

A Review and Application of Posttraumatic Growth for Enhancing the Well-being of Military Service Members and their Families

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RESEARCH AND OUTREACH



MISSION

To support military families by mobilizing research into practical applications across the spectrum of family support, resilience, and readiness.

PURPOSE

The purpose of Military REACH, a project of the DoD-USDA Partnership for Military Families, is to bridge the gap between military family research and practice. To facilitate the DoD's provision of high-quality support to military families, our objective is to make research practical and accessible. Our team critically evaluates and synthesizes research that speaks to issues of family support, resilience, and readiness. We identify meaningful trends and practical applications of that research, and then, we deliver research summaries and action-oriented implications to military families, direct service helping professionals, and those who work on behalf of military families.

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Executive Summary

The Military REACH team was asked to identify a comprehensive definition of posttraumatic growth (PTG) and review the empirical literature to understand if and how service providers can facilitate PTG among service members and their families.

In accordance with the request, this report provides an overview of the scholarly work concerning PTG to clarify what PTG is, how it occurs, and how it may be facilitated. This report is divided into three primary sections.

First, the introduction provides a definition for PTG differentiating it from similar constructs. Specifically, *PTG is a substantive, positive change in a person's self-perceptions, relationships with others, and/or their personal philosophy of life, resulting after a traumatic experience*. Then, based on the work of Calhoun and Tedeschi (2014), a conceptual model for how PTG occurs is presented and discussed (see Figure 1). This model provides a foundation for understanding the processes related to PTG. It emphasizes the importance of *productive rumination* (i.e., cognitive engagement and reflection on the traumatic experience), *meaning-making* (i.e., remembering the 'who, what, when, and how' of the trauma and seeking to understand the 'why'), and *self-disclosure* (i.e., writing and articulating one's trauma narrative). This model also recognizes that these processes are embedded within a larger sociocultural context, including societal norms and personal relationships.

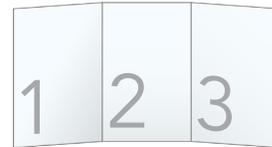
Next, a discussion of individual and contextual factors that have been positively linked to PTG in the scholarly literature is presented. Beginning with individual factors, demographic (e.g., being a woman, being part of a racial minority group), personality (e.g., extraverted, open to new experiences), and behavioral characteristics (e.g., utilizing mindful practices) related to the promotion of PTG are described. Then, we present contextual factors associated with the likelihood of experiencing PTG, including time related (e.g., time since the trauma), environmental (e.g., presence of socially supportive relationships), and social factors (e.g., responsiveness from others).

Finally, we provide a discussion of how service providers can mobilize this research to promote PTG among military members and their families. More specifically, the individual and contextual factors from the previous section are used to provide meaningful intervention points that may be incorporated into PTG treatment or programming. We close this section by discussing more formalized interventions that have shown some success in facilitating posttraumatic growth, such as Cognitive Behavioral Conjoint Therapy.

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A trauma is characterized as an experience that sufficiently disrupts one's beliefs about the world and causes severe psychological distress (Calhoun & Tedeschi 1999, 2014). Traumatic experiences are common with some estimates suggesting that up to 90% of people will experience a traumatic event at some point during their lifetime (Kilpatrick et al., 2013). Military members may be at particular risk for trauma due to the nature of their military service (e.g., combat exposure) as indicated by elevated levels of posttraumatic stress disorder (PTSD), adjustment disorders, and other mental health difficulties among service members (Stahlman & Oetting, 2018). According to the National Center for PTSD ("How Common is PTSD in Veterans?," 2018), as many as 11-20% of veterans from Operations Iraqi Freedom and Enduring Freedom have PTSD, compared to 7-8% of the general population. These estimates are concerning as PTSD is linked to a number of adverse outcomes including comorbid affective disorders, substance abuse, and functional impairment, in both the general and military populations (Beck, Ruhlmann, & Goff, 2018; Calhoun et al., 2018; Zatzick et al., 1997). Additionally, trauma can have far reaching, negative effects on individuals' relationships as PTSD is associated with increased rates of marital distress and dissolution (Allen, Knopp, Rhoades, Stanley, & Markman, 2018), decreased social support (Woodward et al., 2018), and disruptions in the family system, such as poor parent-child relationship quality (Kritikos, Comer, He, Curren, & Tompson, 2018). Although research has primarily documented the prevalence of hardships stemming from trauma exposure, there is a growing body of evidence indicating that individuals can experience personal growth following trauma (for review, see Angel, 2016), an outcome known as Posttraumatic Growth (PTG; Tedeschi & Calhoun, 1996). Understanding PTG and the related circumstances has important implications for identifying evidence-based considerations that helping professionals can utilize in their work with those who have experienced trauma.

Therefore, the purpose of this review is three-fold:



1. define and conceptualize PTG,
2. identify individual and contextual factors that foster PTG, and
3. offer examples of how this literature can be applied to promote PTG.

Defining and Conceptualizing PTG

PTG is most commonly conceptualized as a substantive, positive change resulting from a trauma or significantly stressful circumstance (Calhoun & Tedeschi, 1999, 2014). Essentially, this means that people experience a beneficial, transformative change that arises through traumatic experiences and the related processes they engage in to cope with the trauma. Though these will be covered in more detail in the next section, the main areas in which people report PTG are their self-perceptions, relationships with others, and personal life philosophies (Tedeschi & Calhoun, 1996). Growth may occur in one or more of these three domains. For example, after coping with a traumatic experience, an individual may feel more capable to address challenging situations, feel greater closeness with their loved ones, and/or generally experience more appreciation for life. Scholars suggest that there are two defining features of PTG:

- First, PTG is typically conceptualized as the *final product*, rather than the process of attaining it.
- Second, PTG is not merely a return to pre-trauma baseline functioning; rather, PTG is indicative of *improved functioning after a traumatic event occurs*, hence the term growth (Calhoun & Tedeschi, 1999, 2014; Joseph & Linley, 2006).

There are other concepts similar to PTG discussed in the research and applied literatures, including stress-related growth, thriving, benefit-finding,

and resilience (Calhoun & Tedeschi, 2004; Carver, 1998; Joseph & Linley, 2006; Tedeschi & Calhoun, 2004). Defining and differentiating these concepts is outside the scope of this review, but a brief review is provided in **Table 1**. It is important to note that some level of academic debate exists regarding whether these are truly distinct concepts. For instance, compared to PTG, the term *stress-related growth* implies that growth resulted following a stressful event. In other words, the triggering event or experience produced 'stress,' but was not characterized as a 'trauma.' *Resilience* is typically thought of as the process of responding to stress and 'bouncing back' to at least baseline functioning after a stressor event, whereas PTG is systematically characterized as an outcome whereby the individual exhibits improvement beyond baseline functioning (Joseph & Linley, 2006). *Benefit-finding* generally refers to the *perception* of benefits (Park, 1998), rather than benefits themselves

(e.g., closer relationships; Tedeschi & Calhoun, 1996) which are the focus of PTG. Finally, titles like *thriving* are meant to describe similar growth following a trauma (O'Leary, 1998), but some scholars express semantic concerns (Tedeschi & Calhoun, 2004) as thriving may not convey a simultaneous experience of growth alongside distress.

As previously noted, research is still uncovering the extent to which these concepts are conceptually and empirically distinct. Future research will uncover differences and similarities with added precision. For our purposes, we focus on PTG because this concept embraces a strengths-based perspective to trauma that simultaneously recognizes the stress and hardship that trauma can create as well as the potential for trauma to provoke beneficial psychological changes (Tedeschi & McNally, 2011). When applicable, we also incorporate some literature related to other concepts (e.g., benefit-findings and thriving) given the potential overlap.

Table 1

Concepts derived from the trauma literature related to positive change following a traumatic event

Concept	Definition
Posttraumatic Growth	<i>Substantive, positive change resulting from a traumatic experience.</i> Positive change may be observed in one or more specific life domains, including perception of self, relationships with others, and personal philosophy of life (Tedeschi & Calhoun, 1996).
Stress-Related Growth	<i>Significant, positive growth or functioning resulting after a stressful experience.</i> Growth is conceptualized to occur with regard to individual (e.g., improved mindset) and relational (e.g., stronger friendships) domains (Park, 1998; Park, Cohen, & Murch, 1996).
Thriving	<i>A transformation preceded by trauma that results in improved functioning beyond pre-trauma levels of functioning.</i> Improved functioning may manifest in behavior, cognition, and/or emotion, and it is compared to pre-trauma functioning (O'Leary, 1998).
Benefit-Finding	<i>The perception of benefits that resulted after the trauma.</i> Benefit-finding is closely related to PTG, but conceptually distinct given the perceived, versus measurable, benefits. Perceived benefits also occur across the three broad domains discussed in PTG: perception of self, relationships with others, and personal philosophy of life (Affleck & Tennen, 1996).
Resilience	<i>A process of effectively adapting to challenges, threats, trauma, or stress.</i> Resilience has been conceptualized as the outcome of positive functioning, but it has also been thought of as the process by which individuals and families respond to stress and return to normal functioning (for review see American Psychological Association, n.d.; Patterson, 2002).

