Posttraumatic Growth Among Combat Veterans: A Proposed Developmental Pathway

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With the large number of combat veterans returning from war, there is an ever-increasing need to understand ways to help soldiers and veterans successfully navigate their return to life after combat. Posttraumatic growth (PTG) offers strong protective elements following combat, including reduction in suicidal ideation (Bush et al., 2011). The purpose of this study was to explore a proposed psychosocial developmental pathway between posttraumatic stress symptoms and PTG among combat veterans of the Afghanistan and Iraq wars. The indirect pathway from posttraumatic symptoms to PTG through negative psychosocial development was found to be significant and positive. It appears that psychosocial development may indeed mediate the process by which combat veterans can make meaning from their experiences, improving overall well-being.

Keywords: combat veterans, posttraumatic growth, psychosocial development

Military veterans returning from combat in Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) and, more recently, Operation New Dawn (OND), have long-term consequences following exposure to combat (Niles et al., 2012). Two of these outcomes, posttraumatic stress (PTS) and posttraumatic growth (PTG), can have long-term consequences that vary across individuals (MacDonald, Proctor, Heeren, & Vasterling, 2013) and that require reworking with each stage of life (Frankl, 1984; Tedeschi & Kimer, 2005). This leads to the possibility that such complexity may be better explained at the edges of disciplines where PTS and PTG can be explored dimensionally rather than categorically and from an interdisciplinary perspective. PTS does not always progress to disorder, and its course can be acute or chronic, with prognoses that include remission, intermittent disorder, and intractability (American Psychiatric Association, 2013; Kessler et al., 1995). PTG involves meaning making, which can change according to the stage of life (Andrews & Marotta, 2005) and the individual differences in personality among exposed individuals (Daud, Klinteberg, & Rydelius, 2008). Trauma researchers and practitioners are now calling for a dialectical approach that considers the relative contributions of both symptomatic and developmental pathways to stress and growth (Carrion & Kletter, 2012).

That there are developmental effects following exposure to extreme stressors has long been documented (Browne & Finkelhor, 1986). Early trauma researchers identified the disruption of trust in the self and in one’s ability to form relationships as examples of precursors to the development of psychopathology. This contrasts with studying the consequences of such disruptions to the overall psychosocial development of an exposed person. More recently trauma researchers are calling for research on therapies that focus on resiliency and developmental repair (Carrion & Ford, 2013) and not on symptom management or functional improvement alone. Developmental trauma itself is a concept that is relatively new (Ford, 2005) and is most often associated with children who were excluded from the diagnosis of posttraumatic disorders given to adults because they did not meet the criteria as these were then defined (van der Kolk, 2005) in the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM–IV; APA, 2000). The developmental aspects of complex trauma (Courtois & Ford, 2013) include profound identity disturbances and alienation from community supports exhibited by some of today’s returning combat veterans, yet these aspects remain outside the boundaries of our current nosologies for mental disorders such as posttraumatic stress (American Psychiatric Association, 2013). Moreover, it is not uncommon for both PTS and PTG to coexist following exposure to stress (Sheikh & Marotta, 2005; Tedeschi & Calhoun, 2004), further supporting the need to explore models that incorporate both psychiatric and psychosocial risk factors.

Of the service men and women returning from Iraq and Afghanistan, 75% of those who met the criteria for mental illness had posttraumatic stress disorder, whereas 11%–17% screened positive for depression and anxiety (Hoge et al., 2004). Among the risk factors that are associated with the progression of symptoms and...
signs to a full PTSD, the amount of exposure to combat (Bryan, Hernandez, Allison, & Clemens, 2013) and the subjective appraisal of threat (Renshaw, 2011) are noteworthy. Specifically, the more exposure the veteran has and the more threatened he or she feels, the more likely that a full blown disorder will develop. When the stress of trauma exposure develops into PTSD, veterans are at increased risk for substance abuse, depression, suicide, job loss, divorce, and domestic violence perpetration (Prigerson, Maciejewski, & Rosenheck, 2002). This is evidence of a clear need to help veterans cope more effectively with PTS. But although the majority of returning veterans have experienced some level of PTS because of their experiences in a war zone, not all of them develop PTSD (Tedeschi & Calhoun, 1996); in fact, many grow from their experiences in combat.

