Impact of Coping Style and PTSD on Family Functioning After Deployment in Operation Desert Shield/Storm Returnees

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The relationship between military combat and postdeployment family functioning difficulties has been frequently investigated in the literature, as has the relationship between types of coping and posttraumatic stress disorder (PTSD). Few studies, however, have examined these variables together, and no studies of which we are aware have examined the effect of coping on family functioning after combat exposure. This study examined coping style measured immediately after return from deployment, and PTSD symptoms and family functioning 18–24 months after return from deployment in a sample of Operation Desert Shield/Storm veterans (N = 2,949). Structural equation models suggested that the relationships between distinct coping styles on family functioning were differentially mediated by postdeployment PTSD symptoms. Results are consistent with full mediation for avoidant coping ($\beta_{\text{direct}} = -0.09, p = .07; \beta_{\text{indirect}} = -0.17, p < .001$) and partial mediation for approach coping ($\beta_{\text{direct}} = .16, p < .001; \beta_{\text{indirect}} = .09, p < .001$). Results suggest that the strategies used to cope with a combat stress event may impact both PTSD and family functioning outcomes, and highlight the potential utility of pre- and postdeployment coping skills training.

Exposure to military combat has been linked to postdeployment family functioning impairment (e.g., Erbes, Meis, Polusny, & Compton, 2011). Some studies indicate that symptoms of posttraumatic stress disorder (PTSD) significantly account for the relationship between combat exposure and impaired family functioning (e.g., Gewirtz, Polusny, DeGarmo, Khaylis, & Erbes, 2010). Recent theoretical models of family stress, such as Nelson Goff and Smith’s Couple Adaptation to Traumatic Stress (CATS; 2005), place emphasis on additional variables that may influence systemic adaptation after exposure to trauma in addition to PTSD symptoms. The CATS model specifies several unique and bidirectional pathways through which PTSD symptoms and variables such as coping may impact couple functioning, and by extension, family functioning. As little research has tested these additional pathways, the current study simultaneously modeled the relationships between coping and PTSD symptoms and their impact on family functioning after combat exposure.

Coping refers to the process through which individuals adapt to a stressful event. One common differentiation between types of coping is approach and avoidant (Suls & Fletcher, 1985). Approach coping involves attempts to change a stressful situation or one’s view of the situation using strategies such as problem solving or support seeking, whereas avoidant coping involves attempts to avoid a stressful situation by using techniques such as distraction. Avoidant coping has been linked to increased PTSD symptoms in Operation Desert Shield/Storm veterans (Stein et al., 2005), and nonavoidant coping has been linked to better functioning after trauma (Johnson, Eid, Laberg, & Thayer, 2002).

Key variables identified as promoting family resilience after stress such as communication, problem solving, and affective expression (Black & Lobo, 2008; Walsh, 2002) are consistent
with approach coping behaviors. Likewise, variables such as disengagement, withdrawal, and unspoken emotions are associated with reduced family resilience (Black & Lobo, 2008) and are consistent with avoidant coping behaviors. The CATS model includes coping as a bidirectional resource that can be a protective factor or a risk factor, influencing the degree to which individuals and couples adjust after one member is exposed to trauma (Nelson Goff & Smith, 2005). Although the CATS model emphasizes the couple dyad, its authors suggest that it may be expanded to include other family subsystems.

It was thus hypothesized that approach and avoidant coping would be differentially associated with family functioning outcomes after combat exposure, and this effect would be only partially explained by the relationship between coping and PTSD symptoms. More specifically, we predicted that approach coping would be related to better family functioning outcomes after combat exposure, whereas avoidant coping would be related to poorer family functioning outcomes after combat exposure, and that these effects would be partially mediated by PTSD symptoms.

Method

Participants and Procedure

This study utilizes data collected from U.S. Army personnel returned from ODS through Fort Devens, Massachusetts. Data were collected within 5 days of their return and again 18–24 months later. All participants who completed the Time 1 survey were included in the study \( N = 2,949 \). Time 2 data were available for 78\% of the sample \( N = 2,313 \). For further sample details, please see Wolfe, Erickson, Sharkansky, King, and King (1999).

Study participants included enlisted soldiers (28.6\%), non-commissioned officers (63.0\%), and commissioned officers (8.4\%). Slightly over half (56.6\%) of participants were National Guard personnel, 21.5\% were active duty personnel, and 21.9\% were reservists. Fifteen percent reported combat experience prior to their Persian Gulf deployment. Participants were predominately male (93.1\%). On average, participants were 31.6 years old \( (SD = 8.9 \text{ years}) \) at the time of the baseline assessment and had completed 13.2 years of formal education \( (SD = 1.9 \text{ years}) \). With regard to race, 87.4\% were Caucasian.