Components of PTG

In conceptualizing PTG, Tedeschi and Calhoun (1996) conducted a review of the growth literature and identified **three domains** in which growth may occur: 1) perception of self, 2) relationships with others, and 3) personal philosophy of life. To further specify and quantify PTG, five measurable factors were derived from these three domains. These five factors include personal strength, new possibilities, relating to others, spiritual change, and appreciation of life.

See Table 2 for descriptions of the three domains, the five factors comprising the domains, and statements illustrating the five factors drawn from example items on the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The full 21-item PTGI measure can be found in **Appendix A**, and the abbreviated 10-item PTGI can be found in **Appendix B** (Cann et al., 2010).

Table 2

Domains, definitions, factors, and example statements of PTG, adapted from Tedeschi and Calhoun's (1996, p. 460) Posttraumatic Growth Inventory (PTGI)

Domains of PTG	Conceptual Definition	Measurable Factors	Example Statements
Perception of Self	An improved sense of self and beliefs about a person's value, ability, confidence, and opportunities	Personal strength	"I discovered that I am stronger than I thought I was." "I know better that I can handle difficulties."
		New possibilities	"New opportunities are available which wouldn't have been otherwise." "I established a new path for my life."
Relationships with Others	Increased closeness to others and improvements to relationship quality and value	Relating to others	"A sense of closeness with others." "Knowing that I can count on people in times of trouble."
Personal Philosophy of Life	Increases in the enjoyment and appreciation of life and spiritual, religious growth	Spiritual change	"I have a stronger religious faith."
		Appreciation of life	"Appreciating each day." "My priorities about what is important in life."

The Process and Production of PTG

In this section, we describe the process by which PTG is generated. This process is largely based on the work of Lawrence Calhoun and Richard Tedeschi (Calhoun & Tedeschi, 1999, 2004, 2014; Tedeschi & Calhoun, 1996, 2004; Tedeschi, Calhoun, & Cann, 2007; Tedeschi & McNally, 2011).

Precursor event. The description (and even the name) of PTG necessitates that a trauma must be experienced for growth to occur. Therefore, it is important to first define what constitutes a traumatic experience. Notably, there is variability in how individuals define traumatic experiences. Calhoun and Tedeschi (1999) suggest that there are common traits to traumatic events. For instance, they are often unexpected, outside of one's control, and threaten physical harm. However, rather than examining and evaluating categories or types of precursor events, for the purpose of understanding PTG, it may be more helpful to consider a person's response when determining if a trauma has been experienced. Calhoun and Tedeschi (1999, 2014) suggest that a trauma is any event that:

- results in a significant upheaval in a person's cognitive models or beliefs,
- causes emotions that are difficult to manage, and
- compromises an individual's coping skills.

This conceptualization provides a great deal of flexibility to the definition of trauma. In other words, a traumatic experience can include a variety of events like being fired, the death of a family member, a terrorist attack, and/or a natural disaster, provided that it sufficiently disrupts beliefs and causes severe psychological distress. For service members, trauma might include, but is not limited to, combat exposure (Vasterling et al., 2015), moral injury (for review, see Litz et al., 2009), and/or sexual assault (Dichter, Wagner, & True, 2018).

The process of generating PTG. We have adapted Calhoun and Tedeschi's (2014) model to describe and illustrate the process of how PTG is generated (see **Figure 1**). This model indicates that

pre-trauma individual factors (see "person pre-trauma", #1 on Figure 1) play a role in the manifestation of PTG. Examples of these individual-level factors include personality traits and personal experience. Additionally, people have existing beliefs about the world, such as expectations of fairness and predictability, which may influence whether or not an event is perceived as traumatic (for review, see Park & Al, 2006). The trauma (or "seismic event", see #2) must be severe enough to disrupt existing worldviews. This disruption is theorized to challenge the individual's ability to manage emotional distress; it may also challenge the beliefs and goals the individual holds and his/her life narrative, the story of one's life that includes defining moments and meaningful interactions that shape perceptions of self (see #3).

Following the trauma and disruption, individuals begin important cognitive processes, including rumination (see #4). Some scholars have classified rumination as a maladaptive coping mechanism consisting of repeatedly thinking about the traumatic experience (Brewin & Holmes, 2003; Ehlers & Steil, 1995). Consistent with this negative view, rumination has been linked to negative outcomes, such as depression (Roley et al., 2015). However, Calhoun and Tedeschi (2014) suggest that rumination is not a categorically negative cognitive process and that it can have beneficial properties. This is supported by previous research noting that people who are able to engage in productive and reflective rumination, not negative brooding, are more likely to foster PTG. For example, in a study among young adults who have experienced trauma, those who reported more rumination soon after the event also reported greater PTG in comparison to others who did not reflect on the trauma (Calhoun, Cann, Tedeschi, & McMillan, 2000). According to the Calhoun and Tedeschi (2014) PTG model, rumination may result in positive outcomes through cognitive engagement and reflection on the traumatic experience, which can lead to new meaning and growth through a deeper understanding of the trauma; this is accomplished through the process of meaning-making. Although not specifically pictured in **Figure 1**, meaning-making is conceptualized as an aspect of rumination that is affected by self-disclosure and sociocultural influences.

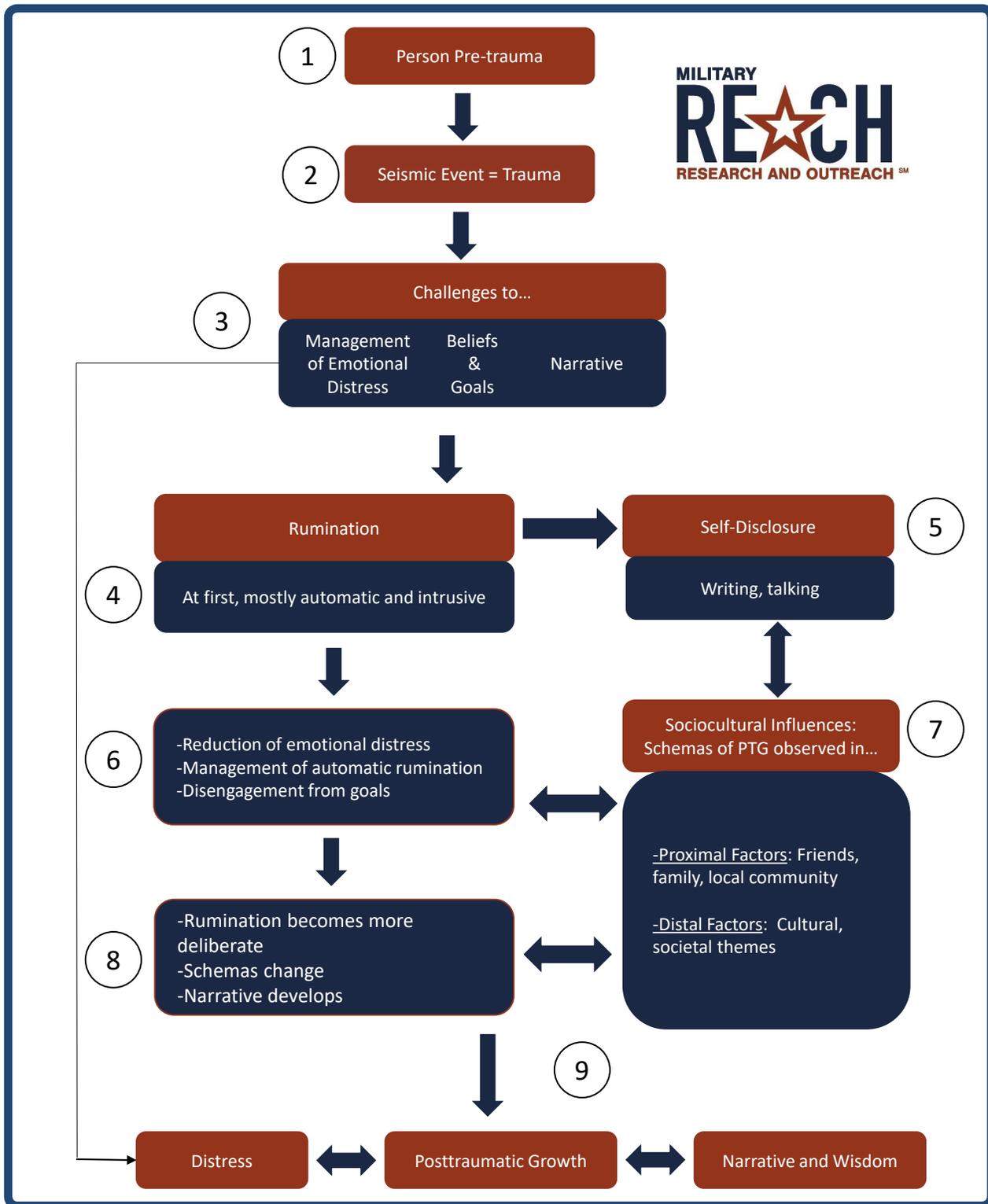


Figure 1. Process of Generating PTG Adapted from Calhoun and Tedeschi (2014)

