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**EXAMINING POSTTRAUMATIC GROWTH AS A MODERATOR OF THE
RELATIONS BETWEEN EACH OF HOPE, GRATITUDE, AND WELL-BEING
AMONG TRAUMA-EXPOSED COLLEGE STUDENTS**

by

Zhen Shi, M.S.

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
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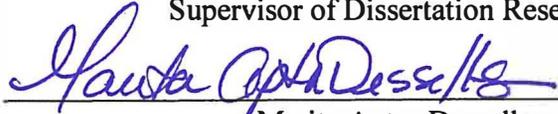
be accepted in partial fulfillment of the requirements for the degree of

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ABSTRACT

College students who are exposed to trauma are likely to experience negative consequences such as adjustment difficulties, negative coping mechanisms, and poor academic achievement. It is important to identify factors that can reduce the effects of related negative outcomes and enhance an overall sense of well-being in the aftermath of a traumatic event. Previous research has shown gratitude and hope can increase well-being among trauma-exposed individuals. However, more research is needed to explore factors that may affect the degree to which both gratitude and hope promote well-being in this population. There are two main objects of the present study: First, the present study examined whether positive human traits (gratitude and hope) can increase both subjective well-being and psychological well-being among trauma-exposed college students. In addition, the current study assessed whether posttraumatic growth moderates the effectiveness of these traits on well-being. A total of 242 participants were included in final data analysis. Consistent with previous studies, the findings demonstrated that there were positive associations between positive human traits (gratitude and hope) and well-being. Additionally, the results suggest that posttraumatic growth did not moderate the relationship between hope and well-being. However, posttraumatic growth was found to significantly moderate the effects of the gratitude on well-being. Further research and practical implications of this study were discussed.

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CHAPTER I

INTRODUCTION

Throughout the history of psychology, research has focused on the diagnosis and negative effects of psychological illness and has less often examined positive strengths and virtues that contribute to individual well-being (Seligman, 2002). However, over the last decade, there is a growing interest in positive psychology and research centered on positive psychological phenomena (Peterson & Seligman, 2004). Instead of viewing human beings from the pathology-oriented view, the positive psychology approach emphasizes the positive indicators of human functioning (Seligman, 2002). Following this paradigm shift, researchers and practitioners are increasingly seeking to systematically understand psychological wellness and examine what makes a good life. More specifically, positive psychology aims to discover and nurture character strengths, and emotional, cognitive, and interpersonal resources that promote adaptive functioning (Peterson & Seligman, 2004). One of the fundamental branches of the positive psychology movement is to understand positive psychological experiences including happiness, satisfaction, hope, and well-being (Seligman, 2002).

As a concept, well-being is one of the most widely discussed topics in the field of positive psychology (Dodge et al., 2012). Two of the most common approaches to measuring well-being include the hedonic tradition—which views well-being as being comprised of a combination of positive affect and satisfaction with life (Diener et al.,

1998)—and the eudaimonic tradition—which conceptualizes well-being as a multifaceted phenomenon that is composed of affective and cognitive components such as self-determination, environmental mastery, positive relationships, and other aspects of positive psychological functioning (Ryff & Keyes, 1995; Ryan & Deci, 2001). More specifically, the hedonic tradition focuses on the pursuit of the experience of positive affect and emotions, bodily sensations, and high life satisfaction in an effort to promote a satisfying and happy lifestyle (Diener et al., 1998). On the other hand, the eudaimonic tradition views the good life as stemming from the pursuit of excellence as individuals strive to achieve full functioning and recognize their unique capacities and potentials (Ryff & Keyes, 1995).

A primary research question regarding measuring well-being is whether hedonic well-being and eudaimonic well-being are two different measures of well-being or two separate constructs. One way to address this question is to examine the factors that are associated with the two different forms of well-being. Prior studies have shown that subjective well-being (SWB), conceptualized as hedonic tradition, was significantly associated with better marital satisfaction (Carr et al., 2014), job performance and satisfaction (Wright & Cropanzano, 2000), and physical health (Diener et al., 1998). Whereas research has found psychological well-being (PWB), conceptualized from the eudaimonic tradition, was significantly associated with increased levels of engagement and purpose in work and other life areas, positive relationships with others, personal growth, and fewer chronic health conditions (Ryff, 2014). The empirical findings reveal that subjective well-being is a better representative of happiness, while psychological well-being is more associated with meaning in life.

Nevertheless, there are some similar correlates between the two constructs, which have led to some concerns regarding its empirical support as well as theoretical utility. For example, Fredrickson et al. (2013) found a moderately positive association between hedonic and eudaimonic well-being, suggesting that there is some overlap between the two constructs. In spite of this concern, prior studies have suggested that it is important and instrumental to consider the distinction between hedonic and eudaimonic well-being (Baumeister et al., 2013; Oishi & Diener, 2014). For example, Oishi and Diener (2014) found that life satisfaction (hedonic well-being) was substantially greater in richer nations than in poor nations, whereas meaning in life (eudaimonic well-being) was higher in poor nations than in wealthy nations because people in poor nations were more religious. Baumeister et al. (2013) suggested that satisfying one's needs was strongly and positively related to happiness (hedonic well-being) but was largely irrelevant to meaningfulness (eudaimonic well-being). The findings support that hedonic approach and eudaimonic approach are distinct constructs that have unique contributions to individuals' well-being. Although the majority of research on relationships between positive dispositional traits and well-being has focused on life satisfaction (hedonic well-being) (Aspinwall & Staudinger, 2003), in the present study we investigated both approaches in order to examine whether positive traits can have positive effects on both hedonic and eudaimonic well-being.

Extant research on positive human strengths has established a link between character strengths and different aspects of well-being (Gillham et al., 2011). For instance, in one study, the strengths of zest, curiosity, gratitude, and optimism/hope were strongly associated with life satisfaction as well as an engaging and meaningful existence

(Peterson & Seligman, 2004). Park et al. (2004) defined character strengths as trait-like capacities that are reflected in thoughts, feelings, and behaviors. Many studies suggested that both subjective well-being and psychological well-being have some ingredients that are significantly associated with some of the big five personality traits (Diener et al., 2003). In this context, it is vital to understand and explore the positive human traits and factors that are necessary for promoting positive changes. When discussing positive dispositional traits that can increase an individual's well-being, people often mention optimism, hope, and gratitude (Seligman, 2002).

Prior studies examined the relationships between dispositional traits (i.e., gratitude, hope) and well-being, and the empirical findings suggested that gratitude was significantly and positively associated with hope (McCullough et al., 2002). Particularly relevant to the present study, previous research suggested that hope (Parker et al., 2015; Sears & Kraus, 2009) and gratitude (Nezlek et al., 2017; Wood et al., 2008; Watkins et al., 2003) were significantly and positively correlated to general well-being. It is hypothesized that people who develop these qualities are more likely to have healthy and meaningful lives. Although many studies have investigated positive factors that can promote people's well-being, more research is needed to explore the factors that may negatively impact the presence of well-being such as traumatic life events.

According to the World Health Organization (WHO) mental health surveys, a lifetime prevalence of trauma exposure of 70.4% in the general population was reported, with exposure averaging 3.2 traumas per person (Kessler et al., 2017). Although most individuals can overcome trauma and recover from the emotional distress that follows (Zoellner & Maercker, 2006), it remains unclear why some individuals suffer more than

others and experience psychological difficulties such as depression and PTSD symptoms. Trauma exposure is a global phenomenon throughout the world, and the prevalence of trauma exposure varies between different study groups. Specifically, research suggests that between 67% to 84% of college students have experienced one or more traumatic events (Read et al., 2012). Smyth et al. (2008) found that college students who experienced a traumatic life event during the past two months reported decreased mental and physical health and significantly higher levels of distress than other students who did not experience a traumatic life event. Individuals who are exposed to traumatic events may experience normative stress that is related to their daily life issues, as well as contextual stress associated with the traumatic events (Rutter et al., 2013). In fact, prior studies have shown that the experience of trauma is significantly associated with decreased academic and emotional adjustment among college students (Banyard & Cantor, 2004). In addition, research has shown that trauma exposure has been associated with more psychological distress (Krupnick et al., 2004) and potentially maladaptive behaviors, such as alcohol and drug use (Read et al., 2012; Weiss et al., 2018). Further, results indicate that among trauma-exposed college students, greater PTSD symptoms are associated with lower life satisfaction (Richardson et al., 2008) and higher depressive symptoms (Rutter et al., 2013). These findings suggest that college students with a history of trauma may be at a high risk of experiencing psychological difficulties, which may negatively affect their sense of well-being.

When people experience traumatic events (e.g., life-threatening experiences, natural disasters, or death of family members), it may lead to negative physical and psychological consequences such as PTSD symptoms. However, psychopathology does

not always occur to people who are exposed to those traumatic events, along with functional impairment and psychological difficulties, personal growth is believed to coexist with distress in a positive manner (Zoellner & Maercker, 2006). Previous research suggests that between 40% to 90% of the individuals experience personal growth after a highly challenging life circumstance (Lechner et al., 2009). Tedeschi and Calhoun (1996) defined positive psychological changes that can occur as a result of the struggle with traumatic events as *posttraumatic growth* (PTG). More often, trauma survivors tend to view themselves as vulnerable victims of the trauma. However, with the development of PTG, these negative perceptions of self and life may transform into a more positive view through the process of personal growth (Zoellner & Maercker, 2006). Previous research has mainly focused on the definition of PTG; but there is a growing interest in exploring the underlying mechanisms that influence PTG, as well as how PTG may influence variables that contribute to well-being (Shakespeare-Finch et al., 2015). For example, it remains unclear whether PTG influences how certain positive psychological experiences such as gratitude or hope relate to well-being.

In order to understand the effects of PTG on the relationship between dispositional traits (gratitude and hope) and well-being, it is important to explore how PTG relates to each of these constructs. Peterson et al. (2008) reported that the strengths of gratitude and hope were significantly and positively correlated with PTG. Additionally, Durkin and Joseph (2009) found that PTG was significantly correlated with psychological well-being. Furthermore, Morrill et al. (2008) suggested that PTG moderated relationships between posttraumatic stress symptoms (PTSS) and both depression and well-being, suggesting that PTG could serve as a protective factor to buff

against the negative effects of PTSS and depression on well-being. Previous research suggests that PTG facilitates positive changes through a process of developing new goals, rebuilding existing assumptions, defining meaning, and beginning to find pathways to achieve those goals follow challenging life circumstances (Davis & Nolen-Hoeksema, 2009). The findings suggest that PTG may not only have a significantly and positively impact on well-being but may influence well-being through a stress-buffering process. Therefore, this study aims to understand whether PTG influences the relations between positive human traits (e.g., gratitude and hope) and well-being among trauma-exposed college students.