On the growth side of outcomes following exposure to combat, the psychosocial developmental aspects are somewhat better understood. In the decades since Tedeschi and Calhoun (1996) first developed the Post Traumatic Growth Inventory, a considerable body of research has accumulated identifying predictors of growth such as the ability to use social supports, the capacity to make meaning out of life events, and the availability and use of a variety of coping skills (Forstmeier, Kuwert, Spitzer, Freyberger, & Maercker, 2009; Benetato, 2011). Tedeschi and Calhoun (2004) proposed a curvilinear response set for growth, predicated on the stage of life and the psychological resources available to the individual who experiences adversity. Butler et al. (2005) supported the idea of a growth curve linked to levels of posttraumatic symptomatology. These researchers noted that individuals who already possess a strong resource base and those at the other end of the spectrum who are chronically psychologically challenged may not adapt positively to adverse events because they are not overwhelmed in the former case and because they cannot access sufficient resources to help themselves in the latter case. Adolescents and adults may be better positioned to adapt positively because they have a cognitive resource base and a set of prior experiences with which to process their adversities. Among combat veterans, PTG has been found to be associated with individual traits such as openness, agreeableness, and caring; group coping attributes such as use of social supports; and systemic factors such as more robust employment and job retention (Moran, Schmidt, & Burker, 2013). There is an ever-increasing need to understand how best to help service members and veterans successfully navigate their return to life after combat. A recent study (Bush, Skopp, McCann, & Luxton, 2011) suggests that PTG offers protective elements following combat, including reduction in suicidal ideation. The specific pathways by which PTG develops need to be more clearly delineated, especially in light of the developmental component that has been previously described but not studied empirically in the combat veteran literature.

The developmental component to stress and growth can be illustrated by Erikson’s (1959) theory of psychosocial development. The developmental tasks associated with Erikson’s eight life stages may be helpful in understanding differences in outcome among veterans experiencing today’s combat environment. Each developmental task must be resolved and failure at any stage of resolution results in developmental arrest despite chronological aging. Such a developmental arrest may impair the metabolization of traumatic experiences and prevent growth. Researchers have linked Eriksonian themes such as mistrust (Glover, 1984) and social isolation (Elliott, Gonzalez, & Larsen, 2011; Whiteman, Barry, Mroczek, & MacDermid Wadsworth, 2013) to greater PTS and other functional difficulties in veterans. Silverstein (1994) noted that many service members experience combat in late adolescence when identity is ideally crystallized, perhaps explaining the “persistent identity diffusion” observed in some veterans (p. 69). Taylor and Baker (2007) used Erikson’s theory to investigate the development of combat veterans, focusing on the late adolescent-to-adulthood stages of identity, intimacy, and generativity. In a sample of 64 veterans of the Vietnam and Persian Gulf Wars, they found that PTSD-diagnosed veterans showed greater evidence of arrested psychosocial development than those who had not been diagnosed with PTSD. Taylor and Baker presented preliminary evidence of a relationship between impaired psychosocial development and PTSD in combat veterans. Given that OEF/OIF/OND veterans are older than Vietnam veterans were at the time of exposure, they may demonstrate developmental issues that reflect expected life span differences between emerging adults and older adults.

To further investigate psychosocial development in the context of veteran growth following combat exposure, we propose a model that incorporates both psychiatric and psychosocial variables. This first attempt at an interdisciplinary model tests a proposed psychosocial developmental pathway between PTS and PTG among combat veterans of OEF and OIF. Specifically, we hypothesized that each of the positive and negative resolution scores of psychosocial development—measured as the difference between the positive and negative polarities of psychosocial development such as trust and identity—serve as full mediators in the pathways between PTS and previously identified risk factors (amount of combat exposure, degree of perceived threat) to PTG.