After the disruption to their worldview, trauma survivors are left with the task of meaning-making and developing new beliefs about the world in light of their experience (for review, see Park & Al, 2006). This seems to occur in two main ways: *meaning-as-comprehensibility* and *meaning-as-significance* (for review, see Davis, Nolen-Hoeksema, & Larson, 1998). Meaning-as-comprehensibility refers to processing information, such as attempting to remember the “*Who, What, When and How?*” of the traumatic event. Meaning-as-significance concerns the more metaphysical aspects of the trauma. The individual seeks to understand the purpose and significance of the trauma – the “*Why?*” of the event. At first, the processes of rumination and meaning-making are mostly automatic and out of the individual’s control (see #4). However, as time passes and emotional distress decreases, rumination is intentionally used to gain better cognitive understanding of the event (see #6). Through these cognitive processes, new meanings about life are developed that incorporate the traumatic experience (see #8).

However, these cognitive processes do not occur in a social vacuum. As rumination occurs, individuals are theorized to begin self-disclosing (see #5) their experiences. This could be through personal writings or discussing the events with their social network, such as friends and family. Additionally, the broader sociocultural context (see #7) influences the development of meaning through exposure to messages and schemas about trauma and growth from distal (e.g., cultural themes) and proximal sources (e.g., friends, family; Lindstrom, Cann, Calhoun, & Tedeschi, 2013). Examples could include television programs portraying a character growing from a challenging circumstance or a family member sharing of how they benefitted as a result of a traumatic experience.

Through the processes of rumination and self-disclosure, informed by the broader sociocultural context, individuals are theorized to experience PTG (see #9) in one or more of the three domains described earlier – perceptions of self, relationships with others, and/or philosophy of life (Tedeschi & Calhoun, 1996). As can be seen in **Figure 1**, distress is still present with growth because this beneficial outcome does not negate or erase the traumatic experience. In other words, growth and distress are experienced simultaneously

as both trauma and the benefits that come from the experience are woven into the individual’s narrative. This new narrative is conceptualized as a wiser, more nuanced understanding of the world that incorporates both good and bad experiences.

Factors that Foster PTG

Because PTG is a complex outcome, a single factor is not solely responsible for its development or occurrence. Rather, multiple factors collectively contribute to the promotion of PTG. As the model in **Figure 1** suggests, a multitude of factors can promote or discourage PTG after a traumatic event has taken place. These factors manifest at both the individual and the contextual level. *Individual-level factors* include a person’s characteristics, such as age, developmental stage, ethnicity, and belief systems. *Contextual-level factors* represent the circumstances and settings that surround an individual, such as the amount of time since the trauma occurred and one’s environment (e.g., their social, family, and military setting). Throughout this section, we identify individual and contextual factors that have been empirically related to growth after stress and trauma.

Individual Factors

At the individual level, multiple processes play a role in the generation of PTG. Two such characteristics are **age** and **gender**, and research suggests mixed evidence with regard to the direction of effects. In a 2006 meta-analysis, Helgeson, Reynolds, and Tomich found that women and younger individuals engaged in higher levels of benefit-finding in the aftermath of trauma compared to men and older individuals. Ramos & Leal (2013) also suggest that women, younger people, and individuals with higher education levels are generally more likely to report growth. Conversely, a more recent meta-analysis of 103 studies concluded that the prevalence of benefit-finding and PTG were similar for men and women (Prati & Pietrantonio, 2009). These results suggest that PTG can occur in men and women at similar rates throughout the lifespan, but it may be more expected in younger and female populations.

Although results based on age and gender are somewhat mixed, **race** and **ethnicity** have been relatively consistent predictors of PTG. Research generally indicates that people of color are more likely than their white counterparts to report higher PTG (Helgeson et al., 2006). This has been demonstrated in samples of children as well (Phipps, Long, & Ogden, 2007). In an Army sample, African Americans, Hispanics, Asian/Pacific Islanders, and other racial minorities Soldiers averaged higher PTG scores after trauma, compared to White Soldiers (Gallaway, Millikan, & Bell, 2011).

Though somewhat unclear, evidence suggests that religious practice may explain the relationship between minority status and higher levels of PTG. For example, Bellizzi and colleagues (2010) found that African American breast cancer survivors reported higher levels of PTG compared to White and Hispanic breast cancer survivors. However, this relationship was mediated by religiosity. This suggests that religious practice, rather than specific minority status was the more salient factor related to PTG. Because racial minorities tend to report more family interactions and fictive kin, it is possible that racial/ethnic variations and the frequency of interactions with their family networks and fictive kin (i.e., non-blood related individuals who are considered as family; Taylor, Chatters, Woodward, & Brown, 2013) may contribute to the racial variations in PTG. As a result, minorities may have more opportunities to self-disclose traumatic experiences with family and family-like social networks, which could lead to greater PTG (Calhoun & Tedeschi, 2014).

In addition to these demographic variables, there is evidence that some **personality traits** can also promote or discourage PTG. When Tedeschi and Calhoun (1996) developed the PTGI, they examined the relationship between each of the five PTG factors (relating to others, new possibilities, personal strength, spiritual change, and appreciation of life) with each of the “big five” personality traits (McCrae & John, 1992). These personality traits include neuroticism (i.e., being emotionally sensitive and prone to nervousness), extraversion (i.e., being energetic and outgoing), openness to experiences (i.e., being inventive and curious), agreeableness (i.e., being friendly and compassionate), and conscientiousness (i.e., being

efficient and organized). Each of the PTG factors were moderately and positively related to the “big five” personality traits with the exception of neuroticism (Tedeschi & Calhoun, 1996). In other words, those who are more extraverted, open to new experiences, agreeable, and conscientious tend to report higher levels of growth across each of the PTG factors. In congruence with these findings, Sheikh (2004) found that higher extraversion was related to higher PTG in heart disease patients. Additionally, Tedeschi and Calhoun (1996) found that individuals who reported more **optimism** reported more PTG. Optimism is the tendency to emphasize the positive and to believe that good things will happen (Scheier & Carver, 1985). More recently, Prati and Pietrantonio (2009) also found evidence supporting optimism as a potential promoter of PTG.

Tedeschi and Calhoun (1996) suggested that the associations between PTG and both personality traits and optimism stem from cognitive engagement processes and perceptions. For instance, more optimistic people may find it easier to see the “silver lining” of a difficult experience, which can facilitate key factors of PTG, such as having “appreciation for life” and seeing “new possibilities.” However, it should be noted that the correlations between personality traits and PTG were moderate (e.g., .20 - .35 range). Thus, although personality traits and PTG are related, they are also distinct constructs.

Additionally, several studies have linked **gratitude** with PTG. Gratitude is a person’s tendency to notice, appreciate, and respond with grateful and thankful emotions to positive aspects or perceived benefits in life (Fagley, 2012; McCullough, Emmons, & Tsang, 2002; Tedeschi & Calhoun, 2004). Similar to individuals who are optimistic, it is theorized that people with more gratitude are predisposed to identify positive aspects of their experiences and are thereby more likely to establish meaning after traumatic events. Research has shown that gratitude is related to PTG in a variety of populations. Among women with breast cancer, gratitude was shown to be positively correlated with all five PTG factors, such that women with high levels of gratitude were more likely to report more PTG than their peers with low levels of gratitude (Ruini & Vescovelli,

2013). A study on individuals who experienced a university shooting found that those who reported both high levels of trauma-related stress and gratitude reported the greatest amount of PTG (Vieselmeier, Holguin, & Mezulis, 2017). Research has further suggested that gratitude is something that precedes PTG, rather than something that results from PTG. In a longitudinal study of adolescent earthquake survivors, adolescents with greater amounts of gratitude generally practiced more deliberate rumination a year after the event and subsequently reported more PTG a year later (Zhou & Wu, 2015).

Spirituality is another factor that has been consistently linked to PTG and related outcomes. Research has shown that levels of stress-related growth were explained by intrinsic religiousness in a study of college students (Park et al., 1996). Another study of young adults with trauma experience found that those with higher levels of spirituality were more likely to experience PTG (Calhoun et al., 2000). Furthermore, in the context of a post-trauma intervention (Garland, Carlson, Cook, Lansdell, & Speca, 2007), spirituality was significantly related to (1) PTG scores overall and (2) changes in PTG scores over the course of the intervention. In other words, before the intervention, those who reported greater spirituality reported higher PTG. Additionally, individuals reporting greater spirituality generally experienced larger increases in PTG during the intervention compared to people reporting less spirituality (Garland et al., 2007).