Statement of the Problem

The field of positive psychology has attracted a considerable degree of attention in recent years, especially with increased interest in topics including well-being, dispositional traits, and quality of life. However, this attention also has been accompanied by some biases. As public attention and research interests have been focused on the positive emotions and affect, there is a lack of attention on the topics of trauma. Research has shown that individuals exposed to traumatic life events were associated with more negative outcomes, including functional impairment, emotional adjustment, and difficulties, and impaired both subjective well-being and psychological well-being (Richardson et al., 2008). In addition, many trauma-exposed college students experience increased PTSD symptoms (Read et al., 2011), college adjustment difficulties (Banyard & Cantor, 2004) and other maladaptive behaviors such as alcohol use and drug use (Weiss et al., 2018). However, the previous research centered on trauma has primarily

focused on negative symptoms experienced by individuals, more research is needed to explore factors that can promote well-being of trauma-exposed individuals.

Previous research has shown that dispositional traits (i.e., gratitude and hope) can provide more pleasant feelings and experiences (Wood et al., 2008), as well as promote well-being (Nezlek et al., 2017; Parker et al., 2015; Sears & Kraus, 2009; Watkins et al., 2003). Dispositional gratitude (Vieselmeyer et al., 2017) and hope (Gilman et al., 2012) have also shown to be the protective mechanisms that buffer against the negative effects of PTSD. However, few studies have examined the relationships between gratitude, hope, and PTG, and none of them have explored whether PTG influences the relationships between dispositional traits and well-being. More research is needed to understand the positive human traits and conditions that are necessary for facilitating positive changes in the aftermath of a traumatic life event.

Furthermore, the specific problem is that there is limited information about positive outcomes in the form of PTG among trauma-exposed college students. PTG is a heavily researched area and has been examined in many samples, including survivors of cancer (Ho et al., 2011; Ruini & Vescovelli, 2013), adults who experienced early parental death (Greene & McGovern, 2017), and combat veterans (Zatzick et al., 1997). However, college students have not received adequate research attention in the studies of PTG. College students may better represent the high-functioning population who possess positive human traits to cope with the negative effects of traumatic life events. Thus, this study aimed to examine the relations between dispositional traits (i.e., gratitude and hope), PTG and well-being among trauma-exposed college students.

Justification

This study aims to examine the effect of dispositional traits (gratitude and hope) on well-being of trauma-exposed college students and further explore the moderating role of PTG on the relationships. In the pursuit of understanding well-being, current research suggests two general perspectives: the hedonistic approach is based on the concept of subjective well-being such as pleasure and happiness; and the eudaimonic approach is based on self-determination and self-actualization, which focuses on the areas of functioning and competence of psychological well-being (Ryan & Deci, 2001). A large number of studies have confirmed that PTG is associated with both subjective well-being and psychological well-being (Joseph & Linley, 2005; Linley & Joseph, 2004; Robitschek et al., 2012; Wood et al., 2008;). However, Joseph and Linley (2005) posited that personal growth refers to the eudaimonic side of well-being rather than the hedonistic tradition of well-being, suggesting that PTG might be more strongly related to meaning search in life than to life satisfaction. Thus, in order to effectively use resources towards improving well-being, a comprehensive and empirically based understanding of well-being should be established in the process of researching both subjective well-being and psychological well-being in the present study.

Also, exploring how dispositional factors and PTG influence the well-being after trauma may be instrumental for literature as it may contribute to the development of theories and interventions for trauma-exposed populations. The findings of this study can be useful for professionals in diverse settings that are interested in facilitating dispositional traits as interventions for producing positive changes among individuals who struggle with traumatic life events. Additionally, understanding whether PTG

moderates the relationships between dispositional traits (gratitude and hope) and well-being can help professionals in clinical settings with the process of determining whether to foster PTG, given that PTG may have a positive influence on the well-being of trauma-exposed college students (Wood et al., 2008).

Gratitude

Positive personality traits such as gratitude have received significant attention in theoretical and clinical research, especially with increased interest in investigating positive human functioning (Diener et al., 2003). For example, DeNeve and Cooper (1998) suggested that personality traits are reliable predictors of subjective well-being. Specifically, Vernon et al. (2009) suggested that pre-trauma characteristics such as dispositional gratitude can have a positive impact on the development of adaptive functioning following trauma. Thus, it is important to consider the positive effect of gratitude on well-being, as well as the factors that can facilitate gratitude to promote an enhanced sense of personal well-being in the aftermath of traumatic life events.

A variety of ways to conceptualize gratitude have been proposed in the literature, including social, emotional, and cognitive perspectives (Emmons & Crumpler, 2000; Peterson & Seligman, 2004; Tsang, 2006). Although many view gratitude as an emotional state (a positive feeling after receiving a valuable benefit from others), it has been conceptualized as a virtue in the psychology literature (Emmons & Crumpler, 2000). According to Aristotelian understanding of virtue, it refers to a state of character that not only involves acting in the right manner but also involves feeling the right emotions (Carr, 2005). For example, the virtue of gratitude has been conceptualized as involving positive inner states and emotional responses with respect to appreciation

towards another's kindness. Virtues are morally valued human traits that can impact individuals' feelings, thoughts, and behaviors (Peterson & Seligman, 2004). Furthermore, these positive human traits can contribute to an individual's wholeness or completeness (Aspinwall & Staudinger, 2003). Unlike temperament which is rooted in genetics, virtues are consistently influenced by the environment, such as family, school, community, and other contextual factors (Peterson & Seligman, 2004). The virtues derive from natural and inherent tendencies but tend to be nurtured by the environment. In this context, gratitude is viewed as a virtue that facilitates positive adaptation to life in the process of interacting with the environment.

Defining Gratitude

Some theorists suggest gratitude is an important virtue that often occurs after people receive a benefit or gift, which can be conceptualized as an emotion that is always expressed as an appreciation of the helpful and well-meaning actions of other people (Emmons & Crumpler, 2000). Emmons and Stern (2013) further defined gratitude as a cognitive-affective state that signals recognition of the beneficiary of an altruistic act of another person. Thus, gratitude is viewed from an interpersonal perspective that facilitates future engagement in prosocial behaviors (Tsang, 2006) such as acts of altruism to reciprocate. Perhaps a vital function of gratitude is that it could facilitate future cooperation.

However, this definition of gratitude fails to capture the diverse aspects of life because people can experience gratitude in different resources. Emmons and Crumpler (2000) suggest that gratitude is a source of human strength that involves more than a feeling of appreciation for another person's kindness or help. For example, the person

who has experienced days of being anxious about an important exam is grateful when receiving a good grade. Or, one can simply feel grateful for having a good meal.

According to this definition, the essential feature of gratitude perhaps is an individual's response to perceived blessing or benevolence.

Beyond the interpersonal perspective, Wood et al. (2008) suggested that gratitude can be conceptualized as a *life orientation* such that individuals tend to notice and appreciate the positive aspects of life and the world. The broader view of gratitude provides a more comprehensive understanding of gratitude that covers gratitude from both social and non-social perspectives. Wood et al. (2010) further proposed that life orientation conception of gratitude is a dispositional tendency, which should be distinguished from other traits such as optimism and hope. They argued that "life orientation" conception of gratitude is an internal predisposition toward the positive aspects of life and the world, while optimism focuses on the expected future outcomes. They also suggested gratitude can be distinguished from hope such that hope involves picturing pathways through which positive outcomes can be achieved, whereas gratitude is a life orientation that can be learned, cultivated, and developed.

In summary, a variety of theories have been developed aimed at operationally defining gratitude. According to the life orientation theory, gratitude first involves appreciating the positivity in one's life, and then acknowledging that the sources of those good things at least partially stem from external sources (Wood et al., 2008). When viewed as a life orientation, an attitude of gratitude involves being grateful for positive life outcomes, which can foster a feeling of sufficiency, and appreciation towards others and the world (Watkins et al., 2015). Grateful individuals are more likely to exhibit

prosocial behaviors (Tsang, 2006; Wood et al., 2010), suggesting positive associations between gratitude and positive results such as satisfaction with life and happiness.

Gratitude also appears to benefit people by making them to be more flexible and open-minded for potential opportunities, which can enhance their optimal experiences and adaptive abilities (Wood et al., 2010). Additionally, gratitude can help individuals shift attention from negative emotional experiences and reduce the effects of negative emotions (Tugade et al., 2004). The empirical findings suggest that trait gratitude is beneficial for enhancing overall well-being

Gratitude and Well-Being

Consistent with this definition of life orientation, many studies have found that gratitude has been positively associated with adaptive personality characteristics and well-being. For example, gratitude has been examined as a strong predictor of subjective well-being (Watkins et al., 2003), psychological well-being (Wood et al., 2008), an adaptive mechanism against depression (Disabato et al., 2017; Wood et al., 2010), and an essential factor to utilize productive coping strategies (Tugade et al., 2004). Previous research suggests that gratitude is a life orientation that views and interacts with the world in a positive way (Wood et al., 2008). In addition, research shows that grateful individuals tend to notice and appreciate the positive in life, experience grateful affect more frequently, have a greater appreciation of their lives, and have more positive traits (e.g., openness and optimism) compared to less grateful individuals (Wood et al., 2009). Additionally, according to the broaden-and-build theory of positive emotions (Fredrickson, 2004), gratitude is an essential element of adaptive functioning and optimal experience. Thus, being thankful and grateful for the goodness in one's life and the world

could provide a sense of a more meaningful life, which may promote subjective well-being (Emmons & Crumpler, 2000). Further, Wood et al. (2008) suggested that the positive impact of gratitude buffered against the external stressors, which led to the reduction of stress and depression over time. In essence, grateful individuals tend to be healthier and happier (Watkins et al., 2003).

As a dispositional trait, gratitude can be developed and enhanced through relatively simple psychological interventions such as practice of being grateful and cultivating an awareness of appreciation and gratitude (Peterson & Seligman, 2004). In fact, facilitating the experience of gratitude can be helpful for individuals to enhance their overall sense of well-being (Emmons & McCullough, 2003; McCullough et al., 2002). One way to practice gratefulness involves intentionally reflecting on positive events that have occurred in one's life. For instance, Emmons and McCullough (2003) examined the role of gratitude in everyday life by asking participants to fill out a weekly report of their lives for 10 weeks. Emmons randomly assigned participants into three different experimental conditions (hassles, gratitude, and comparison). The hassles group was asked to record five hassles or stressors that affected them in the past week, major events that happened in the past week, the gratitude group was asked to write down five things they felt grateful for and thankful for during the week, and the comparison group was asked to write down five major events that happened in the past week. The results revealed that participants in the gratitude group were more optimistic about the upcoming week and felt better about their lives when compared to the other two groups. In addition, participants in the gratitude group reported having made more progress and had fewer physical complaints.

Other gratitude-based psychological interventions have been positively associated with well-being as well, including writing a gratitude letter (Lyubomirsky et al., 2011), counting one's blessings (Froh et al., 2008), and teaching benefit-appraisal curriculum (Froh et al., 2014). These studies provide empirical support for the assumption that an attitude of gratitude can benefit individuals in many aspects of their well-being and suggests that gratitude may be an important contributor to human flourishing.

