possibly related to time and cohorts. Data in many of the PTSD studies have been collected years after the veteran returned home (Cook et al., 2004; Riggs et al., 1998) and may be influenced by larger societal ideologies and values which may have resulted in poorer outcomes among other veteran cohorts such as among Vietnam veterans (Riggs et al, 1998). The fact that these data were collected within the first few months of the service members' return home likely reflects a honeymoon effect. Further, the point in time that the cross-sectional data were collected most notably would contribute to variability in outcomes, particularly for those

processes like caregiver burden, which develop over time (Boss, et al., 1990; Figley, 1995). The incubation time for the development of PTSD may also explain the lack of correlation between service member PTSD and dyadic adjustment. A meta-analysis conducted on risk factors for PTSD found that factors like lack of social support and additional life stress were named with severity of trauma as having stronger effects than pre-trauma factors (Brewin, Andrews, & Valentine, 2000). This might suggest that relationship variables contributed to the onset of PTSD among veterans of earlier cohorts, and with time there may be a significant relationship between PTSD and dyadic adjustment for the current study population. Again, this is consistent with the interdependent nature of partner adjustment following a traumatic event (Bramsen, Henk, van der Ploeg, & Twisk, 2002; Browne et al., 2007; Gold et al., 2007).

The results of this study actually show that a diagnosis of PTSD in the service members results in improved perception of dyadic adjustment. There is some belief that these associations are superficial and stem from a suppression process (MacKinnon, Krull, & Lockwood, 2000; Shrout & Bogler, 2002). This is also consistent with the theory behind chronosystem (Bronfenbrenner, 1977), which proposes the development within individuals and families takes place across time.

Depression strongly predicted relationship distress, even when controlling for PTSD and alcohol misuse. These findings are consistent with earlier studies: one finding significant actor and partner effect for depression on marital

satisfaction (Whisman, Uebelacker, & Weinstock, 2004) and another showing that depression in one partner is associated with lower relationship satisfaction in the other (Benazon & Covne, 2000; Covne et al., 2002). It is not unusual for a study of veteran populations to focus exclusively on PTSD as a predictor variable for poor relationship quality (Cook et al., 2004; Riggs et al., 1998). The focus on PTSD symptoms among veteran populations has been at the exclusion of other coexisting disorders like depression (Whisman, 1999) and substance abuse. These disorders are highly correlated with marital difficulties and may have biased earlier findings. The presence of comorbid depression with PTSD is a serious concern for the study population. The co-occurrence of PTSD and major depression is the strongest risk factor for intimate partner violence (Taft et al., 2005). Further, Taft and associates (2007) found that depressive symptoms partially accounted for the effect of PTSD on general physical aggression. There were significant partner effects for the spouses' depression on service members' dyadic adjustment in the present study. This is consistent with an earlier study in the general population where depression had significant partner effects on marital satisfaction (Whisman, Uebelacker, & Weinstock, 2004).

The findings of the present study showing the relationship between depression and poorer relationship outcomes combined with reports from the MHAT V (2008) underscores the need for couples therapy both prior to and following deployment. The MHAT V reported findings from MNC-I Criminal Investigations Division (CID) and the Suicide Risk Management and Surveillance

Office (SRMSO) which had similar findings, 68% and 56% respectively, showing that there was a link between suicides and intimate relationship failure.

A strength of the study was the utilization of a dyadic data set with the couple as the unit of analysis (Kenny et al., 2006). This alone accounts for other factors in the couple relationship which may have a negative and deleterious effect on dyadic adjustment (Coyne et al., 2002; Whisman et al., 2004). While other studies show that PTSD symptoms of veterans are strongly associated with relationship difficulties, they are limited because they take into account the perceptions of the veterans and not that of their partners. For example, Solomon, Dekel, and Zerach (2008) looked at the relationships between PTSD symptom clusters and marital intimacy using only self report measures of the war veterans. Marital intimacy, marital satisfaction, dyadic adjustment, (and like) are interpersonal by definition a dyadic measurement (Kenny, Kashy, & Cook, 2006). To treat these measures as an individual measure results in an attribution error (Ross, 1977). To prevent assuming pseudo-unilaterality (Duncan, Kanki, Modros, & Fiske, 1984), the researcher should consider a dyadic measurement the function of two persons and therefore a measure of their non-independence (Kenny, Kashy, & Cook, 2006).

The findings of the present study also show an attachment construct which utilizes subscales of Close, Depend, and Anxiety as mediating variables explaining much of the direct effect of PTSD on the service members' and spouses' perception of dyadic adjustment. Solomon and colleagues (2008) discussed the possibility of marital relationships having an effect on PTSD and

recommended further studies in which the interpersonal intimacy contributes to the intrapsychic condition. These findings contribute to our understanding of the interpersonal contributions and their association with intrapsychic conditions for both the service members and their spouses following deployment to a combat zone. After accounting for the impact of the attachment construct on dyadic adjustment, the actor effects of PTSD on dyadic adjustment were no longer significant in the study. The indicators of adult attachment can have varying effects on family functioning following a stressful deployment. For example, if a spouse is struggling with his/her elevated levels of anxious attachment, the spouse may inadvertently express negative behaviors like criticism, denial, and avoidance while the service member is attempting to confide, depend or draw close to his/her partner (Guay et al., 2006). This type of interaction does not provide the safety for assimilation of the trauma experience. A subsequent study with the current population (Valentein, Blow et al., 2009) found that 47% of the service members were highly likely to talk to their spouses if they "were stuggling with stressors, problems, or symptoms of depression, PTSD, anxiety, or substance abuse". This suggests that the married service members will most likely talk with their spouse first. Spouses need the skills to listen empathically to their service members' trauma experiences while maintaining their own personal integrity and safety.

Individuals and military families who have the ability to utilize and or strengthen their personal use of the attachment indicators, depend and close, may find secondary benefits in intimate relationship satisfaction and parent-child

interactions. This supposition is reinforced by an earlier study where selfdisclosure was found to mediate the relationship between the avoidance numbing cluster of PTSD and intimacy (Solomon, Dekel, & Zerach, 2008). Further, social support and self-disclosure have been linked to post-traumatic growth (Tedeschi & Calhoun, 2004).

The service members' and the spouses' depression predicted parental stress in the dyadic data set. Though much of the current study focused on dyadic measures, the parent-child relationship is also a concern for military families and communities. The effects of deployment on parenting, parental stress, and psychological well-being have implications for child development (Brazelton & Greenspan, 2000; Siegel, 1999). The incidence of child maltreatment was shown to be elevated for the non-deploying partner during times of increased operation during OIF and OEF (Gibbs et al., 2007; Rentz et al., 2007). In this study the prevalence of depression and PTSD for the spouses and service members are similar. Adjustment over time could result in worse family functioning as demonstrated in a longitudinal study of persistent PTSD symptoms (Koenen et al., 2008).

The present study shows that as the level of depressive symptoms rises for both the service members and their spouses, the level of individual parental stress also increases. As expected, the adult attachment construct had a significant and negative relationship with parental stress (Bartholomew Horowitz, 1991; Rholes, Simpson, & Friedman, 2006). In other words, as an individual level of comfort with closeness and having others depend upon them increased, the

level of parental stress decreased. Additionally, as the level of individual anxiety increased, the level of parental stress also increased. Overall, it appears that adult attachment is strongly associated with both depression and parental stress in this sample. When accounting for the impact of the attachment construct on parental stress, the actor effects of depression on parental stress were no longer significant for the service members.

Finally, the findings indicate that attachment style influences parental stress, mediating the direct effects of depressive symptoms on parental stress for both the service members and the spouses. This finding is similar to Rholes and colleagues' (2006) longitudinal study that hypothesized that more avoidant people would perceive parenting to be more stressful and would magnify the stressors associated with parenting newborns. In light of the increased incidence of child maltreatment among military families during times of increase operational tempo and deployment during OIF and OEF(Gibbs et al., 2007; Rentz et al., 2007), building on attachment constructs may prove to be a beneficial measure of prevention and intervention. This is supported by findings that show a secure attachment style assisting victims who are coping with trauma (Shapiro & Levendosky, 1999). This same study found that this type of resilience was not present among victims with an insecure attachment style. Further, a mothers' attachment style has been found to predict quality of parent child interactions (Bartholomew & Horowitz, 1991).

Implications

Implications for Practice

The findings in the current study support the need for couple and family therapy. Couples within military families need the opportunity to strengthen their ability to depend on one another, improve the closeness in the intimate relationship, and lessen the anxiety associated with their partners' behavior. Solomon and Dekel (2007) found that prisoners of war without PTSD had learned a greater appreciation for the couple relationship and subsequently enjoyed the support and intimacy of the relationship. The interdependent and cybernetic relationship among family members was demonstrated in the mutual influence or nonrecursive model. Further, the meditational models suggest that attachment style has an integral role in the dynamics of the couple relationship, the family perception of a stressful event, and the parent's ability to respond to the child's bids for emotion regulation and safety. The trauma literature suggests that partners are able to influence the construction of reality after a traumatic experience (Gilbert, 1998). Interventions, targeted at building secure attachments within the couple relationship, have the potential to influence family perception and cohesiveness as well as promote family resilience. A case has been made for understanding the connection of attachment behavior to family adaptation to deployment and reunion. A theoretical model combining the stress and attachment literature has the potential to guide education and intervention.

The results of this study contribute to our knowledge about families enduring stress, crisis, and trauma. Since the construct of adult attachment was

a significant mediator, interventions can focus on helping individuals and couples improve interpersonal skills of communication and intrapersonal skills of comfort with closeness, capacity to depend on others, and fear of being abandoned. Utilization of the theoretical framework of attachment when developing intervention can subsequently improve the quality of life for military families. The study confirmed an association between adult attachment and dyadic adjustment. Attachment theory explains forms of emotional response to other human beings, and the attachment behavior is seen as a person trying to maintain proximity with the attachment figure (Bowlby, 1980). It is within the family system that an individual finds a balance between personal autonomy and connectedness to another individual (Rovers, 2006). This struggle between merging and individuation also was observed in the qualitative study of wives of veterans with PTSD (Dekel, et al., 2005). The Dekel study talked about the process that takes place over time when the injury/illness makes the boundaries of the marital and family relationships unclear.

The military families in this study have likely experienced some level of boundary ambiguity during the service members' deployment, as their service member was physically absent, but psychologically present for 12-15 months. Now that their service members have returned home, one in five individuals in the couple dyad are experiencing depression. PTSD is experienced at similarly high numbers, and for 4% of the couples in the sample, both partners were suffering from PTSD. The heightened expectation for reunion following a lengthy separation then becomes a further stress as the partner and children of a

psychologically distressed individual now deals with their physical presence but psychological absence. The ambiguity that takes place when a member of the family is physically present but psychologically absent has been discussed in detail in other writings associated with family stress including trauma (Boss, 1999; Boss & Couden, 2002), physical illness (Boss, 2002), and forms of dementia (Boss, Caron, Horbal, & Mortimer, 1990; Kaplan & Boss, 1999). Efforts of family and couple intervention should focus on individual and family roles following deployment to prevent boundary ambiguity (Boss, 1999). The constructs of attachment contribute nicely to work with PTSD couples. Following deployment, the spouse needs to reduce her/his own anxiety around the service member's PTSD symptoms, a process necessary for individuation. Simultaneously, the spouse needs to be comfortable with having the service member depend on her/him for some level of care.

Service members or spouses from the sample who are experiencing PTSD or depression may find their partner's attempt to move toward close intimate proximity as insulting and irritating, provoking violent behaviors (Sherman, Sautter, Jackson, Lyons, & Han, 2006). There is a need to understand the patterns of interaction with these couples, fears of abandonment, and whether forming a secure attachment with their significant partner could promote psychological healing. The couple relationship also benefits when the service member is able to increase their comfort with depending on and being close to his/her partner (Dekel, 2007; Kramer, 1993). When the caregiving spouse receives emotional support from the ill partner, he or she feels less

burden associated with the care and greater marital satisfaction (Dorfman, Holmes, & Berlin, 1996; Kramer, 1993; Wright & Aquilino, 1998). There also is some relationship between the support spouses are able to provide and the improvement of the veterans' mental state (Figley, 1986).

Maintaining boundaries so that the illness/injury does not consume family life will be especially important for the 166 couples whose children are accomplishing developmental milestones concurrent with the reintegration process. Families may need coping mechanisms and tools that will help them find meaning surrounding the loss of the individual characteristics of the service member prior to their combat experience (Tedeschi & Calhoun, 2004). The current study suggests that approximately 45-90 days following deployment, the service members' PTSD in relation to a military event does not have a significant relationship to couple distress. Interventions would do well to focus on positive aspects of posttraumatic growth and immediate coping strategies to deal with stress (Mikulincer & Florian, 1998). One method would be fostering a secure attachment style between two partners which is represented by both individuals perceiving their mate to be available and responsive to them when needed (Davila, 2003). Couples interventions should focus on skills that improve the ability to seek and receive care from one's partner. This will require that the person in distress be able to communicate his/her needs to their partner and then accept the partner's attempts to provide comfort. Clinicians must assist caregivers in understanding their role to be both physically and psychologically responsive to their partner's signals of distress. When partners are able to

provide care giving in their relationship, it indicates their availability and fosters security in the attachment figure (Davila, 2003).