**Method**

**Participants**

Participants were 107 male veterans of Operations Enduring Freedom and Iraqi Freedom (OEF/OIF) registered at a Veterans Affairs Medical Center (VAMC) in the Southeastern United States. The sample was selected from the archive of all OEF/OIF registrants at that facility ($N = 5,000$), using a multistage probability sampling process designed to ensure adequate representation from all eight Metropolitan Statistical Areas (MSAs) covered by the archive and one non-MSA pool to account for rural participants. The decision rule for inclusion in the randomization was that a zip code had to have at least 25 participants. All selected participants were mailed an invitation to participate with an opt-out provision ($n = 775$). A telephone screening ensured that participants met inclusion criteria: age 18+, male, deployed in OEF/OIF, and having regular contact with at least one adult family member or close friend. Exclusion criteria were active psychosis; female gender, because of potentially different developmental pathways among men and women; cognitive impairment interfering with responses to interviews; and inability to read at a sixth grade level. Thirty-five veterans declined participation either on receipt of the letter of invitation or when contacted by phone; those were compared to the 107 who completed the study and no differences were found on the sociodemographic variables of age, marital
status, and race. The remainder of the pool did not participate either because they did not respond to telephone messages or had disconnected phone numbers on record (n = 287), letter returned as undeliverable (n = 60), did not meet study criteria (n = 8), or were not accessible because of deployments/having moved out of the area (n = 278).

Table 1 presents demographic characteristics of the sample. Participants were middle-aged (Μ = 40; SD = 10.9), married men (65.4%), with a mean of 5 (SD = 2.7) exposures to extreme stress including combat. To provide a context for the representativeness of the final sample, the U.S. Census Bureau (2010) reported a White population of 66.2% in South Carolina and 27.9% African American. Thus, the sample closely approximated the White population and overrepresented African Americans. Marital status of the sample reflected the marital status among veterans nationally, which is 69.7% (National Survey of Veterans, 2010). Exposure to stressor events meeting Criterion A for PTSD can be considered within the range expected for male combat veterans compared with civilian counterparts, Μ = 3.08 (SD = 2.5) in the community (Anders, Frazier, & Shaller, 2012).

Data were obtained over a 13-month period from veterans who agreed to participate. Informed consent documents were signed and witnessed per VA policy. Interviews were conducted in either the VAMC research office or at a Community Based Outpatient Clinic (CBOC). Participants agreed to approximately 2 hr of time to complete the interview and self-report instruments. All data were collected by the first author. At the end of the appointment, the veteran provided the name and contact information for a family member or close friend with whom they were in regular contact. That family member or close friend was contacted by phone, consented, and orally administered the developmental inventory.

Measures

To account for individual, familial, and social contexts to be tested in the model, a combination of self-report, clinical interview, archival data, and family observer report were used.

Table 1

Demographic Characteristics of Study Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>N/M (SD)</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
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</tr>
<tr>
<td>Education (in years)</td>
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<tr>
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<tr>
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<td>Marital status</td>
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<td>Married</td>
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<tr>
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<td>Employment history (Hollingshead categoriesb)</td>
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<td></td>
</tr>
<tr>
<td>Mechanic–semiskilled</td>
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<td>52</td>
</tr>
<tr>
<td>Skilled</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Admin–med</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>20</td>
</tr>
</tbody>
</table>

a Age range 22–64. b The Hollingshead system includes military non-commissioned and commissioned officers. It was used only for descriptive purposes.

Demographic information. Participants were asked their age in years, marital status, educational level, and occupation predeployment. Employment history was asked for descriptive purposes only. Race and ethnicity were determined from the Computerized Patient Record System (CPRS), an electronic medical record used by the Department of Veterans Affairs. Originally the model included a preexisting variable of family history of psychopathology, which was to be obtained from CPRS; however, this variable was dropped from the model when it was discovered that family history is not routinely recorded in CPRS.

