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**Self-Compassion and Experiential Avoidance:
Potential Pathways to Posttraumatic Growth**

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Abstract

Social support has been identified as one of the most consistent predictors of posttraumatic growth (PTG). Although the role of social support in the process of PTG is informative, social support is intrinsically reliant on *other* people. Identifying internal, potentially malleable, factors that are associated with PTG is essential for developing preventative interventions to improve trauma-related outcomes and increase levels of PTG among trauma survivors. Internal processes such as self-compassion and experiential avoidance may promote, or interfere with, deliberate processing and the subsequent development of PTG; however, this has not yet been examined in the literature. Thus, the primary aims of the current study were to: 1) examine the associations between PTG, social support, self-compassion, and experiential avoidance; 2) investigate if self-compassion has an indirect effect on the link between social support and PTG; 3) evaluate whether self-compassion or experiential avoidance moderate the relationship between social support and PTG. The sample included 398 trauma-exposed adults ($M_{age} = 30.56$, $SD = 10.64$; 67.6% female; 68.6% white). PTG was positively correlated with social support, self-compassion, and experiential avoidance ($r_s = .12-.16$). Mediation results revealed an indirect effect for social support and PTG via self-compassion ($B = .08$) and experiential avoidance was found to moderate the relationship between social support and PTG ($B = .01$). These findings indicate that both self-compassion and experiential avoidance may be key internal factors relevant in understanding individuals' propensity for growth in the aftermath of trauma.

Keywords: posttraumatic growth; self-compassion; experiential avoidance; social support

**Self-Compassion and Experiential Avoidance:
Potential Pathways to Posttraumatic Growth**

Trauma exposure is, unfortunately, incredibly common in the general population, with 89.7% of Americans being exposed to at least one traumatic event in their lifetime (Kilpatrick et al., 2013). Despite these high rates of trauma exposure, the subsequent development of posttraumatic stress disorder (PTSD) following trauma is relatively rare (~7-8%; National Center for PTSD, 2019), with most individuals recovering psychologically over time. The literature on trauma exposure and subsequent responses is robust, with most of this research exploring detrimental outcomes to trauma like PTSD. Given the significant economic and personal costs associated with PTSD (Ivanova et al., 2011; Peterson et al., 2017; Rodriguez et al., 2012), this work has been vital in further understanding the disorder and establishing effective treatments. However, it is not the only response to trauma that is worthy of investigation and research is needed to understand more adaptive responses to trauma, such as posttraumatic growth (PTG). Not only is PTG beneficial on its own, but research also suggests that PTG serves a protective function in the presence of posttraumatic stress symptoms (PTSS) and buffers against the detrimental effects of PTSD on mental and physical health (Tsai et al., 2015).

Leading theories of PTG emphasize the necessity of deliberate processing and meaning making in the process of PTG (Joseph & Linley, 2006; Tedeschi & Calhoun, 2004), and social support has been identified as one of the most consistent predictors of PTG (García et al., 2014; Kolokotroni et al., 2014; Koutrouli et al., 2012; Mark et al., 2018; Prati & Pietrantonio, 2009; Tsai et al., 2015). One of the ways in which social support may foster PTG is through more effective coping (e.g., deliberate processing) of

the traumatic event(s) (Cordova et al., 2001; Scrignaro et al., 2011; Swickert & Hittner, 2009). However, internal processes, such as self-compassion and experiential avoidance, that may similarly promote, or interfere with, deliberate processing and the subsequent development of PTG have not yet been examined in the literature. Understanding internal, potentially malleable, factors that are associated with PTG is essential for developing preventative interventions to improve trauma-related outcomes and increase levels of PTG among trauma survivors. The primary aim of the current study was to investigate the links between self-compassion and experiential avoidance and PTG, and determine whether these two factors either have an indirect effect on or moderate the relationships between previously identified predictors of PTG.