Individuals in the study who had higher levels of the attachment subscales of Close and Depend had higher levels of dyadic adjustment and lower levels of parental stress following deployment. The emotional state of individual family members interacting with one another will influence coping skills of the larger system and outcome in the *family stress process* (Hobfoll & Spielberger, 1992), an issue particularly relevant for the 332 children under the age of 18 living in the home of study participants. Integrating the influence of attachment on coping provides a basis for stability based on the internal working model (Shapiro & Levendosky, 1999). One consideration for clinicians is to consider in their work, the extent to which a couple experiencing marital distress can mobilize social support from external sources (Julien & Markman, 1991). The connection between an individual's strong internal resources and his/her ability to mobilize social support, without becoming overly dependent, will benefit his/her individual and family functioning (Hobfoll & Spieldberger, 1992).

Implications for policy

One third of study participants are experiencing relationship distress and two in every five parents are distressed in their parenting following deployment. Further, the association between mental health concerns, dyadic adjustment, and parental stress demonstrated by the study suggest long term benefits for military families who receive interventions that target relational outcomes. However, marriage counseling and family therapy may not be readily available to

participants. TRICARE, the primary health insurance for service members, does not cover marriage counseling because it does not indicate the presence of a behavioral health diagnosis (Health Net Federal Services, 2009). Further, family therapy is covered by TRICARE only when it is determined to be medically or psychologically necessary for treatment of a "diagnosed" behavioral health disorder. In other words, the National Guard families are expected to receive services for dyadic adjustment or parental stress through Military OneSource or Military and Family Life Consultants (MFLC). There are potential barriers for access, availability, or acceptability with these two resources. For example, Military OneSource requires the service member or spouse call a 1-800 number rather than contact a known individual in the local community. Even though MFLC provides a valuable service to members and their families, Michigan has two MFLC supporting over 19,000 families whom live within a region that covers 58,110 square miles (Michigan Government, 2009). A MFLC living in southeast Michigan would have to travel 456 miles to provide face to face services to a family living in the northwest corner of the state. Expansion of treatment for relational issues and other V-codes will improve resilience for veterans and their families and likely prevent intergeneration transmission of trauma and insecure attachment styles.

Future Research

In the current sample, the data were collected (45-90 days) prior to the stabilization phase of the deployment cycle, and for some, they are likely still in the honeymoon phase. The implications for families are uncertain in that many

of the post-deployment stressors are processes that take place over time. For example, it is unclear how processes like secondary traumatization (Figley, 1986) or compassion fatigue (Figley, 1995) will play out over time. Earlier findings showed that women's struggles to reduce ambiguity predicted their own depression (Boss, et al., 1990). A longitudinal cohort study of OIF and OEF veterans and family members is needed to determine if initial PTSD predicts poor dyadic adjustment and parental stress at follow-up intervals (Holbrook, Hoyt, Stein, & Sieber, 2001). The utilization of a latent growth model also would provide an opportunity to examine synchronous effects of PTSD (Schnurr, 2006) on relationship variables. Does the change in PTSD symptoms predict change in relationship satisfaction? This type of study would provide insight into clinical treatment and the reduction of PTSD symptoms on the homeostasis of the dyad or family. Further, it would be beneficial to change causal paths and estimate the effects of dyadic distress on the service members' PTSD (Schnurr et al., 2006).

Further, a longitudinal study where time one data collection was prior to deployment would shed light on the family processes that occur during deployment that influence individual and family outcomes post-deployment. Not only would it be important to measure change of individual mental health variables, relationship adjustment, and parental stress, but it would also be beneficial to see if adult attachment predicts change in individual and family functioning. Attachment theory suggests that individuals are born with an attachment behavioral system that motivates them to seek proximity to significant others in times of need as a means of alleviating stress (Bowlby, 1969;1980).

One might hypothesize that during the most stressful periods for the service members and their spouses, the deployment separation prevented them from turning to their significant other. In what ways then does the deployment change adult attachment? How does the partner's absence during times of need predict an attachment injury (Johnson, Makinen, & Millikin, 2001) to the relationship, particularly if the NG member has volunteered to serve? Do individuals high in attachment anxiety worry that their partner will not be available in times of need (Mikulincer et al., 2004).

Anecdotally, the researcher has heard many reports of loss experienced by family members during deployment ranging from loss of time and missed developmental milestones to loss of loved ones and loss of health. There is some emerging literature that suggests attachment security may predict individual bereavement reactions (Parkes, 2001; Winjngaards-de Meij et al., 2007). Presuming that deployment losses represent some level of grief for some service members and spouses, does adult attachment security predict individual bereavement reactions and subsequent depressive symptoms?

Study Limitations

Study limitations include sampling and the generalizability of research findings to the population. A convenience sampling of NG members and spouse/significant others from the Midwest has limitations for making generalizations to the larger NG community. Though participants were recruited from both urban and rural communities, it does not necessarily represent other regional demographics. The sample was recruited from a reintegration program

that service members were required to attend, but some spouses/significant others were not in attendance due to family or work obligations. Further, there is no information about the service members or families that attended the FRW but chose not to participate in the study. Since individuals involved in recruitment were representatives of the university and the marriage and family therapy program, it is feasible that those individuals who did not trust mental health professionals and researchers may have declined to participate.

Every effort was made during the study assessment to maintain anonymity and physical space to complete the survey in a confidential manner. Some participants may have been inhibited in their responses if they chose to remain in proximity to their spouse/significant other or military buddies. Among the youngest NG members, significant peer pressure not to participate was observed by the researcher. The "Hooah!" culture may have been a contributing factor for under representation of the single soldiers ages 18-21 in the sample. This is especially concerning when factoring in young service members with high levels of combat exposure are at higher risk for hazardous alcohol use and suicide mortality (Jacobson et al., 2008: Zivin et al., 2007). Efforts need to be made to improve recruitment strategies for this population. Several limitations of the study need to be mentioned.

Stigma associated with mental health, combined with not wanting to look weak in front of their fellow comrades, may have caused some service members not to participate or to underreport their symptoms. When looking at member demographics and PTSD in relation to a military event, age was a significant

factor with younger soldiers having greater representation proportionally of those service members with PTSD. To expand on this limitation, infantry units often have a larger representation of younger enlisted soldiers compared with other military occupational specialties (MOS). Of the MOS represented in this sample, infantry was the only factor with a significant relationship to PTSD for a military event. This finding was expected as other studies that have demonstrated a relationship between number of firefight and combat exposure to the onset of PTSD symptoms (Hoge et al., 2004). The sampling limitation is especially concerning because the youngest members of the population were underrepresented, yet may be at the highest risk because of their age and military occupational specialties.

Even though the self-report measures used in this study have been validated primarily in primary care or clinical settings, the strict case definition increased the specificity and positive predictive value of the survey instrument. PTSD was assessed in the service member for their combat experience. Further, the cutoff for hazardous alcohol use in the study is considered by the World Health Organization to be harmful to health. However, the study did not assess for acquired brain injury. Psychiatric disorders that commonly co-occur in subjects with TBI are depression and anxiety (Busch & Alpern, 1998: Mooney & Speed, 2001). Further, the circumstances of the injury may mean the service member is at risk for PTSD. Landau and Hissitt (2008) suggested that mild traumatic brain injury impacts individual identity and relationship loss within the family. Without an accurate measure of TBI within the sample, one cannot be

certain that the symptoms of depression, PTSD, alcohol use, and suicide ideation are not comorbid with post-concussive symptoms.

Finally, the use of a cross-sectional data set fails to account for relationship processes that take place across time. Data collected at multiple time points from OIF and OEF veterans and their families would address some of methodological problems associated with a retrospective study (Ozer et al., 2008), specifically for the effects of combat on relationship variables.

The correlation of the disturbance of the endogenous variables (NG RDAS and SP RDAS) and the large residual should be noted as a limitation of the actorpartner interdependence model with this sample. The large positive residual (relative to others) indicates that this model markedly under-explains the relationship between the dyadic adjustment of the service members and their spouses. Comparison of the Actor-Partner Interdependence Model with the Nonrecursive model is an example of testing multiple, theoretically plausible a priori models (Martens, 2005a). The Mutual Influence (Kenny, 1996) and APIM are similar with two people who are measured both on outcome and predictor variable (Kenny et al., 2006). The bidirectional causation in the nonrecursive model represents the reciprocal causation. The mutual influence model should be tested in future dyadic studies. To test both the nonrecursive model and the APIM will avoid confirmation biases (Kahn, 2005; MacCallum & Austin, 2000; McDonald & Ho, 2002) and should be considered when designing future research.

Conclusion

The purpose of this study was to explore the dyadic factors which are associated with better functioning for military families following deployment to a combat zone. The study demonstrates that families where both members of the couple are experiencing PTSD are at greatest risk for relationship distress. Further, the lack of findings to support the deleterious effects of combat related PTSD on family functioning suggest that poorer outcomes are related to processes that take place over time. This is especially informative to policies affecting prevention, intervention, and promoting resilience and posttraumatic growth.

The study informs understanding of individual psychopathology which has a direct effect on the service members' and spouses' own perception of relationship functioning. Further, the nonrecursive or mutual influence model demonstrates that individual psychopathology has indirect effects on couple and family functioning due to the reciprocal relationship experienced between partners. Most striking of the mental health measures assessed in the study, depression, for both the service members and the spouses, has a significant and negative influence on dyadic adjustment and parental stress. Further, there is a strong association between depression, PTSD, and alcohol abuse for the service members.

Finally, the findings show that attachment mediates the effects of PTSD on dyadic adjustment as well as the effects of depression on parental stress. Understanding the attachment processes that are involved is one way to improve

military families' chances of adapting following deployment to a combat zone without suffering negative consequences. The study provides evidence for areas to examine in future research; namely the use of theoretical frameworks of attachment and systems in developing and evaluating interventions for couples and families. Further, longitudinal studies are needed to understand the implications for using adult attachment both theoretically and empirically in working with military families following the service members' deployment to a combat zone. The current and the proposed longitudinal study will advance both research and interventions for individual and families following not only combat experiences but other types of trauma and stressful life experiences.

APPENDIX

APPENDIX A

MI National Guard Survey: Member Form

National Guard Family Reintegration Needs Assessment Survey Member Form

In the next pages, we ask a number of questions pertaining to your life as well as your family's experiences with deployment and reunion. We will use your answers to assist soldiers and their families with adjustment to deployment and reunion. Please answer as honestly and accurately as possible. This survey should take approximately 30-40 minutes to complete and your responses are completely <u>anonymous</u>.

I. <u>Demographics:</u> (Please mark each box that applies to you.)

AGE:	EDUCATION:	RAN	<u>IK:</u>		<u>ETHN</u>	ICITY:
☐ 18-21	Some high school	□ E [.]	1-E4		🗌 Afi	rican American
22-30	GED	□ E	5-E6		🗌 Ca	lucasian
□ 31-40	High school diploma	E	7-E9		🗌 His	spanic
41-50	Some college	01	1-03		🗌 Na	tive American
51-60	Technical certificate	04	1-09		🗌 As	ian American
Over 60	Associate degree	۵w	01-5		🗌 Mu	ulti-ethnic
	Bachelor's degree				🗌 Ot	her
	Master's degree					
	(MD, JD, PhD, etc.)					
<u>Yrs. In Military:</u>	Family Income:	<u>Ma</u>	<u>rital S</u>	itatus:	Ge	nder:
0-4 years	Below \$20,000		Marrie	ed		Female
☐ 5-10 years	□ \$20,001 to \$30,000		Enga	ged		Male
🗌 11-20 years	☐ \$30,001 to \$40,000		Divor	ced		
21-30 years	\$40,001 to \$50,000		Coha	biting		
30 or more	S50,001 to \$75,000		Sepai	rated		
	\$75,001 to \$100,000		Other			
	Over \$100,000		Single	•		
Deployment Exp	eriences:					
Since 2001, how r deployments have other completed th	many combat or peacekeeping you or your spouse/significan nat lasted more than 30 days?) ht	□ 1	2	3	4 or more
Check the respon	se that best describes you:			l am a MI	Nationa	I Guard Member
				I am the s ational Gua	pouse/s ard Men	ignificant other of a nber
			□ are d	My spous ual career	e /signif MI NG	icant other and I members

II. This next section involves questions and statements regarding parenting. Please mark the statements that best describe you and your feelings regarding parenting.

a.	Do you have children?	b	Did you experience the birth of a child during deployment? YES NO
C.	Are you a stepparent?	d	Are you a single parent?
e.	Provide the number of children in the home under age 18:	f	What are the ages of your children?
g.	Do you have a special needs child?	h	If you have a special needs child, please explain:

Please tell us about your parenting experience by marking each item as it applies to you.

		Strongly Disagree	Disagree	Un- decided	Agree	Strongly Agree
i.	I am happy in my role as a parent.					
j.	There is little or nothing I wouldn't do for my child(ren) if it was necessary.					
k.	Caring for my child(ren) sometimes takes more time and energy than I have to give.					
I.	I sometimes worry whether I am doing enough for my children.					
m.	I feel close to my child(ren).					
n.	I enjoy spending time with my child(ren).					
0.	My child(ren) is/are an important source of affection for me.					
p.	Having a child(ren) gives me a more certain and optimistic view for the future.					

		Strongly Disagree	Disagree	Un- decided	Agree	Strongly Agree
q.	The major source of stress in my life is my child(ren).					
r.	Having a child(ren) leaves little time and flexibility in my life.					
s.	Having a child(ren) has been a financial burden.					
t.	It is difficult to balance different responsibilities because of my child(ren).					
u.	The behavior of my child(ren) is often embarrassing or stressful to me.					
v.	If I had it to do over again, I might decide not to have child(ren).					
w.	I feel overwhelmed by the responsibility of being a parent.					
x.	Having a child has meant having too few choices and too little control over my life.					
y.	I am satisfied as a parent.					
z.	I find my child(ren) enjoyable.					