Posttraumatic symptoms. The Clinician Administered PTSD Scale (CAPS; Blake et al., 1995) symptom severity subscale, a measure of frequency and intensity, was used for each of the three DSM-IV clusters of reexperiencing, avoidance, and hyperarousal. The CAPS has a long history of reliability and validity studies, with coefficients in the .90 ranges. The internal consistency for the CAPS in this sample was .93.

Combat exposure. The Combat Exposure Scale (CES; Keane, Fairbank, Caddell, Zimering, Taylor, & Mora, 1989) was used to measure combat experiences. This seven-item scale measures on a scale ranging from 1 (no or never) to 5 (26–51+ times). Items include being under enemy fire, firing rounds, in danger of being killed, and so forth. The higher the score, the higher the exposure level, with items indicating more severity being weighted. Internal consistency for the original validation sample of Vietnam veterans was .85, and test–retest reliability with one week interval was .97. Principal components factor analysis resulted in a single factor, accounting for 56.7% of the variance. Internal consistency for the current sample was .77.

Level of perceived threat. The Perceived Threat Subscale of the Deployment Risk and Resilience Inventory (DRRI, King, Vogt, Knight, & Samper, 2006) was used to measure the degree of fear for one’s safety in a combat experience. Using a 5-point Likert scale, scores range from 15–75. Higher scores indicate a subjective appraisal of being unsafe while in combat. King et al. (2006) reported internal consistency in the original validation sample to be .89; predictive validity with physical health outcomes such as symptom counts (r = .40) and mental health outcomes such as PTSD (r = .52) showed the subscale to be moderately correlated with these. Internal consistency for the current sample was .88.

Psychosocial development. The Measures of Psychosocial Development (MPD; Hawley, 1988) is a 112-item, inventory designed to yield a developmental profile. A total of 27 scales are assessed, including eight positive, eight negative, eight resolution scales, and three total scales. Only the total positive and total negative resolution scales were used. Resolution scales show the strength and direction attained by managing the positive and negative polarities of each stage conflict. Resolution scores are obtained by subtracting the negative scale raw scores from their corresponding positive raw scores. Sample items for the positive scales include, “Trustworthy, others trust me” and “Share my most private thoughts and feelings with those close to me.” Sample items for the negative scales include, “Others let me down” and “Emotionally distant.” Participants respond on a 5-point Likert scale of 1 (not at all like me) to 5 (very much like me). Hawley (1988) reported internal consistency for the subscales ranging from .75 to .86, with the total resolution Cronbach α of .87. Internal consistency for the total resolution score in this sample was .79.
The MPD has been used in medical settings (Packman, Gong, VanZutphen, Shaffer, & Crittenden, 2004) as well as in various psychological investigations with diverse samples (Jenkins et al., 2005; Zhang & He, 2011).

Concurrent validity data on the MPD and the Inventory of Psychosocial Development (IPD; Constantinople, 1966, 1980) and the Self-Description Questionnaire (SDQ; Boyd, 1966) range from .46 to .78 with the IPD and .28 to .65 with the SDQ (Boyd, 1966). These instruments assess the positive and negative aspects of personality development and have a long history of validation research across adult life spans (Sneed, Whitbourne, & Culang, 2006).

To capture the interpersonal aspects of psychosocial development and to decrease self-report bias, a family member or close friend also completed the MPD based on their experience with the veteran, and a composite score obtained from the veteran’s self-report and a family member’s observer report was used in the model. The composite score was presumed to be more stable, in keeping with research that shows where a self-report is highly evaluative such as is presumed to be the case with evaluating one’s own trust and identity levels, observer reports can add unique predictive validity even when there is some degree of variance in the scores (Connelly & Hülsheger, 2013; Edmonds, Goldberg, Hampson, & Barckley, 2013).