Overview of Posttraumatic Growth

Despite the fact that trauma research has historically focused on PTSD, the majority of individuals exposed to trauma exhibit resiliency (Bonanno et al., 2006; Bonanno & Mancini, 2012). Furthermore, many trauma survivors move beyond resilience and experience transformative growth, termed PTG (Tedeschi & Calhoun, 2007). PTG is conceptualized as positive psychological change following exposure to traumatic or stressful life events that involves improvement beyond baseline functioning (Tedeschi & Calhoun, 2007). Individuals who exhibit high levels of PTG thrive following exposure to trauma, characterized by feelings of personal strength, spiritual awakenings, and a greater appreciation for life, others, and the self (Tedeschi & Calhoun, 2004, 2007).

Many individuals may experience some level of growth following traumatic or stressful incidents (Hijazi et al., 2015; Pietrzak et al., 2010; Wu et al., 2019). A meta-analysis examining prevalence rates of PTG found that 51% of participants reported at

least moderate levels of PTG and rates of moderate to high PTG ranged from 10% to 77.3% across studies, resulting in a combined prevalence rate of 52.58% of moderate to high PTG (Wu et al., 2019). Notably, some of the studies examined in this meta-analysis focused on stressful life events that may not qualify as Criterion A traumatic events (i.e., diabetic outpatients). However, there are also clear indications that PTG is present among many survivors of Criterion A traumatic events as well. For example, two separate studies of combat-exposed veterans endorsed similarly high rates of PTG. A study of treatment-seeking combat veterans found that 69% of participants endorsed at least a moderate degree of PTG on at least one growth dimension (i.e., increased appreciation of life, spiritual change) (Hijazi et al., 2015). A study of primarily older adult combat veterans reported that 72% endorsed a significant level of PTG on at least one domain (Pietrzak et al., 2010). These findings indicate that high rates of PTG may be similarly present following Criterion A traumatic events.

Theoretical origins of PTG

Theoretical explanations for PTG, including the functional descriptive model (Tedeschi & Calhoun, 2004) and the organismic valuing process theory of growth (OVP; Joseph & Linley, 2006) both highlight the role of deliberate processing of the trauma. The functional descriptive model of PTG posits that growth in the aftermath of trauma occurs due to an individual's struggle with and deliberate processing of trauma-related challenges or disturbances to one's core beliefs and assumptions (Tedeschi & Calhoun, 2004). Within this model, PTG is theorized to consist of improvement in five key domains including relating to others, personal strength, appreciation for life, spiritual change, and new possibilities (Tedeschi & Calhoun, 2004). This theory asserts that initial

trauma-related rumination is automatic and does not effectively address or re-construct the trauma-related maladaptive schemas and alterations to core beliefs. Thus, subsequent intentional processing is essential to address trauma-related cognitive distortions and disrupted beliefs and for meaning making and positive transformation to occur. Indeed, empirical work supports the premise that PTG does not develop automatically but rather requires deliberate cognitive processing (Kolokotroni et al., 2014).

The OVP theory views PTG as an intrinsic drive toward actualization that is initiated by a traumatic experience (Joseph & Linley, 2006). This theory is rooted in the notion that humans are intrinsically motivated towards growth. The process of actualization theorized to occur in the OVP model requires the adaptive processing of trauma-related information through positive accommodation (i.e., incorporating new information into existing schemas) and often involves acceptance of one's whole self and finding meaning in life (Joseph, 2009; Joseph & Linley, 2005). The OVP model of PTG suggests that growth following adversity involves positive transformations related to: 1) relationships with others (including increased feelings of compassion), 2) views of oneself (including both a more positive view of oneself and greater acceptance of one's limitations), and 3) philosophy about life (Joseph & Linley, 2005). Research utilizing the OVP framework has demonstrated that supportive relationships that simultaneously provide support and promote autonomy and problem-focused coping strategies predict PTG six months later among cancer patients (Scrignaro et al., 2011).

