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Relationship among combat experience, Veteran pathology, and pathology of Veterans' intimate partners: Factors predicting the pathology of Veterans and their intimate partners

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RESEARCH

Relationship among combat experience, Veteran pathology, and pathology of Veterans' intimate partners: Factors predicting the pathology of Veterans and their intimate partners

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ABSTRACT

Introduction: Military members and their families have been part of the Global War on Terrorism since the September 11, 2001, terrorist attacks on the United States. As a result, higher levels of pathology — such as posttraumatic stress disorder, generalized anxiety disorder, and depression — are being seen. No known studies have addressed the concept of resonating pathology between combat Veterans and their intimate partners. Resonating pathology, for the purpose of this study, is when the combat Veteran and their intimate partner demonstrate the same pathology at similar levels. **Methods:** Veterans and their intimate partners from across the United States (N = 398 couples) were asked to complete an Internet survey. Couples were required to meet the following criteria: one of them being a combat Veteran and both of them being together during the time of deployment. The authors used bivariate correlations to investigate the relationship between combat experience and Veteran pathology. Cross-tabulation analysis and paired *t*-tests were used to examine the relationship between Veteran and partner pathology, and categorical regression analysis was used to investigate predictive factors for pathology in both. **Results:** Combat exposure was moderately correlated to Veteran pathology, as expected. Moderate correlations were found between Veterans' and intimate partners' pathology and in the categories of severity. Combat exposure was found to be the most important factor in predicting both Veteran and partner pathology. **Discussion:** These findings support the construct of resonating pathology between combat Veterans and their intimate partners. Clinical implications of co-joint interventions and treatment planning are discussed.

Key words: combat exposure, combat Veterans, co-occurring, family resiliency, family systems, military partners, PTSD, secondary trauma, stressor, trauma, U.S.

RÉSUMÉ

Introduction : Les militaires et leur famille participent à la lutte mondiale contre le terrorisme depuis l'attentat contre les États-Unis à New York en 2001. Par conséquent, on observe des taux de pathologie plus élevés, tels que l'état de stress post-traumatique (ÉSPT), le trouble d'anxiété généralisé (TAG) et la dépression. Le chercheur n'a trouvé aucune donnée sur le concept de résonance de pathologie entre les anciens combattants et leurs partenaires. Pour les besoins de la présente étude, la résonance de pathologie désigne l'existence d'une même pathologie de la même intensité chez l'ancien combattant et son partenaire. **Méthodologie :** Dans différentes régions des États-Unis (N = 398), les vétérans et leur partenaire ont été invités à remplir un sondage en ligne. Les couples devaient respecter certains critères : l'un d'eux devait être un ancien combattant et tous deux devaient être en relation de couple pendant le déploiement. Les chercheurs ont utilisé la corrélation bivariée pour explorer la relation entre l'expérience du combat et la pathologie des vétérans. Ils ont utilisé l'analyse croisée et le test de Student pour échantillons appariés pour examiner la relation entre la pathologie des vétérans et de leur partenaire et se sont servis de l'analyse de régression catégorique pour explorer les facteurs prédictifs de pathologie dans les couples. **Résultats :** Comme on s'y attendait, l'exposition au combat était modérément corrélée avec la pathologie des vétérans. Les chercheurs ont constaté une corrélation modérée entre la pathologie des vétérans et celle de leur partenaire et entre les catégories de gravité. Ils ont constaté que l'exposition au combat était le principal facteur prédicteur de la pathologie du vétéran et de son partenaire. **Discussion :** Ces observations appuient le concept de pathologie de résonance entre les vétérans et leur partenaire. Les conséquences cliniques d'interventions et de planification thérapeutique conjointes sont abordées.

LAY SUMMARY

For nearly 20 years, military members and their families have been involved in some form of military operation in support of what is known as the Global War on Terrorism. Research has shown that military members and Veterans demonstrate increased levels of mental health disorders, such as anxiety, depression, and posttraumatic stress disorder. No studies to date, however, have explored how the resulting mental illness is shared by the intimate partners of these military members and Veterans. For this research, the term "resonating of pathology" is used to identify this phenomenon. The research authors surveyed combat Veterans and their intimate partners to gather the data for analysis. The authors then completed statistical analysis to examine both associations and predictive factors that would help clinicians, researchers, and academics understand and develop theories and clinical interventions for such couples. Although the research appears to confirm this sharing of mental health diagnosis, more research will be needed to create a better understanding in the future.