III. The following section includes 21 groups of statements. Please read each group statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past 2 weeks, including today. Check one box for each of the 21 groups.

a.	I do not feel sad.	е.	I don't feel I am being punished.
	I feel sad much of the time.		I feel I may be punished.
	I am sad all the time.		I expect to be punished.
	I am so sad or unhappy that I can't stand it.		I feel I am being punished.
b.	I am not discouraged about my future.	f.	I feel the same about myself as ever.
	☐ I feel more discouraged about my future than I used to be.		I have lost confidence in myself.
	I do not expect things to work out for me.		I am disappointed in myself.
	I feel my future is hopeless and will only get worse.		I dislike myself.
C.	I do not feel like a failure.	g.	I don't criticize or blame myself more than usual.
	I have failed more than I should have.		I am more critical of myself than I used to be.
	As I look back, I see a lot of failures.		I criticize myself for all my faults.
	I feel I am a total failure as a person.	2000 CARACTER	☐ I blame myself for everything bad that happens.
d.	I get as much pleasure as I ever did from the things I enjoy.	h.	I don't have any thoughts of killing myself.
	I don't enjoy things as much as I used to.		I have thoughts of killing myself, but I would not carry them out.
	I get very little pleasure from the things I used to enjoy.		I would like to kill myself.
	I can't get any pleasure from the things I used to enjoy		I would kill myself if I had the chance

an Ballana a' te a	THE FOR THE STATE OF THE STATE AND A ST		no en la sense de la seconda de la second En la seconda de la seconda
i.	I don't feel particularly guilty.	m.	I don't cry anymore than I used to.
	I feel guilty over many things I have done or should have done.		I cry more than I used to.
	I feel quite guilty most of the time.		I cry over every little thing.
Marine and Street of	I feel guilty all of the time.		I feel like crying, but I can't.
j.	I am no more restless or wound up than usual.	n.	I am no more irritable than usual.
	I feel more restless or wound up than usual.	•	I am more irritable than usual.
	I am so restless or agitated that it's hard to stay still.		I am much more irritable than usual.
	I am so restless or agitated that I have to keep moving or doing something.		I am irritable all the time.
k.	I have not lost interest in other people or activities.	- 1992. 0.	☐ I have not experienced any change in my appetite.
	I am less interested in other people or things than before.		My appetite is somewhat less/greater than usual.
	I have lost most of my interest in other people or things.		My appetite is much less/more greater than usual.
	It's hard to get interested in anything.		My appetite is at an extreme (e.g., I have no appetite OR I crave food all the time).
1. I.	I make decisions about as well as ever.	p.	☐ I can concentrate as well as ever.
	I find it more difficult to make decisions than usual.		I can't concentrate as well as usual.
	I have much greater difficulty in making decisions than I used to.		It's hard to keep my mind on anything for very long.
ទោះ ភ្លេស	☐ I have trouble making any decisions.	· · · · · · · · · · · · · · · · · · ·	I find I can't concentrate on anything.

q.	I do not feel I am worthless.	t.	☐ I am no more tired or fatigued than usual.
	I don't consider myself as worthwhile and useful as I used to.		I get more tired or fatigued more easily than usual.
	I feel more worthless as compared to other people.		I am too tired or fatigued to do a lot of the things I used to do.
	I feel utterly worthless.		I am too tired or fatigued to do most of the things I used to do.
шежино Г.	I have as much energy as ever.	U.	☐ I have not noticed any recent changes in my interest in sex.
	I have less energy than I used to have.		I am less interested in sex than I used to be.
	I don't have enough energy to do very much.		I am much less interested in sex now.
B idding	I don't have enough energy to do anything.		I have lost interest in sex completely.
s.	I have not experienced any change in my sleeping pattern.	•	
	I sleep somewhat more/less than usual.		
	I sleep a lot more/less than usual.		
	My sleep is erratic (e.g., I sleep most of the day OR I wake up early and can't get back to sleep).		
IV. DEPLOYMENT EXPERIENCE

1. During your MOST RECENT deployment:

		NEVER	SELDOM	OFTEN	CONSTANTLY
а.	How many times were you in erious danger of being injured or illed?				
b.	How many times did you engage the enemy in a firefight?				

		YES	NO
C.	Did you know someone who was seriously injured or killed?		
d.	Were you directly responsible for the death of an enemy combatant?		
e.	Were you wounded or injured?		

2. Prior to your most recent deployment, how many previous deployments have you experienced?

0 (If zero, skip to guestion 5)	1 2	3 or more
---------------------------------------	-----	-----------

3. How many of your previous deployments have been since 9/11?

		And an end of the second s	A CONTRACTOR OF A CONTRACTOR O
and the second		Charles and an and a literated for	
0		0	2 05 00000
Second and the second sec	a description of the second state of the secon		5 OF MORE

DEPLOYMENT EXPERIENCE

4. During ANY PREVIOUS deployment:

		NEVER	SELDOM	OFTEN	CONSTANTLY
a.	How many times were you in serious danger of being injured or killed?				
b.	How many times did you engage the enemy in a firefight?				
			YES		NO
C.	Did you know someone who was seriously injured or killed?				
d.	Were you directly responsible for t	he			and the second states of the

5. DEPLOYMENT EXPERIENCE:

death of an enemy combatant?

e. Were you wounded or injured?

- What is the <u>most distressing</u> deployment related event you have ever experienced? (CONSIDERING ALL DEPLOYMENTS)
- b. When did it occur?
- c. Briefly describe the event._____

During the last 30 days, did you experience any of the following problems in relation to the event you described above? (Circle the number that is most true for you)

		NOT AT ALL	A LITTLE BIT	MODER- ATELY	QUITE A BIT	ALL THE TIME
a.	Repeated, disturbing memories, thoughts, or images of the stressful experience.	1	2	3	4	5
b.	Repeated, disturbing dreams of the stressful experience.	1	2	3	4	5
c.	Suddenly acting or feeling as if the stressful experience were happening again (as if you were re-living it).	1	2	3	4	5
d.	Feeling very upset when something reminded you of the stressful experience.	1	2	3	4	5
e.	Having physical reactions (like heart pounding, trouble breathing, sweating) when something reminded you of the stressful event.	1	2	3	4	5
f.	Avoiding thinking about or talking about the stressful experience or avoiding having feelings related to it.	1	2	3	4	5
g.	Avoiding activities or situations because they remind you of the stressful experience.	1	2	3	4	5
h.	Trouble remembering important parts of the stressful experience.	1	2	3	4	5
i.	Loss of interest in activities that you used to enjoy.	1	2	3	4	5
j.	Feeling distant or cutoff from other people.	1	2	3	4	5
k.	Feeling emotionally numb or being unable to have loving feelings for those close to you.	1	2	3	4	5
l.	Feeling as if your future somehow will be cut short.	1	2	3	4	5

		NOT AT ALL	A LITTLE BIT	MODER -ATELY	QUITE A BIT	ALL THE TIME
m.	Trouble falling or staying asleep.	1	2	3	4	5
n.	Feeling irritable or having angry outbursts.	1	2	3	4	5
0.	Having difficulty concentrating.	1	2	3	4	5
p.	Being "super alert" or watchful or on guard.	1	2	3	4	5
q.	Feeling jumpy or easily startled.	1	2	3	4	5

If you answered MODERATELY, QUITE A BIT, OR ALL THE TIME to any of the above questions, how DIFFICULT have these made it for you to do your work, or get along with other people?

- 1. Not difficult at all
- 2. Somewhat difficult
- 3. Very difficult
- 4. Extremely difficult

		YES	NO
1.	been badly beaten up?		
) .	been shot or stabbed?		
	witnessed someone being seriously injured or killed?		
i.	unexpectedly discovered a dead body?		
a.	been mugged, held up, or threatened with a weapon?		
	been held captive, tortured, or kidnapped?		
] .	been in a fire, flood, earthquake, or other natural disaster?		
٦.	been in a life-threatening car or motor vehicle accident?		
	had any other kind of life-threatening accident or injury?		
	been diagnosed with a life-threatening illness?		
	had a child of yours diagnosed with a life-threatening illness?		
	been raped?		
n.	experienced any other kind of sexual assault?		
٦.	learned about the <u>sudden, unexpected death</u> of a close friend or relative?		
.	learned that a close friend or relative was seriously physically attacked or injured in a life-threatening event of any kind?		

6. Prior to any military deployment and during periods between deployments, have you ever...

7b. How old were you when it occurred?______

7c. Briefly describe the event.____

.

During the last 30 days, did you experience any of the following problems in relation to the worst event you described in 7a above?

		YES	NO
a.	Did you avoid being reminded of this experience by staying away from certain places, people, or activities?		
b.	Did you lose interest in activities that were once important or enjoyable?		
c.	Did you begin to feel more isolated or distant from other people?		
d.	Did you find it hard to have love or affection for other people?		
e.	Did you begin to feel that there was no point in planning for the future?		
f.	After this experience, were you having more trouble than usual falling asleep or staying asleep?		
g.	Did you become jumpy or get easily startled by ordinary noises or movements?		

If you answered YES to any of the above questions, how DIFFICULT have these made it for you to do your work, or get along with other people?

- 1. Not difficult at all
- 2. Somewhat difficult 3. Very difficult
- 4. Extremely difficult

V. Relationship:

The questions in this section pertain to the relationship with your spouse/significant other. If you are NOT in a committed relationship at this time, you may skip to Section VI.



		Never	Less than once a month	Once or twice a month	Once or twice a week	Once a day	More often
I.	How often do you and your partner have a stimulating exchange of ideas?						
m.	How often do you and your partner calmly discuss something?						
n.	How often do you and your partner work together on a project?						

VI. Please check the response that best reflects your patterns of alcohol consumption.

100000		Never	Monthly or Less	2-4 times a month	2-3 times a week	4 or more times a week
a.	How often do you have a drink containing alcohol?	Go to VII				
1000000		1 or 2	3 or 4	5 or 6	7 to 9	10 or more
b.	How many standard drinks do you have on a typical day when you are drinking? [a standard drink is, for example, one 12 oz. beer, a glass of wine, or a shot (1.5 oz.) of hard liquor].					
		Never	Less than monthly	Monthly	Weekly	Daily or almost daily
C.	How often do you have six or more standard drinks on one occasion?					
d.	How often during the last year have you found that you were not able to stop drinking once you had started?					
e.	How often during the last year have you failed to do what was normally expected of you because of drinking?					
f.	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?					
g.	How often during the last year have you had a feeling of guilt or remorse after drinking?					
h.	How often during the last year have you been unable to remember what happened the night before because you had been drinking?					

		NO	Yes, but NOT in the last year	Yes, during the last year
i.	Have you or anyone else been injured because of your drinking?			
j.	Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?			

VII. Please complete this section by checking the response which best describes you as you relate in current or past intimate relationships. You do not have to currently be in a committed relationship to complete this section.

		Not at all characte- ristic of me	A little characte- ristic of me	Somewhat characte- ristic of me	Usually characte- ristic of me	Very characte- ristic of me
<u>e</u> :	I and additionable blowing others	B	B	B	B	₿
p.	I am not sure that I can always depend on others to be there when I need them					
с. а.	of cost to differe sometimes scares people					
r.	offen, love partners want me to be more intimate than I feel comfortable being.					
f.	I do not often worry about someone getting too close to me.					
g.	I am comfortable depending on others.					
h.	I find others are reluctant to get as close as I would like.					
i.	I am somewhat uncomfortable being close to others.					
j.	I know that others will be there when I need them.					
k.	I often worry my partner will not want to stay with me.					
I.	I am nervous when anyone gets too close.					
m.	I find it difficult to trust others completely.					
n.	I want to merge completely with another person.					

VIII. This section pertains to any mental health services you have received over the PAST YEAR.

Please mark the response that best reflects your experience.

In the	PAST YEAR did you receive mental health services for ss, emotional, alcohol, or family problem from a:	YES	NO
1a.	Mental health professional at a military facility?		
1b.	General medical doctor at a military facility?		
1c.	Military Chaplain?		
1d.	Mental health professional at a civilian facility?		
1e.	General medical doctor at a civilian facility?		
1f.	Civilian Clergy?		
1g.	Military OneSource Referral?		
1h.	VetCenter Readjustment Counseling?		
1i.	TRICARE Referral?		
1j.	Other		

Rate that rece serv	each of the possible concerns might affect your decision to ive mental health counseling or ices:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2a.	I don't trust mental health professionals.					
2b.	I don't know where to get help.					
2c.	I don't have adequate transportation.					
2d.	It is difficult to schedule an appointment.					
2e.	There would be difficulty getting time off work for treatment.					
2f.	Mental health care costs too much money.					
2g.	It might harm my career.					
2h.	It would be too embarrassing.					
2i.	I would be seen as weak.					
2j.	Mental health care doesn't work.					
2k.	Members of my unit might have less confidence in me.					
21.	My unit leadership might treat me differently.					
2m	My leaders would blame me for the problem.					
2n.	I don't want it to appear on my military records.					
2m.	There are no providers in my community.					
20.	I would have to drive great distances to receive high quality care					

YOU ARE NOW FINISHED WITH THE SURVEY

THANK YOU!

BEFORE LEAVING THE ROOM....