According to the life orientation theory, gratitude is viewed as an adaptation mechanism that can help individuals form a flexible and positive lifestyle and build some enduring personal resources over time (Wood et al., 2008). This finding is confirmed by Vieselmeyer et al. (2017) who suggest that dispositional gratitude can be conceptualized as a protective mechanism that promotes positive outcomes following trauma. And gratitude was shown to be a protective factor that decreases the likelihood of PTSD symptoms and promotes well-being in trauma survivors (Kashdan et al., 2006; Ruini & Vescovelli, 2013). For example, in one study, Kashdan et al. (2006) examined the role of gratitude in both hedonic and eudaimonic well-being in combat veterans with and without PTSD (42 individuals diagnosed with PTSD, and a comparison group of 35 individuals without PTSD). The results showed that veterans with PTSD exhibited significantly lower dispositional gratitude compared to those without PTSD. Further, they found that gratitude was significantly associated with positive affect and more daily self-esteem, suggesting that gratitude protects against PTSD symptomatology and promotes an individual's daily functioning. The results suggest that dispositional gratitude may benefit trauma-exposed individuals by facilitating healthy adaptation and personal growth.

Gratitude and Posttraumatic Growth

One can be grateful in variety of difficult conditions, even in the aftermath of challenging and traumatic life circumstances. In fact, there is a growing interest in the study of trauma that is focused on the exploration of positive factors that can protect against negative psychological effects of traumatic events (Robitschek & Kashubeck., 1999). Grateful individuals tend to find benefits and appreciation for life following the experience of traumatic life events, and some are likely to adapt and demonstrate more positivity (Tennen & Affleck, 2002). Thus, individuals who are high in gratitude tend to exhibit greater appreciation for life (Emmons & Crumpler, 2000), may in turn, cope better after experiencing one or more traumatic life events (Fredrickson, 2004).

As a dispositional trait, gratitude may share a common component of PTG. Kashdan et al. (2006) found that individuals with PTSD reported significantly lower dispositional gratitude when compared to those without PTSD in a sample of combat veterans. Ruini and Vescovelli (2013) examined the role of gratitude in a sample of breast cancer patients and found that gratitude was strongly and positively associated with PTG, positive affect, and lower symptomatology. One study found that gratitude was significantly and positively related to PTG in a sample of undergraduate women who experienced trauma histories, including sexual assault, transportation accidents, and other traumatic events (Vernon et al., 2009). This was corroborated by findings from Peterson et al. (2008), who found that when measured as a character strength, gratitude was significantly and positively correlated to PTG. Although the relationship between

gratitude and PTG is well-documented, there is limited information regarding the relations between these constructs in the context of recovery after trauma.

Jang and Kim (2017) examined the role of gratitude in PTG by conducting a meta-analysis and found that gratitude was a significant predictor of PTG. Experience of gratitude following trauma is believed not only to inspire an individual to overcome the negative effects of trauma but also to offer meaning-making for the person through the process of cognitive restructuring. According to the broaden-and-build theory, gratitude can facilitate adaptive activities and optimal experiences by broadening emotions and building enduring personal resources such as social support and coping abilities (Fredrickson, 2004). Such process can help trauma survivors form positive cognitions in response to traumatic clues and rebuild the meaning of the world following trauma (Vieselmeyer et al., 2017).

In addition, Greene and McGovern (2017) examined the role of gratitude in PTG in a sample of adults who lost a parent in childhood, and they found that gratitude is important in the recovery process after a traumatic life event through two essential mechanisms, including finding social support and making meaning from the experience. The findings suggest that gratitude plays a vital role in the adjustment process after trauma by providing individuals with a more positive view of life, which allows them to benefit from the adverse life experience and develop personal growth. Nevertheless, the influence of PTG on the relationship between gratitude and well-being remains unclear.

Hope

Hope is another positive psychological construct that has attracted considerable attention in the well-being literature. In the 1950s, psychological constructs related to

hope were first introduced into the psychology literature, and the early focus of literature drew attention to the role of hope in human adaptation (Snyder et al., 1991). McDermott and Snyder (1999) asserted that hope was an important factor in the sense of well-being and willingness to learn. Other theorists such as Luthans and Jensen (2002) noted the critical role of hope in facilitating therapeutic change and other motivated actions. Additionally, Magaletta and Oliver (1999) articulated the importance of hope as hopelessness or lack of hope introduced a significant risk for mental issues such as depression and suicidal behaviors.

Many individuals maintain positive functioning after a traumatic event, and some of them develop personal growth (Tedeschi & Calhoun, 1996). Previous research has suggested that dispositional hope can buffer against negative psychological effects of trauma (Gilman et al., 2012), which in turn promotes positive change in people's well-being (Ho et al., 2011). Although hope does not guarantee that individuals will not experience traumatic life events, these findings suggest that having high hope helps individuals better adjust to challenging life circumstances. Some studies have suggested that coping strategies play an important role in the c of PTG following traumatic life events (Zoellner & Maercker, 2006). When compared to individuals with low hope, hopeful individuals are more likely to be better equipped with enduring personal resources such as social support and coping strategies that promote well-being (Fredrickson, 2004). Previous research has demonstrated that there are positive and significant associations among hope, PTG, and well-being (McCullough et al., 2002; Peterson & Seligman, 2004). These empirical findings suggest that hope and PTG are considered to be the key factors that promote well-being after trauma, and perhaps the

experience of personal growth can enhance the positive effect of hope on people's well-being.

Conceptualizing Hope

Most people perceive hope as a simple belief that desired outcomes would occur even in the face of difficult times. Previous research has conceptualized hope as a positive human trait that affects an individual's cognitive process as it helps individuals acquire positive expectations for future outcomes in order to achieve desired goals.

Although some theories of hope have conceptualized hope as a unidimensional construct (Snyder & Forsyth, 1991), Snyder et al. (1991) defined hope as a bidimensional construct that consists of two essential components: agency thinking (motivational part of hope that refers to goal-oriented drive) and pathways thinking (generating specific ways to achieve goals). Whereas agency thinking involves a sense of motivational energy in the process of pursuing one's goals in the past, present, and future, pathways thinking involves creating different ways to achieve those goals (Snyder et al., 2000). These two subcomponents of hope are considered to be positively related, yet are not synonymous (Snyder et al., 1991). The hope theory argues that it is essential to integrate both agency and pathways components to have a clear understanding of the goal-oriented process (Snyder et al., 2002).

Luthans and Jensen (2002) have characterized agency thinking as a sense of willpower, and pathways thinking as a sense of waypower that is influenced by the perceived availability of successful plans in goal-directed striving. Snyder et al. (2000) noted that people who are low in planfulness are likely to experience difficulties in the face of obstacles. However, an individual with a powerful sense of pathways thinking

tends not to be thwarted by difficulties and troubles, but instead searches for different or possible ways to pursue desired goals or positive outcomes. Thus, hope refers to the dispositional tendency that helps individuals develop and maintain motivation in the pursuit of their desired goals by planning alternative pathways. Integral to Snyder's definition of hope is its bidimensional construct, with the two components of agency thinking and pathway thinking, hope is perceived as a reciprocal process that involves an iteration of willpower and waypower. This widely used conceptualization of hope not only describes the goal-directed nature of hope but also explains the mechanism of the goal-oriented process.

Snyder's definition of hope highlights the underlying mechanism of the construct. Even though the goal-oriented process is cognitive in nature, it is essential to acknowledge that hope can be influenced by emotions. Hope theory suggests positive emotions are experienced as a result of successful goal pursuit experiences, and negative emotions arise because of unsuccessful goal attainment experiences (Snyder et al., 2002). The relationship between hope and positive emotion is bidirectional: an individual's perceptions of achieving goals influence their subsequent emotions, and it, in turn, reflects their emotional state during goal attainment process. For example, individuals with higher hope have the tendency to dismiss the unsatisfying outcome and possess a higher sense of commitment. They also believe their abilities are sufficient to generate ways towards attaining their goals and focusing satisfying outcomes instead of inadequacy. To put it simply, hope creates positive emotions during the goal pursuit process, which in turn facilitates goal attainment.

The concept of hope involves psychological anticipation of desired outcomes in the future as a result of one's effort or outside forces that are not in one's control. A large psychology literature developed regarding optimism, which as a construct, shares with hope an emphasis on the anticipation of positive outcomes in the future. Scheier and Carver (1985) defined optimism as a generalized tendency to have expectations that positive outcomes would occur even in the face of troubles. Optimism has been characterized as a strong predictor of behavior as it leads to persistence in the pursuit of goals. However, hope is not identical with optimism because optimism always implies some distance from reality (Bruininks & Malle, 2005). Bailey et al. (2007) reported a high correlation between measures of hope and optimism in a sample of 332 college students. They also suggested that hope was a better predictor of life satisfaction than optimism.

Unlike optimism focus on the importance of "self," hope can be influenced not only by one's own efforts but also by others' help or even other factors not under one's control. Unconcerned with one's past experience, hope often refers to the iterative process that requires both the willpower and waypower; it is a sense of willingness, an adventure, and a meaningful search (Scheier & Carver, 1985). Additionally, in a sample of cancer patients, Ho et al. (2011) examined the role of hope and optimism on PTG and found that hope, but not optimism, was significantly associated with PTG. In the face of traumatic events, individuals may experience difficulties in coping with stress and promoting overall well-being. Therefore, both willpower (agency thinking) and waypower (pathway thinking) would seem to become essential not only for alleviation of distress but also for healing and recovery. A strong sense of willpower and waypower

may be necessary for individuals to effectively cope with the traumatic events in the process of achieving positive outcomes or desired goals. However, it is unclear whether experiencing positive growth after trauma influences how hope is related to well-being.

In addition to the two essential components of agency thinking and pathways thinking, previous research has provided theoretical and psychometrical support for the definition of hope by conceptualizing it as being both dispositional trait and a developmental state (Snyder et al., 2000). Although many researchers focus on the dispositional properties of hope, hope also has state-like properties that present as a more flexible form that can be open to development and change. According to Snyder et al. (2000), children or young people possess the strongest malleability of hope, but mature adults are still open to developing an overall level of hope. Hope may be perceived as a learning process; many studies have shown that training interventions are effective in enhancing individuals' existing level of hope (Snyder & Forsyth, 1991). From an applied perspective, the malleability of hope may present an opportunity for coping strategy training in order to promote people's overall well-being. The goal-directed commitment and the effect of hopeful thinking can be helpful not only for stress reduction but also for positive outcomes such as positive affect and life satisfaction (Munoz et al., 2020). For example, trauma-exposed college students can be encouraged to practice self-referential thoughts and describe "hopeful stories" to strengthen the existing level of hope (McDermott & Snyder, 1999).