INTRODUCTION

The link between combat experience or combat exposure, and pathology for military members has been well established. (The terms combat experience and combat exposure are used interchangeably, depending on the concept of the couples' experience or data analysis and interpretation.) This is especially true for posttraumatic stress disorder (PTSD), which has been thoroughly researched, allowing mental health professionals to understand the symptoms, modalities, and, to some extent, the etiology of this disorder.[1] The impact of trauma on the relationships of intimate partners and their families is less clear.[2] Work that has begun in the past 10 years is beginning to help the field to understand how military families face disruption, trauma, and stress and what these mean to them.[1] Studies to date have not addressed the pathology of family members beyond trauma or possibly family disruption.

It should be noted that significant research has demonstrated the effects of secondary trauma. This has been particularly true of research with first responders, emergency department staff, and family members. There is also a growing body of research related to military families and partners of military members or Veterans, who demonstrate higher instances of mental health diagnosis than the general population. In the current study, however, the authors examine how the pathology of combat Veterans is mirrored, or resonated, by the intimate partner. Resonated pathology is defined as the intimate partner demonstrating symptoms of the same pathology, at a similar level, as the combat Veteran. For example, if the combat Veteran demonstrates symptoms of depression, generalized anxiety disorder (GAD), or PTSD, the intimate partner will demonstrate a similar level of depression, GAD, or PTSD.

The theoretical foundation of this study is based on family systems theory. Family systems theory focuses on the patterns of family behaviour as a system that needs to adjust to both external and internal influences. How well the family adjusts to these influences is determined by the closeness, or distance, in these relationships.[3] The ability of individual family members to diffuse, feel a responsibility toward the family system, differentiate, and become somewhat autonomous can be a factor in how the family system functions.[4] Military families must also adapt to two different family structures, one when the military member is around and another when the military member is away. This could be reflected in family members' withdrawal or avoidance, feeling a lack of control, and adjustments.[5,6,7] The current study is built on the concept of undue outside influences, such as added communication and combat exposure, as well as other variables, that can resonate throughout the family system. It is hypothesized that as pathology is inserted into the system, such resonance will have a significant impact on family functioning. It is also hypothesized that the intimate partner, who has a prime interest in maintaining stasis, is more likely than not to significantly reflect, or mirror, the pathology of the combat Veteran.

Through an examination of such resonated pathology, it can be understood that pathology in the Veteran is not isolated and, as such, is reflected throughout the family system. Moreover, the relationships within the family system can face disruption on a frequent basis, implicating not only the pathology in itself but also the viability of the system. Through this understanding, the clinician working with the Veteran alone, the couple, or the family can focus on interventions that address not just the individual or the pathology but the family system as a whole.

Veterans' intimate partners are distinct from intimate partners in the general population. There has been very little research on the effects of combat on intimate partners, but common themes that have been investigated are resilience, coping skills, and social support.[8] Mediating factors that have been shown to determine resiliency for military families have also been investigated.[9] Other research has determined six themes that are helpful in determining resiliency: mental health service encounters and requests for help, relationships, partner or family reactions to living with someone with PTSD, protective factors, responses to the research they were involved in, and miscellaneous comments.[10]

Couples who experience trauma generally have certain dynamics. These include polarized emotional roles, extreme pursuer-distancer patterns, secrecy surrounding the trauma, individual trauma symptoms in both partners, parentification of the non-traumatized partner, and impacts on other subsystems.[11,12] Although education programs often speak to some of these experiences, such traumatic experiences may be beyond the grasp of all but the most experienced military couples.[13] The ability to make these adjustments is dependent on the resiliency of the military member, the spouse, and even the bond the member has with other unit members.[14]