- 1) PLEASE BE SURE YOU HAVE ANSWERED ALL QUESTIONS AND THAT YOU HAVE NOT IDENTIFIED YOURSELF ON THE QUESTIONNAIRE.
- 2) DROP YOUR COMPLETED SURVEY IN THE BOX LABELED <u>SURVEY</u> AT THE TABLE IN THE BACK OF THE ROOM.
- 3) DROP YOUR EMAIL FORM IN THE BOX LABELED <u>EMAIL</u> AT THE TABLE IN THE BACK OF THE ROOM. THIS IS FOR NOTIFYING YOU OF LOGIN AVAILABILITY AND CANNOT BE LINKED TO YOU OR YOUR RESPONSES. YOUR EMAIL ADDRESS WILL NOT BE SHARED OR ADDED TO ANY DATABASES OUTSIDE OF THIS STUDY.
- 4) COLLECT YOUR \$10 MEIJER GIFT CARD AS OUR THANK YOU.

APPENDIX B

MI National Guard Survey: Spouse Form

National Guard Family Reintegration Needs Assessment Survey Spouse/Significant Other Form

In the next pages, we ask a number of questions pertaining to your life as well as your family's experiences with deployment and reunion. We will use your answers to assist soldiers and their families with adjustment to deployment and reunion. Please answer as honestly and accurately as possible. This survey should take approximately 30-40 minutes to complete and your responses are completely <u>anonymous</u>.

I. <u>Demographics:</u> (Please mark each box that applies to you.)

AGE:	EDUCATION:	ETHNICITY:	
18-21	Some high school	African American	
22-30	GED	Caucasian	
□ 31-40	High school diploma	🗌 Hispanic	
41-50	Some college	Native American	
51-60	Technical certificate	🗌 Asian American	
Over 60	Associate degree	Multi-ethnic	
	Bachelor's degree	Other	
	Master's degree		
	🔲 (MD, JD, PhD, etc.)		
	Family Income:	Marital Statue: Gandar:	
	Below \$20,000		3
	□ \$20,001 to \$30,000		
	□ \$30,001 to \$40,000		
	☐ \$40,001 to \$50,000 	Cohabiting	
	☐ \$50,001 to \$75,000	Separated	
	🔲 \$75,001 to \$100,000	Other	
	Over \$100,000		
Deployment	Experiences:		
Since 2001, he deployments h other complete	ow many combat or peacekeepin have you or your spouse/significa ed that lasted more than 30 days	ng 1 2 3 4 or more ant s?	
Check the res	ponse that best describes you:	I am a MI National Guard Membe	F
		I am the spouse/significant other of MI National Guard Member	of a
		My spouse /significant other and l are dual career MI National Guard members	I

II. This next section involves questions and statements regarding parenting. Please mark the statements that best describe you and your feelings regarding parenting.

a.	Do you have children?	b	Did you experience the birth of a child during deployment? YES NO
C.	Are you a stepparent?	d	Are you a single parent?
e.	Provide the number of children in the home under age 18:	f	What are the ages of your children?
g.	Do you have a special needs child?	h	If you have a special needs child, please explain:

Please tell us about your parenting experience by marking each item as it applies to you.

		Strongly Disagree	Disagree	Un- decided	Agree	Strongly Agree
i.	I am happy in my role as a parent.					
j.	There is little or nothing I wouldn't do for my child(ren) if it was necessary.					
k.	Caring for my child(ren) sometimes takes more time and energy than I have to give.					
Ι.	I sometimes worry whether I am doing enough for my children.					
m.	I feel close to my child(ren).					
n.	I enjoy spending time with my child(ren).					
о.	My child(ren) is/are an important source of affection for me.					
p.	Having a child(ren) gives me a more certain and optimistic view for the future.					

						ap a tr
		Strongly Disagree	Disagree	Un- decided	Agree	Strongly Agree
q.	The major source of stress in my life is my child(ren).					
r.	Having a child(ren) leaves little time and flexibility in my life.					
s.	Having a child(ren) has been a financial burden.					
t.	It is difficult to balance different responsibilities because of my child(ren).					
u.	The behavior of my child(ren) is often embarrassing or stressful to me.					
v.	If I had it to do over again, I might decide not to have child(ren).					
w.	I feel overwhelmed by the responsibility of being a parent.					
x.	Having a child has meant having too few choices and too little control over my life.					
y.	I am satisfied as a parent.					
z.	I find my child(ren) enjoyable.					

III. The following section includes 21 groups of statements. Please read each group statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past 2 weeks, including today. Check one box for each of the 21 groups.

yaranan Se	<mark>na na serie de la serie de</mark> La serie de la s	rend en les	ne sent at a transmission <mark>and ματικά του 1920 του το</mark> υ του του του του του του του του του το
a.	I do not feel sad.	е.	I don't feel I am being punished.
	I feel sad much of the time.		I feel I may be punished.
	I am sad all the time.		I expect to be punished.
Wather, states in the second	I am so sad or unhappy that I can't stand it.	an a	I feel I am being punished.
b.	I am not discouraged about my future.	f.	I feel the same about myself as ever.
	I feel more discouraged about my future than I used to be.		I have lost confidence in myself.
	I do not expect things to work out for me.		I am disappointed in myself.
	I feel my future is hopeless and will only get worse.		I dislike myself.
C.	I do not feel like a failure.	g.	I don't criticize or blame myself more than usual.
	I have failed more than I should have.		I am more critical of myself than I used to be.
	As I look back, I see a lot of failures.		I criticize myself for all my faults.
	I feel I am a total failure as a person.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	I blame myself for everything bad that happens.
d.	I get as much pleasure as I ever did from the things I enjoy.	h.	I don't have any thoughts of killing myself.
	I don't enjoy things as much as I used to.		I have thoughts of killing myself, but I would not carry them out.
	I get very little pleasure from the things I used to enjoy.		I would like to kill myself.
	I can't get any pleasure from the things I used to enjoy.		I would kill myself if I had the chance.
es return T		بیومین ۲۰۰۰ بود ا	jan sekara en komen en e

m.	I don't cry anymore than I used to.
	I cry more than I used to.
	I cry over every little thing.
	I feel like crying, but I can't.
222.13	
n.	I am no more irritable than usual.
·	I am more irritable than usual.
	I am much more irritable than usual.
	I am irritable all the time.
. O.	I have not experienced any change in my appetite.
	My appetite is somewhat less/greater than usual.
	My appetite is much less/more greater than usual.
	My appetite is at an extreme (e.g., I have no appetite OR I crave food all the time).
p.	☐ I can concentrate as well as ever.
	I can't concentrate as well as usual.
	It's hard to keep my mind on anything for very long.
•31. • .	I find I can't concentrate on anything.
	m.

q.	I do not feel I am worthless.	t.	I am no more tired or fatigued than usual.
	I don't consider myself as worthwhile and useful as I used to.		I get more tired or fatigued more easily than usual.
	☐ I feel more worthless as compared to other people.		I am too tired or fatigued to do a lot of the things I used to do.
	I feel utterly worthless.		I am too tired or fatigued to do most of the things I used to do.
117503×17	Analogiesto statistices according de la constante de la constante de la constante de la constante de la constan Analogiesto statistico de la constante de la co	a and a state of the	
r.	☐ I have as much energy as ever.	u.	I have not noticed any recent changes in my interest in sex.
	I have less energy than I used to have.		I am less interested in sex than I used to be.
	I don't have enough energy to do very much.		I am much less interested in sex now.
	I don't have enough energy to do anything.		I have lost interest in sex completely.
s .	I have not experienced any change in my sleeping pattern.		
	I sleep somewhat more/less than usual.	.:	
	I sleep a lot more/less than usual.		
	My sleep is erratic (e.g., I sleep most of the day OR I wake up early and can't get back to sleep).		

IV. LIFE EVENTS

Thinking back on your entire life, have you ever...

		YES	NO
a.	been badly beaten up?		
b.	been shot or stabbed?		
c.	witnessed someone being seriously injured or killed?		
d.	unexpectedly discovered a dead body?		
e.	been mugged, held up, or threatened with a weapon?		
f.	been held captive, tortured, or kidnapped?		
g.	been in a fire, flood, earthquake, or other natural disaster?		
h.	been in a life-threatening car or motor vehicle accident?		
i.	had any other kind of life-threatening accident or injury?		
j.	been diagnosed with a life-threatening illness?		
k.	had a child of yours diagnosed with a life-threatening illness?		
I.	been raped?		
m.	experienced any other kind of sexual assault?		
n.	learned about the <u>sudden, unexpected death</u> of a close friend or relative?		
0.	learned that a close friend or relative was seriously physically attacked or injured in a life-threatening event of any kind?		

7a. Which of the above events was the worst?

7b. How old were you when it occurred?_____

7c. Briefly describe the event.

During the last 30 days, did you experience any of the following problems in relation to the worst event you described in 7a above?

		YES	NO
a.	Did you avoid being reminded of this experience by staying away from certain places, people, or activities?		
b.	Did you lose interest in activities that were once important or enjoyable?		
c.	Did you begin to feel more isolated or distant from other people?		
d.	Did you find it hard to have love or affection for other people?		
e.	Did you begin to feel that there was no point in planning for the future?		
f.	After this experience, were you having more trouble than usual falling asleep or staying asleep?		
g.	Did you become jumpy or get easily startled by ordinary noises or movements?		

If you answered YES to any of the above questions, how DIFFICULT have these made it for you to do your work, or get along with other people?

- 1. Not difficult at all
- 2. Somewhat difficult
- 3. Very difficult
- 4. Extremely difficult

V. Relationship:

The questions in this section pertain to the relationship with your spouse/significant other. If you are NOT in a committed relationship at this time, you may skip to Section VI.



		Never	Less than once a month	Once or twice a month	Once or twice a week	Once a day	More often
1.	How often do you and your partner have a stimulating exchange of ideas?						
m.	How often do you and your partner calmly discuss something?						
n.	How often do you and your partner work together on a project?						

VI. Please check the response that best reflects your patterns of alcohol consumption.

		Never	Monthly or Less	2-4 times a month	2-3 times a week	4 or more times a week
a.	How often do you have a drink containing alcohol?	Go to VII				
		1 or 2	3 or 4	5 or 6	7 to 9	10 or more
ь.	How many standard drinks do you have on a typical day when you are drinking? [a standard drink is, for example, one 12 oz. beer, a glass of wine, or a shot (1.5 oz.) of hard liquor].					
		Never	Less than monthly	Monthly	Weekly	Daily or almost daily
C.	How often do you have six or more standard drinks on one occasion?					
d.	How often during the last year have you found that you were not able to stop drinking once you had started?					
e.	How often during the last year have you failed to do what was normally expected of you because of drinking?					
f.	How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?					
g.	How often during the last year have you had a feeling of guilt or remorse after drinking?					
h.	How often during the last year have you been unable to remember what happened the night before because you had been drinking?					

	NO	Yes, but NOT in the last year	Yes, during the last year
I. Have you or anyone else been injured		need a second	
because of your drinking?			LJ .
the set easy and the set well set and a set of a	• • •	eren de date de estate	n an riggi a se
health care worker been concerned about your drinking or suggested you cut down?			

VII. Please complete this section by checking the response which best describes you as you relate in current or past intimate relationships. You do not have to currently be in a committed relationship to complete this section.

		Not at all characte- ristic of me	A little characte- ristic of me	Somewhat characte- ristic of me	Usually characte- ristic of me	Very characte- ristic of me
<u>a</u> .	l and dochificctable blaving ptigeet depleperiod one. others	B	B	B	B	B
p.	I am not sure that I can always depend on others to be there when I need					
c. q.	utern. Uterne in telativery easy to out close to offers. Sometimes scares					
г.	people away. Often, love partners want me to be more intimate than I feel comfortable being.					
f.	love me. I do not often worry about someone getting too close to me.					
g.	I am comfortable depending on others.					
h.	I find others are reluctant to get as close as I would like.					
i.	I am somewhat uncomfortable being close to others.					
j.	I know that others will be there when I need them.					
k.	I often worry my partner will not want to stay with me.					
I.	I am nervous when anyone gets too close.					
m.	I find it difficult to trust others completely.					
n.	I want to merge completely with another person.					

VIII. This section pertains to any mental health services you have received over the PAST YEAR.

In the PAST YEAR did you receive mental health services YES NO for a stress, emotional, alcohol, or family problem from a: Mental health professional at a military facility? 1a 1b General medical doctor at a military facility? 1c. Military Chaplain? 1d Mental health professional at a civilian facility? 1e. General medical doctor at a civilian facility? 1f. Civilian Clergy? Military OneSource Referral? 1g. 1h VetCenter Readjustment Counseling? 11. TRICARE Referral? 1i. Other

Please mark the response that best reflects your experience.

Rate that i recei servi	each of the possible concerns might affect your decision to ve mental health counseling or ces:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2a.	I don't trust mental health professionals.					
2b.	I don't know where to get help.					
2c.	I don't have adequate transportation.				Ċ	
2d.	It is difficult to schedule an appointment.					
2e.	There would be difficulty getting time off work for treatment.					
2f.	Mental health care costs too much money.					
2g.	It might harm my career.					
2h.	It would be too embarrassing.					
2i.	I would be seen as weak.					
2j.	Mental health care doesn't work.					
2k.	It might harm my spouse/significant other's military career.					
21.	There are no providers in my community.					
2m.	I would have to drive great distances to receive high quality care					

YOU ARE NOW FINISHED WITH THE SURVEY

THANK YOU!