Notably, the functional descriptive and OVP models of PTG both support the idea that traumatic events challenge individual's assumptions about the world and create psychological tension between pre- and post-trauma beliefs, and that subsequent PTG

requires intentional and adaptive processing of these altered cognitions. The emphasis on the necessity of deliberate processing in the aftermath of trauma may implicate a key mechanism in determining trauma trajectories. Furthermore, these theories posit that trauma affects survivor's interpretations of social interactions both related to oneself and others. The current literature has identified various factors that are related to PTG; however, less is known about how these variables might interact with each other and it is unclear how internal processes may influence these variables. A thorough understanding of factors that facilitate coping in the aftermath of trauma, and how they interact with each other, is essential in better understanding positive trauma trajectories and developing interventions that facilitate growth.

Factors associated with PTG

A range of factors associated with PTG have been implicated in prior research; however, not all proposed variables are consistently examined across studies, making it difficult to determine if differences among studies are indicative of true differences or are simply reflective of which variables are investigated in each study. For instance, in military samples, social support, spirituality, rumination, cognitive flexibility, perceptions of moral wrong-doing, and minority ethnicity have been identified as key variables associated with PTG (Hijazi et al., 2015; Mark et al., 2018; Tsai et al., 2015). Among breast cancer survivors, optimism, openness, deliberate rumination, perceived threat, coping strategies, social support, and race were related to PTG (Bellizzi et al., 2010; Kolokotroni et al., 2014; Koutrouli et al., 2012). Rumination, problem-focused coping, religious coping, social support, optimism, and gender were related to PTG for individuals who experienced natural disasters (Akbar & Witruk, 2016; Chan & Rhodes,

2013; García et al., 2014; García et al., 2016). Taken together, various coping strategies appear to be related to PTG across trauma types, and it is likely that there is significant overlap amongst these constructs, even when different terminology or forms of coping are used. Although the current literature provides ample evidence that a variety of factors are related to PTG, and differences in what variables are assessed and how they are measured makes comparison across studies difficult, social support has consistently emerged as a relevant factor in the process of PTG across studies and trauma types (García et al., 2014; Kolokotroni et al., 2014; Koutrouli et al., 2012; Mark et al., 2018; Prati & Pietrantoni, 2009; Tsai et al., 2015).

As PTG develops both intra- and interpersonally through cognitive and emotional processing of the trauma, it is likely heavily influenced by a combination of demographic, sociocultural, and interpersonal factors (Calhoun et al., 2010). For example, studies investigating the reason for higher rates of PTG among women have found that women's use of more adaptive coping in general (Akbar & Witruk, 2016) as well as women's greater use of social support coping (Swickert & Hittner, 2009) both mediate the relationship between gender and PTG. Thus, the relationship between gender and PTG may be better explained by differences in coping styles and processing of the traumatic experience that either promote or interfere with PTG. Emotional support may assist in constructing and processing narratives of the event as well as providing perspectives and interpretations that support the survivor's cognitive schema, which may in turn promote PTG. Alternatively, a lack of supportive close relationships has been shown to interfere with this processing (Cordova et al., 2001). Although these findings provide greater context for understanding the connections between gender, social support,

and PTG, there are key limitations associated with social support as a construct. Not only are there problems with how social support is defined and measured in the literature, but there is also the inescapable issue that social support is contingent on *other* people. Thus, the importance of social support in the context of PTG offers little actionable information that can be harnessed to enhance PTG among those with limited social support.

Therefore, it is essential to identify potentially malleable internal factors that may similarly facilitate PTG to inform future intervention efforts. Research is needed to explore whether social support similarly interacts with internal processes, such as self-compassion and experiential avoidance, in the context of PTG.

The current literature indicates that social support and self-compassion are related, are both inversely associated with PTSS, and may share similar characteristics that are tied to less trauma-related distress (Aspy & Proeve, 2017; Maheux & Price, 2016; Neff & Germer, 2013). The connection between social-support, self-compassion, and PTG have not yet been examined, however, conceptually it seems likely that similar interactions would be observed. It is necessary to determine the degree to which social support and self-compassion may interact in the context of PTG. The strong literature base that emphasizes the role of social support in the trauma response process provides a foundation for understanding the importance of social connectedness in the aftermath of trauma and suggests that examination of the links between social support, self-compassion, and PTG is warranted. Exploring internal mechanisms that possess the ability to enhance feelings of social connectedness is paramount in supporting trauma survivors.