The impact of trauma on relationships may also prove to be a barrier to intimacy within the relationship. Research has demonstrated that the relationship between trauma and relationship quality is more complex than previously described. Also, it is important to be mindful of the trauma histories of the individuals within the couple.[15,16] More recent investigations have revealed that for combat Veterans with PTSD, relationship and interpersonal difficulties are linked to poorer prognosis, lower treatment engagement, and elevated suicide risk.[17] Considering the theoretical constructs of the symptoms of PTSD, understanding how emotional numbing and dysphoria affect relationship distress when one member has PTSD is important.[18] Researchers also examined the role of PTSD as a stressor among peacekeepers and their spouses. The results indicated that the stress on their relationships led to isolation from other support networks, such as family members and friends. In turn, peacekeepers and partners did not sufficiently draw on the strength of their relationship or others in their social network, resulting in worsening of the partners' respective stress symptoms.[19,20]

The purpose of this study was to examine couple pairs and their shared pathology when one member of the couple is a combat Veteran. In an effort to understand the effects on intimate partners, the authors first wanted to quantify the pathology among the combat Veterans in the study population. As such, it was necessary to first analyze the pathology of the combat Veterans. Second, the authors wanted to examine the relationship between the Veterans' pathology and that of their intimate partners, with respect to not only the diagnosis but also the severity of symptoms associated with the diagnosis, which could demonstrate resonated pathology. Finally, the authors wanted to understand predictive factors that may influence not only Veterans' pathology but also that of intimate partners. The shared experiences of multiple factors were expected to predict pathology and the partners' resonation of the pathology. This study sought to quantify the relationship between resonated pathology and the effects of combat experience on that relationship.

Research questions for this study were as follows:

1. What is the relationship between combat exposure and pathology among Veterans?
2. What is the relationship between Veterans' pathology and their intimate partners' pathology?
3. What factors account for Veteran and partner pathology?

It is hypothesized that, as the exposure to combat operations is increased, the Veteran will begin to experience greater levels of pathology and that the correlation between Veteran and partner pathology will be positive. Finally, there will be factors that will predict pathology in the Veteran and intimate partner.

METHODS

Participants

The population for this study consisted of couple pairs, one member of whom served in the U.S. military during the Global War on Terrorism from 2001 to the present. Criteria for participation included the Veteran having had a combat deployment and the intimate partner having been in a relationship with the Veteran during the time of deployment. Couples were recruited from across the United States, with at least one couple from each U.S. state. From an initial group of 1,905 couples who volunteered, 398 couples met the criteria necessary for participation. The majority of the combat Veterans were men ($n = 250$; 62.8%), and two-thirds were between ages 18 and 40 years. Two-thirds of the intimate partners were

female (n = 266; 66.8%) and fell in the age range of 18-40 years. The Veterans came from all branches of the military, with 50.0% coming from the army. The rest came from the air force (14.8%), navy (18.3%), and Marines (16.8%). Approximately two-thirds of the couples had been married for between 0 and 5 years, and 288 (72.4%) of the Veterans stated that they had children during their deployment.

This study used a cross-sectional survey design in which couples volunteered to answer an online survey through QuestionPro (Survey Analytics LLC, Austin, TX). The couples were required to take the survey on the same device but not at the same time. The couples were matched by a case number so their responses could be analyzed together. The sample was screened for individuals who had combat experience and couples who were together during the Veteran's deployments. The couple's scores were tied together using their computer's IP address. Approval for the research was obtained through the Andrews University Institutional Review Board.

Measures

The Patient Health Questionnaire-9 (PHQ-9) is a 10-item self-report measure that assesses depression symptom severity using *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*) criteria. Participants are asked to rate how often they experienced certain symptoms over the past two weeks on a four-point scale ranging from 0 (not at all) to 3 (nearly every day). The PHQ-9 total score indicates total symptom severity and ranges from 0 to 27. Cut-off scores were determined as follows: 0-14, no pathology; 15-19, mild depression; 20-24, moderate depression; and 25-27, severe depression.[21] The PHQ-9 has exhibited strong psychometric properties and has a Cronbach's α of 0.81.[21]

The Generalized Anxiety Disorder-7 (GAD-7) scale is seven-item self-report measure that is used to assess *DSM-5* GAD symptom severity. Participants are asked to rate how often they experienced certain symptoms over the past two weeks on a four-point scale ranging from 0 (not at all) to 3 (nearly every day). Cut-off scores were determined as follows: respondents with scores of 0-11 were considered to have no GAD; 12-16, mild GAD; 17-21, moderate GAD; and 22-28, severe GAD.[21] The GAD-7 has exhibited strong psychometric properties, with a Cronbach's α of 0.89.[22]