Hope and Well-Being

According to Snyder's theory of hope, individuals' perceptions of their personal abilities to achieve goals influence subsequent emotions, and it, in turn, it reflects their

emotional states during the goal attainment process (Snyder et al., 1991). Specifically, individuals who possess higher levels of hope tend to evaluate stressful events as challenging rather than overwhelming and view stressful situations in more positive ways (McDermott & Snyder, 1999). They are more likely to believe that they have sufficient resources and capabilities to identify and generate possible pathways to achieve goals. On the contrary, individuals who are low in hope are likely to experience a sense of uncertainty and may simply give up their goals in the face of challenging life circumstances, which could lead to maladaptive adjustment (Sears & Kraus, 2009). The findings suggest that dispositional hope might help people adopt more positive and adaptive perceptions regarding stressful life situations.

As hope was found to be positively related to self-esteem and positive affect, individuals with higher levels of hope tend to be confident, energetic, and experience a lower level of psychological distress (Snyder et al., 2002). Many studies on dispositional hope have shown that individuals who are more hopeful tend to experience more adaptive functioning and psychological adjustment (Ho et al., 2011). As a desirable human trait, hope has been associated with various aspects of well-being. For example, evidence from recent studies has revealed that hope is a strong predictor of subjective well-being (Parker et al., 2015), better academic performance (Day et al., 2010), and positive affect, negative affect, and flourishing (Sears & Kraus, 2009).

Previous research has shown that hope is a significant protective factor that promotes the psychological well-being of trauma-exposed individuals (Munoz et al., 2020). In addition, studies of individuals encountering traumatic health events such as cancer (Stanton et al., 2002) and spinal cord injury (Byra, 2016) indicate that

dispositional hope was associated with psychological and physical adjustment. Specifically, Gilman et al. (2012) conceptualize dispositional hope as a coping mechanism that buffers against PTSD symptoms and depression. Particularly relevant to the present study, Irving et al. (1997) examined the role of hope in PTSD treatment in a sample of combat veterans and found that higher hope was positively and significantly associated with social support and adaptive coping strategies. These studies suggest that hope could play an important role in healthy adjustment following trauma by adopting coping strategies and seeking help from social support. As a result, hopeful individuals experience positive emotional states (hedonic well-being) and a sense of meaning (eudaimonic well-being) in the process of attaining desired goals (Magaletta & Oliver, 1999).

Hope and Posttraumatic Growth

An individual with a high level of hope is able to remain motivated to begin and continue moving toward a chosen pathway to achieve desired outcomes by using coping strategies such as positive self-talk (Snyder et al., 2000). Hope is especially important to maintain a high level of functioning and promote well-being when the individual encounters adversities (Snyder et al., 1991). Dispositional hope can affect individuals' reactions following trauma through either engagement or disengagement with identified goals. Prior studies have found that hope was a significant predictor of PTG (Bellizzi & Blank, 2006; Byra, 2016). However, it remains unclear as to what effect PTG may have, if any, on the relationships between hope and well-being among people who have experienced trauma.

Janoff-Bulman's (2014) proposed shattered assumptions theory, suggesting that individuals generally operate on the basic assumptions of the self and the world that are unquestioned and unchallenged. However, traumatic life events can dramatically challenge people's assumptions about themselves and the world, in turn, it could cause people to lose the sense of safety, predictability, and control of the self and the world (Ho et al., 2011). People may then lose hope and feel a sense of hopelessness and helplessness, which could in turn prevent the trauma survivors from adopting effective coping strategies. On the contrary, hopeful people are likely to shift their attention from negative consequences or emotional states in the aftermath of traumatic events (Scheier & Carver, 1985). For example, the adversity of encountering a destructive hurricane may prompt a hopeful person either to overcome the challenging life situation by themselves or determine that finding alternative pathways (e.g., help from others) would be the best solution.

In fact, many studies suggested that hope can buffer against the negative effects of trauma and promote positive adjustment after trauma (Fredrickson, 2004; Gilman et al., 2012). Additionally, Ho et al. (2011) suggested that PTG is an important factor that contributes to the development of coping strategies and positive psychological changes following trauma, which lead to an enhanced sense of well-being. These empirical findings suggest that a sense of personal growth after trauma may facilitate the adaptation process through engagement of effective coping strategies, which could in turn promote people's well-being. Consistent with the aforementioned findings, a study of breast cancer survivors revealed that once individuals developed a sense of hope, they actively adopted positive and effective coping strategies to overcome the traumatic life event

(Bellizzi & Blank, 2006), and reconstructed their understanding of the self and the world (Janoff-Bulman, 2014). Taken together, the experience of personal growth may enhance the effect of hope on people's well-being after trauma by facilitating a sense of engagement and commitment for their identified goals.

Trauma Exposure and PTG in College Students

Traumatic experiences can be stressful to manage, especially for individuals who are under the age of 18 (Bernat et al., 1998). In fact, previous studies suggested that college students who reported a history of trauma were more likely to experience increased PTSD symptomatology (Read et al., 2011) and college adjustment difficulties (Banyard & Cantor, 2004), and substance use (Weiss et al., 2018). Notably, undergraduate students with a history of trauma also reported physical symptoms such as chronic pain and sleep disturbances and psychological symptoms such as feelings of detachment, depression, and anxiety (Cody & Beck, 2014).

In recent years, researchers have gradually shifted attention from the negative consequences of trauma to positive outcomes. Some researchers argue that trauma survivors are worried about losing control, something getting worse, or negative consequences of traumatic events (Shigemoto et al., 2017). An strong emphasis only on the negative consequences of trauma seem to be associated with more undesirable outcomes such as aggravation of stress levels in survivors and a biased understanding of the trauma reaction (Pals & McAdams, 2004). To obtain a comprehensive understanding of trauma reaction, the potential for both positive changes and negative consequences must be taken into consideration. In addition, an emphasis on positive psychological changes can reinforce the positive aspects of the survivors and implement the belief that

they have been effectively coping with the trauma and that trauma can be overcome. In fact, one study has found that individuals with high intent of personal growth were associated with lower levels of distress and depression (Robitschek & Kashubeck, 1999).

Although trauma can cause a variety of problems, not all trauma-exposed college students develop PTSD or adjustment difficulties. The prevalence of PTSD among trauma-exposed college students is estimated to be in the range of 9%-18% (Read et al., 2011; Smyth et al., 2008). These findings suggest that despite the high prevalence of trauma exposure among college students, some students are able to develop positive adaptation. Many studies have examined factors that can decrease the risk of having negative outcomes of well-being. For example, Bravo et al. (2016) found that mindfulness-based intervention could be a protective mechanism as individuals reported higher levels of mindfulness were associated with experiencing fewer depressive symptoms and alcohol-related problems among trauma-exposed college students. Among 157 undergraduate students, Galatzer-Levy et al. (2012) found that high quality and stable social support may serve as protective factors that reduce PTSD symptomatology. The findings of the aforementioned studies suggest that college students have sufficient capacity and resources to balance their personal lives and develop personal growth in the aftermath of stressful and traumatic life events.

Previous research has examined PTG in a wide range of samples, including survivors of cancer (Ho et al., 2011; Ruini & Vescovelli, 2013), adults who lost a parent in childhood (Greene & McGovern, 2017), physical and psychological abuse (Shigemoto et al., 2017), and military combat (Zatzick et al., 1997). College student samples have received less attention in PTG studies (Borowa et al., 2016). However, there are many

benefits for the inclusion of undergraduate students in PTG studies. For example, undergraduate students are more likely to be exposed to a wide range of traumatic events throughout their lives (Rutter et al., 2013). Most importantly, undergraduate students are generally a more accessible sample that represents the high-functioning population, suggesting that people are able to cope with the impairments that can be generated by a traumatic event (Borowa et al., 2016). In addition, it is believed that undergraduate students represent the population who possess positive human traits (gratitude and hope) before experiencing a traumatic event, and the personal growth after the trauma could buffer against the negative consequences of the traumatic event, such as depression or PTSD symptoms (Smyth et al., 2008).

Posttraumatic Growth

Tedeschi and Calhoun (2004) suggested that PTG occurs as a result of psychological struggle. Specifically, distress triggers subsequent growth by facilitating the process of cognitive restructuring, which in turn initiates the experiences of PTG. For example, having a diagnosis of cancer is a traumatic and painful event, but it could prompt the person to cope and adjust, which may eventually lead to positive outcomes such as new meaning in life or more connections with family or friends (Stanton et al., 2002). In fact, Ruini and Vescovelli (2013) found that some breast cancer patients experienced reduced distress, lower symptomatology, and increased positive emotions. A number of studies have suggested that personal growth and positive changes may protect against negative effects of trauma and facilitate an enhanced sense of personal well-being (Bellizzi & Blank, 2006; Ho et al., 2011; Tennen & Affleck, 2002). Specifically, Zoellner and Maercker (2006) conceptualize PTG as a coping mechanism that mitigates PTSD

symptoms, suggesting that the more personal growth experienced, the less distress subsequently would occur. These studies support that PTG promotes positive adaptation in the aftermath of traumatic events.

The prevalence of PTG tends to vary in different studies among different samples. For example, Barakat et al. (2006) found that a majority (80%) of adolescent survivors of childhood cancer as well as their parents reported experiencing at least one positive change of having had the experience, and almost half reported four or more positive outcomes. Lelorain et al. (2010) reported that nearly 30% of high school students experienced a moderate level of positive change after a traumatic event. Although the number varies from study to study and not all individuals attain a high level of personal growth after trauma, the experience of personal growth is substantial and common among individuals who are exposed to traumatic life events. For example, in a review of 39 empirical studies, Linley and Joseph (2004) found that adversarial growth and positive changes can be experienced from various traumatic events, including medical problems (e.g., cancer), natural disasters (e.g., earthquake), transportation accidents (e.g., car accident), interpersonal experiences (e.g., sexual assault), and other life events (e.g., bereavement). These empirical findings suggest that PTG is a well-documented phenomenon among trauma-exposed individuals.

Conceptualizing PTG

The term posttraumatic growth is the most widely used term to describe personal growth in the aftermath of challenging and traumatic life events. It was until 1996 that the term PTG was first proposed by psychologists Richard Tedeschi and Lawrence Calhoun, and they later coined the term to describe the positive psychological changes they found

among their patients who were struggling with highly stressful and traumatic major life crises (Tedeschi & Calhoun, 2004). PTG refers to positive psychological gains and growth as a result of the struggle with a traumatic event such as a major loss or abuse. Unlike similar constructs such as resilience, people who develop PTG experience improved functioning, sometimes even higher than their previous levels of functioning (Tedeschi & Calhoun, 2004).

According to Tedeschi and Calhoun (2004), it is important to note that the trauma itself does not generate PTG but rather the trauma-exposed individuals' struggling with the trauma produces it. The struggle involves a positive accommodation process that produces personal growth through the resolution of the conflict between pre-existing assumptions of self and world and the new trauma-related information. Individuals can find meaning and reconstruct their life narratives through this accommodation process (Joseph & Linley, 2005). PTG includes the following five domains: a greater appreciation for life in general, an increased sense of personal strength, a richer existential and spiritual life, an increased openness to new possibilities, and more meaningful interpersonal relationships (Tedeschi & Calhoun, 2004).