Self-Compassion

Self-compassion is conceptualized as an internal resource that provides support to oneself during adversity (Winders et al., 2020). Self-compassion involves three main components that combine and mutually interact: 1) self-kindness versus self-judgment, 2) a sense of common humanity versus isolation, and 3) mindfulness versus over-identification (Neff 2003a, 2003b). Self-compassion is associated with traits linked to positive psychology, such as happiness, optimism, wisdom, curiosity/exploration, personal initiative, self-efficacy, and positive affect (Heffernan et al., 2010; Hollis-Walker & Colosimo, 2011; Smeets et al., 2014). Self-compassion is also related to greater levels of social connectedness (Aspy & Proeve, 2017; Neff & Germer, 2013), and thus may overlap in important ways with social support and PTG.

Similar to PTG, the concept of self-compassion is rooted in Buddhist philosophy and loving-kindness meditation which promotes compassion towards all living beings, including oneself (Neff, 2003a). Self-compassion allows individuals to be aware of their painful experiences without over-identifying with them or judging oneself and works to counter feelings of isolation and promote kindness towards oneself (Neff, 2003a, 2003b). Gilbert's (2005, 2018) theoretical model of self-compassion proposes that compassion is part of a prosocial motivational system that can identify suffering in order to regulate negative affect and alleviate suffering through warmth, safeness, and connection. This theory emphasizes the importance of recognizing and acknowledging one's own suffering as well as the sense of social connectedness inherent in self-compassion.

Although self-compassion and PTG are theoretically and conceptually similar, they are two distinct constructs that can exist independently of the other. Specifically, an

individual can exhibit high levels of self-compassion irrespective of experiencing a traumatic event, whereas PTG is only possible following trauma exposure. Additionally, PTG is not requisite on self-compassion and individuals may demonstrate increased personal strength, appreciation for life, spiritual change, and new possibilities in the aftermath of trauma without high levels of self-compassion. However, many of the elements of self-compassion closely align with the components necessary to facilitate PTG.

The extant empirical literature consistently provides support for the finding that individuals high in self-compassion experience lower levels of psychopathology (Barnard & Curry, 2011). Furthermore, self-compassion is linked to factors that are likely paramount to trauma responses including greater coping skills, clarity of feelings, ability to repair negative emotional states, and lower levels of thought suppression and emotional avoidance (Barnard & Curry, 2011; Finlay-Jones, 2017; Neff et al., 2007; Yamaguchi et al., 2014). Increased self-compassion is linked with decreased emotional avoidance and reduction of shame and self-criticism (Germer & Neff, 2013; Hoffart et al., 2015; Johnson & O'Brien, 2013; Woods & Proeve, 2014), as well as greater emotion regulation and greater distress management (Barlow et al., 2017; Finlay-Jones et al., 2015; Scoglio et al., 2018). Self-compassion is also positively related to lower levels of apprehension about communicating with others (Umphrey & Sherblom, 2014) and greater help-seeking behaviors (Gilbert, 2009; Gumley et al., 2010). Although research has not comprehensively examined how the ties between self-compassion and relevant psychological and social variables (i.e., social support) may influence PTG, the current literature suggests that their potential interaction is worthy of exploration.