The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measure that assesses *DSM-5* PTSD symptom severity. Participants rated the extent to which they had been bothered by each PTSD symptom over the past month on a five-point scale ranging from 0 (not at all) to 4 (extremely). The PCL-5 total score indicates the total symptom severity and ranges from 0 to 80. The diagnosis of PTSD does not have categories of mild, moderate, or severe in the DSM-5, and as such this measure only determines symptoms associated with the diagnosis. A cut-off of 33 has been established as reliable for the diagnosis of PTSD and thus was used in this research.[23] Moreover, the *DSM-5* states that criteria A, B, C, D, and E must be met for the diagnosis, so these criteria were used to determine diagnosis. The PCL-5 has exhibited strong psychometric properties, and the present Cronbach's α is 0.84.[23]

The Combat Exposure Scale (CES) is a seven-item self-report scale used to measure the subjective report of wartime stressors experienced by combatants. Some of the questions required them to report how may times they were exposed to an action or, alternatively, how much time they were exposed to certain actions. The total number of frequencies and experiences are then calculated to provide a score indicating the subjective experience of combat intensity. The CES total score indicates the subjective rated experience and ranges from 0 (no experience) to 43 (heavy experience). The CES has exhibited strong psychometric properties and consistencies, with a correlation with combat experience of 0.75 and a test-retest reliability of 0.97.[24]

Statistical methods

A bivariate correlation analysis was used to examine the relationship between combat experience and Veteran pathology. The authors chose to use a correlation analysis to determine a relationship between combat and pathology as a foundation for the introduction of pathology into the family system. Two procedures were used to investigate the relationship between Veteran and partner pathology, cross-tabulation and correlated (paired-samples) *t*-test. To determine predictive factors that could account for the Veterans' and intimate partners' pathology, a categorical regression (CATREG) analysis was used. The predictive factors analyzed were age range, gender, branch of service, length of marriage, children, frequency of communication, same-sex relationship, combat exposure, and the use of cellphones, email, Skype, landline phones, and snail mail. Modes of communication were added because they were frequently cited by family members as stress factors for family dysfunction.[4,6,18] An attempt was made to include any type of communication available between family members and deployed individuals.

RESULTS

Combat experience and pathology

First, a bivariate correlation was run to examine the relationship between combat exposure and Veteran pathology. The results were significant ($p < 0.001$). For combat experience, the correlation between combat exposure and symptoms of PTSD as assessed with the PCL-5 was moderately positive at 0.496. For depression, the correlation between combat exposure and PHQ-9 depression was also moderately positive at 0.381. The correlation between GAD, as assessed with the GAD-7, and combat exposure was moderately positive at 0.380.

Veteran and partner pathology

To examine the relationship between the pathology of combat Veterans and that of their partners, a cross-tabulation correlation analysis was used. The χ^2 analysis for each run indicated significance at $p < 0.001$. The analysis shows that for Veterans who demonstrated significant PTSD symptoms (n = 305), 158 (51.8%) of their partners also demonstrated PTSD symptoms. Of those who endorsed severe depression symptoms (n = 245), 169 (69.0%) of their partners also endorsed severe depression symptoms. For Veterans with moderate depression (n = 64), 22 (34.4%) of their partners endorsed moderate depression symptoms; for those with mild depression

(n = 44), 1 (22.7%) of their partners endorsed mild depression symptoms. For the Veterans who endorsed severe GAD symptoms (n = 155), 75 (48.4%) of the partners endorsed severe GAD symptoms. For Veterans who endorsed moderate GAD symptoms (n = 116), 50 (43.1%) of the partners endorsed moderate GAD symptoms. For the Veterans who endorsed mild GAD symptoms (n = 61), 19 (31.1%) of their partners endorsed mild GAD symptoms. This analysis demonstrates a pattern that indicates a resonation of pathology between combat Veterans and their intimate partners. As can be seen, not only did the pathology of the partner follow that of the Veteran but so too did the severity classification levels. The data from this analysis are shown in Table 1.