BEFORE LEAVING THE ROOM

- 1) PLEASE BE SURE YOU HAVE ANSWERED ALL QUESTIONS AND THAT YOU HAVE NOT IDENTIFIED YOURSELF ON THE QUESTIONNAIRE.
- 2) DROP YOUR COMPLETED SURVEY IN THE BOX LABELED <u>SURVEY</u> AT THE TABLE IN THE BACK OF THE ROOM.
- 3) DROP YOUR EMAIL FORM IN THE BOX LABELED <u>EMAIL</u> AT THE TABLE IN THE BACK OF THE ROOM. THIS IS FOR NOTIFYING YOU OF LOGIN AVAILABILITY AND CANNOT BE LINKED TO YOU OR YOUR RESPONSES. YOUR EMAIL ADDRESS WILL NOT BE SHARED OR ADDED TO ANY DATABASES OUTSIDE OF THIS STUDY.
- 4) COLLECT YOUR \$10 MEIJER GIFT CARD AS OUR THANK YOU.

APPENDIX C

Tables of Means and Distributions

Tables of Correlations

Table 10

_	Ν			Std. Error of	Std.	
_	Valid	Missing	Mean	Mean	Deviation	Range
<i>Member PTSD</i> : PCL-M	196	5	31.7806	.99876	13.98269	68.00
Spouse PTSD: SSC	192	9	1.2448	.13572	1.88059	7.00
<i>Member Depression:</i> BDI II	199	2	8.5427	.53361	7.52752	37.00
Spouse Depression: BDI II	196	5	8.7296	.61391	8.59477	37.00
<i>Member Alcohol Use</i> : AUDIT	200	1	4.3150	.30766	4.35091	23.00
<i>Spouse Alcohol Use:</i> AUDIT	198	3	2.5253	.20262	2.85111	24.00

Table 11

Correlations for Members' Independent Variables of Psychological Well-being

	PCL-M	BDI II	AUDIT
PCL-M			
BDI II	.675**		
AUDIT	.156*	.156*	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 12

Correlations for Spouses' Independent Variables of Psychological Well-being

	SSS	BDI II	AUDIT
SSS			
BDI II	.362**		
AUDIT	.093	.049	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 13 Means and Distribution for Members' PCL-M Subscales

	N			<u></u>		
	Valid	Missing	Mean	Std. Deviation	Range	
Reexperiencing	195	5	9.0308	4.39060	5.0-25.0	
Hypervigilence	196	4	11.2092	5.26450	5.0-25.0	
Avoidance	195	5	11.5436	5.59564	7.0-35.0	
Effortful avoidance	196	4	4.8776	2.55108	3.0-15.0	
Emotional numbing	195	5	6.6769	3.53673	4.0-20.0	

Table 14

Correlations for Members' PCL-M Subscales

	Re- experiencing	Hyper- vigilance	Avoidance	Effortful avoidance	Emotional numbing
Re-experiencing					
Hyper-vigilance	.771**				
Avoidance	.741**	.774**			
Effortful avoidance	.749**	.692**	.886**		
Emotional numbing	.632**	.726**	.942**	.680**	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 15

Means and Distribution for	Dependent	Variables	Revised	Dyadic Ad	ljustment
Score and Subscales					

	N			Std. Error of	Std.	
	Valid	Missing	Mean	Mean	Deviation	Range
Member RDAS	197	3	50.5888	.61915	8.69016	18.0-67.0
Consensus	198	2	23.2374	.31814	4.47659	3.0-30.0
Satisfaction	198	2	15.1667	.23660	3.32923	2.0-20.0
Cohesion	198	2	11.9596	.24845	3.49596	0-19.0
Spouse RDAS	199	1	48.6250	.69371	9.81048	13.0-69.0
Consensus	199	1	22.4975	.35429	4.99785	3.0-30.0
Satisfaction	200	0	14.7300	.22945	3.24496	1.0-20.0
Cohesion	200	0	11.5100	.25745	3.64090	3.0-13.0

Table 16

Correlations for Members' Revised Dyadic Adjustment Scores and Subscales

	RDAS	Consensus	Satisfaction	Cohesion
RDAS.				
Consensus	.834**			
Satisfaction	.798**	.553**		
Cohesion	.759**	.443**	.493**	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 17

Correlations for Spouses' Revised Dyadic Adjustment Scores and Subscales

	RDAS	Consensus	Satisfaction	Cohesion
RDAS.				
Consensus	.854**			
Satisfaction	.778**	.502**	_	
Cohesion	.766**	.436**	.494**	

**. Correlation is significant at the 0.01 level (2-tailed).
Table 18

Means and Distribution for Dependent Variable Parental Stress Scale

	N					
			Moon	Std. Error of	Std.	Minimum
	Valid	Missing	Mean	IVICALI	Deviation	
Member PSS	152	48	36.1908	.67886	8.36956	18.0-65.0
Spouse PSS	146	54	35.60 9 6	.72543	8.76543	18.0-65.0

Table 19

Correlations for Dependent Variable Parental Stress Scale

	Member PSS	Spouse PSS
Member PSS		
Spouse PSS	.218*	

*. Correlation is significant at the 0.05 level (2-tailed).

Table 20

	N			Std. Error of	Std.	, <u>, , , , , , , , , , , , , , , ,</u>
	Valid	Missing	Mean	Mean	Deviation	Minimum
Member RAAS						
Close	195	5	21.0103	.30417	4.24749	8.0-30.0
Depend	197	3	20.0609	.35490	4.98122	8.0-30.0
Anxiety	192	8	12.4167	.27891	3.86464	6.0-30.0
Spouse RAAS				•		
Close	194	6	22.5567	28625	3.98695	11.0-30.0
Depend	194	6	19.8454	.36306	5.05686	8.0-30.0
Anxiety	193	7	12.5440	.29081	4.04008	6.0-24.0

Means and Distribution for Mediating Variable Adult Attachment Subscales

Table 21

Correlations for Members' Revised Adult Attachment Subscales

Member	Close	Depend	Anxiety
Close			
Depend	.448**		
Anxiety	106	284**	

**. Correlation is significant at the 0.01 level (2-tailed).

Table 22

Correlations for Spouses' Revised Adult Attachment Subscales

Spouse	Close	Depend	Anxiety
Close .			
Depend	.549**		
Anxiety	278 [™]	392**	

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX D

IRB and Human Subjects

.

MICHIGAN STATE

Revision Application Approval

March 16, 2009

To:	Adrian BLOW
	3E Human Ecology
	FCE

Re: IRB# 07-125 Category: FULL REVIEW Revision Approval Date: March 16, 2009 Project Expiration Date: September 14, 2009

Titie: Understanding the Experiences of National Guard Families: Assessing Adaptation to Deployment, Reunion, and the Need for Services

The Institutional Review Board has completed their review of your project. I am pleased to advise you that the revision has been approved.

Revision includes some changes in the consent to be compatible with consents approved by the University of Michigan.

The revelve by the committee has found that your revision is consistent with the continued protection of the rights and wafars of human subjects, and meets the requirements of MSUF > Federal WdcA Seurance and the Federal Guidelines (46 CFR 46 and 21 CFR Part 50). The protection of human subjects in research is a partnership between the IRS and the investigations. Wie look forward to working with you as we both fulfill our responsibilities.

Renewais: IRB approval is valid until the expiration date listed above. If you are continuing your project, you must submit an Application for Renewal application at least one month before expiration. If the project is completed, pieses submit an Application for Permanent Closure.

Revisions: The IRB must review any changes in the project, prior to initiation of the change. Please submit an Application for Revision to have your changes reviewed. If changes are made at the time of renewal, please include an Application for Revision with the renewal application.

Problems: If issues should arise during the conduct of the research, such as unanticipated problems, adverse events, or any problem that may increase the risk to the human subjects, notify the IRB office promptly. Forms are available to report these issues.

Please use the IRB number listed above on any forms submitted which relate to this project, or on any correspondence with the IRB office->

Good luck in your research. If we can be of further assistance, please contact us at 517-355-2180 or via email at IRB@mauzedu. Them? you for your cooperation.

OFFICE OF REGULATORY AFFAIRS Human Research Protection Programs

BIOMEDICAL & HEALTH INSTITUTIONAL REVIEW BOARD (BIRB)

COMMUNITY RESEARCH INSTITUTIONAL REVIEW BOARD (CRIRB)

SOCIAL SCIENCE/ BEHAVIORAL / EDUCATION INSTITUTIONAL REVIEW BOARD (SIRB)

> 202 Olds Haj East Lansing, Michigan 48824-1046 517-355-2180 Fax: 517-432-4503

www.humanresearch.msu.edu IRB@msu.edu



dSU is an affirmative-action

Sin Uller

Robin Lin Miller, Ph.D. SIRB Vice Chair

C¹

Barbara AMES 13F Human Ecology Dept. Human Ecology

200

MICHIGAN STATE

July 9, 2009

SUBJECT:

TO: Graduate School 118 Linton Hall

Services"

FROM: Judy McMillan, B.S., CIP Director of Human Research Protections 205 Olds Hall



OFFICE OF REGULATORY AFFAIRS Human Research Protection Programs

BIOMEDICAL & HEALTH INSTITUTIONAL REVIEW BOARD (BIRB)

COMMUNITY RESEARCH INSTITUTIONAL REVIEW BOARD (CRIRB)

SOCIAL SCIENCEL BEHAVIORAL / EDUCATION INSTITUTIONAL REVIEW BOARD (SIRB)

> 202 Olds Hall East Lansing, Michigan 48824-1046 517-355-2180 Fax: 517-432-4503

www.humanresearch.msu.edu S'R8 & BIRB: IRB@msu.edu CRIRB: crirb@msu.edu



MSU is an affirmative-action equal-opportunity institution.

In 2007, Adrian Blow, primary investigator, was granted human subject approval for her research project. The research was entitled, "Understanding the Experiences of National Guard Families: Assessing Adaptation to Deployment, Reunion, and the Need for Services." Assisting and pursuing a doctorate while conducting the research was graduate student Lisa Gorman, secondary investigator. Lisa Gorman has been listed on this project since the initial approval of this research protocol in 2007. This project has continuing review.

IRB# 07-125, "Understanding the Experiences of National Guard

Families: Assessing Adaptation to Deployment, Reunion, and the Need for

If you have any questions, please feel free to contact me at 432-4502.

Sincerely Yours,

ALEN

Judy McMillan DirectorHuman Research Protection Programs Office of Regulatory Affairs 202 Olds Hall Michigan State University East Lansing, MI 48824-1046 Phone: (517) 432-4502 Fax: (517) 432-4503 Email: IRB@msu.edu Website: www.humanresearch.msu.edu

APPENDIX E

Survey Consent

,



Advancing Knowledge. Transforming Lives.

Understanding the Experiences of National Guard Families: Adaptation to Deployment and Reunion

Survey Consent

The Michigan State University Departments of Family and Child Ecology and Epidemiology along with the College of Human Medicine invite you to participate in a research study evaluating the experiences of National Guard Families as they negotiate deployment and reunion. The purpose of this research is to understand more fully factors that contribute to the well-being of Michigan National Guard soldiers and their families. We will use the findings from our research to strengthen programs and services for Michigan National Guard families.

The study is <u>anonymous</u> and after a paper and pencil questionnaire today, you may participate in additional surveys via the Internet. There will be two additional internet surveys available in six weeks and six months from today. Today's survey will take 30-40 minutes to finish. If you participate in additional internet surveys, they will take no more than 20 minutes each to complete.

The survey questionnaire will ask you about your experience of events related to deployment and reunion as well about a variety of health behaviors related to you and your life situation. Some of the questions will be about stressful or possibly disturbing events in your life. Thinking about or recalling these events presents a risk in that this process is likely to bring to your awareness memories you would rather not think about. If you experience <u>any</u> undue distress or discomfort as a result of completion of the survey, please contact one of the members of the research team present here today, and we will set you up with a confidential consultation with a trained treatment provider from the MSU Family and Child Clinic or a Michigan Veteran Center. Individuals from these two groups are also available in the resource room for confidential debriefing and/or referral. You may also choose to contact a provider on the referral list we have provided with this survey.

Participation is voluntary. You may choose not to participate at all, or you may refuse to participate in certain procedures or answer certain questions or discontinue your participation at any time without penalty or loss of benefits.

Your responses to all questions will be anonymous. This means that there is no way for us to link your survey answers to your identity. The ticket number on your admission ticket is what links the paper and pencil surveys with the internet information that you may provide. When you login to the internet survey, you will create a secret userid and password that only you will know. This is linked to your ticket number, which is the only means we have to link your responses. In other words, your data will be connected by a number so that we can follow your responses over time, but there will be no way to connect any of your identifying information to that number. Your spouse/significant other may also participate in this survey. It is important that you and your spouse/significant other complete the survey independently.

If you choose to participate, you will be eligible for a reward in the form of a \$10 Meijer gift card. Your spouse/significant other will also receive a gift card for his/her participation. You and your significant other will each receive an incentive for logging in to subsequent study waves on the internet. You will use the number and website which is printed on your admission ticket, and which is enclosed in the study packet. The login reward will be a \$15 gift certificate from Amazon.com. To collect your reward you will need to print the voucher that will be presented on the internet page.

You personally may not directly benefit from participation in this study. However, your participation in this study may contribute to understanding the experiences of National Guard families and provide future benefit for the National Guard throughout the country.

If you have questions about participation in this survey, please contact Dr. Adrian Blow or Lisa Gorman 3E Human Ecology, Michigan State University. (517) 432-7092. Email: <u>blowa@msu.edu</u> or <u>gormanL1@msu.edu</u>. Survey Website: <u>http://lse.msu.edu</u>

If you have any questions regarding your role and rights as a study participant, or would like to register a complaint about this study, you may contact, anonymously, if you wish, Dr. Peter Vasilenko, Director of Human Research Protection Programs, at (517) 355-2180, FAX: (517) 432-4503, email: irb@msu.edu, or regular mail: HRPP, 202 Olds Hall, East Lansing, MI 48824.