Measures

Combat exposure was measured (Time 1) with the Laufer Combat Exposure Scale (CES; Gallops, Laufer, & Yager, 1981). This 33-item scale possesses good psychometric properties (Gallops et al., 1981). Items reflect experiences of combat troops (e.g., being wounded) in ODS (e.g., on alert for biochemical attack) on a 3-point ordered response scale \( (0 = \text{never}, 2 = \text{three or more times}) \). Items are summed with higher scores reflecting greater combat exposure.

PTSD symptoms were measured (Time 1) using the Mississippi Scale for Combat-Related PTSD–ODS Version (M-PTSD; Keane, Cadell, & Taylor, 1988). This 35-item checklist assesses combat-related PTSD with excellent sensitivity (.93) and specificity (.89; Keane et al., 1988). Items map onto symptoms of PTSD as defined by the Diagnostic and Statistical Manual of Mental Disorders (3rd ed.; DSM-III; American Psychiatric Association, 1980), with revised wording to orient respondents to ODS experiences on a 5-point Likert scale that is summed.

Coping style was measured (at Time 1) using the Coping Responses Inventory (Moos, 1990) to rate cognitive and behavioral coping strategies used to manage an important experience or stressful situation that respondents indicated experiencing during ODS. Approach coping (logical analysis, positive reappraisal, seeking guidance and support, and problem solving) and avoidant coping styles (cognitive avoidance, acceptance or resignation, seeking alternative rewards, and emotional discharge) were each measured with 24 items on a 4-point scale.

Family functioning (at Time 2) was measured using the Family Adaptability and Cohesion Evaluation Scale (FACESII; Olson, Portner, & Bell, 1982). FACESII measures closeness (cohesion) among family members one is living with and flexibility (adaptability) in family roles with two scales containing 13 and 11 items, respectively, on a 5-point scale \( (1 = \text{almost never}; 5 = \text{almost always}) \). The 24 FACESII items were summed to represent general functioning. The FACESII has shown convergent validity with other family adjustment measures (Edman, Cole, & Howard, 1990). Nearly 96\% of respondents on the FACESII were married or living with a partner.

Data Analysis

Structural equation modeling using Mplus Version 5.2 (L. K. Muthén & Muthén, 2007) with maximum likelihood estimation was used. Items from the PTSD, avoidance and approach coping, and family functioning measures were assigned to three multi-item indicators (Drasgow & Kanfer, 1985). Missing data were imputed using maximum likelihood estimation. Structural models were evaluated stepwise to test our mediational hypotheses (MacKinnon, Fairchild, & Fritz, 2007). Indirect effects and \( z \)-score values used to determine statistical significance were reported by Mplus. We tested mediation by comparing the partial mediation model to the full mediation model using the \( \chi^2 \) difference. A significant \( \chi^2 \) difference indicates improved model fit.

Results

Correlations and descriptive statistics are presented in Table 1. The final model is presented in Figure 1. Correlations provide preliminary support that coping styles would be differentially related to family functioning, but the variables were strongly correlated \( (r = .61) \). To test for confounding, a model was estimated where both coping styles predicted family functioning. Model fit was adequate, \( \chi^2(24) = 82.24 \), comparative fit index
Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Approach coping</td>
<td>22.31</td>
<td>10.30</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Avoidance coping</td>
<td>19.49</td>
<td>10.36</td>
<td>0.61*</td>
<td></td>
<td>(.84)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Family functioning</td>
<td>85.00</td>
<td>35.96</td>
<td>0.07*</td>
<td>−0.07*</td>
<td>(.91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. PTSD symptoms</td>
<td>65.75</td>
<td>14.32</td>
<td>0.10*</td>
<td>0.39*</td>
<td>−0.24*</td>
<td>(.88)</td>
<td></td>
</tr>
<tr>
<td>5. Combat exposure</td>
<td>4.72</td>
<td>3.20</td>
<td>0.08*</td>
<td></td>
<td>0.08*</td>
<td>−0.04</td>
<td>0.27*</td>
</tr>
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Note. Reliabilities appear in parentheses. PTSD = posttraumatic stress disorder.

*p < .05.

(CFI) = .99, root mean square error of approximation (RMSEA) = .03. Results supported the hypothesis that approach coping would be positively associated with family functioning (β = .25, standard error [SE] = .04, p < .001) and avoidance coping would be negatively associated with family functioning (β = −.25, SE = .04, p < .001).