The relationship between Veteran and partner pathology was further examined using correlated (paired-samples) *t*-tests. The correlations between Veteran and partner pathology are moderate at 0.68 for GAD, 0.69 for PTSD, and 0.72 for depression ($p < 0.001$). Effect sizes are moderate for GAD (0.57) and depression (0.44) but large for PTSD (1.21). The results of the paired-samples *t*-tests are shown in Table 2.

Factors predicting pathology

CATREG analysis was run to examine factors that may predict pathology among Veterans and their intimate partners. Six CATREG equations were completed, three

Table 1. Pathology cross-tabulation between the Veteran and their partner

Veteran pathology (n)	Intimate partner pathology, n (%)									
	PTSD	No PTSD	Depression				GAD			
			None	Mild	Moderate	Severe	None	Mild	Moderate	Severe
PTSD (305)	158 (51.8)	147 (48.2)								
No PTSD (93)	2 (2.2)	91 (97.8)								
No depression (45)			38 (84.4)	2 (4.4)	4 (8.9)	1 (2.2)				
Mild depression (44)			34 (77.3)	1 (22.7)	5 (11.4)	4 (9.1)				
Moderate depression (64)			11 (17.2)	19 (29.7)	22 (34.4)	12 (18.8)				
Severe depression (245)			19 (7.8)	19 (7.8)	38 (15.5)	169 (69.0)				
No GAD (66)							59 (89.4)	4 (6.1)	3 (4.5)	0 (0.0)
Mild GAD (61)							30 (49.2)	19 (31.1)	8 (13.1)	4 (6.6)
Moderate GAD (116)							17 (14.7)	38 (32.8)	50 (43.1)	11 (9.5)
Severe GAD (155)							23 (14.8)	14 (9.0)	43 (27.7)	75 (48.4)

Note: Percentages may not total 100 because of rounding.

PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder.

Table 2. Paired-samples t-test results

Pathology and group	Mean	r	t_{397}	p	ES (d)
PTSD		0.69	24.23	< 0.001	1.21
Veteran	65.70				
Partner	49.93				
Depression		0.72	8.73	< 0.001	0.44
Veteran	26.03				
Partner	23.26				
GAD		0.68	11.31	< 0.001	0.57
Veteran	19.01				
Partner	16.11				

ES = effect size; PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder.

for the Veteran and three for the partner, using PTSD, depression, and GAD as dependent variables for each group. The factors used for all groups were age range, gender, branch of service, length of marriage, children, frequency of communication, same-sex relationship, combat exposure, and use of cellphones, email, Skype, landline phones, and snail mail. Both the full model with all factors and restricted models with only significant factors were run for each group.

The first full model was run using PTSD as the dependent variable. A significant equation was reported ($F_{20, 383} = 6.38$, $p < 0.001$; $R^2 = 0.261$; adjusted $R^2 = 0.220$), indicating that 26% of the variance in PTSD may be accounted for by the full set of factors. Pratt's measure of relative importance indicated that combat exposure,[25] at $R^2 = 0.887$ ($p < 0.001$), contributes most to the variance in PTSD for combat Veterans. Branch of service was the only other variable that accounted for PTSD. A restricted CATREG demonstrated a significant regression equation ($F_{4, 398} = 33.171$, $p < 0.001$; $R^2 = 0.252$; adjusted $R^2 = 0.245$). Together, combat exposure and branch of service explained approximately 25% of PTSD, with combat exposure as the most important variable at $R^2 = 0.967$.

The second full model was run for depression with a significant equation ($F_{21, 383} = 3.36$, $p < 0.001$; $R^2 = 0.164$; adjusted $R^2 = 0.115$), accounting for approximately 16% of the variance. Combat exposure was the most important factor, with an $R^2 = 0.811$, and branch of service was also significant. The restricted run indicated a significant regression equation ($F_{4, 398} = 17.344$, $p < 0.001$; $R^2 = 0.150$; adjusted $R^2 = 0.141$). Combat exposure and branch of service explained approximately 15% of depression.