By proceeding and completing the survey, you are voluntarily consenting to participate in this project and have your data included in the dataset.

While your signature is not necessary, if you prefer to sign this consent that is your choice.

Signature: _____

Date: _____

This consent form was approved by the Social Science/Behavioral/Education Institutional Review Board (SIRB) at Michigan State University. Approved 09/28/07 – valid through 09/27/08. This version supersedes all previous versions. IRB # 07-125.

APPENDIX F

Recruitment Script

Recruitment Script

A military personnel will formally close the morning's activities.

1. A member of the Family Support Office at the National Guard will then introduce the researcher and team. This individual is a civilian and has no rank. She will be asked to state the following:

"Dr. Adrian Blow is the Principal Investigator on a research study finding out more about how your families negotiate deployment (in some cases multiple deployments) and reunion. If you choose to participate, completion of an anonymous paper and pencil survey will take approximately 45 minutes of your time and your participation will be acknowledged by means of a \$10 Meijer gift card. Participation is completely voluntarily and you may choose not to participate. Dr Blow will now tell you more about the study."

2. Following is the recruitment script.

First I would like to thank you for attending this meeting. In consultation with the Michigan National Guard, the departments of Family and Child Ecology and Epidemiology at Michigan State, along with the College of Human Medicine have worked together to develop a research program aimed at monitoring the adjustment and well-being of soldiers and their families as they return from deployment. The objective of our research is to increase our understanding of the long-term impact of deployment on families in order to provide more effective services to you and your loved ones. Soldiers and their families are of special interest to us because you are exposed to more stressful events than most other individuals in our communities.

Other than what you may complete today using paper and pencil, future data collection will all be done over the internet. What we learn should be of benefit to soldiers, especially those who are in the National Guard. The National Guard has unique deployment and reunion situations that are different from other military units. In this regard, those of you who participate will be potentially contributing to the well-being of National Guard soldiers throughout the United States.

I want to emphasize that your participation is voluntary and you may elect not to participate at all, or you may stop participation at any time should you wish to do so. Participation also is anonymous. We do not want to know the names of participants and we have designed the procedures in such a way that we will not be able to link your data to your identity.

Are there any questions at this point?

In a minute, I will hand out a consent form that will provide more details of the research. If any of you know you absolutely don't want to take part, you may leave now. Remember that this is completely voluntary. For those of you, who want more details, stay for the next 5 minutes and we will provide you with more details. You will be able to decline participation later on, so staying for more details does not mean you are agreeing to participate.

3. Distribute consent forms.

This is a statement containing your rights as a participant, the risks associated with your participation, and other elements of the process called informed consent. I will ask you to read along as I read to you aloud the contents of this statement.

{After giving each person a copy of the consent statement I will read it to them while they follow along}

Are there any questions at this point?

We are now going to move ahead and hand out the surveys. If you decided not to participate, you may now leave.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Adams, G.A., Durand, D.B. Burrell, L., Teitelbaum, J.M. Pehrson, K.L., & Hawkins, J.P. (2005). Direct and indirect effects of operation tempo on outcomes for soldiers and spouses. *Military Psychology*, *17*, 229-246.
- Amato, P.R. (2000). The consequences of divorce for adults and children. *Journal* of Marriage and the Family, 62, 1269-1287.
- American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association.
- Anderson, T.W. (1957). Maximum likelihood estimates for a multivariate normal distribution when some observations are missing. *Journal of the American Statistical Association, 52,* 200-203.
- Arbuckle, J. L. (2008). *Amos 17 user's guide.* Crawfordville, FL: Amos Development Corporation.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *81*, 191-215.
- Bandura, A. (1978). The self system in reciprocal determination. *American Psychologist, 34,* 344-358.
- Babor T. F., Higgins-Biddle J. C., Saunders J. B., Monteiro M.G. (2001). *AUDIT. The Alcohol Use Disorders Identification Test*. Geneva: Department of Mental Health and Substance Dependence, World Health Organization.
- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*, 226-244.
- Beach, S.R.H. (2001). *Marital and Family Processes in Depression: A Scientific Foundation for Practice.* Washington, D.C.: American Psychological Association.

- Beach, S.R.H., Sandeen, E.E., & O'Leary, K.D. (1990). *Depression in marriage: A model for etiology and treatment.* New York: Guildford Press.
- Beckham, J.C., Braxton, L.E., & Kudler, H.S. (1997). Minnesota Multiphasic Personality Inventory Profiles of Vietnam combat veterans with posttraumatic stress disorder and their children. *Journal of Clinical Psychology*, 53, 847-852.
- Beckham, J.C., Lytle, B.L., & Feldman, M.E. (1996). Caregiver burden in partners of Vietnam war veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 64,* 1068-1072.
- Beck, A., Steer, R., & Brown, G. (1996). *Beck Depression Inventory* 2nd edition manual. San Antonio, TX: Psychological Corporation.
- Ben Arzi, N., Solomon, Z., & Dekel, R. (2000). Secondary traumatization among wives of PTSD and post-concussion casualties: Distress, caregiver burden and psychological separation. *Brain Injury, 14,* 725-736.
- Benazon, N.R., & Coyne, J.C. (2000). Living with a depressed spouse. *Journal of Family Psychology*, *14*, 71-79.
- Bentler, P.M. (1990). Comparative fit indexes in structural equation models. *Psychological Bulletin, 107,* 238-246.
- Bentler, P.M. (2004). *EQS structural equations program manual.* Encino, CA: Multivariate Software, Inc.
- Bentler, P.M., & Bonett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88,* 588-606.
- Bentler, P.M., & Freeman, E.H. (1983). Tests for stability in linear structural equation systems. *Psychometrika, 48,* 143-145.

Berry, J. O. & Jones, W. H. (1995). The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships, 12,* 463-472.Blow, Gorman, Ames, Reed, & Anderson, 2008

Bollen, K.A. (1989). Structural equations with latent variables. New York: Wiley.

- Boss, P. (1987). Family stress. In M. B. Sussman & S.K. Steinmetz (Eds.), Handbook of marriage and the family (pp. 695-724). New York: Plenum.
- Boss, P. (1999). *Ambiguous loss: Learning to live with unresolved grief.* Cambridge, MA: Harvard University Press.

How you want to

- Boss, P., Caron, W., Horbal, J., & Mortimer, J. (1990). Predictors of depression in caregivers of dementia patients: Boundary ambiguity and master. *Family Process, 29,* 245-254.
- Boss, P., & Couden, B.A. (2002). Ambiguous loss from chronic physical illness: Clinical interventions with individuals, couples, and families. *Journal of Clinical Psychology, 58,* 1351-1360.
- Bowlby, J. (1980). Attachment and loss: Vol. III. Loss. New York: Basic Books. Bramsen, I., Van der Ploeg, H.M. & Twisk, J.W.R. (2002).
 Secondary traumatization in Dutch couples of World War II survivors. Journal of Consulting and Clinical Psychology, 70, 241-245.
- Brazelton, T.B., & Greenspan, S.I. (2000). *The irreducible needs of children; What every child must have to grow, learn, and flourish*. Cambridge, MA: Perseus Publishing.
- Breslau, N., Peterson, E. L., Kessler, R. C., Schultz, L. R. (1999). Short screening scale for DSM-IV posttraumatic stress disorder. *American Journal of Psychiatry*, *156*, 908-911.
- Brewin, C.R., Andrews, B., & Valentine, J.D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 68, 748-766.
- Bronfenbrenner, U. (1989). Ecological system theory. Annals of Child Development, 6, (pp 187-249). JAI Press Inc.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32,* 513-531.

Bronfenbrenner, 1979

- Brooks, G. R. (1991). Therapy pitfalls with Vietnam veteran families: Linearity, contextual naiveté, and gender role blindness. *Journal of Family Psychology*, *44*, 446-461.
- Brown, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K.A. Bollen & J.S. Long (Eds.), *Testing structural equation models* (pp. 136-262). Thousand Oaks, CA: Sage.
- Browne, T., Hull, L., Horn, O., Jones, M., Murphy, D., Fear, N. T., Greenber, N., French, C., Rona, R. J., Wessely, S., & Hotopf, M. (2007). Explanations for the increase in mental health problems in UK reserve forces who have served in Iraq. *British Journal of Psychiatry*, *190*, 484-489.

- Bubolz, M., & Sontag, S. (1993). Human ecology theory. In P. G. Boss, W. J.
 Doherty, R. LaRossa, W. R. Scham, & S. K. Steinmetz (Eds.), Source book of families, theories and methods: A contextual approach (pp. 419–448). New York: Plenum.
- Burke, J. Chandy, J. Dannerbeck, A. Watt, J.W. (1998). The parental environmental cluster model of child neglect: An integrative conceptual model. *Child Welfare*, *77*, 389-405.
- Busby, D.M., Christensen, C., Crane, D.R. & Larson, J.H. (1995). A revision of the Dyadic Adjustment Scale for use with distressed and nondistressed couples: Construct Hierarch and multidimensional scales. *Journal of Marital and Family Therapy, 21,* 289-308.
- Busch, C.R., & Alpern, H.P. (1998). Depression after mild traumatic brain injury: A review of current research. *Neuropsychology Review, 8,* 95-108.
- Butera-Prinzi, F., & Perlesz, A. (2004). Through children's eyes: Children's experience of living with a parent with an acquired brain injury. *Brain Injury, 18,* 83-101.
- Byrne, C. A., & Riggs, D. S. (2002). Gender issues in couple and family therapy following traumatic stress. In R. Kimerling, P. Ouimette & J. Wolfe (Eds.) *Gender and PTSD* (pp.382-399).
- Calhoun, P.S., Beckham, J.C., & Bosworth, H.B. (2002). Caregiver burden and psychological distress in partners of veterans with chronic posttraumatic stress disorder. *Journal of Traumatic Stress*, *15*, 205-212.
- Call, V. R. A., & Teachman, J. D. (1996). Life-course timing and sequencing of marriage and military service and their effects on marital stability. *Journal of Marriage and the Family, 58*(1), 219-226.
- Caselli, L.T., & Motta, R.W. (1995). The effects of PTSD and combat level on Vietnam veterans' perceptions of child behavior and marital adjustment. *Journal of Clinical Psychology*, *51*, 4-12.
- Chambless, D. L., Fauerbach, J. A., Floyd, F. J., Wilson, K. A., Remen, A. L., & Renneberg, B. (2002). Marital interaction of agoraphobic women: A controlled, behavioral observation study. *Journal of Abnormal Psychology*, *111*, 502–512.
- Collins, N.L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of Personality and Social Psychology*, *71*, 810-832.

- Collins, N. L., Guichard, A. C., Ford, M. B., & Feeney, B. C. (2004). Working models of attachment: New developments and emerging themes. In W. W. Rholes & J. S. Simpson (Eds.), *Adult attachment: Theory, research and clinical implications* (pp. 196-239). New York: Guilford.
- Collins, N.L., & Read, S.J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58,* 644-663.
- Coohey, C. (1996). Child maltreatment: Testing the social isolation hypothesis. *Child Abuse and Neglect, 20,* 241-254.
- Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. (2004). Posttraumatic Stress Disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology*, *18*, 36-45.
- Coyne, J. C., Kessler, R. C., Tal, M., Turnbull, J., Wortman, C., & Greden, J. (1987). Living with a depressed person: Burden and psychological distress. *Journal of Consulting and Clinical Psychology*, *55*, 347–352.
- Coyne, J.C., Thompson, R., & Palmer, S.C. (2002). Marital quality, coping with conflict, marital complaints, and affections in couples with a depressed wife. *Journal of Family Psychology*, *16*, 26-37.
- Crane, D.R., Middleton, K.C., & Bean, R.A. (2000). Establishing criterion scores for the Kansas Marital Satisfaction Scale and the Revised Dyadic Adjustment Scale. *The American Journal of Family Therapy*, *28*, 53-60.
- Crowell, J. A., & Treboux, D. (1995). A review of adult attachment measures: Implications for theory and research. *Social Development, 4,* 294-327.
- Davila, J. (2003). Attachment processes in couple therapy: Informing behavioral models. In S. M. Johnson & V. E. Whiffen (Eds.), *Attachment processes in couple and family therapy* (pp.124-143). New York: Guilford.
- Dekel, R. (2007). Posttraumatic distress and growth among wives of prisoners of war: The contribution of husbands' posttraumatic stress disorder and wives' own attachment. *American Journal of Orthopsychiatry*, 77, 419-426.
- Dekel, R., Goldblatt, H. Keidar, M., Solomon, Z., & Polliack, M. (2005). Being a wife of a veteran with posttraumatic stress disorder. *Family Relations, 54* (1), 24-36.
- Dekel, R. & Solomon, Z. (2006). Marital relations among former prisoners of war: Contribution of Posttraumatic Stress Disorder, aggression, and sexual satisfaction. *Journal of Family Psychology, 20,* 709-712.