Although a large number of studies have established a well-developed theoretical framework for understanding PTG, the theories have tended to be descriptive rather than explanatory (Janoff-Bulman, 2014; Tedeschi & Calhoun, 2004). From a more comprehensive review of PTG, Joseph and Linley (2005) proposed the organismic valuing theory of growth to explain why individuals would be motivated to move toward the actualization of positive changes in the aftermath of challenging life circumstances. This theory holds the belief that human beings are innately active and growth-oriented

organisms. The organismic valuing process guides individuals to be more aware of their psychological experiences with the knowledge of knowing their own values and best direction. However, this process can be a challenging situation in which a supportive social environment is required in order to satisfy the fundamental psychological needs such as connections and autonomy (Deci & Ryan, 2000). Thus, when a supportive social environment is present to satisfy the basic psychological needs, the process of cognitive accommodation can lead to positive changes (Joseph & Linley, 2005). This theory provides empirical support to explain the relationships between dispositional trait hope and PTG, suggesting individuals with a sense of hope possess specific goal-directed organisms that utilize personal and external resources to find pathways to overcome trauma, which in turn lead to the development of PTG.

Some models of the processes associated with understanding the development of PTG have focused on the degree to which the disruption of the assumptive world is a key component that explains not only the psychological experience of trauma (Tedeschi & Calhoun, 2004), but also the theoretical foundation for the occurrence of person growth (Janoff-Bulman, 2014; Linley & Joseph, 2004). Traumatic events are unexpected shocks that challenge people's inner assumptive world. At the same time, trauma could act as a trigger to positive changes as it requires individuals to activate their coping mechanism through the adaption and accommodation process. The task of a trauma survivor is to rebuild his or her pre-existing assumptions of the self and the world through the re-evaluation of the pre-existing beliefs and assumptions into more valid and comfortable ones (Janoff-Bulman, 2014). The organismic valuing theory posits that the actualization of positive changes involves accommodation of the new trauma-relevant information

rather than assimilation (Joseph & Linley, 2005). Assimilation and accommodation are two different adaptive mental processes of coping with discrepancies between desired and factual circumstances. Assimilation requires individuals to process and absorb discrepancies through a modification of pre-existing schemas, while accommodation resolves discrepancies by creating new and feasible goals and beliefs (Rothermund & Brandstädter, 2003).

The organismic valuing theory of growth posits that human beings are naturally inclined to modify pre-existing assumptive world to accommodate new trauma-relevant information, but this accommodation can lead to either a negative direction (e.g., a feeling of hopelessness as a result of overgeneralization) or a positive direction (e.g., a sense of meaning-making with a sense of trust and safety; Joseph & Linley, 2005). For example, an individual can positively accommodate the new trauma-related information (bad things can happen at any time) by acknowledging “a meaningful life is to live in the present.” In short, the organismic valuing theory of growth proposes that individuals are more likely to experience personal growth after trauma when the dispositional traits (gratitude and hope) are facilitative of the process of accommodation. This process of accommodation is indicative of cognitive restructuring directed at rebuilding people’s pre-existing assumptions of the self and the world in a direction consistent with their own values, which may lead to the realization of PTG.

The Development of PTG

PTG has been measured across five domains in which an individual experiences personal growth and improved functioning and attributes this growth to his or her struggle with trauma. The personal growth can be experienced in five domains, including

changes in relationships with others; increased appreciation of life; self-perceived changes in personal strengths; recognition of new possibilities; and spiritual growth or changes in life philosophy (Tedeschi & Calhoun, 1996). Self-perceived changes include individuals coming to value themselves more and feel more positive and confident (Tedeschi & Calhoun, 2004). Changes in relationships with others include individuals experiencing stronger connections with others as a result of the traumatic experience. Changes in philosophy of life or spiritual growth include individuals experiencing an increased sense of meaning and lead to new assumptions of the self and the world such that they feel as if they are functioning fully after trauma (Janoff-Bulman, 2014). It is also important to note that the personal growth and improved functioning could be even higher than their previous levels of functioning (Tedeschi & Calhoun, 2004).

Many studies have examined the role of PTG in human functioning. Robitschek et al. (2012) examined the effect of *personal growth initiative*, which is a developed set of skills that can be used to help individuals develop personal growth. Personal growth initiative captures both cognitive and behavioral processes, including identifying potential growth areas, making realistic plans, using available resources, and implementing actions to facilitate personal growth. Previous studies have found that personal growth initiative was positively related to PTG and negatively related to PTSD symptoms among trauma-exposed college students (Borowa et al., 2016; Shigemoto et al., 2017). The empirical findings suggest that the facilitation of PTG can have a positive effect on people's adaptive functioning, as well as an enhanced sense of well-being following trauma.

Posttraumatic Growth and Well-Being

Some studies suggested no significant association between PTG and SWB (Cordova et al., 2001; Linley & Joseph, 2004), but others found that PTG was associated with both SWB and PWB (Lelorain et al., 2010; Robitschek et al., 2012; Wood et al., 2008). Joseph and Linley (2005) posited that personal growth refers to the eudaimonic tradition of well-being rather than the hedonistic side of well-being, suggesting that PTG might be more strongly related to PWB than to SWB. Because of these mixed findings, research is needed to clarify the relationship between PTG and both SWB and PWB to gain a better understanding of the effect of PTG on well-being of trauma-exposed individuals.

Many studies have examined the predictive factors of PTG. Chao (2012) reported that high levels of stress and poor coping skills were associated with decreased well-being. In addition, coping resources and interpersonal interactions are considered as facilitators of PTG and well-being (Tedeschi & Calhoun, 2004; Stanton et al., 2002). Although these studies improve our understanding of certain protective factors that may reduce the adjustment difficulties after traumatic life events, there is limited information regarding how dispositional traits such as gratitude or hope relate to well-being after one experiences trauma, as well as whether PTG significantly influences how these traits relate to the well-being of trauma-exposed college students. Therefore, this study aimed to examine whether PTG moderates the relationship between positive traits (i.e., gratitude and optimism) and well-being among trauma-exposed college students.

The Present Study

The associations between dispositional traits (i.e., gratitude and hope) and each of subjective and psychological well-being are well-documented (Parker et al., 2015; Sears & Kraus, 2009; Wood et al., 2008; Watkins et al., 2003). Many studies have found gratitude to be associated with higher positive affect (Emmons & Crumpler, 2000; Wood et al., 2008; Watkins et al., 2003) and greater life satisfaction (Froh et al., 2008; Wood et al., 2010). Furthermore, hope has been conceptualized as a positive orientation and engagement toward the future in an attempt to pursue valued goals (Snyder et al., 2000), suggesting that hope is related to psychological well-being.

The current research aimed to expand the understanding of the relationship between dispositional traits (i.e., gratitude and hope) and well-being by examining the potential moderating role of PTG. Research suggests that dispositional gratitude (Vieselmeyer et al., 2017) and hope (Gilman et al., 2012) serve as protective mechanisms that protect against negative effects of posttraumatic stress, which in turn, promote well-being among trauma-exposed individuals. It is hypothesized that people with higher levels of both hope and gratitude have the cognitive and psychological ability to actively engage in the change process after trauma, which can enhance their overall well-being.

Many studies have looked into how traumatic life events can serve as catalysts for positive changes in people's lives. For example, Linley and Joseph (2004) proposed that PTG is similar to increases in people's psychological well-being. Pals and McAdams (2004) posited that PTG functions as a cognitive restructuring process that changes in a life story. Morrill et al. (2008) further suggested that PTG could serve as a protective factor to buff against the negative effects of PTSS on well-being. Although there are

some different perspectives to view how PTG actually manifests in people's lives, it is well-documented that PTG is significantly and positively associated with both SWB and PWB (Joseph & Linley, 2005; Linley & Joseph, 2004; Robitschek et al., 2012; Wood et al., 2008). This study aimed to expand our knowledge about how PTG affects the relation between the dispositional traits (gratitude and hope) and well-being among trauma-exposed college students, which may have the potential to provide a deeper understanding of the broader benefits of facilitating dispositional traits (gratitude and hope) as the preventative strategy.

Research Question and Hypotheses

Research Question

Recognizing that PTG influences an individual's recovery in the aftermath of challenging and traumatic life events, we expected that the presence of such personal growth will strengthen experiences of positive dispositional traits (gratitude and hope) in its relationships with well-being among trauma-exposed college students. Thus, the primary aim of this study is to examine the following research question: Does PTG moderate each of the relationships between dispositional traits (i.e., gratitude and hope) and well-being (SWB and PWB) among trauma-exposed college students?

Hypothesis 1:

Dispositional gratitude will be significantly and positively related to both SWB and PWB among trauma-exposed college students.

Hypothesis 2:

Dispositional hope will be significantly and positively related to both SWB and PWB among trauma-exposed college students.

Hypothesis 3:

PTG will moderate the relationship between dispositional gratitude and SWB among trauma-exposed college students, such that higher levels of PTG will be associated with a strengthened relationship between gratitude and SWB.

Hypothesis 4:

PTG will moderate the relationship between dispositional gratitude and PWB among trauma-exposed college students, such that higher levels of PTG will be associated with a strengthened relationship between gratitude and PWB.

Hypothesis 5:

PTG will moderate the relationship between dispositional hope and SWB among trauma-exposed college students, such that higher levels of PTG will be associated with a strengthened relationship between hope and SWB.

Hypothesis 6:

PTG will moderate the relationship between dispositional hope and PWB among trauma-exposed college students, such that higher levels of PTG will be associated with a strengthened relationship between hope and PWB.

CHAPTER II

METHOD

Participants

Study participants were recruited from undergraduate classes in a middle-sized public university in the south via the Psychdata online survey platform. Recruiting was conducted after being approved by the Institutional Review Board (IRB).

The minimum sample size for the present study was generated through power analysis by using G*Power software (Faul et al., 2009). In order to maximize the probability of obtaining significant results, the power was set at .85 (Cohen, 1988). Results of the analysis indicated a total sample size of 96 participants would be required in order to detect moderate effect sizes ($f^2 = .15$). Given that the final sample of this study included only individuals who report experiences of one or more potentially traumatic events, data were collected from more than 200 individuals to ensure that the minimum sample size of trauma-exposed individuals was maintained. Participants who did not endorse exposure to at least one lifetime traumatic event were not included in the data analysis. Prior to completing the instruments of the study, participants were asked for permission by providing informed consent that describes the possible risks and benefits of this study.