Mindfulness is another construct that can overlap with gratitude and spirituality, and its role in connection with PTG has been investigated. Mindfulness is conceptualized as an overall way of existence that emphasizes experiencing life from moment to moment in an open and receptive way (Bishop et al., 2004; Shapiro & Carlson, 2009). There is typically thought to be five essential facets of mindfulness (Baer, Smith, & Allen, 2004):

Observing involves mentally noticing or attending to various stimuli, including internal thoughts and emotions and external senses (e.g., smell).

Describing is the process of using words to identify or note these experiences, and can include one words, phrases, or full sentences.

Acting with awareness calls for focusing your attention on one thing at a time.

Accepting without judgement is being present in experiences without evaluating them or attempting to alter or avoid them.

Nonreactivity refers to an ability to notice, let go of, and recover from distress (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006).

Mindfulness has been studied as a potential practice that could catalyze PTG as it has demonstrated positive outcomes in terms of stress reduction and psychological wellbeing (Birnie, Garland, & Carlson, 2010; Birnie, Speca, & Carlson, 2010). The mixed findings here require attention to nuance. Mindfulness practices have been connected to increases in spiritual growth (Chopko & Schwartz, 2009) as well as gratitude (Swickert et al., 2019), both of which have already been discussed in relation to greater chances of experiencing PTG. A longitudinal study of Mindfulness Based Stress Reduction (MBSR) therapy demonstrated that larger increases in mindfulness predicted higher levels of both spirituality and PTG (Labelle, Lawlor-Savage, Campbell, Faris, & Carlson, 2015). These findings suggest that mindfulness could be a helpful practice for fostering PTG.

However, it appears that specific facets of mindfulness may function differently in relation to PTG. For instance, exercising greater *acceptance without judgement* has been related to lower levels of PTG (Chopko & Schwartz, 2009). It has been proposed that judgement is inherent to the process of actively engaging in cognitive processing, which is required for a person to revise their life schemas in a meaningful way after trauma. Although accepting that a traumatic event occurred is an important part of PTG, acceptance without judgement may not encourage appropriate levels of cognitive processing. In contrast, the mindfulness facet of *observation* has been related to greater PTG overall, and observation emerged as one of the strongest linking mechanisms in mindfulness interventions targeting PTG outcomes (Chopko & Schwartz, 2009; Labelle et al., 2015). People who engaged in more observation practices were more likely to report higher PTG. Indeed, participation in a mindfulness intervention was not associated with

more PTG for individuals who did not report increased observation. It is argued that observation inherently lends itself to active cognitive processing and attending to the present moment in a way that encourages appreciation of positive things in the environment. Moreover, learning to appropriately observe may encourage individuals to practice the emotion regulation encouraged in acceptance without judgement while still maximizing the engagement with trauma that is needed for PTG.

Trait mindfulness has generally been related to higher reports of PTG, and to be more precise, the facets of observing, describing, acting with awareness, and nonreactivity appear to play a role in this relationship (Omid, Mohammadi, Jalaeikho, & Taghva, 2017). Trait or dispositional mindfulness is the degree to which mindfulness is incorporated in an individual's everyday character and way of life; this is differentiated from state mindfulness, or occasional practice of mindfulness meditation (Hanley, Peterson, Canto, & Garland, 2015). Among those who have greater trait mindfulness, experiencing depression was associated with greater PTG; this was not true for those with less trait mindfulness (Xu, Ding, Goh, & An, 2018). Those with greater trait mindfulness appear to cull more benefit from negative experiences, like depression.

Furthermore, mindfulness facets can be related to different outcomes based on an individual's exposure to a mindfulness intervention (Hanley et al., 2015). Among people who did not participate in an intervention, *observation* and *description* were specifically linked to greater PTG in the areas of personal strength and appreciation for life. In contrast, among people who did practice mindfulness in the context of an intervention, *nonreactivity* and *acting with awareness* were related to greater PTG in the areas of appreciation of life and new possibilities. Similar to previous findings, *accepting without judgement* was related to lower levels of PTG among intervention participants. Engagement in mindfulness practices may generally help individuals enhance elements of PTG (e.g., personal strength). More specifically, among people who participate in a structured intervention, mindfulness may help them approach more complex elements of PTG (e.g., new possibilities).

Mindfulness has also been explored in the context of helping individuals recover from trauma (see Mindfulness Based Stress Reduction section of this report). Tedeschi has commented on the merits of mindfulness and its connection to PTG (Tedeschi & Blevins, 2015). Specifically, he argued that engaging with a traumatic experience by *observing* and *describing* it while working to be *nonreactive* to it can help with the cognitive and narrative restructuring needed for PTG to occur. He did note however, that mindfulness is not a one-size-fits-all approach. The use of mindfulness does not guarantee growth across all PTG domains; nor does mindfulness guarantee progress toward PTG within a certain time frame. Mindfulness should be considered in the context of the specific trauma that the individual experienced. Some individuals may actually show negative mental health outcomes if asked to participate in mindfulness activities when they are still emotionally and cognitively reactive to the trauma, including contexts where the trauma is severe, complex, or recent (Dobkin, Irving, & Amar, 2012).

To summarize, many individual-level factors are related to a greater *likelihood* that an individual will experience PTG as well as the *amount* of PTG experienced by an individual. In addition to these individual-level characteristics, factors outside of the individual (i.e., contextual factors) also play a role in the promotion (or lack thereof) of PTG.

Contextual Factors

Like individual-level factors, contextual factors related to PTG vary in both the amount of change that is likely to occur as well as the degree to which they are controllable by the individual. For the purposes of this report, contextual factors are divided into three sub-themes: time related, environmental, and social. These sub-themes will begin with aspects most outside of an individual's agency (e.g., timing of the event) before moving to factors that are somewhat more controllable (e.g., social interactions).

Time related contextual factors. Foremost among contextual factors that play a role in PTG is the issue of time. First, there is the issue of personal timing, or, in other words, where a person happens to be in their life journey when trauma occurs. In one study, college

students reported if they had recently experienced specific events, such as getting a job, completing a class, or being in a relationship; they rated the event as positive, negative, or neutral. Students who reported a greater number of positive life events tended to experience greater stress-related growth (Park et al., 1996). This suggests that stress-related growth may be enhanced by the presence of other positive events in a person's life.

Studies examining if the amount of time elapsed since the trauma is related to PTG have demonstrated mixed results. A study among children with cancer showed that PTG rates were highest when more time had elapsed since their diagnosis (Phipps et al., 2007). Cordova, Cunningham, Carlson, and Andrykowski, (2001) found a positive relationship between time since trauma and higher PTG. Helgeson and colleagues (2006) conducted a meta-analysis of 87 studies among adults and found that the association between benefit-finding and mental health symptoms was moderated by time. In other words, people who reported better mental health also reported higher levels of benefit-finding if more time had elapsed since the trauma, compared to those with more recent traumatic experiences (Helgeson et al., 2006). In contrast to these findings, a larger meta-analysis of 103 studies showed that time elapsed since trauma did not alter the relationship between individual factors (including age, gender, and religiosity) and how much PTG individuals reported (Prati & Pietrantonio, 2009). Taken together, these findings suggest that more time after a trauma interacts with mental health symptoms, but not demographic factors. These findings align well with the Calhoun and Tedeschi model (2014), which suggests that more time after a trauma is related to decreases in distress and more intentional rumination. Overall, it seems reasonable that time enhances the likelihood of PTG, as significant cognitive work is required to achieve this outcome, and time facilitates a person obtaining the changes in perspective needed for growth. Therefore, how individuals use this time is important. However, findings suggests that time may not facilitate PTG if individuals do not engage in behaviors or contextual processes that facilitate growth.

Environmental contextual factors. A very specific type of environment that has been studied as a contextual factor is the military. Military-related contextual factors have typically been examined in relation to PTG outcomes for service members. Higher-ranking service members generally report less PTG in comparison to their lower ranking comrades, even if they have experienced similar levels of combat exposure (Galloway et al., 2011). Deployment itself is not predictive of PTG, but service members who have more combat experience typically report greater PTG (Galloway et al., 2011). While this may initially seem counter-intuitive, combat experience increases the likelihood of exposure to severely distressing events (i.e., a trauma). As such, a high proportion of individuals engaged in combat are at risk for trauma, the first criteria for experiencing PTG. Furthermore, research has revealed a curvilinear relationship between combat-related stress and PTG (McLean et al., 2013). That is, as combat stress increases, so do rates of PTG; however, after a certain level of stress, PTG begins to decrease. Therefore, it may be expected that some service members will experience more difficulty with positive growth after trauma than others depending on their level of combat exposure and stress.