The third full run examined GAD, and a significant equation was reported ($F_{19, 383} = 3.31$, $p < 0.001$; $R^2 = 0.164$; adjusted $R^2 = 0.120$), accounting for 16% of the variance. Again, combat exposure was the most important at $R^2 = 0.792$. A restricted model was run, and a significant equation was found ($F_{1, 398} = 17.344$, $p < 0.001$; $R^2 = 0.145$), indicating that combat exposure explains approximately 15% of GAD at $R^2 = 0.954$.

For the partners, a full model was run for PTSD, and a significant equation was reported ($F_{18, 388} = 5.92$, $p < 0.001$; $R^2 = 0.224$; adjusted $R^2 = 0.186$), accounting for 22% of the variance. Combat exposure was the most important factor at $R^2 = 0.694$; gender, same-sex couple, and branch of service were also significant. A restricted model was run, and a significant regression equation was found ($F_{7, 398} = 15.046$, $p < 0.001$; $R^2 = 0.213$; adjusted $R^2 = 0.199$), accounting for approximately 21% of PTSD; combat exposure was the most significant factor at $R^2 = .783$.

A full model was run for depression, and a significant equation was reported ($F_{18, 388} = 4.46$, $p < 0.001$; $R^2 = 0.182$; adjusted $R^2 = 0.142$), accounting for approximately 18% of the variance. Combat exposure was the most important factor at $R^2 = 0.639$, with branch of service and gender also being significant. A restricted model was run, and a significant regression equation was found ($F_{6, 398} = 12.046$, $p < 0.001$; $R^2 = 0.156$; adjusted $R^2 = 0.143$), accounting for approximately 15% of depression; combat exposure was the most significant factor at $R^2 = 0.841$

A model was run for GAD, and a significant equation was reported ($F_{19, 388} = 3.11$, $p < 0.001$; $R^2 = 0.152$; adjusted $R^2 = 0.109$), accounting for approximately 15% of the variance. Combat exposure was the most important factor at $R^2 = 0.618$, with same-sex couple, branch of service, and gender also being significant. A restricted model was run, and a significant regression equation was found ($F_{7, 398} = 8.348$, $p < 0.001$; $R^2 = 0.130$; adjusted $R^2 = 0.115$), accounting for approximately 13% of GAD. Combat exposure was the most important factor at $R^2 = 0.778$.

DISCUSSION

These analyses indicate that combat exposure is the most significant factor in the pathology of both Veterans and their intimate partners. Interestingly, Veteran and intimate partner pathology follow similar patterns, indicating that Veteran pathology resonates in the intimate partner. Moreover, combat experience seems to be

the most significant factor in predicting pathology, not only for Veterans but also for their partners.

The first research question investigated the relationship between combat exposure and the pathology of the Veterans who had this experience. The authors had hypothesized that there would be a significant relationship between combat experience and Veteran pathology. The statistical analysis for the first research question found that combat experience was moderately correlated to Veteran's pathology.

For this research, the authors also examined the relationship between Veteran pathology and the pathology of the intimate partner. The analysis demonstrated a significant relationship between Veterans' pathology and their intimate partners' pathology. Within-couples analysis showed that intimate partners' PTSD followed, or resonated, the combat Veterans' pathology. This was also true for major depression, moderate depression, and mild depression. GAD followed a similar pattern, with a within-couples analysis showing that partners' pathology levels followed the Veterans' pathology levels. These results suggest that Veteran and partner pathology had similar patterns, indicating that pathology resonated within the couple.

Exploring the factors that could predict pathology in Veterans and their partners was also important. Factors explored were couples' age range, gender, branch of service, length of marriage, children, frequency of communication, same-sex relationship, combat exposure, and the use of cellphones, email, Skype, landline phones, and snail mail. The analysis demonstrated that combat exposure was the most important factor in predicting pathology among both Veterans and their intimate partners. Other factors — including branch of service, same-sex couple, and gender — were significant, but only at minor levels.

Practical implications

The research is significant because it demonstrates patterns of pathology among Veterans and their intimate partners. The significance of these findings of pathology resonance should prove useful in clinical settings. Clinicians may now have a better understanding of relationship distress and its effects on the couple as a whole. Using this research to facilitate future research into family dynamics of Veteran families could provide better insight into the effects of combat within this population.