A total of 276 participants completed our survey questionnaire. Only participants who both completed more than 80% of the survey and reported exposure to at least one

lifetime traumatic event were included in the final analysis. After filtering the total participant pool by trauma exposure and survey completion status, 34 participants were eliminated, and 26 were removed due to reporting no trauma exposure. Additionally, 8 were removed due to not completing at least 80% of the survey, thus resulting in 242 participants being retained in the final sample. The ages of participants ranged from 18 to 45 years ($M = 20.40$, $SD = 3.22$). 74.9% of the participants reported their gender as female, 24.7% identified as male, and 0.4% of participants identified as non-binary. The majority of the participants self-identified their ethnicity as White/Caucasian (74.5%), and the remaining participants identified as African American (19.8%), Hispanic (4.1%), Asian American (0.8%), and Other (0.8%). Participants represented various college classes with 26.3% identifying as first-year students, 31.4% identifying as second-year students, 19.8% identifying as third-year students, 20.2% identifying as fourth-year students, 1.7% identifying as graduate students, and 0.4% identifying as other.

Instruments

Demographics. Prior to completing the instruments of the study, participants completed a demographic questionnaire that includes participants' age, gender, relationship status, academic classification, ethnicity, and academic major.

Life Events Checklist for DSM-5 (LEC-5; Gray et al., 2004; Weathers et al., 2013). The LEC-5 is a 17-item self-report questionnaire that assesses lifetime exposure to traumatic events and was used to assess exposure to traumatic events. The LEC-5 was created at the National Center for PTSD to assess exposure to potentially 16 traumatic events by using a 6-point nominal scale ranging from 0 (*happened to me*) to 5 (*doesn't apply*). Sample items include “natural disaster (for example, flood, hurricane, tornado,

earthquake),” and “sudden accidental death.” In the screening process, a total trauma-exposure score can be measured by summing all of the items, and the total scores will be used to determine which students are trauma-exposed participants that can be included in this study. In a sample of U.S. combat veterans, total LEC-5 scores were associated with most of the measures of psychopathology, specifically, the largest correlation coefficients were associated with the trauma-specific measure of distress, including the Mississippi Scale for Combat-Related PTSD ($r = -.33$), the Clinician Administered PTSD Scale ($r = -.39$), the Beck Depression Inventory ($r = -.32$), and the Beck Anxiety Inventory ($r = -.27$). (Gray et al., 2004). Because the LEC is designed for screening traumatic events and is not a unidimensional construct, the Cronbach’s alpha coefficients were not assessed. However, prior studies have found that LEC-5 has good temporal stability (retest $r = .88$, 1-week interval; Gray et al., 2004). The LEC has also demonstrated excellent test-retest reliability, good internal consistency as well as convergent and divergent validity in a sample of college students (Blevins et al., 2015).

Satisfaction with Life Scale (SWLS; Diener et al., 1985). The SWLS was used to assess subjective well-being. The SWLS is composed of five items that measure one’s life satisfaction. Items are rated on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Sample items include “In most ways my life is close to my ideal” and “The conditions of my life are excellent.” The SWLS yields a total score, with higher scores indicating greater life satisfaction. Empirically findings suggested good convergent (e.g., positively correlated with happiness and self-esteem) and discriminant (e.g., negatively correlated with psychological stress) validity of the scale. The scale has good convergent and discriminant validity as it has strong correlations with other

constructs such as happiness ($r = .47$) and self-esteem ($r = .64$) and psychological distress ($r = -.56$; Pavot & Diener, 2008). The scale has strong internal consistency with Cronbach's alpha coefficients of .87 and a 2-month test-retest stability of .82 (Diener et al., 1985). In a sample of college students, it showed good internal consistency with a Cronbach's alpha of .84 (Costa et al., 2013). In the present study, the Cronbach's alpha was .91.

Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002). The GQ-6 is composed of six self-reported items questionnaire and measures one's tendency to experience gratitude in daily life. Items are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) and assess gratitude as a single factor on the basis of the experience of gratefulness and appreciation in daily life. Items included statements such as "If I had to list everything that I felt grateful for, it would be a very long list." The GQ-6 scale yields a total score (items three and six are reverse coded), with higher scores indicating greater levels of dispositional hope. Empirical findings have found excellent psychometric properties for this instrument and shown that the GQ-6 is associated with similar constructs such as vitality, optimism, hope, and positive emotionality and can be discriminated from related constructs such as life satisfaction (McCullough et al., 2002). Also, prior research showed a Cronbach's alpha coefficient of .76 for the GQ-6 among college students (McCullough et al., 2002). In the present study, the Cronbach's alpha was .83.

Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The PTGI includes 21 items that assess responses to positive outcomes to events that were previously identified as traumatic and stressful. Respondents are instructed to rate on a 6-

point Likert scale ranging from (*I did not change as a result of the event I described*) to 5 (*I changed to a very great degree as a result of the event I described*). Sample items consist of statements such as “Knowing that I can count on people in times of trouble,” and “I established a new path for my life.” Although the PTGI has both a total score and five subscale scores, we will only use the total score as the moderator variable of interest (Tedeschi & Calhoun, 1996). The total score can range from 0 to 105, and higher scores suggest higher levels of posttraumatic growth. The five subscales of this measure reflect the five major domains of posttraumatic growth, including increased appreciation of life, better relationships with others, recognition of personal strength, new possibilities, and spiritual growth or changes in life philosophy. The measure has an internal consistency of .90, and test-retest reliability of .71 (Tedeschi & Calhoun, 1996). Convergent validity is supported by evidence that a significant correlation ($r = .69$) is reported between the PTGI responses of the trauma survivors and the corroborating significant others (Shakespeare-Finch et al., 2015). In a sample of college students, the Cronbach’s alpha coefficient was .93 for total scale scores (Anderson & Lopez-Baez, 2011). In the present study, the Cronbach’s alpha was .96.

Adult Dispositional Hope Scale (ADHS; Snyder et al., 1991). The ADHS consists of 12 items that assess an individual’s global level of hope. Participants are asked to rate on an 8-point Likert scale ranging from 1 (*definitely false*) and 8 (*definitely true*). Total scores for the ADHS will be computed and these scores will range from 1 to 64, with a higher score indicating a higher level of hope. Sample items include “I can think of many ways to get out of a jam” and “I can think of many ways to get the things in life that are important to me.” In terms of internal consistency, prior studies have found

that Hope scale has good psychometric properties ($\alpha = .90$), and temporal stability (retest $r = .71$; Snyder et al., 1991). Validity is supported by findings that the Hope scale scores are positively associated with similar constructs such as optimism, self-esteem, and self-efficacy, and negatively correlated with negative affectivity (Snyder et al., 2002). The Cronbach's alpha was .86 for the overall hope scale in a sample of 213 college freshmen (Snyder et al., 2002). The Cronbach's alpha was .90 in the current study.

Mental Health Continuum-Short Form (MHC-SF; Keyes et al., 2008). The MHC-SF consists of 14 items and is used to assess psychological well-being. The MHC-SF reflects three dimensions of well-being: emotional well-being, social well-being, and psychological well-being. The measure uses a 6-point Likert scale (never, once or twice a month, about once a week, two or three times a week, almost every day, every day). Item examples include "During the past month, how often did you feel interested in life." An overall measure of psychological well-being will be calculated by summing scores from all 14 items. Prior studies have found good psychometric properties for this instrument and shown that the MHC-SF is positively associated with similar constructs such as life satisfaction and can be discriminated from related constructs such as depression (Keyes et al., 2008; Petrillo et al., 2015). The MHC-SF has strong internal consistency with Cronbach's alpha coefficient of .89, as well as confirming the two continua model of mental health (Perugini et al., 2017; Petrillo et al., 2015). The psychometric properties of MHC-SF have also found to be good (Cronbach's alpha of .88) in a sample of college students (Lamers et al., 2011). In the present study, the Cronbach's alpha was .93.

Procedure

After approval was received from the university's Institutional Review Board (IRB), the researcher sent emails to undergraduate instructors at a middle-sized public university to recruit research participants from their classes. Additionally, emails described the details of this study including how the study was conducted and time commitment. Participants were recruited via an online survey platform by sending out survey links, and researcher requested instructors to offer extra credit for participation. The survey included informed consent, demographics questionnaire, and six instruments that use to measure participants' traumatic life events, dispositional gratitude and dispositional hope, PTG, and both subjective well-being and psychological well-being. In the informed consent, participants were notified that participation is completely voluntary, and they can withdraw without any consequences. Participants' information remained confidential throughout the process, and informed consents and demographics questionnaires that contain confidential identifying information were not collected in order to maintain anonymity.

CHAPTER III

RESULTS

Preliminary Analyses

Prior to testing any hypotheses, assumptions for regression analyses were assessed. In order to identify and eliminate data of participants who were responding in careless manner, data cleaning procedures were conducted. Participants who met the criteria for completing less than 80% of the survey were not included in the data analysis (Tabachnick & Fidell, 2013). In order to determine whether the remaining data were missing completely at random, Little's Missing Completely at Random (MCAR) test was conducted. According to Tabachnick and Fidell (2013), it is recommended to retain the cases with missing data and perform a data replacement method when missing data represent a small portion of a larger dataset and the occurrence of missing data is not completely at random. Results of Little's MCAR test determined that data were missing completely at random; therefore, the data were not altered. The person mean substitution method was used to replace missing data given that previous research has suggested that this method is preferred to other techniques such as list-wise deletion or item mean substitution (Downey & King, 1998).

An outlier analysis for each construct scale was conducted by using the Mahalanobis distance (Meade & Craig, 2012). Preliminary exploratory analyses indicated that there were no issues with outliers as the highest Cook's Distance value was found to

be less than 1 and the highest Mahalanobis distance was higher than the critical value for Mahalanobis distance. The independence of observations assumption was met, as assessed by Durbin-Watson values of 1.73 and 1.84. Multicollinearity did not appear to occur since the VIF values were less than 5. An analysis of scatterplots suggested that assumptions of linearity and homoscedasticity were met as the scatterplots did not produce any identifiable patterns that would suggest those assumptions were violated. The normality assumption also was met as the Q-Q Plot of the standardized residuals showed only a slight departure from the line of best fit. Additionally, the Shapiro-Wilk values were found to be significant for the dependent variables, suggesting the residual normality assumptions were met.

Correlations

Bivariate correlations were conducted to test hypotheses 1 and 2 (see Table 1). The first hypothesis stated that gratitude would be significantly and positively related to both SWB and PWB. As predicted, the results indicated that gratitude had a significant and positive association with SWB ($r = .48, p < .001$), as well as with PWB ($r = .43, p < .001$). The second hypothesis predicted significant positive associations between hope and both SWB and PWB, respectively. As expected, the results indicated that hope had significant and positive associations with SWB ($r = .61, p < .001$) and PWB ($r = .62, p < .001$), respectively. Therefore, hypotheses 1 and 2 were supported.