Social related contextual factors. In addition to the environment and time as contextual factors, social support has been consistently studied in relation to PTG. Overall, it seems that having social support is related to increased chances of an individual experiencing PTG following a traumatic experience. Research has shown that stress-related growth is significantly predicted by the number of socially supportive others an individual has in their life, as well as their reports of their overall satisfaction with their social supports (Park et al., 1996). In a meta-analysis of factors that predict PTG, Prati and Pietrantonio (2009) found that both the levels of social support and the amounts of social support seeking behaviors were moderately predictive of PTG. Social support is linked to PTG among adults who have experienced a wide variety of traumas, including those who have experienced multiple traumas within their lifetime (Brooks, Graham-Kevan, Robinson, & Lowe, 2019).

Social support in relationships. Social support has also been studied in the context of specific relationships types. In a study among survivors of breast cancer, women who interacted with other survivors who perceived benefits from their own cancer experience reported significantly higher PTG (Weiss, 2004). This suggests that *peer relationships* with others who share similar traumatic experiences and have experienced PTG may foster PTG outcomes. Connerty and Knott (2013), as well as Hefferon, Grealy, and Mutrie (2008), reported qualitative evidence of the positive effects of peer group physical exercise in cancer survivors. Evidence from both studies suggest that physical activity can (1) be a method of regaining control and (2) provide opportunities for improved social support when exercise occurs in groups. However, it may also be that social support is of greater importance for those who cannot exercise frequently. Love and Sabiston (2011) conducted a study on young adult cancer survivors and found that physical activity moderated the role of social support. In other words, social support appeared to have a lesser effect on PTG when a person exercised more frequently. Together, these findings indicate that physical exercise could facilitate PTG, possibly because of the (1) general link between physical exercise and improved mood (Mutrie et al., 2007), (2) schema alterations as the result of exercise (e.g., seeing oneself as an athlete; Sabiston, McDonough, & Crocker, 2007), and/or (3) increased opportunities for social interactions through exercise (Connerty & Knott, 2013; Hefferon et al., 2008).

Marital/romantic relationships are another important context to examine. Weiss (2004) examined the marital relationships of breast cancer survivors and found that women who reported high marital support, but not necessarily high marital quality, were more likely to report higher levels of PTG. These findings suggest that romantic relationships serve as an important source of support facilitating PTG, and it is the level of support, more so than the general quality of the relationship, that contributes to PTG. Canevello, Michels, and Hilaire (2016) also studied romantic relationships and found that there is a feedback process between partners, which facilitated PTG for both spouses. Specifically, when one person reported higher PTG, they also showed greater responsiveness to their partner; when their partner perceived this responsiveness, they also

reported increases in PTG over time. Moreover, at the beginning of the study, reports of PTG between both partners were not significantly correlated; however, at the end of the 6-month study, their reports of PTG were correlated. This suggests a spillover of PTG from one partner to the other through relational processes.

Additionally, there is evidence that PTG can be fostered between parents and children, although the results are multi-faceted. In a study on families who survived a tsunami, the results revealed that parent self-reports of PTG were significantly related to their children's self-reports of PTG. A study by Cryder, Kilmer, Tedeschi, and Calhoun (2006) investigated the PTG of children who experienced a hurricane. A supportive social environment was related to children's positive competency beliefs. Competency beliefs refer to the meaning children ascribe to traumatic events and the normality of their responses. Therefore, when these children felt socially supported by adults, they were better equipped to make meaning of the trauma. Additionally, Meyerson, Grant, Carter, and Kilmer (2011) conducted a systematic review of the role of parents in child and adolescent PTG. Their review indicated that greater support from families, peers, and teachers was related to higher rates of adolescent PTG. Furthermore, a specific way that parents can assist their children is through improving coping skills. In a review of trauma-focused treatments for children and adolescents, Dorsey and colleagues (2017) argued that parents were able to help their young children (i.e., 6 years old and younger) better utilize effective coping skills (e.g., relaxation) during trauma-focused cognitive behavioral therapy. Thus, social processes between parents and children may play a role in how PTG is fostered. However, another study of families who evacuated due to a fire (Felix et al., 2015) showed that parent and child levels of PTG were not associated. Moreover, parent and child reports of their own social supports were not related to their PTG outcomes. Additionally, the ability to promote healthy reactions to trauma may be contingent on parents' own mental health and the type of support they provide (e.g., emotional reactions that foster growth; Dorsey et al., 2017). Although there are mixed findings, most research suggests that social and parental support is instrumental for both adolescent and child growth after trauma. These findings indicate that relational processes between family members could be related to PTG, but more research is needed.

Overall, romantic, family, and peer relationships can all serve as quality social supports by increasing both the likelihood and magnitude of PTG. However, these findings also suggest that the relationship between social support and PTG is complex. Specifically, there is evidence that this relationship is dependent on the behaviors between trauma survivors and their social networks. For instance, Sheikh (2004) found that though social support was unrelated to PTG, extraversion was associated with PTG through the mediating effects of problem-focused coping. Additionally, Cordova and colleagues (2001) found that self-disclosure about the traumatic experience was associated with higher PTG. Therefore, the level of PTG experienced by individuals may rely, in part, on their willingness to utilize social networks for discussion and problem-solving. These findings align with the theoretical model of PTG (Calhoun & Tedeschi, 2014) suggesting that social influences aid with self-disclosure and inform the development of posttraumatic narratives.

Social support in the military. Research with military populations also highlights the role of social support in fostering PTG. In a large, nationally representative study of over 3,000 U.S. veterans, social connectedness was independently associated with PTG, above-and-beyond what could be accounted for by other significant predictors including religiosity and purpose in life (Tsai, El-Gabalawy, Sledge, Southwick, & Pietrzak, 2015). Another study of over 2,000 U.S. veterans demonstrated that having close interpersonal relationships and strong social support predicted PTG over time (Tsai & Pietrzak, 2017). Specifically, veterans who reported greater social support were more likely to have high PTG levels and experience steeper increases in PTG over time. Among a smaller sample of veterans, who experienced an amputation, rumination was the strongest predictor of PTG with social support as another significant predictor of PTG (Benetato, 2011). Mitchell, Gallaway, Millikan, and Bell (2013) also found in a study of 1,663 enlisted soldiers and officers that greater unit cohesion was associated with higher levels of PTG. In sum, relationships matter and play a critical role in the aftermath of a trauma.

Given that PTG varies depending on multiple individual and contextual factors, a number of potential leverage points for fostering PTG emerge from this research. In the next section of this report, findings are synthesized and translated into applications for helping professionals who work with individuals and families following a trauma.

Application and Promotion of PTG

Utilizing the growing body of research on PTG, this section provides a discussion of specific steps that can be taken in hopes of promoting PTG among those who have experienced trauma. First, a model proposed by Tedeschi and McNally (2011), that describes five important elements of interventions targeting PTG in individuals, is reviewed. After reviewing this model, we identify mechanisms and practical applications for fostering PTG that may be particularly effective at bolstering PTG in the context of relationships.

Individual Level Promotion of PTG

In 2011, Tedeschi and McNally outlined five specific program elements that interventionists can use to help foster PTG. It is recommended that a successful intervention include all five of these elements together in order to maximize potential PTG. The five elements they discuss are:

1. *understanding trauma response as a precursor to PTG,*
2. *emotional regulation enhancement,*
3. *constructive self-disclosure,*
4. *creating a trauma narrative with PTG domains, and*
5. *developing life principles that are robust to challenges (pp. 21, 22).*

Below each of these program elements are explained and suggestions are offered as to how each can be integrated into interventions and programs aiming to enhance PTG.

Understanding trauma response as a precursor to PTG. After a trauma occurs, a person will likely experience a great deal of physiological and psychological distress (Calhoun & Tedeschi, 2014). In this first step, it is important to help individuals know that these symptoms are both normal and are actually foundational to generating PTG. Helping individuals adopt new perspectives is a primary goal of programs that seek to foster PTG and is related to the therapeutic technique of reframing (Minuchin & Fishman, 1981). Specifically, the new perspective should prompt people to view their own trauma responses as meaningful and necessary steps toward enhancing their own outcomes, rather than as unnecessary burdens to be overcome. In this way, individuals understand that their symptoms of trauma are natural responses to their experience rather than random or malignant occurrences. This new perspective allows people to see deeper purpose to their struggles with trauma. They may even begin to see these struggles positively, as events leading to an enhanced outcome. The intent is to help individuals understand *how* the negative experience of trauma is foundational for growth, rather than dwelling on *why* trauma happened at all.