We tested whether PTSD symptoms mediated the relationship between coping style and family functioning. PTSD was negatively related to family functioning (β = −.24, SE = .03, p < .001). Approach coping had a positive indirect relationship with family functioning (β = .09, SE = .01, p < .001). Avoidance coping had a negative indirect relationship to family functioning (β = −.17, SE = .02, p < .001).

A partial mediation model with direct paths between coping styles and family functioning was found to provide better fit, χ² difference(2) = 17.69, than a full mediation model, χ²(48) = 193.10, CFI = .99, RMSEA = .03. Direct paths accounted for incremental variance in family functioning (R² = .08) compared to the full mediation model (R² = .07). However, partial mediation is rejected for avoidance coping (β = −.09, SE = .05, p = .072). Approach coping had a positive direct relationship with family functioning (β = .16, SE = .04, p < .001).

The full model is presented in Figure 1, χ²(57) = 258.53, CFI = .99, RMSEA = .04. Indirect effects of combat exposure on family functioning were modest through PTSD (β = −.06, p < .001) and approach coping (β = .01, p < .001).

The direct effect of combat exposure on family functioning was nonsignificant.

Discussion

Recent theoretical models have hypothesized that systemic adaptation after one family member is exposed to traumatic stress is dependent not only on PTSD symptoms, but on additional variables such as coping (Nelson Goff & Smith, 2005). This study examined the impact of coping style and PTSD symptoms on self-reported family functioning after combat exposure in a sample of veterans deployed to ODS. Both approach and avoidant coping were related to family functioning but were differentially mediated by PTSD symptoms. Avoidant coping was related to family functioning exclusively through its strong, positive relationship with PTSD, and the impact of approach coping on family functioning was only partially mediated by PTSD. The negative association between approach coping and PTSD suggests that approach coping is related to lower PTSD symptoms that are in turn related to fewer family functioning difficulties. The direct association between approach coping and family functioning suggests that approach coping is also directly related to improved family outcomes.

One interpretation of these findings is that approach coping positively impacts family functioning and PTSD symptoms through direct problem solving and other adaptive behaviors.

Figure 1. Full model supports hypothesis of partial mediation of posttraumatic stress disorder symptoms for approach coping, and full mediation for avoidance coping with regard to family functioning. Combat exposure, coping style, and posttraumatic stress disorder (PTSD) measured at Time 1. Family functioning measured at Time 2, imputing missing data with maximum likelihood estimation. All paths significant p < .01, except the dashed path from avoidance coping to family functioning.
The CATS model suggests that coping impacts both individual response to trauma and those of the couple as well (Nelson Goff & Smith, 2005). The current study tentatively supports the dual impact of approach coping as a protective factor on individual symptoms and systemic functioning. In contrast, findings do not suggest a direct dual impact of avoidance coping.

The directionality of the impact of coping on family functioning cannot conclusively be determined through this study. This is an important limitation because these variables are theorized to have reciprocal influences (Nelson Goff & Smith, 2005). For example, longitudinal studies have supported a reciprocal relationship where avoidant coping predicts later PTSD symptoms, and PTSD symptoms predict later avoidant coping (Benotsch et al., 2000). A recent study found that PTSD did not predict family functioning over time. Instead, family functioning was a moderate predictor of PTSD symptoms after a treatment program (Evans, Cowlishaw, & Hopwood, 2009). We are aware of no work that has assessed the relationships between coping, PTSD symptoms, and family functioning longitudinally, thus more work must be done in this area to investigate the mutuality and directionality of these relationships.

In interpreting these results, the measurement timeframe must be considered. Coping style was measured immediately after deployment. Participants reported coping during a stressful combat event. This may not be reflective of typical coping skills. There is evidence for an overlap between dispositional (typical) and situational coping (Schwartz, Neale, Marco, Shiffman, & Stone, 1999), but further research on how combat affects coping is needed.

The reliance of the current study on self-report, cross-sectional, and retrospective data limits causal inferences and raises the risk of recall bias. For example, family functioning perceptions may not reflect intimate partner functioning. Other limitations include a lack of collateral reports of family functioning, lack of information about premilitary functioning, and the possibility of unmeasured intervention between the Time 1 and Time 2 assessments. There are also limits to generalizability, including an older version of PTSD diagnostic criteria and a sample that may differ from today’s veterans.

Despite these limitations, results provide needed information on coping and family functioning after a deployment. Results suggest approach coping may reduce PTSD symptoms and enhance family functioning after combat, whereas avoidant coping impacts family functioning exclusively through its relationship with PTSD symptoms. These findings suggest that intervention for PTSD alone may not be sufficient in enhancing family functioning. Individuals and families may benefit from a broader focus on adaptive (approach) coping for stress after deployment.

References


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