- Department of Defense Task Force on Mental Health. (2007). An achievable vision: Report of the Department of Defense Task force on Mental Health. Falls Church, VA: Defense Health Board.
- Dirkzwager, A. J. E., Bramsen, I., Ader, H., & vand der Ploeg, H. M. (2005). Secondary traumatization in partners and parents of Dutch peacekeeping soldiers. *Journal of Family Psychology*, *19*, 217-226.
- Dorfman, L.T., Holmes, C.A., & Berlin, K.I. (1996). Wife caregivers of frail elderly veterans: Correlates of caregiver satisfaction and caregiver strain. *Family Relations, 45,* 46-55.
- Dyer, K.F.W., Bell, R., McCann, J., Rauch, R. (2006). Aggression after traumatic brain injury: Analysing socially desirable responses and the nature of aggressive traits. *Brain Injury, 20,* 1163-1173.
- Everson, R.B. (2005). Quality of life among army spouses: Parenting and family stress during deployment to Operation Iraqi Freedom. A dissertation submitted to Florida State University College of Human Sciences.
- Fairbank, J. A., & Fairbank, D. W. (2005). Families at risk: Comment on Dirkzwager, Bramsen, Ader, and van der Ploeg (2005). *Journal of Family Psychology*, 19, 230-232.
- Feeney, B. C., & Collins, N. L. (2004). Interpersonal safe haven and secure base caregiving processes in adulthood. In W. W. Rholes & J. S. Simpson (Eds.), *Adult attachment: Theory, research and clinical implications* (pp. 300-338). New York: Guilford.
- Figley, C.R. (1986). Traumatic stress: The role of the family and social support systems. In C. R. Figley (Ed.), *Trauma and its wake, Vol. II: Traumatic stress, theory, research and intervention* (pp. 39-54). New York: Brunner/Mazed.
- Figley, C.R. (1995). Compassion fatigue as secondary traumatic stress disorder: An overview. In C. R. Figley (Ed.), *Compassion fatigue: Coping with condary traumatic stress disorder in those who treat the traumatized* (pp. 1-20). New York: Brunner/Mazed.
- Figley, C. R. (1998). Burnout as systemic traumatic stress: A model for helping traumatized family members. In C. R. Figley (Ed.), *Burnout in families: The systemic costs of caring* (1-28). New York: CRC Press.
- Figley, C. R. (1998). *Burnout in families: The systemic costs of caring.* New York: CRC Press.

- Fincham, F.D., & Bradbury, T.N. (1987). The assessment of marital quality: A reevaluation. *Journal of Marriage and the Family, 49* 797-809.
- Foa, E. B., Riggs, D.S., & Gershuny, B.S. (1995). Numbing, intrusion, and arousal: Symptoms patterns of post-traumatic stress disorder. *American Journal of Psychiatry*, *152*, 116-120.
- Fox, J. (1980). Effect analysis in structural equation models. *Sociological Methods and Research, 9,* 3-28.
- Frazier, P.A., Tix, A.P., & Barron, K.E. (2004). Testing moderator and mediator effects in counseling psychology. *Journal of Counseling Psychology*, *51*, 115-134.
- Gibbs, D.A., Martin, S.L., Kupper, L.L., & Johnson, R.E. (2007). Child maltreatment in enlisted soldiers' families during combat-related deployments. *Journal of American Medical Association, 298,* 528-535.
- Gilbert, K. (1998). Understanding the secondary traumatic stress of spouses. In C. R. Figley (Ed.), *Burnout in families: The systemic costs of caring* (pp. 47-74). New York: CRC Press.
- Gimbel, C., & Booth, A. (1994). Why does military combat experience adversely affect marital relations? *Journal of Marriage and the Family, 56*(3), 691-702.
- Gold, J.I., Taft, C.T., Keehn, M.G., King, D.W., King, L.A., & Samper, R. E. (2007). PTSD symptom severity and family adjustment among female Vietnam veterans. *Military Psychology*, *19*, 71-81.
- Gorman, L. A., Ames, B. D., Blow, A. J., & Anderson, J. R. (2006). National Guard and Army Reserve families: Unique work and family challenges. *National Council on Family Relations, Report, 51,* F5-F6.

Gottman et al, 1998

- Gottman, J.M., & Silver, N. (1999). *The seven principles for making marriage work*. New York: Three Rivers Press.
- Greenberger, E. & O'Neil, R. (1993). Spouse, parent, worker: Role commitments and role-related experiences in the construction of adults' well-being. *Developmental Psychology, 29,* 181-197.
- Griffore, R. J., & Phenice, L. A. (2001). *The language of Human Ecology: A general systems perspective.* Dubuque, Iowa: Kendal/Hunt Publishing.

- Guay, S., Billette, V., & Marchand, A. (2006). Exploring the links between posttraumatic stress disorder and social support: Processes and potential research avenues. *Journal of Traumatic Stress, 19*, 327-338.
- Havan, C, & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personoality and Social Psychology*, *52*, 511-524.
- Health Net Federal Service (2009). "Marriage counseling and family therapy. Retrieved May 29, 2009 from https://www.hnfs.net/bene/benefits/marriage_counseling_family_therapy.ht m
- Hetherington, E. M. (1989). Coping with family transitions: Winners, losers, and survivors. *Child Development, 60,* 1–14.
- Hobfoll, S. E., & Spielberger, C. D. (1992). Family stress: Integrating theory and measurement. *Journal of Family Psychology*, *6*, 99-112
- Hoge, C. W., Auchterlonie, J. L., & Milliken, C. S. (2006). Mental health problems, use of mental health services, and attrition from military service after returning from deployment to Iraq or Afghanistan. JAMA, 296 (9), 1023-1032.
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems and barriers to care. *The New England Journal of Medicine*, 351, 13-22.
- Holbrook, T. L., Hoyt, D. B., Stein, M. B., & Sieber, W. J. (2001). Perceived threat to life predicts posttraumatic stress disorder after major trauma: Risk factors and functional outcome. *Journal of Trauma, 51,* 287–293.
- Holsinger, T., Steffens, D.C., Phillips, C., Helms, M.J., Havlik, R.J., Breitner, J.C.S., Guralnik, J.M., Plassman, B.L (2002). Head injury in early adulthood and the lifetime risk of depression. *Archives of General Psychiatry*, 59, 17-22.
- Hotopf, M., Hull, L., Fear, N. T., Browne, T., Horn, O., Iversen, A., Jones, M., Murphy, D., Bland, D., Earnshaw, M., Greenberg, N., Hughes, J. H., Tate, A. R., Dandeker, C., Rona, R., Wessely, S. (2006). The health of UK military personnel who deployed to the 2003 Iraq war: A cohort study. *The Lancet, 367,* 1731-1741.
- Hoyle, R.H., & Smith, G.T. (1994). Formulating clinical research hypotheses as structural equation models: A conceptual overview. *Journal of Consulting and Clinical Psychology*, *62*, 429-440.

- Huston, T.L., Caughlin, J.P., Houts, R.M., Smith, S.E., & George, L.J. (2001). The connubial crucible: Newlywed years as predictors of marital delight, distress, and divorce. *Journal of Personality and Social Psychology*, *80*, 237-254.
- Institute of Medicine (2008). *Gulf War and Health, Volume 6: Physiologic, Psychologic, and Psychosocial Effects of Deployment-Related Stress.* Washington, DC: The National Academies Press.
- Iowa Persian Gulf Study Group, (1997). Self-reported illness and health status among Gulf War veterans: A population-based study. *Journal of the American Medical Association,* 277, 238-245.
- Jacob, T., Leonard, K.E., & Haber, J.R. (2001). Family interactions of alcoholics as related to alcoholism type and drinking condition. *Alcoholism: Clinical and Experimental Research, 25,* 835-843.
- James, S., & Hunsley, J. (1995). The Marital Adaptability and Cohesion Evaluation Scale III: Is the relations with marital adjustment linear or curvilinear? *Journal of family Psychology*, *9*, 458-462. Johnson, S. M. (1999). Emotionally focused couple therapy: Straight to the heart. In J. M. Donovan (Ed.), *Short-term couple therapy.* (pp. 13-42). New York: Guilford.
- Johnson, S. M., Makinen, J. A., & Millikin, J. W. (2001). Attachment injuries in couple relationships: A new perspective on impasses in couples therapy. *Journal of Marital and Family Therapy*, *27*, 145-155.
- Joiner, T.E., & Coyne J.C. (1999). *The interaction nature of depression: Advances in interpersonal approaches.* Washington, D.C.: American Psychological Association.
- Jordan, B. K., C. R. Marmar, J. A. Fairbank, W. E. Schlenger, R. A. Kulka, R. L. Hough, et al. (1992) Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 60, 916–926.
- Julien, D., & Markman, H. J. (1991). Social support and social networks as determinants of individual and marital outcomes. *Journal of Social and Personal Relationships, 8,* 549-568.
- Kahn, J. H. (2005). Institutional research productivity, use of theory-driven research, and statistical application in counseling psychology: Examining the research base. *The Counseling Psychologist*, *33*, 340-348.

- Kaplan, L., & Boss, P. (1999). Depressive symptoms among spousal caregivers of institutionalized mates with Alzheimer's: Boundary ambiguity and mastery as predictors. *Family Process*, *38*, 85-103.
- Karney, B.R. (2007) Families under stress: an assessment of data, theory, and research on marriage and divorce in the military. Santa Monica, CA: Rand Corporation.
- Karney, B.R., & Bradbury, T.N. (2000). Attributions in marriage: State or trait? A growth curve analysis. *Journal of Personality and Social Psychology, 78,* 295-309.
- Karney, B.R., Ramchand, R., Osilla, K.C., Caldarone, L.B., & Burns, R.M. (2008). Predicting the immediate and long-term consequences of post-traumatic stress disorder, depression, and traumatic brain injury in veterans of Operation Enduring Freedom and Operation Iraqi Freedom. In T. Tanielian & L.H. Jaycox (Eds.), *Invisible wound of war: Psychological and cognitive injuries, their consequences, and services to assist recovery.* (pp. 119-166). Santa Monica, CA: RAND Corporation.
- Kessler, R.C., Walters, E.E., Forthofer, M.S. (1998). The social consequences of psychiatric disorders, III: Probability of marital stability. *American Journal of Psychiatry*, *155*, 1092-1096.
- Kline, R. B. (1998). *Principles and practices of structural equation modeling*. New York: Guilford Press.
- Koenen, K.C., Stellman, S.D., Sommer, J.F., & Stellman, J.M. (2008). Persisting posttraumatic stress disorder symptoms and their relationship to functioning in Vietnam Veterans: A 14-year follow-up. *Journal of Traumatic Stress, 21,* 49-57.
- Kosciulek, J.F. (1994). Relationship of family coping with head injury to family adaptation. *Rehabilitation Psychology*, *39*, 215-230.
- Kosciulek, J.F., McCubbin, M.A., & McCubbin, H.I. (1993). A theoretical framework for family adaptation to head injury. *Journal of Rehabilitation*, 59, 40-45.
- Kramer, B.J. (1993). Marital history and prior relationships as predictors of positive and negative outcomes among wife caregivers. *Family Relations*, *42*, 367-375.

- Kulka, R.A., Schlenger, W.E., Fairbank, J.A., Hough, R.L., Fordan, B.K., Marmar, C.R., et al. (1990). Trauma and the Vietnam War generation: Report of findings from the National Vietnam Veternas Readjustment study. New York. Bruner/Mazel.
- Kurdek, L. (2002). On being insecure about the assessment of attachment styles. Journal of Social and Personal Relationships, 16, 811-834.
- Landau, J. & Hissett, J. (2008). Mild traumatic brain injury: Impact on identity and ambiguous loss in the family. *Families, Systems, & Health, 26,* (1), 69-85.
- Lapierre, C. B., Schwegler, A.F., & LaBauve, B.J. (2007). Posttraumatic stress and depression symptoms in soldiers returning from combat operations in Iraq and Afghanistan. *Journal of Traumatic Stress, 20*, 933–943.

- Leonard, K.E., Das Eiden, R. Wong, M.M., Zucker, R.A., Puttler, L.I., Fitzgerald, H.E., et al. (2000). Developmental perspectives on risk and vulnerability in alcoholic families. *Alcoholism: Clinical and Experimental Research, 24*, 238-240.
- Levin, A. (2009). Military brass address suicide crisis and strategies to cure it. *Psychiatric News, 44,* 10.
- Little, R.J.A., & Rubin, D.B. (1989). The analysis of social science data with missing values. *Sociological Methods and Research, 18,* 292-326.
- Loukas, A., Twitchell, G. R., Piejak, L. A., Fitzgerald, H. E., & Zucker, R. A. (1998). The family as a unity of interacting personalities. In L. L'Abate (ed). *Handbook of family psychopathology* (pp 35-39). New York: Guilford.
- Lux, W.E. (2007). A neuropsychiatric perspective on traumatic brain injury. Journal of Rehabilitation Research and Development, 44, 951-962.
- MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, *51*, 201-226.
- MacDermid, S. M. (2006). Multiple transitions of deployment and reunion for military families. PowerPoint. Military Family Research Institute. Retrieved April 6, 2007, from <u>http://www.cfs.purdue.edu/mfri/DeployReunion.ppt</u>

Marrone, M. (1998). Attachment and interaction. London: Kingsley.