Emotional regulation enhancement. Engaging with trauma in a way that fosters new perspectives may be distressing as mental images of the experience are brought forward. As such, another element of promoting PTG is to teach individuals emotion regulation strategies. Emotion regulation involves utilizing specific skills and tactics to manage distress states. Using breathing skills and other calming techniques can help individuals reduce their physiological reaction to distress so they can remain calm (Cohen, Mannarino, & Deblinger, 2006), allowing the individual to more fully engage with their traumatic experiences at an emotional and cognitive level. This is consistent with a 2001 study by Antoni and colleagues (2001), which found that, among women with breast cancer, those who reported more emotional processing behaviors and skills were more likely to find benefit related to their experience.

Constructive self-disclosure. Constructive self-disclosure is another element of recommendations, proposed by Tedeschi and McNally (2011), for

promoting PTG. This activity involves an individual utilizing various methods to tell their own trauma story in a twofold skill development process.

One skill developed through constructive disclosure is enabling individuals (e.g., service members) to put the content of a complex experience into a more tangible form. This is often done using metaphors, mottos, and other figures of speech. For instance, a person who has lost a spouse may say something to the effect of, "I died with them that day" to illustrate how profoundly their identity was changed by the event. Conveying the trauma and its aftermath to others is thought to help the individual develop a clearer sense of their own experience, and they can begin to develop a more coherent trauma narrative.

Another skill developed through constructive disclosure involves individuals becoming more comfortable with leaning on social supports, whether professional or more informal. For example, in an informal situation, a service member may choose to self-disclose to a fellow service member with similar experiences. In a more formal situation, that same service member may seek out guidance or services from a leader, physician, or therapist.

Creating a trauma narrative with PTG domains. A logical next step following constructive self-disclosure is to organize disclosures into a coherent trauma narrative. This means that a new life narrative must be restructured that incorporates the traumatic experience. Calhoun and Tedeschi (2014) emphasize that for PTG to occur, it is important that trauma be seen as a catalyst, or turning point, in the new trauma narrative. Beyond viewing the trauma as a turning point, another key facet of the trauma narrative is addressing the many paradoxes that are often connected to trauma such as:

- a. how loss and gain, grief and gratitude, and vulnerability and strength are not mutually exclusive of one another,
- b. how healing requires both individual strength and support from others, and
- c. how individuals gain control by accepting their lack of control.

Trauma narratives also benefit from including evidence of the five factors of PTG: personal strength, enhanced relationships, spiritual change, appreciation of life, and new opportunities. Specifically, individuals should be encouraged to actively consider ways they have experienced these domains and add these observations to their trauma narrative.

By creating a cohesive narrative, individuals engage their trauma, demonstrate comprehension as meaning, and more fully build on the traumatic events that necessitated PTG. A well-composed narrative also integrates the new perspectives that individuals have built, especially those that highlight the growth they have achieved across the various factors of PTG.

Developing life principles that are robust to challenges. Drawing from the previous four elements, the final element of recommendations from Tedeschi and McNally (2011) involve helping individuals utilize their new perspectives, skills, and narratives to create life principles that encourage growth after trauma. Change in this area is influential for future growth. Specifically, Tedeschi and McNally (2011) note the following principles as being common themes in life principles:

- a. finding ways to be helpful to others (altruism),
- b. valuing the learning that occurs after trauma and how it creates new opportunities for growth,
- c. accepting PTG without guilt (often people can feel shame about their trauma history or feel burdened because they have survived a trauma that others have not),
- d. creating an identity around being a trauma survivor (in a way that highlights capacity for compassion and gained wisdom), and
- e. redefining what it means to be a hero (consider the Greeks who saw a hero as an ordinary person who survives an extraordinary event and returns to share important truths about life with others).

Of note, each of these principles have positive undertones. Negative reappraisals and narratives are not growth oriented and are unlikely to result in PTG. Research has found that positive

reappraisal is one of the strongest predictors of later PTG (Prati & Pietrantonio, 2009).

Overall, Tedeschi and McNally (2011) describe a method for fostering PTG emphasizing intra-individual (i.e., cognitive) components; these components reflect leverage points for helping professionals because they are malleable in nature. These recommendations are consistent with the overall model of how PTG manifests making these five elements foundational cornerstones in programs and interventions seeking to foster PTG, specifically for individuals in treatment.

To complement these five program recommendations from Tedeschi & McNally (2011), **Table 3** provides suggestions for intervention based on the individual-level factors associated with PTG that were identified in the previous section, namely age, gender, race, personality, optimism, gratitude, spirituality, time, military service, and cognitive processing. Then, we shift our focus to discuss PTG promoting behaviors in the context of relationships.

Relational Level Promotion of PTG

While the recommendations described in the previous section provided an overview of how PTG could be promoted primarily within an individual, this section describes how relationships and relational processes can be leveraged to facilitate PTG. According to the PTG model by Calhoun and Tedeschi (2014), certain social processes are related to the production of PTG. These include self-disclosure to others and the influence of nearby social networks (e.g., family) in creating narratives describing growth through trauma. Self-disclosure regarding a traumatic event has been shown to aid in PTG, possibly by providing the opportunity to develop a narrative about the trauma and about the changes resulting from the event (Tsai & Pietrzak, 2017). Additionally, messages from close social networks, like family, may influence the development of PTG. Berger and Weiss (2009) suggest that discussing the traumatic event as a family (i.e., family rumination) allows members to openly discuss how their experience as a family may influence their view of the trauma, while also providing the opportunity for familial meaning-making.

Table 3
Individual factors and potential ways to facilitate PTG in individuals

Factor	Potential Ways to Address It in Relation to PTG	Reference
Age	<ul style="list-style-type: none"> - Consider an individual's age, developmental stage, and intellectual maturity when helping them to recover from trauma. Much of the process leading to PTG is cognitively complex and should be explained in age appropriate terms to yield higher chances of PTG. - Anticipate that older individuals may take more time to develop PTG and normalize the time required. 	Helgeson et al., 2006
Gender	<ul style="list-style-type: none"> - Highlight how womanhood can be a strength that suggests a greater chance of experiencing growth after trauma. - Discuss other instances where they themselves have overcome trauma or a woman they know has overcome trauma. Encourage them to consider how they will apply their experience or the experience of their peers to the current trauma. - Continue to expect that men are capable of PTG, especially if they have overcome disadvantage in some other way. 	Helgeson et al., 2006; Prati & Pietrantonio, 2009
Race	<ul style="list-style-type: none"> - Highlight an individual's racial minority status as a strength that suggests they are more likely to experience PTG. - Discuss other instances where the individual has overcome trauma, possibly connected to their racial minority status. Encourage them to consider how they will apply their previous experience to the current trauma. 	Galloway et al., 2011; Helgeson et al., 2006; Phipps et al., 2007
Personality	<ul style="list-style-type: none"> - Assess individual personality traits when working with survivors of trauma. For those who exhibit greater levels of extraversion, openness to experiences, agreeableness, and/or conscientiousness, highlight how their traits are strengths connected to PTG. - Anticipate that individuals who exhibit lower levels of the personality characteristics listed above may take longer to experience PTG. Normalize these experiences. 	Tedeschi & Calhoun, 1996
Optimism	<ul style="list-style-type: none"> - Help those who have experienced trauma to reflect on their own cognitive habits to become self-aware of their own optimism. - Assist them in brainstorming ways to enhance their optimism, such as positive reframing of negative thoughts and/or having a positive mantra to start their day. 	Prati & Pietrantonio, 2009
Gratitude	<ul style="list-style-type: none"> - Help those recovering from trauma to make a habit of writing daily listings or practicing daily meditation to help them contemplate things they are grateful for. - Encourage trauma survivors to plan behavioral ways to express gratitude, such as writing a thank you letter to a specific person and then meeting with them to read it aloud. These expressions of gratitude are likely to help nurture social support relationships in the individual's life. - Integrate a focus on developing gratitude within the context of existing therapies such as Well-being Therapy (WBT), the Meaning Making Intervention, and cognitive behavioral stress management (CBSM) 	Ruini & Vescovelli, 2013; Vieselmeyer et al., 2017; Zhou & Wu, 2015
Spirituality	<ul style="list-style-type: none"> - Assess the degree to which a person recovering from trauma identifies as spiritual. Help them think through how their spiritual and religious practices can help them in the process of healing from trauma. - Help spiritual trauma survivors connect with others who share their beliefs, so they are able to practice their spirituality within a community context. 	Calhoun et al., 2000; Garland et al., 2007; Park et al., 1996
Time	<ul style="list-style-type: none"> - Assess how long it has been since the trauma has taken place. Remember that PTG may take time to develop if a trauma is more recent. Normalize these difficulties for individuals who have experienced trauma in the recent past. - Consider where a person is in their life when the trauma occurs. Anticipate that those who have difficult life circumstances accompanying the trauma, sometimes termed cumulative risk factors or a 'pile-up' of stress, may take longer to develop PTG, while those who have recently experienced other positive circumstances may be quicker. 	Helgeson et al., 2006; Park et al., 1996; Phipps et al., 2007; Prati & Pietrantonio, 2009
Military Service	<ul style="list-style-type: none"> - Evaluate the severity of the trauma, especially if it is based in combat deployment. Understand that some combat exposure is related to PTG, while too much can make PTG more difficult to reach. Normalize challenges for those who are at the extreme of combat exposure. - Identify the rank of the service member in your assessment recalling that those with a lower rank tend to report greater PTG. Discuss other instances where a service member has overcome trauma, possibly connected to their military service and rank. Encourage them to consider how they will apply their experience to the current trauma. 	Galloway et al., 2011; McLean et al., 2013
Cognitive Processing/ Rumination	<ul style="list-style-type: none"> - Provide individuals with opportunities to explore and process their injury and the traumatic event. This may include quiet time on their own or more interactive processes involving others 	Benetato, 2011; Tedeschi et al., 2007