**Posttraumatic growth.** The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to capture the level of growth experienced postcombat. The PTGI consists of 21 self-report items indicating growth that occurs as a result of experiencing adversity. Participants were instructed to complete the instrument in relation to their combat experience. The PTGI yields a total score range of 0–105, with higher scores indicating higher growth. The total score was used for this study to increase stability in the outcome measure. The PTGI has been validated among combat veterans as both a five-factor and a unidimensional measure (Lee, Luxton, Reger, & Gahm, 2010). Internal consistency and test–retest reliabilities for the full-scale PTGI have been reported in the .90 range (Tedeschi & Calhoun, 1996). Internal consistency for this sample was .93.

**The Conceptual Model**

A model depicting the proposed pathway to PTG was derived from the literature, with three latent variables leading to PTG (see Figure 1). The first latent variable, defined as preidentified risk factors, included the level of exposure to combat and the perceived threat felt by the participant. The second latent variable was PTS, including the three clusters of PTSDs as defined in *DSM–IV–TR*, hyperarousal, avoidance, and reexperiencing. The severity scores for each of the three clusters on the CAPS were used for the observed measures. The third latent variable was negative and positive psychosocial development measured by the total positive and total negative resolution scores compounded from self and observer scores. A full mediational pathway was hypothesized from preidentified conditions to PTGI through positive psychosocial development and from PTS to PTGI through negative psychosocial development.

An exploratory test of the following hypothesis was posited: Each of the positive and negative resolution scores of psychosocial development—measured as the difference between the positive and negative polarities of psychosocial development such as trust and identity—serve as full mediators in the pathways between PTS and previously identified risk factors.
Data Analysis

Descriptive statistics were analyzed using SPSS, version 21. Structural equation modeling (SEM) using LISREL 8.80 (Jöreskog & Sörbom, 2006) was used to test the pathways to PTG. The goal of the SEM analysis was to determine the most parsimoniously fitting model. The maximum likelihood estimation method was used to account for the possibility of nonnormal distribution of the data, and the expectation–maximization (EM) algorithm was used to impute missing data in LISREL. A measurement model was first specified, and the structural model was analyzed for direct and indirect effects on PTG. For evaluation of model fit, the indices that are reported to be least sensitive to sample size were used, as an $N = 107$ size is at the lower limits of acceptability for modeling (La Du & Tanaka, 1989). The following values were selected to be acceptable evidence of model fit under these conditions: A relative-normalized chi-square ($df$), root-mean-square error of approximation (RMSEA) $<.08$, standardized root-mean-square residual (SRMR) $<.08$, and comparative fit index (CFI) $>.95$ as recommended by Hooper, Coughlan, and Mullen (2008). After the initial conceptual model was tested, a second partial version of the model was tested using the same procedures.

Results

Table 2 presents correlations, means, and standard deviations for all study variables. The majority of the predictors correlated significantly with one another. Though only the three symptom clusters of posttraumatic stress disorder were used in the model and not a full diagnosis, it should be noted that 51% of the sample had a current PTSD diagnosis as ascertained from the problem list and not a full diagnosis, it should be noted that 51% of the sample clusters of posttraumatic stress disorder were used in the model. The goal of the SEM analysis was to determine the most parsimoniously fitting model. The maximum likelihood estimation method was used to account for the possibility of nonnormal distribution of the data, and the expectation–maximization (EM) algorithm was used to impute missing data in LISREL. A measurement model was first specified, and the structural model was analyzed for direct and indirect effects on PTG. For evaluation of model fit, the indices that are reported to be least sensitive to sample size were used, as an $N = 107$ size is at the lower limits of acceptability for modeling (La Du & Tanaka, 1989). The following values were selected to be acceptable evidence of model fit under these conditions: A relative-normalized chi-square ($df$), root-mean-square error of approximation (RMSEA) $<.08$, standardized root-mean-square residual (SRMR) $<.08$, and comparative fit index (CFI) $>.95$ as recommended by Hooper, Coughlan, and Mullen (2008). After the initial conceptual model was tested, a second partial version of the model was tested using the same procedures.