- Marsh, N.V., & Martinovich, W.M. (2006). Executive dysfunction and domestic violence. *Brain Injury, 20,* 61-66.
- Martens, M. P. (2005a). Future directions of structural equation modeling in counseling psychology. *The Counseling Psychologist*, 33, 375-382.
- Martens, M. P. (2005b). The use of structural equation modeling in counseling psychology research. *The Counseling Psychologist*, 33, 269-298.
- McCrady, B. S., & Epstein, E. E. (1995). Marital therapy in the treatment of alcohol problems. In N. S. Jacobson & A. S. Gurman (Eds.), *Clinical handbook of couple therapy* (pp. 369–393). New York: Guilford Press.
- McDonald, S.D., Beckham, J.C., Morey, R. Marx, C., Tupler, L.A., Calhoun P.S. (2008). Factorial invariances of posttraumatic stress disorder sysmptoms across three veteran samples. *Journal of Traumatic Stres, 21*, (3), 309-317.
- Mental Health Advisory Team (MHAT V) (2008). Operation Iraqi Freedom 06-08, chartered by the Office of the Surgeon General Multi-National Forces-Iraq and Office of the Surgeon General United States Army Medical Command, February 14, 2008 available on http://www.army.medicine.army.mil
- McDonald, R. P., & Ho, M. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7, 64-82.
- Michigan Government (2009). Michigan facts. Retrieved May 29, 2009 from http://michigan.gov/hal/0,1607,7-160-15481_20826_20829-56001--,00.html
- Mikulincer, M., & Florian, V. (1998). The relationship between adult attachment styles and emotional and cognitive reactions to stressful events. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 143–165). New York: Guilford Press.
- Mikulincer, M., Florian, V., & Tolmacz, R. (1990). Attachment styles and fear of personal death: A case study of affect regulation. *Journal of Personality and Social Psychology, 58* (2), 273-280.
- Mikulincer, M., Florian, V., & Weller, A. (1993). Attachment styles, coping strategies, and posttraumatic psychological distress: The impact of the Gulf War in Israel. *Journal of Personality and Social Psychology, 64* (5), 817-826.

- Milliken, C.S., Auchterlonie, J.L., & Hoge, C.W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *Journal of the American Medical Association*, 298, 2141-2148.
- Monson, C. M. & Taft, C. E., (2005). PTSD and intimate relationships. *PTSD Quarterly*, 16, 1-7.
- Mooney, G., Speed, J. (2001). The association between mild traumatic brain injury and psychiatric conditions. *Brain Injury, 15,* 865-877.
- Neff, L.A., & Karney, B.R. (2004). How does context affect intimate relationships? Linking external stress and cognitive processes within marriage. *Personality and Social Psychology Bulletin, 30,* 134-148.
- Nelson Goff, B. S., Crow, J. R., Reisbig, A. M. J., & Hamilton, S. (2007). The impact of individual trauma symptoms of deployed soldiers on relationship satisfaction. *Journal of Family Psychology, 21,* 344-353.
- Nelson Goff, B. S., & Smith, D. (2005). Systemic traumatic stress: The Couple Adaptation to Traumatic Stress Model. *Journal of Marital and Family Therapy, 31,* 145-157.
- Nelson, B. S., & Wampler, K. S. (2000). Systemic effects of trauma in clinic couples: An exploratory study of secondary trauma resulting from childhood abuse. *Journal of Marital and Family Therapy*, 26 (2), 171-184.
- Nickols, S. (2003). Human eco-system theory: A tool for working with families. Journal of Family and Consumer Sciences, 95, 15-18.
- National Institute of Health. (2007). Mental health consequences of violence and trauma.
- Nolen-Hoeksema, S., Wong, M.M., Fitzgerald, H., & Zucker, R.A. (2006). Depressive symptoms over time in women partners of men with and without alcohol problems. *Journal of Abnormal Psychology*, *115*, 601-609.
- O'Farrell, T.J., Murphy, C.M., Neavins, T.M., & Van Hutton, V. (2000). Verbal aggression among male alcoholics patients and their wives in the year before and two years after alcoholism treatment. *Journal of Family Violence, 15,* 295-310.
- Olinsky, A., S. Chen, &. Harlow. L. (2003). The comparitive efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research*, *151*,53–79.

- Olson, D.H. (1993). Circumplex model of marital and family systems: Assessing family function. In F. Walsh (Ed.), *Normal family processes* (2nd ed., pp. 14-137). New York: Guilford Press.
- Oquendo, M., Brent, D.A., Birmaher, B. (2005). Posttraumatic stress disorder comorbid with major depression: Factors mediation the association with suicidal behavior. *The American Journal of Psychiatry*, *162*, 560-566.
- Orcutt, H. K., King, L. A., & King, D. W. (2003). Male perpetrated violence among Vietnam veteran couples: Relationships with veteran's early life characteristics, trauma history, and PTSD symptomatology. *Journal of Traumatic Stress, 16,* 381-390.
- Ozar, E.J., Best, S.R., Lipsey, T.L., & Weiss, D.S. (2008). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Trauma: Theory, Research, Practice, and Policy, S(1),* 3-36.
- Parkes, C.M. (2001). A historical overview of the scientific study of bereavement. In M.S. Stroebe, R.O. Hansson, W. Stroebe, & H. Schut (Eds.), Handbook of bereavement research: Consequences, coping, and care (pp. 24-45). Washington, DC: American Psychological Association.
- Pavalko, E. K., & Elder, G. H. (1990). World War II and divorce: A life-course perspective. *American Journal of Sociology*, *95*(5), 1213-1234.
- Raykkov, R. (2007). Class notes
- Raykov, T., & Marcoulides, G.A, (2006). *A first course in structural equation modeling.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Rentz, E.D., Marshall, S.W., Loomis, D., Martin, S.L., Casteel, C., Gibbs, D. (2007). Effect of deployment on the occurrence of child maltreatment in military and non-military families. *American Journal of Epidemiology*, 165, 1199-1206.
- Rholes, W.S., Simpson, J.A., & Friedman, M. (2007). Avoidant attachment and the experience of parenting. *Personality and Social Psychology Bulletin, 32*, 275-285.
- Riggs, D.S., Byrne, C.A., Weathers, F.W., & Litz, B.T. (1998). The quality of the intimate relationships of male Vietnam Veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress, 11,* 87-101.
- Roisman, G.I. (2007). The psychophysiology of adult attachment relationships: Autonomic reactivity in marital and premarital interactions. *Developmental Psychology*, *43*, 39-53.

- Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, (Vol. 10, pp. 173-220). New York: Academic Press.
- Ruger, W. Wilson, S. E., & Waddoups, S. L. (2002). Warefare and welfare: Military service, combat, and marital dissolution. *Armed Forces and Society, 29,* 85-107.
- Sander, A.M., High, Jr., W.M., Hannay, H.J., & Sherer, M. (1997). Predictors of psychological health in caregivers of patients with closed head injury. *Brain Injury, 11,* 235-249.
- Saunders, J.B., Aasland, O.G., Babor, T.F., de la Fuente, J.R. and Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. II. *Addiction*, *88*, 791-804.
- Schachner, D. A., Shaver, P. R., & Mikulincer, M. (2003). Adult attachment theory, psychodynamics, and couple relationships. In S. M. Johnson & V. E. Whiffen (Eds.), *Attachment processes in couple and family therapy* (pp. 18-42). New York: Guilford.
- Siegel, D.J. (1999). The developing mind: How relationships and the brain interact to shape who we are. New York: The Guilford Press.
- Shapiro, D.L., & Levendosky, A.A. (1999). Adolescent survivors of childhood sexual abuse: The mediating role of attachment style and coping in psychological and interpersonal functioning. *Child Abuse and Neglect*, 23, 1175-1191.
- Sherman, M. D., Sautter, F., Jackson, H., Lyons, J., & Han, X. (2006). Domestic violence in veterans with PTSD who seek couples therapy. *Journal of Marital and Family Therapy*, *32*, 479-490.
- Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology, 71,* 899–914.
- Simpson, J. A., Collins, W. A., Tran, S. S., & Hayde, K. C. (2007). Attachment and the experience and expression of emotions in romantic relationships: A developmental perspective. *Journal of Personality and Social Psychology*, 92 (2), 355-367.

- Schnurr, P.P., Hayes, A.F., Lunnery, C.A., McFall, M., & Uddo, M. (2006). Longitudinal analysis of the relationship between symptoms and quality of life in veterans treated for posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 74, 707-713.
- Solomon, Z., & Dekel, R. (2007). Posttraumatic stress disorder and posttraumatic growth among Israeli ex-POWs. *Journal of Traumatic Stress, 20,* 303-312.
- Solomon, Z., Dekel, R., & Zerach, G. (2008). The relationships between posttraumatic stress symptom clusters and marital intimacy among war veterans. *Journal of Family Psychology, 22,* 659-666.
- Solomon, J., & George, C. (1999). The development of attachment in separated and divorced families: Effect of overnight visitation, parent and couple variables. *Attachment and Human Development, 1*, 2-33.
- Solomon, Z., Mikulincer, M., & Avitzuer, E. (1988). Doping, locus of control, social support, and combat-related posttraumatic stress disorder: A prospective study. *Journal of Personality and Social Psychology*, *55*, 270-285.
- Solomon, Z., Mikulincer, M., Fried, B., & Wosner, Y. (1987). Family characteristics and posttraumatic stress disorder: A follow-up of Israeli combat stress reaction casualties. *Family Process*, *26*, 383-394.
- Spanier, G.B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38,* 15-28.
- Sroufe, L.A., Carlson, E.A., Levy, A.K., & Egeland, B. (1999). Implications of attachment theory for developmental psychopathology. *Development and Psychopathology*, *11*, 1-13.
- Stebbins, P., & Pakenham, K.I. (2001). Irrational schematic beliefs and psychological distress in caregivers of people with traumatic brain injury. *Rehabilitation Psychology, 46,* 178-194.
- Studenicka, E. (2007). Suicide seen as major threat to National Guard. Retrieved October 4, 2007 from <u>http://www.ngb.army.mil/news/archives/2007/08/082007-</u> <u>Suicide_NG.aspx</u>H.
- Tanielian, T., & Jaycox, L.H., eds. (2008). *Invisible wounds of war: Psychological and cognitive injuries, their consequences, and the services to assist recovery*. Santa Monica, CA: RAND Corporation.

- Taft, C. T., Pless, A. P., Stalans, L. J., Koenen, K. C., King, L. A., & King, D. W. (2005). Risk factors for partner violence among a national sample of combat veterans. *Journal of Consulting and Clinical Psychology*, 73, 151-159.
- Taft, C.T., Street, A.E., Marshall, A,D, Dowdall, D,J., & Riggs, D.S. (2007). Posttraumatic stress disorder, anger, and partner abuse among Vietnam combat veterans. *Journal of Family Psychology, 21,* 270-277.
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*, 1–18.
- Treviño, Y.A., Wooten, H.R., & Scott, R.E. (2007). A correlational study between depression and marital adjustment in Hispanic couples. *The Family Journal: Counseling and Therapy for Couples and Families, 15,* 46-52.
- U.S. Department of the Army, Office of the Surgeon General Mental Health Advisory Team (MHAT) V. (2008). *Operation Iraqi Freedom 06-08, MHAT-V Report.* February 14, 2008.
- United States Department of Health and Human Services (2009). The 2009 HHS Poverty Guidelines: One Version of the (U.S.) Federal Poverty Measure. January 23, 2009. http://aspe.hhs.gov/POVERTY/09poverty.shtml
- Urbach, J.R. (1989). The impact of parental head trauma on families with children. *Psychiatric Medicine*, *7*, 17-36.
- Van Lange, P.A.M., Rusbult, C.E., Drigotas, S.M., Arriaga, X.B., Witcher, B.S., Cox, C.L. (1997). Willingness to sacrifice in close relationships. *Journal of Personality and Social Psychology*, *72*, 1373-1395.
- Wagner, T.H., Harris, K.M., Federman, B., Dai, L., Luna, Y., Humphreys, K. (2007). Prevalence of substance use disorders among veterans and comparable nonveterans from the National Survey on Drug Use and Health. *Psychological Services*, *4*, (3), 149-157.
- Weathers, F. W., Litz, B., Herman, D., Juska, J., & Keane, T. (1993). The PTSD Checklist (PCL). Reliability, validity, and diagnostic utility. Poster session presented at the annual meeting of the International Society of Traumatic Stress Studies, October 1993, San Antonio, TX.
- Wheaton, B., Muthén, B., Alwin, D.F., & Summers, G.F. (1977). Assessing reliability and stability in panel models. In D.R. Heise, ed. *Sociological methodology.* San Francisco: Jossey-Bass, 84-136.

- Wheeler, E. (2007). Self-reported mental health status and needs of Iraq veterans in the Marine National Guard. Manuscript submitted for publication.
- Whisman, M. (1999). Marital dissatisfaction and psychiatric disorders: Results from the National Comorbidity Survey. *Journal of Abnormal Psychology*, *108*, 701-706.
- Whisman, M.A., Uebelacker, L.A., & Weinstock, L.M. (2004). Psychopathology and marital satisfaction: The importance of evaluating both partners. *Journal of Consulting, and Clinical Psychology, 72,* 830-838.
- White, J.M. & Klein, D.M. (2002). *Family* Theories (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Winjngaards-de Meij, L. Stroebe, M. Schut, H. Stroebe, W. van den Bout, J., vand der Heijden, P.G.M., Dijkstra, I. (2007). Patterns of attachment and parents' adjustment to th death of their child. *Personality and Social Psychology, Bulletin, 33,* 537-548.
- Wright, D.I., & Aquilino, W. S. (1998). Influence of emotional support exchange in marriage on caregiving wives' burden and marital satisfaction. *Family Relations*, *47*, 195-205.
- Zivin, K., Kim, M., McCarthy, J.F., Austin, K.L., Hoggatt, K.J., Walters, H., & Valentstein, M. (2007). Suicide mortality among individuals receiving treatment for depression in the Veterans Affairs health systems: Associations with patient and treatment setting characteristics. American Journal of Public Health, 97, 2193-2198.