Table 1
Means, Standard Deviations, Cronbach's Alphas, and Bivariate Correlations Among the Study Variables

Variable	1	2	3	4	5	<i>M</i>	<i>SD</i>	Alpha
1. GQ	--	.476**	.219**	.487**	.436**	5.74	1.26	.83
2. HOPE	--	--	.428**	.612**	.619**	5.98	1.26	.90
3. PTGI	--	--	--	.478**	.516**	2.69	1.21	.96
4. SWB	--	--	--	--	.825**	4.50	1.50	.91
5. MHC	--	--	--	--	--	3.97	1.13	.93

Note. N=243. 1= The Gratitude Questionnaire, 2= Hope Scale, 3= Posttraumatic Growth Inventory 4= Subjective Well-Being, 5= Psychological Well-Being. ** $p < .001$

Moderations

Four separate moderation models were conducted for the purpose of testing the remaining hypotheses. These analyses were conducted by using Hayes' SPSS macro PROCESS (Hayes, 2019; see Table 2 and 3). In each of the moderation analyses, 5,000 bootstrap resamples were used to produce 95% biased-corrected confidence intervals. Four distinct models were tested to determine whether PTG moderated the relationships between the dispositional traits of gratitude and hope and two forms of well-being (SWB and PWB).

Hypothesis 3 stated that PTG would moderate the relationships between gratitude and subjective well-being. In the first model, the results indicated that posttraumatic growth moderated the relationship between gratitude and subjective well-being, ($R^2 = .41$, $F [3, 239] = 55.25$, $p < .001$). A statistically significant direct effect ($b = -.14$, $B = -.78$, $p = .002$, 95% CI = $-.23, -.05$) was observed between gratitude and subjective well-being, thus indicating that at each level of gratitude, PTG significantly strengthened the relationship between gratitude and SWB. More specifically, a negative beta coefficient value for the interaction was observed, therefore, a simple slopes analysis was conducted

to visualize the interaction effect. The simple slopes analysis was generated by examining the results produced by Hayes' PROCESS macro and that the slope of each line was tested at -1 SD, the mean, and +1 SD. As can be seen from the interaction in Figure 1, at low levels of PTG (-1 SD), the moderating effect of PTG produced a stronger, positive relationship between gratitude and SWB than under higher levels of PTG (+1 SD).



Figure 1. *Interactions of PTG and Gratitude on SWB*

Likewise, the second model was consistent with the hypothesis 4 that posttraumatic growth moderated the relationship between gratitude and psychological well-being, ($R^2 = .40$, $F [3, 239] = 54.15$, $p < .001$). Additionally, a statistically significant interaction was observed when PTG was included as a moderator ($b = -.11$, $B = -.85$, $p < .001$, $95\% \text{ CI} = -.18, -.05$). The results showed that at each level of gratitude, PTG significantly strengthened the relationship between gratitude and PWB, such that higher levels of PTG strengthened the positive relationship between gratitude and PWB. Similarly, we conducted another simple slope analysis to visualize the interaction effect because of the negative beta coefficient value. The simple slopes analysis was created by

examining the results produced by Hayes' PROCESS macro and that the slope of each line was tested at -1 SD, the mean, and +1 SD. As can be seen from the interaction in Figure 2, at high levels of PTG (+1 SD), the moderating effect of PTG on the relationship between gratitude and PWB was attenuated. See Table 2 for more information regarding the first two moderation models.



Figure 2. Interactions of PTG and Gratitude on PWB

Table 2

Tests of Posttraumatic Growth as Moderator of Relations for Gratitude and Subjective Well-being, Gratitude and Psychological Well-being

Testing Steps in Moderation Models	<i>B</i>	<i>SE</i>	<i>Model</i>	95% CI
<i>Subjective Well-being</i>				
Gratitude (X)	.71**	.13	$R^2 = .41, F(3,239) = 54.25$	[.58, 1.11]
Posttraumatic Growth (M)	1.02**	.07		[.75, 1.78]
Gratitude * Posttraumatic Growth (X*M)	-.78**	.04		[-.23, -.05]
<i>Psychological Well-being</i>				
Gratitude (X)	.68**	.10	$R^2 = .40, F(3,239) = 54.15$	[.40, .80]
Posttraumatic Growth (M)	.1.14**	.19		[.66, 1.43]
Gratitude * Posttraumatic Growth (X*M)	-.85**	.03		[-.18, -.05]

Note: CI = confidence interval. * $p < .05$, ** $p < .001$

Hypotheses 5 and 6 state that PTG would moderate the relationships between hope and well-being (both SWB and PWB). The results of the moderation models did not support the hypotheses. With regards to hypothesis 5, results indicated that PTG and hope accounted for a statistically significant amount of variance in SWB ($R^2 = .44, F[3, 239] = 61.56, p < .001$). The direct effect between hope and SWB was statistically significant ($b = .75, p < .001$), as was the effect between PTG and SWB ($b = .74, p = .01$). This suggests that both hope and PTG had a statistically significant and positive relationship with SWB. However, the interaction between PTG and hope was not statistically significant ($b = -.07, p = .15, 95\% \text{ CI} = -.16, .03$), suggesting that PTG did not moderate the relationship between hope and SWB. Therefore, hypothesis 5 was not supported.

Similarly, results for hypothesis 6 indicated that although the overall model was

significant ($R^2 = .46$, $F [3, 239] = 67.91$, $p < .001$), the interaction between PTG and hope was not statistically significant ($b = .003$, $p = .92$, 95% CI = $-.06, .07$). This also suggests that PTG did not moderate the relationship between hope and PWB. Therefore, hypothesis 6 was not supported. See Table 3 for more information regarding the moderation models.

Table 3

Tests of Posttraumatic Growth as Moderator of Relations for Each of Hope and Subjective Well-being, Hope and Psychological Well-being

Testing Steps in Moderation Models	<i>B</i>	<i>SE</i>	<i>Model</i>	95% CI
<i>Subjective Well-being</i>				
Hope (X)	.63**	.12	$R^2 = .43$, $F (3,239) = 61.56$	[.50, .99]
Posttraumatic Growth (M)	.60*	.29		[.16, 1.31]
Hope * Posttraumatic Growth (X*M)	.41	.04		[-.16, .02]
<i>Psychological Well-being</i>				
Hope (X)	.48**	.09	$R^2 = .46$, $F (3,239) = 67.91$	[-.37, 1.68]
Posttraumatic Growth (M)	.28	.21		[-.16, .68]
Hope * Posttraumatic Growth (X*M)	.03	.03		[-.06, .07]

Note: CI = confidence interval. * $p < .05$, ** $p < .001$

CHAPTER IV

DISCUSSION

The purpose of this study was to explore whether posttraumatic growth moderates the relationships between two positive dispositional traits (i.e., gratitude and hope) and each of SWB and PWB among trauma-exposed college students. Previous research indicates that gratitude and hope are positively associated with both subjective well-being and psychological well-being. Further, research has shown that the higher a given dispositional trait, the higher the levels of well-being (Parker et al., 2015; Sears & Kraus, 2009; Wood et al., 2008; Watkins et al., 2003). The current study sought to replicate previous research findings on gratitude and hope on these forms of well-being while also adding to the existing literature by exploring the potential moderating role of PTG in relation to these dispositional traits and well-being.

The first two hypotheses were that gratitude and hope, conceived as dispositional traits, would significantly and positively predict well-being among trauma-exposed individuals. The results of this study confirmed that the first two hypotheses were supported as significant positive associations were found between dispositional traits (gratitude and hope) and well-being (SWB and PWB). These results indicate that gratitude and hope are positively associated with well-being among individuals who have experienced trauma. Wood et al. (2008) reported that grateful individuals were more likely to experience positive affect and life satisfaction. Further, Fredrickson et al. (2013)

suggested that gratitude is a key ingredient of resilience following trauma. The findings of this study corroborated the previous findings. Gratitude and hope are not only associated with pleasant feelings and satisfied life appraisals (i.e., SWB), but also with mentally healthier and meaningful lives when including positive interpersonal relationships with others, personal growth, and meaning in life (i.e., PWB). More specifically, these results suggest that gratitude and hope could facilitate positive emotions and engagement in life after traumatic life events, which in turn promote people's well-being.

Regarding the moderating role of PTG (hypotheses 3 and 4), the results indicated that PTG moderated the relationships between gratitude and well-being (both for SWB and PWB). These findings suggest that hypotheses 3 and 4 were supported. However, the findings were in an unexpected direction. The results suggest that the positive relationships between gratitude and well-being (for both SWB and PWB) were attenuated at higher levels of PTG, suggesting that the moderating effect of PTG on individuals' well-being was reduced at higher levels of gratitude. However, it is important to note that PTG did have a significantly positive effect on well-being for individuals at each level of PTG. More specifically, these findings suggest that trauma-exposed college students who were high on the dispositional gratitude scale, this is who were grateful, and who developed posttraumatic growth, were most likely to experience increased well-being (both SWB and PWB). But, at higher levels of PTG, posttraumatic growth has a less positive impact on people's well-being even when they possess high levels of gratitude. It is possible that more grateful individuals suffering from emotional and psychological difficulties after trauma might heal and grow through other factors such as supportive

family and friends. Another possible explanation is that, at higher levels of PTG, individuals may spend more time searching for the meaning of life and reconstructing their understanding of self and world instead of focusing on their well-being. This, in turn, could lead to less perceived positive changes on well-being.

Hypotheses 5 and 6 focused on the potential of PTG to moderate the relationships between hope and well-being (for both SWB and PWB). This study failed to find support for PTG as a moderator of these relationships. However, Ho et al. (2011) suggested that, through cognitive reconstruction and engagement of positive adaptation, hopeful individuals are likely to experience personal growth and increased well-being after trauma. In other words, a sense of hope may foster the development of PTG by individuals reconstructing their understanding of themselves and the world, which in turn, may lead to increased well-being. Additionally, there is evidence that PTG is often produced through active engagement of positive adaptation (Joseph & Linley, 2005). Therefore, future research should further examine whether PTG mediates the relationship between hope and well-being. This would contribute to an understanding of the role of PTG in the relationship between hope and well-being, as well as explore the underlying mechanisms that influence the occurrence of PTG.

Implications

Research has shown that individuals exposed to traumatic life events were associated with more negative outcomes, including functional impairment, emotional adjustment, and difficulties, and impaired both SWB and PWB (Richardson et al., 2008). In addition, many trauma-exposed college students experience college adjustment difficulties (Read et al., 2011) and other maladaptive behaviors (Weiss et al., 2018). The

current findings contribute to literature by furthering our understanding of the relationship between dispositional traits and well-being in relation to posttraumatic growth.

As expected, this study has demonstrated that the beneficial effects of posttraumatic growth may be best understood when considered in the context of positive dispositional traits. Considering the importance of facilitating positivity in people's life, implementing therapeutic interventions specifically focused on enhancing all these dimensions (gratitude, hope, posttraumatic growth) could be helpful in the treatment of trauma-exposed college students.