These findings, along with other research, indicate that there is value in considering the effects of combat on the couple, not just the Veteran. The interpersonal impact of combat experiences on the Veteran indicates the importance of integrating the intervention efforts of both the Veteran and their intimate partner. Although there are some indications of joint couples therapy in settings that treat Veterans, it remains an uncommon practice. These findings indicate that continued development of interventions for couples in joint therapy may prove useful.

Limitations

This study had several limitations. The first was that the survey was an online survey and participants were volunteers; as such, there were no controls on who decided to respond and who did not. This limited the cross-section of the sample to those who volunteer, which may not represent a true cross-section of the population. The second limitation of the study is the use of self-report measures. Self-report measures have been criticized for activating a social desirability bias in which respondents provide answers that will be viewed favorably by the researcher. A final limitation may be in the rating of pathology as a best practice in the field. Although the instruments used all have strong validity and reliability, the assignment of pathology is usually done not through self-report measures, but through examination by a licensed professional in conjunction with such measures.

Although the findings supported the hypothesis, it is important to consider the context of the study. The study focused on a sample who reported symptoms and did not include interventions or the results of interventions. It is important that considerable research be focused on how these data can be used to develop interventions that can be used in the field. With improved understanding of the interpersonal dynamics of pathology in these couples, there can be increased ability to tailor interventions that serve this population.

REFERENCES

1. Lambert JE, Engh R, Hasbun A, et al. Impact of posttraumatic stress disorder on the relationship quality and psychological distress of intimate partners: a meta-analytic review. J Fam Psychol. 2012;26(5):729-37. https://doi.org/10.1037/a0029341. Medline:22924422

2. Andres M. Distress, support, and relationship satisfaction during military-induced separations: a longitudinal study among spouses of Dutch deployed military personnel. Psychol Serv.

2014;11(1):22-30. https://doi.org/10.1037/a0033750. Medline:24564440

3. Gewirtz AH, Polusny MA, DeGarmo DS, et al. Posttraumatic stress symptoms among National Guard soldiers deployed to Iraq: associations with parenting behaviors and couple adjustment. J Consult Clin Psychol. 2010;78(5):599-610. https://doi.org/10.1037/a0020571. Medline:20873896

4. Faber AJ, Willerton E, Clymer SR, et al. Ambiguous absence, ambiguous presence: a qualitative study of military reserve families in wartime. J Fam Psychol. 2008;22(2):222-30. https://doi.org/10.1037/0893-3200.22.2.222. Medline:18410209

5. Eastman E, Archer Ball JD. Psychosocial and life stress characteristics of Navy families: Family Environment Scale and Life Experiences Scale findings. Mil Psychol. 1990;2(2):113-27. https://doi.org/10.1207/s15327876mp0202_4.

6. Creech SK, Hadley W, Borsari B. The impact of military deployment and reintegration on children and parenting: a systematic review. Prof Psychol: Res Pr. 2014;45(6):452-64. https://doi.org/10.1037/a0035055. Medline:25844014

7. Taft CT, Schumm JA, Panuzio J, et al. An examination of family adjustment among Operation Desert Storm veterans. J Consult Clin Psychol. 2008;76(4):648-56. https://doi.org/10.1037/a0012576. Medline:18665692

8. Larsen JL, Clauss-Ehlers C, Cosden MA. An exploration of Army wives' responses to spousal deployment: stressors and protective factors. Couple Fam Psychol: Res Pr. 2015;4(4):212-28. https://doi.org/10.1037/cfp0000049.

9. Bergmann JS, Renshaw KD, Allen ES, et al. Meaningfulness of service and marital satisfaction in Army couples. J Fam Psychol. 2014;28(5):701-6. https://doi.org/10.1037/fam0000013. Medline:25046347

10. Mansfield AJ, Schaper KM, Yanagida AM, et al. One day at a time: the experiences of partners of veterans with posttraumatic stress disorder. Prof Psychol: Res Pr. 2014;45(6):488-95. https://doi.org/10.1037/a0038422.

11. Goff BSN, Irwin L, Cox M, et al. A qualitative study of single-trauma and dual-trauma military couples. Psychol Trauma: Theory Res Pr Policy. 2014;6(3):216-23. https://doi.org/10.1037/a0036697.