Table 4
Social support mechanisms that may foster PTG

Factor	Definition	Example	Reference
Self-disclosure	- Disclosure of emotions and/or perspectives on the(ir) crisis to another person verbally or through writing	- Disclosing thoughts or feelings to another individual allows veterans (or the person who had the traumatic experience) to form a narrative about the event and/or the major changes that are a result of the trauma. - Writing about the emotions and cognitions surrounding the event through journaling or shared creative writing could assist with cognitive processing.	Calhoun & Tedeschi, 2004; Henderson, Davison, Pennebaker, Gatchel, & Baum, 2002; Lindstrom et al., 2013; Tsai & Pietrzak, 2017; Ullrich & Lutgendorf, 2002
Family Rumination	- Family interactions and communication intended to collectively make meaning, reminisce, and problem solve for the purpose of creating a shared family perception and response	- Families may make meaning of the trauma by discussing how individual factors (e.g., gender, race, socio-economic status) and one's context (e.g., community, culture, resources) influence how the trauma is experienced and processed. - Discussing previous life experiences may contribute to a family's understanding of the trauma. - Reminiscing about previous experiences with crisis or loss can position a family to collectively problem solve current challenges and discuss future expectations.	Berger & Weiss, 2009; Rolland, 2003
Emotional Support	- Offering comforting gestures intended to show authentic concern and ease negative symptoms (e.g., stress, anxiety)	- Demonstrations of emotional support can include being present and available, listening without interruption, validating one's feelings, sending cards/flowers, sharing that you are praying for the individual, reaching out through phone calls, or connecting via other communication channels such as email or social media.	Benetato, 2011; Finfgeld-Connett, 2005; Tsai & Pietrzak, 2017
Instrumental Support	- Meeting physical needs	- Examples of meeting needs could include providing food, money, childcare supplies (e.g., diapers), and/or furniture. - Performing services can also meet needs like transportation, household tasks, and/or physical care.	Benetato, 2011; Finfgeld-Connett, 2005
Responsiveness	- Seeking to understand and affirm others	- Try to understand the concerns and perspective of others. - Validate the opinions and abilities of others through accepting their beliefs or position; it does not mean you have to agree with that person.	Canevello et al., 2016; Maisel & Gable, 2009
Mentoring	- Intentionally modeling and discussing growth that occurred from a traumatic experience with others	- Examples could include emotional support, empathy, and narratives about traumatic growth from individuals who have gone through similar traumatic experiences. - These mentors could be connected to mentees through existing social networks or referred by more formal systems (e.g., hotlines, physicians).	Weiss, 2004
Group Exercise	- Engaging in moderately demanding physical activity within a social group	- Examples could include group strength training, team sports, yoga, and Zumba. - Exercising with others provides a physical outlet for healing as well as a social element that is associated with enhancing motivation and accountability to continue exercising and the development of connections to others.	Connerty & Knott, 2013; Hefferon et al., 2008; Love & Sabiston, 2011; Sabiston et al., 2007

Table 4 identifies how self-disclosure, family rumination, and other relational mechanisms could be utilized to promote PTG through counseling practices, program development, and educational resources.

Though these leverage points have been supported with evidence, they are not identified components of a formalized intervention designed to promote PTG. However, some interventions utilizing one or more of these leverage points have been designed for or adapted to foster PTG in trauma survivors. We review a selection of these interventions, along with their primary characteristics in the next section.

Examples of Suggested Modalities of Intervention Targeting Social Support

1. Veteran Couples Integrative Intensive Retreats and Integrative Intensive Retreats

Overview of Treatments: The veteran couples integrative intensive retreats (VCIIRs) and integrative intensive retreats (IIRs) are short, intensive, strengths-based approaches to educate veterans and their romantic partners on military trauma and provide skills and coping mechanisms for the couples (for review, see Monk, Oseland, Goff, Ogolsky, & Summers, 2017). IIRs (Monk et al., 2017) are a shortened version of the original treatment model (4 days instead of 7 days) that combine group psychoeducation with other therapies (e.g., art therapy) and therapeutic recreation (e.g., yoga).

Efficacy: In a study on the potential effectiveness of IIRs, 76 romantic couples (with a veteran partner) were evaluated pre- and post-intervention on aspects such as relationship adjustment, PTSD symptoms, and PTG (Monk et al., 2017). Romantic partners reported significantly greater PTG following the intervention, whereas veterans did not. However, both partners reported reduced PTSD symptoms after the intervention. These results suggest that treatments like IIRs may be most helpful for romantic partners experiencing second-hand trauma through their veteran partners.

2. Mindfulness Based Stress Reduction and the Healing through the Creative Arts: Making Meaning of Cancer Programs (Garland et al., 2007)

Overview of Treatments: Garland and colleagues (2007) conducted a non-randomized control trial comparing the effectiveness of a mindfulness based stress reduction (MBSR) program with a program focused on healing through the creative arts (HA) in a sample of cancer patients. The MBSR program used mindfulness tenants and principles to encourage non-judgmental self-awareness, yoga exercises, and group discussion. The HA program utilized creative arts (e.g., writing and drawing) to explore aspects of the self and promote individual empowerment. These programs could effectively promote PTG through some of the mechanisms described in the PTG model (Calhoun & Tedeschi, 2014). For example, the non-judgmental self-awareness and relaxation practices of the MBSR program may assist individuals with effective rumination, while group discussion allows participants to learn from others' experiences. Additionally, the HA program specifically encourages journaling and other forms of creative expression as a method of meaning-making, a key aspect of the ruminative mechanism leading to PTG. Journaling about the emotional and cognitive experiences associated with a traumatic event has been positively linked with PTG (Ullrich & Lutgendorf, 2002).

Efficacy: Though not as rigorous as a randomized control trial, results from the study (Garland et al., 2007) indicated that both groups showed a significant increase in PTG over time. However, patients in the MBSR group demonstrated more growth in spirituality and improvements to anxiety symptoms than did the HA group. These results suggest that MBSR may more effectively promote PTG, although HA is also effective, but more evaluation is needed.

3. Cognitive Behavioral Therapies

Overview of Treatments: The term cognitive behavioral therapy (CBT) refers to a broad range of therapeutic interventions. Generally, these treatments focus on examining and restructuring cognitions in therapy. However, some CBTs have been designed to specifically target traumatic experiences and are often combined with stress-management techniques (e.g., mindfulness, focused breathing; Cohen et al., 2006). Daily diary use and Socratic questioning (i.e., a type of questioning designed to deeply explore a concept or cognition; Paul & Elder, 2007) are fairly common among CBTs and are used to identify and challenge inaccurate or hurtful cognitions with a therapist or clinician. These two treatment techniques are similar to the rumination and self-disclosure components of the PTG model developed by Calhoun and Tedeschi (2014). The focus on addressing the meaning of the event in these treatments suggests that they could produce PTG. However, whether they explicitly promote PTG has not been empirically validated yet.

Although most CBTs are somewhat limited by their focus on individual treatments, one version of CBT that incorporates relational elements is *Cognitive Behavioral Stress Management* (CBSM). This method utilizes group members and leaders as social supports and role models along with emotional expression, cognitive restructuring, and relaxation techniques (for review, see Antoni et al., 2001). Another approach, termed Cognitive Behavioral Conjoint Therapy (CBCT), emphasizes social support and educates clients on PTG and benefit-finding. CBCT is built on the conceptual foundation that PTSD and intimate relationships affect one another (Monson, Fredman, & Adair, 2008). As a result, the intervention targets intimate relationships and PTSD simultaneously. The treatment is broken into three main sections: 1) psychoeducation about PTSD and relationships, 2) behaviors promoting communication, emotional approach, and relationship satisfaction, and 3) strategies to challenge and restructure unhelpful cognitions about PTSD and the relationship. Additionally, in the third section, there is information on how the couple can benefit and grow as a result of

the trauma. Treatments like CBCT may be particularly helpful for promoting PTG given their combined focus on cognitive restructuring and relational functioning. This corresponds with the empirical research showing both cognitions and relationships are essential determinants of whether PTG occurs and to what extent.