Specifically, mental health professionals at university counseling centers may attempt to assist trauma-exposed college students by facilitating positive dispositional traits (e.g., gratitude and hope) in order to enhance their well-being. For example, mindfulness interventions can be used to reduce the negative effects of trauma as previous research shows that mindfulness training could help cultivate dispositional traits such as gratitude and hope (Pang & Ruch, 2019; Tedeschi & Calhoun, 1996). In clinical settings, mental health professionals tend to implement treatments that focus on reducing negative symptoms. However, it may also be important to help college students to cope with negative effects of trauma by promoting positive factors such as gratitude and hope.

In addition, the results of the present study suggest that PTG is significantly and positively associated with individuals' well-being. Additionally, the results indicate that PTG moderates the impact of gratitude on well-being, suggesting that therapeutic efforts to foster PTG might help to reduce the resistance and avoidance of distressing thoughts and emotions related to trauma. Given that PTG has positive effects on people's well-

being, therapeutic effectors to foster PTG might be helpful in reducing the negative effects of trauma by reconstructing trauma narrative and finding new meanings in life. Tedeschi and McNally (2011) outlined 5 specific elements that can be used by mental health professionals as therapeutic enhancement strategies to foster PTG. The 5 elements are: (1) understanding trauma response as a precursor to closure, (2) emotion regulation enhancement, 3 constructive self-disclosure, 4 creating a trauma narrative with PTG domains, and (5) developing life principles that are robust to challenges. Thus, it is recommended that professionals incorporate such elements into their therapeutic interventions to facilitate PTG as way of promoting well-being among trauma-exposed college students.

Limitations

There were several limitations of this study. First, the majority of participants in this study were undergraduate students from a southern rural university, which limits the generalizability of these results. Future research may benefit from obtaining data from a more diverse sample size to provide a more comprehensive representation of the college student population. Second, data used for analysis in this study were collected exclusively through self-report measures; therefore, participants may have responded to survey items in a socially desirable way or may have felt uncomfortable reporting personal information about trauma exposure. Third, due to its cross-sectional and correlational research design, no causative relationships should be assumed when interpreting the findings. Fourth, although this study has demonstrated that trait-like characteristics are positively associated with well-being among trauma-exposed individuals, how trauma exposure is measured may need to be modified given variability in how individuals experience

traumatic life events. For example, the severity of trauma experienced may be associated with many factors such as social support and socioeconomic background and this may influence a person's experienced distress following trauma.

Conclusion

Despite these limitations, this study contributes to existing literature by providing support for the moderating effects of posttraumatic growth in the relationships between gratitude and SWB, as well as gratitude and PWB. The present results also replicated prior findings showing that each of gratitude and hope positively predict both SWB and PWB. Therefore, providing a supportive environment for therapists to help clients identify and build upon their positive traits such as tendencies to be grateful and hopeful may promote higher levels of well-being, although future research needs to examine whether this is the case using experimental methods. Additionally, future research is needed to evaluate the efficacy of interventions that target both dispositional traits and PTG in promoting well-being and related outcomes among trauma-exposed populations. Taken together, the well-being, posttraumatic growth, and a person's experiences after encountering traumatic life events can be better understood by exploring both the personal growth and the positive changes the person has experienced.

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APPENDIX A
DEMOGRAPHIC QUESTIONNAIRE

Directions: Please answer the following questions as honestly and accurately as possible:

- 1) Age in years _____

- 2) What gender do you identify as: Male _____ Female _____ Other _____

- 3) Current year/status in school? Freshman _____ Sophomore _____ Junior _____
Senior _____ Graduate _____ Other _____

- 4) Current Relationship Status?

Single _____ Casually dating _____ Committed relationship _____ Engaged _____

Married _____ Separated _____ Divorced _____ Widowed _____

- 5) With which ethnic group do you **most** identify?
African American _____
Asian American _____
Caucasian _____
Hispanic/Latino _____
Native American _____
Biracial _____
Other _____

- 6) Current Major (if any) or undecided _____

APPENDIX B
LIFE EVENTS CHECKLIST FOR DSM-5

Life Events Checklist for DSM-5 (LEC-5):

Part 1

Instructions: Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it happened to you personally; (b) you witnessed it happen to someone else; (c) you learned about it happening to a close family member or close friend; (d) you were exposed to it as part of your job (for example, paramedic, police, military, or other first responder); (e) you're not sure if it fits; or (f) it doesn't apply to you.

Be sure to consider your *entire life* (growing up as well as adulthood) as you go through the list of events.

Event	Happened to me	Witnessed it	Learned about it	Part of my job	Not sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)						
2. Fire or explosion						
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)						
4. Serious accident at work, home, or during recreational activity						
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)						
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)						
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)						
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)						
9. Other unwanted or uncomfortable sexual experience						
10. Combat or exposure to a war-zone (in the military or as a civilian)						
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)						
12. Life-threatening illness or injury						
13. Severe human suffering						
14. Sudden violent death (for example, homicide, suicide)						
15. Sudden accidental death						
16. Serious injury, harm, or death you caused to someone else						
17. Any other very stressful event or experience						

Part 2

A. If you checked anything for #17 in PART 1, briefly identify the event you were thinking of:

B. If you have experienced more than one of the events in PART 1, think about the event you consider the worst event, which for this questionnaire means the event that currently bothers you the most. If you have experienced only one of the events in PART 1, use that one as the worst event. Please answer the following questions about the worst event (check all options that apply):

1. Briefly describe the worst event (for example, what happened, who was involved, etc.).
 2. How long ago did it happen? _____ (please estimate if you are not sure)
 3. How did you experience it?
 - ___ It happened to me directly
 - ___ I witnessed it
 - ___ I learned about it happening to a close family member or close friend
 - ___ I was repeatedly exposed to details about it as part of my job (for example, paramedic, police, military, or other first responder)
 - ___ Other, please describe: _____
 4. Was someone's life in danger?
 - ___ Yes, my life
 - ___ Yes, someone else's life
 - ___ No
 5. Was someone seriously injured or killed?
 - ___ Yes, I was seriously injured
 - ___ Yes, someone else was seriously injured or killed
 - ___ No
 6. Did it involve sexual violence? ___ Yes ___ No
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7. If the event involved the death of a close family member or close friend, was it due to some kind of accident or violence, or was it due to natural causes?
- Accident or violence
- Natural causes
- Not applicable (The event did not involve the death of a close family member or close friend)
8. How many times altogether have you experienced a similar event as stressful or nearly as stressful as the worst event?
- Just once
- More than once (please specify or estimate the total # of times you have had this experience _____)
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APPENDIX C
SATISFACTION WITH LIFE SCALE

Satisfaction With Life Scale (SWLS):

Instructions: Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

_____ In most ways my life is close to my ideal.

_____ The conditions of my life are excellent.

_____ I am satisfied with my life.

_____ So far I have gotten the important things I want in life.

_____ If I could live my life over, I would change almost nothing.

APPENDIX D

MENTAL HEALTH CONTINUUM-SHORT FORM

Brief Description of the Mental Health Continuum Short Form (MHC-SF):

Please answer the following questions are about how you have been feeling during the past month. Place a check mark in the box that best represents how often you have experienced or felt the following:

During the past month, how often did you feel ...	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	ABOUT 2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
1. happy						
2. interested in life						
3. satisfied with life						
4. that you had something important to contribute to society						
5. that you belonged to a community (like a social group, or your neighborhood)						
SEE BELOW 6. that our society is a good place, or is becoming a better place, for all people						
7. that people are basically good						
8. that the way our society works makes sense to you						
9. that you liked most parts of your personality						
10. good at managing the responsibilities of your daily life						
11. that you had warm and trusting relationships with others						
12. that you had experiences that challenged you to grow and become a better person						
13. confident to think or express your own ideas and opinions						
14. that your life has a sense of direction or meaning to it						

APPENDIX E
GRATITUDE QUESTIONNAIRE-6

The Gratitude Questionnaire-Six Item Form (GQ-6):

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1 = strongly disagree

2 = disagree

3 = slightly disagree

4 = neutral

5 = slightly agree

6 = agree

7 = strongly agree

___ 1. I have so much in life to be thankful for.

___ 2. If I had to list everything that I felt grateful for, it would be a very long list.

___ 3. When I look at the world, I don't see much to be grateful for.*

___ 4. I am grateful to a wide variety of people.

___ 5. As I get older I find myself more able to appreciate the people, events, and situations that have been part of my life history.

___ 6. Long amounts of time can go by before I feel grateful to something or someone.*

*Items 3 and 6 are reverse-scored.

APPENDIX F
ADULT DISPOSITIONAL HOPE SCALE

The Trait Hope Scale:

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1. = Definitely False

2. = Mostly False

3. = Somewhat False

4. = Slightly False

5. = Slightly True

6. = Somewhat True

7. = Mostly True

8. = Definitely True

___ 1. I can think of many ways to get out of a jam.

___ 2. I energetically pursue my goals.

___ 3. I feel tired most of the time.

___ 4. There are lots of ways around any problem.

___ 5. I am easily downed in an argument.

___ 6. I can think of many ways to get the things in life that are important to me.

___ 7. I worry about my health.

___ 8. Even when others get discouraged, I know I can find a way to solve the problem.

___ 9. My past experiences have prepared me well for my future.

___ 10. I've been pretty successful in life.

___ 11. I usually find myself worrying about something.

___ 12. I meet the goals that I set for myself.

Note. When administering the scale, it is called The Future Scale. The agency subscale score is derived by summing items 2, 9, 10, and 12; the pathway subscale score is derived by adding items 1, 4, 6, and 8. The total Hope Scale score is derived by summing the four agency and the four pathway items.

APPENDIX G
POSTTRAUMATIC GROWTH INVENTORY

Posttraumatic Growth Inventory:

Listed below are 21 areas that are sometimes reported to have changed after traumatic events. Please mark the appropriate box beside each description indicating how much you feel you have experienced change in the area described.

The 0 to 5 scale is as follows: 0 = I did not experience this change as a result of my crisis
 1 = I experienced this change to a very small degree 2 = a small degree 3 = a moderate degree 4 = a great degree 5 = a very great degree as a result of my crisis

	possible areas of growth and change	0	1	2	3	4	5
a.	my priorities about what is important in life						
b.	an appreciation for the value of my own life						
c.	I developed new interests						
d.	a feeling of self-reliance						
e.	a better understanding of spiritual matters						
f.	knowing that I can count on people in times of trouble						
g.	I established a new path for my life						
h.	a sense of closeness with others						
i.	a willingness to express my emotions						
j.	knowing I can handle difficulties						
k.	I'm able to do better things with my life						
l.	being able to accept the way things work out						
m.	appreciating each day						
n.	new opportunities are available which wouldn't have been otherwise						
o.	having compassion for others						
p.	putting effort into my relationships						
q.	I'm more likely to try to change things which need changing						
r.	I have a stronger religious faith						
s.	I discovered that I am stronger than I thought I was						
t.	I learned a great deal about how wonderful people are						
u.	I accept needing others						