Table 2

<table>
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<td>1. PerThrea</td>
<td>—</td>
<td>.48**</td>
<td>.44**</td>
<td>.48**</td>
<td>.53**</td>
<td>−.14</td>
<td>−.33</td>
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<td>.40**</td>
<td>.22*</td>
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<td>2. CES1</td>
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<td>.52**</td>
<td>.58**</td>
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<td>−.33</td>
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<td>.31**</td>
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<td>3. ReExp</td>
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<td>.76**</td>
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<td>.61**</td>
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<td>.59**</td>
<td>.20**</td>
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<td>−.48**</td>
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<td>.61**</td>
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</table>

Note. PerThrea = Perceived Threat subscale, Deployment Risk and Resilience Inventory (DRRI); CES1 = Combat Exposure Scale, DRRI; ReExp = Reexperiencing subscale, CAPS; Avoid = Avoidance subscale, CAPS; HypoA = Hyperarousal subscale, CAPS; TotPosV = Total Positive subscale, MPD (Veteran); TotNegF = Total Negative subscale, MPD (Family); TotNegV = Total Negative subscale, MPD (Veteran); TotNegF = Total Negative subscale, MPD (Family); PTGI = Posttraumatic Growth Inventory.

Original Model

Fit indices for both the original measurement model and the structural model were tested and both models showed a relatively weak fit overall: original model, $\chi^2(18) = 87.134$, $p = .00$, RMSEA $=.15$, SRMR $=.08$, and CFI $=.94$; structural model, $\chi^2(31) = 125.19$, $p = .00$, RMSEA $=.15$, SRMR $=.08$, and CFI $=.90$. Whereas most of the observed variables loaded significantly and moderately in the expected direction on their respective latent variables, some nonsignificant patterns were noted and became the theoretical basis by which pathways could be deleted to improve the fit of the model. Given the significance of the pathway from family members’ observer ratings of the negative resolution variable to PTGI and the nonsignificance of the positive resolution scores, the positive pathway was deleted.

Final Model

A new model was specified, eliminating the positive development latent variable and adding a direct path between preexisting conditions and PTS. Results for this model are shown in Figure 2. The standardized solution to the second measurement model indicated a good fit, with $\chi^2(17) = 16.75, p = .47$, RMSEA $=.01$, SRMR $=.04$, and CFI $=1.00$. The structural model also indicated good fit, $\chi^2(18) = 17.27, p = .50$, RMSEA $=.00$, SRMR $=.04$, and CFI $=1.00$. All pathways were significant at the .05 level, and the observed variables loaded on their respective latent variables at .8+ levels. Only the observed variables of perceived threat and combat exposure loaded at .67 and .72, respectively. The indirect pathway between PTS and PTG with negative development as the mediator was .30. Overall, the model accounted for 14.8% of the variance in PTG.
Discussion

To our knowledge, this is the first study to test a model using both psychiatric and psychosocial variables as pathways to posttraumatic growth. While the full mediation model did not prove to be a good fit, the adjusted path model with partial mediation by negative psychosocial factors does present some interesting possibilities for researchers and practitioners to consider as a result of this exploratory study.

The indirect pathway from PTS to PTG through negative psychosocial development was significant and positively correlated. The model only accounted for 14.8% of the variance, which warrants further study into other factors that might be included when studying the developmental pathways to PTG. Some of those factors for future study may be the cognitive capacities of combat veterans and differences in military cultural identification, as suggested by Butler et al. (2005). Cognitive capacities develop across the life span along with biological, emotional, and social capacities. Perhaps a measure of cognitive complexity could have strengthened the power of the model. The strong positive correlations with PTS symptoms and developmental processes noted here are consistent with Tedeschi and Calhoun’s (2004) conceptualization of trauma symptoms and growth: Individuals are more likely to experience PTG if they face some degree of developmental challenges along with PTS. Perhaps a developing individual is inhibited from accessing his own resources when faced with threat to personal safety and this in turn inhibits his ability to make sense of his combat experience, leading to growth. Alternatively, it may be necessary to explore the pathway longitudinally to test the possibility that time is intrinsic to the meaning making component of PTG. With cross-sectional data, it is impossible to make inferences about causality, other than those that can be accounted for in the statistical sense by exogenous and endogenous variables within the models. That the positive developmental pathway was lost because of poor fit needs to be explored further, specifically in terms of the possibility that negative and positive resolution may not be on the same continuum; this possibility has been reported previously (Miner & Dwyer, 1997). Further research might explore separate mediation models using positive and negative resolution scores as independent mediators between PTS and PTG.