Efficacy: Multiple meta-analyses have demonstrated the effectiveness of cognitive behavioral therapy in reducing PTSD symptoms (e.g., Bradley, Greene, Russ, Dutra, & Westen, 2005). Additionally, trauma-focused psychotherapies that specifically address cognitive restructuring are the recommended treatment for PTSD, above pharmacotherapies (Ostacher & Cifu, 2019).

A number of efficacy studies have specifically focused on CBCT and CBSM. Concerning CBCT, several studies have indicated the treatment's efficacy. A pilot study conducted in 2011 (Monson et al.) demonstrated favorable results concerning both PTSD symptoms and relational satisfaction. These results were replicated in a randomized control trial demonstrating the effectiveness of CBCT for treating both PTSD and relationship distress (Monson et al., 2012). Specifically concerning PTG, a randomized control trial conducted in 2016 (Wagner et al.) demonstrated that individuals who received CBCT exhibited more PTG compared to those in a waitlist (no treatment) condition. Finally, CBSM increased reports of growth from trauma for cancer patients compared to a control group (Antoni et al., 2001). Overall, the efficacy data suggest that CBTs are effective treatments for PTSD; furthermore, CBCT and CBSM may be particularly effective treatments for promoting PTG.

Conclusion

Though traumatic experiences are common, a growing body of research suggests that individuals can experience PTG alongside the normative distress that accompanies these negative events. This review has provided a conceptual definition of PTG and provided evidence of how this growth can be facilitated within individuals and in the context of relationships. Though more research is needed to fully develop and evaluate effective interventions for PTG, there is strong empirical evidence suggesting that PTG can be effectively fostered in individuals who have experienced a trauma.

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Appendix A

Posttraumatic Growth Inventory and Scoring

In Reciprocation: There is no charge for the PTGI, and there is no charge for the reproduction of the scale for use in research. In reciprocation, the developers of the PTGI would like you to send them a gratis copy of any manuscripts, theses, dissertations, research reports, preprints, and publications you prepare in which their materials, or any version of them, is used. Both L. G. Calhoun and R. G. Tedeschi can be contacted at: Department of Psychology - UNC Charlotte - Charlotte, NC 28223 USA.

Posttraumatic Growth Inventory

Indicate for each of the statements below the degree to which this change occurred in your life as a result of a crisis or traumatic experience using the following scale:

0 = I did not experience this change as a result of my crisis.

1 = I experienced this change to a very small degree as a result of my crisis.

2 = I experienced this change to a small degree as a result of my crisis.

3 = I experienced this change to a moderate degree as a result of my crisis.

4 = I experienced this change to a great degree as a result of my crisis.

5 = I experienced this change to a very great degree as a result of my crisis.

Possible Areas of Growth and Change

	0	1	2	3	4	5
1. I changed my priorities about what is important in life.						
2. I have a greater appreciation for the value of my own life.						
3. I developed new interests.						
4. I have a greater feeling of self-reliance.						
5. I have a better understanding of spiritual matters.						
6. I more clearly see that I can count on people in times of trouble.						
7. I established a new path for my life.						
8. I have a greater sense of closeness with others.						
9. I am more willing to express my emotions.						
10. I know better that I can handle difficulties.						
11. I am able to do better things with my life.						
12. I am better able to accept the way things work out.						
13. I can better appreciate each day.						
14. New opportunities are available which wouldn't have been otherwise.						
15. I have more compassion for others.						
16. I put more effort into my relationships.						
17. I am more likely to try to change things which need changing.						
18. I have a stronger religious faith.						
19. I discovered that I'm stronger than I thought I was.						
20. I learned a great deal about how wonderful people are.						
21. I better accept needing others.						

(Tedeschi R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. Journal of Traumatic Stress, 9(3), 455-471. <https://doi.org/10.1007/BF02103658>)

Scoring the Posttraumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI) is scored by adding all the responses. Individual factors are scored by adding responses to items on each factor (see below). There are no authorized cut-off scores for PTG established in the literature. However, cut-off scores used in some studies (Grubaugh & Resick, 2007; Mazor, Gelkopf, Mueser, & Roe, 2016) suggest scores of 0 – 44 as “None-to-Low”, 45 – 85 as “Moderate”, and 86 – 105 as “High-to-Very High” levels of growth.

Additionally, average item cut-off scores utilized by Jansen, Hoffmeister, Chang-Claude, Brenner, and Arndt (2011) suggest that 0 – 2 could be “None-to-Low” and scores of 3 – 5 could be “Moderate-to-High.” This scoring can also be applied to the mean values for each subscale. To find the mean of a given subscale, sum the scores for each item on that subscale and divide by the number of items on the subscale.

PTGI Factor I: Relating to Others

		Score
6.	I more clearly see that I can count on people in times of trouble.	
8.	I have a greater sense of closeness with others.	
9.	I am more willing to express my emotions.	
15.	I have more compassion for others.	
16.	I put more effort into my relationships.	
20.	I learned a great deal about how wonderful people are.	
21.	I better accept needing others.	
Relating to Others total:		

PTGI Factor II: New Possibilities

		Score
3.	I developed new interests.	
7.	I established a new path for my life.	
11.	I am able to do better things with my life.	
14.	New opportunities are available which wouldn't have been otherwise.	
17.	I am more likely to try to change things which need changing.	
New Possibilities total:		

PTGI Factor III: Personal Strength**Score**

4.	I have a greater feeling of self-resilience.	
10.	I know better that I can handle difficulties.	
12.	I am better able to accept the way things work out.	
19.	I discovered that I'm stronger than I thought I was.	
Personal Strength total:		

PTGI Factor IV: Spiritual Change**Score**

5.	I have a better understanding of spiritual matters.	
18.	I have a stronger religious faith.	
Spiritual Change total:		

PTGI Factor V: Appreciation of Life**Score**

1.	I changed my priorities in about what is important in life.	
2.	I have a greater appreciation for the value of my own life.	
13.	I can better appreciate each day.	
New Possibilities total:		

Appendix B

Posttraumatic Growth Inventory Short Form and Scoring

Posttraumatic Growth Inventory Short Form

Indicate for each of the statements below the degree to which this change occurred in your life as a result of a crisis or traumatic experience using the following scale:

- 0 = I did not experience this change as a result of my crisis.
- 1 = I experienced this change to a very small degree as a result of my crisis.
- 2 = I experienced this change to a small degree as a result of my crisis.
- 3 = I experienced this change to a moderate degree as a result of my crisis.
- 4 = I experienced this change to a great degree as a result of my crisis.
- 5 = I experienced this change to a very great degree as a result of my crisis.

Possible Areas of Growth and Change

	0	1	2	3	4	5
1. I changed my priorities about what is important in life.						
2. I have a greater appreciation for the value of my own life.						
3. I am able to do better things with my life.						
4. I have a better understanding of spiritual matters.						
5. I have a greater sense of closeness with others.						
6. I established a new path for my life.						
7. I know better that I can handle difficulties.						
8. I have a stronger religious faith.						
9. I discovered that I'm stronger than I thought I was.						
10. I learned a great deal about how wonderful people are.						

Scoring the Posttraumatic Growth Inventory Short Form

The Posttraumatic Growth Inventory (PTGI) is scored by adding all the responses. Individual factors are scored by adding responses to items on each factor (see below). Though there is no established standard in the literature regarding cut-off scores for the PTGI-SF, the average item score cut-offs used by Jansen and colleagues (2011) suggest a possible guideline: helpful: 0 – 2 = “None-to-Low”; 3 – 5 = “Moderate-to-High”. This scoring can also be applied to the mean values for each subscale. To find the mean of a given subscale, sum the scores for each item on that subscale and divide by the number of items on the subscale.

PTGI Factor I: Relating to Others

Score

5.	I have a greater sense of closeness with others.	
10.	I learned a great deal about how wonderful people are.	
Relating to Others total:		

PTGI Factor II: New Possibilities

Score

3.	I am able to do better things with my life.	
6.	I established a new path for my life.	
New Possibilities total:		

PTGI Factor III: Personal Strength

Score

7.	I know better that I can handle difficulties.	
9.	I discovered that I'm stronger than I thought I was.	
Personal Strength total:		

PTGI Factor IV: Spiritual Change

Score

4.	I have a better understanding of spiritual matters.	
8.	I have a stronger religious faith.	
Spiritual Change total:		

PTGI Factor V: Appreciation of Life

Score

1.	I changed my priorities in about what is important in life.	
2.	I have a greater appreciation for the value of my own life.	
New Possibilities total:		