12. Knobloch LK, Theiss JA. Depressive symptoms and mechanisms of relational turbulence as predictors of relationship satisfaction among returning service members. J Fam Psychol. 2011;25(4):470-8. https://doi.org/10.1037/a0024063. Medline:21639630

13. Balderrama-Durbin C, Snyder DK, Cigrang J, et al. Combat disclosure in intimate relationships: mediating the impact of partner support on posttraumatic stress. J Fam Psychol. 2013;27(4):560-8. https://doi.org/10.1037/a0033412. Medline:23772847

14. Sones HM, Madsen J, Jakupcak M, et al. Evaluation of an educational group therapy program for female partners of veterans diagnosed with post traumatic stress disorder, PTSD: a pilot study. Couple Fam Psychol: Res Pr. 2015;4(3):150-60. https://doi.org/10.1037/cfp0000044.

15. Riggs DS. Traumatized relationships: symptoms of posttraumatic stress disorder, fear of intimacy, and marital adjustment in dual trauma couples. Psychol Trauma: Theory Res Pr Policy. 2014;6(3):201-6. https://doi.org/10.1037/a0036405.

16. Riggs SA, Riggs DS. Risk and resilience in military families experiencing deployment: the role of the family attachment network. J Fam Psychol. 2011;25(5):675-87. https://doi.org/10.1037/a0025286. Medline:21875201

17. Renshaw KD, Campbell SB. Combat veterans' symptoms of PTSD and partners' distress: the role of partners' perceptions of veterans' deployment experiences. J Fam Psychol. 2011;25(6):953-62. https://doi.org/10.1037/a0025871. Medline:21988078

18. Erbes CR, Meis LA, Polusny MA, et al. Couple adjustment and posttraumatic stress disorder symptoms in National Guard veterans of the Iraq war. J Fam Psychol. 2011;25(4):479-87. https://doi.org/10.1037/a0024007. Medline:21639633

19. Fals-Stewart W, Kelley M. When family members go to war: a systemic perspective on harm and healing: comment on Dirkzwager, Bramsen, Adèr, and Van Der Ploeg. J Fam Psychol. 2005;19(2):233-6. https://doi.org/10.1037/0893-3200.19.2.233. Medline:15982100

20. Brosseau DC, McDonald MJ, Stephen JE. The moderating effect of relationship quality on partner secondary traumatic stress among couples coping with cancer. Fam Syst Health. 2011;29(2):114-26. https://doi.org/10.1037/a0024155. Medline:21688903

21. Kroenke K, Spitzer RL, Williams JBW. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16(9):606-13. https://doi.org/10.1046/j.1525-1497.2001.016009606.x. Medline:11556941

22. Spitzer RL, Kroenke K, Williams JBW, et al. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166(10):1092-7. https://doi.org/10.1001/archinte.166.10.1092. Medline:16717171

23. Bovin MJ, Marx BP, Weathers FW, et al. Psychometric properties of the PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (PCL-5) in veterans. Psychol Assess.

2016;28(11):1379-91. https://doi.org/10.1037/pas0000254. Medline:26653052

24. Keane TM, Fairbank JA, Caddell JM, et al. Clinical evaluation of a measure to assess combat exposure. Psychol Assess. 1989;1(1):53-5. https://doi.org/10.1037/1040-3590.1.1.53.

25. Thomas DR, Zhu PC, Zumbo BD, et al. On measuring the relative importance of explanatory variables in a logistic regression. J Modern Appl Statist Methods. 2008;7(1):21-38. https://doi.org/10.22237/jmasm/1209614580.

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COMPETING INTERESTS

The authors have nothing to disclose.

CONTRIBUTORS

Edwin A. Brennan conceived and designed the study and acquired and analyzed the data as part of a dissertation. Nancy Carbonell was the dissertation chair and helped conceive and design the study. Dennis Waite helped to design the study and revised it for important intellectual content. Jimmy Kijai helped to design the study, analyzed the results, and edited and revised the manuscript. All authors approved the final version submitted for publication.

ETHICS APPROVAL

The study protocol was approved by the Institutional Review Board at Andrews University, Berrien Springs, Michigan, United States of America.

INFORMED CONSENT

Informed consent was provided through the survey data collection program as part of the initial stages of the survey instrument. Couples who chose not to accept informed consent were redirected to an exit screen.

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