The strong positive correlation between preidentified risk factors and post trauma symptoms continues to be supported in the literature (Bryan, Hernandez, Allison, & Clemens, 2013; Renshaw, 2011), and this current model lends further support with a path coefficient of .83. Subjective appraisal of threat to personal safety predeployment has been associated with higher rates of PTSD (Franz et al., 2013), and the sheer number of deployments experienced by veterans of OEF and OIF are unique to these two theaters of war. Indeed, in respondent remarks during the interviews for this study, participants reported cognitive dissonance in the abrupt transition from civilian roles to a war zone. Respondents reported high levels of fear that preceded actual exposure to combat because of the role transition in and of itself.

The levels of posttraumatic growth were only moderate, at 47.1 out of a potential 105 points on the PTGI. One of the growth factors measured by the PTGI is relating to others with greater intimacy, openness, and compassion. It is interesting that only one of the MPD bivariate correlations, the family members’ negative resolution score, was significantly associated with PTG. This may reflect that negative appraisals are noticed more than positive ones because there are more negative interpersonal consequences from these (Liu, Xin, & Lin, 2014). The MPD also measures relational tasks such as intimacy and generativity. Although the PTGI and MPD measure different constructs, it may be that the relational intersectionality between the two instruments affected the overall model fit by attenuating the true
scores. Alternatively, it may be that inadequate psychosocial development precluded accurate cognitive assessment of social support available to these veterans and their families (Zhang & He, 2011). Moreover, veterans’ perceptions of the inadequacy of social support may interfere with unit cohesion and the ability to make meaning from the experience of sharing combat with others. It may also be that time since last deployment or between deployments, which were not measured, foreclosed the processing of the experience of combat, lowering the overall growth scores.

Among the limitations of the study were the moderate levels of PTGI and a relatively small sample size, though it did meet the lower limits of acceptability for SEM. The sampling process was designed to produce a representative dataset, but it is possible that the large numbers of combat veterans who were not included in the final data set may have affected generalizability in some way that was not measurable with our design. Additionally, participants in the archive were all treatment seeking, limiting generalizability to treatment seeking veterans.

From a clinical perspective, suggestions need to be constrained by the preliminary nature of this study. Nonetheless the model suggests the possibility of incorporating developmental task resolution into assessment protocols before, during, or postdeployments. The veterans in this sample had minimal information about family history recorded in the electronic medical record and only rarely mentioned family history of psychopathology. Standard clinical interviews usually do assess for family and social influences on presenting problems, but these assessments typically do not include identity resolution or generativity. Additionally, the strength of an individual’s identity could affect her or his identification with military culture, which in turn may influence the development of PTG, regardless of the presence of posttraumatic stress symptoms. Should the results of this study be replicated in further support for a developmental pathway, perhaps the MPD, which at 112 items would be difficult to use in a clinical setting, might be validated in a short form that could be used for screening purposes. This adaptation of longer instruments has been done, for example, with the short form of the PTSD Checklist for screening purposes. This adaptation of longer instruments has perhaps the MPD, which at 112 items would be difficult to use in a clinical setting.

In summary, our results provide an initial foray into understanding the role that both psychiatric and psychosocial factors might play in the development of posttraumatic growth following exposure to combat. The role of both negative and positive developmental task resolution needs further research, but it may prove to be a promising heuristic for helping to predict who will grow following combat exposure. Because posttraumatic growth has been reported to be a protective factor against PTSD, perhaps eventually programs to promote growth through improved psychosocial development may be provided pre- and postdeployment in an effort to diminish the rates of incidence and prevalence of PTSD among veterans.

References


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