The growing evidence of the beneficial nature of self-compassion on PTSS as well as emerging findings that enhancing self-compassion can lead to a reduction in trauma symptoms is encouraging (Barlow et al., 2017; Dahm et al., 2015; Seligowski et al., 2014; Scoglio et al., 2018; Winders et al., 2020). However, less work has focused on the potential associations between self-compassion and PTG, with only three studies explicitly doing so (Basharpoor et al., 2020; Khursheed & Shahnawaz, 2020; Wong & Yeung, 2017). Self-compassion has been directly associated with PTG (Basharpoor et al., 2020), and one study observed an indirect effect of trauma exposure on PTG through self-compassion (Khursheed & Shahnawaz, 2020). Positive elements of self-compassion are related to higher levels of PTG through the use of more adaptive cognitive processes (Wong & Yeung, 2017). This is notable as the processing of a traumatic event has been identified as a vital component of PTG. These recent studies along with indications that self-compassion is tied to more adaptive coping strategies (e.g., less emotional avoidance and thought suppression) provide preliminary evidence for understanding the manner in which self-compassion may contribute to effective processing of traumatic events and suggests a potential connection to PTG. Intentional examination of the potential relationship between self-compassion and PTG, and how self-compassion may interact with other factors associated with PTG (i.e., social support), is necessary to develop a thorough understanding of the role self-compassion may play in the trauma recovery process.

Although no known studies have examined the role of self-compassion in the relationship between social support and PTG, the current literature on these constructs independently and in relation to PTG suggests that self-compassion may either moderate

or mediate the link between social support and PTG. Moderators and mediators are conceptually distinct and thus the presence of either would produce different implications, however, given the state of the literature it is necessary to examine the potential presence of both. Existing research provides theoretical and empirical support that self-compassion is likely relevant in this relationship and thus examining whether self-compassion serves as a moderator or a mediator is important to further our understanding of internal mechanisms that may promote PTG and interact with known predictors.

Experiential Avoidance

Experiential avoidance is broadly defined as an individual's unwillingness to acknowledge and experience painful or uncomfortable internal experiences, such as thoughts, feelings, bodily sensations, and memories while simultaneously making a concerted effort to alter the content or frequency of such internal events (Hayes et al., 2004). Experiential avoidance not only inhibits individuals' ability to acknowledge and experience internal processes, but also interferes with ones' ability to actively work towards positive or valued experiences (Kashdan & Kane, 2011). In the attempt to avoid negative internal events individuals may subsequently avoid positive or neutral experiences, either intentionally or not (Kashdan & Kane, 2011). The effort requisite in preventing or avoiding uncomfortable internal experiences as well as situations which might elicit them has been theorized to impact individuals' ability to be mindfully present, acknowledge one's strengths or positive attributes, and make meaning from events (Ehlers & Clark, 2000; Hayes et al., 2006). Experiential avoidance, like other avoidant coping strategies, may lead to negative outcomes including increased

symptomology across multiple disorders (e.g., anxiety, depression, substance use disorders) and decreased quality of life (Hayes et al., 1996).

Experiential avoidance seems as though it would be particularly relevant in the aftermath of trauma due to the inherently uncomfortable and difficult nature of trauma as well as the importance of deliberate acknowledgement and processing of these painful experiences. In line with leading PTG theories (e.g., functional descriptive model, OVP model), trauma recovery may require active acknowledgement and interaction with thoughts, feelings, and memories, whereas avoidance of these painful internal events can interfere with the recovery process and inhibit meaning making and transformative growth. Thus, unsurprisingly, experiential avoidance has been shown to contribute to the maintenance of PTSD (Marx & Sloan, 2005) and disrupt the process of PTG (Kashdan & Kane, 2011). Specifically, there is evidence that experiential avoidance moderates the relationship between PTSS and PTG such that at high levels of experiential avoidance, PTSS is inversely associated with PTG whereas at low levels of experiential avoidance, PTSS is positively related to PTG (Kashdan & Kane, 2011).

Although other research has not examined specific measures of experiential avoidance in relation to PTG, avoidance in general is associated with lower levels of PTG. Specifically, PTSD avoidance symptoms, including the emotional numbing component from *DSM-IV*, have been found to be inversely related to levels of PTG (Hagenaars & van Minnen, 2010). Furthermore, the robust literature that indicates that deliberate rumination is associated with PTG (Kolokotroni et al., 2014; Su & Chen, 2015) has implications for the potential negative link between experiential avoidance and PTG. Taken together, these results indicate that willingness to engage with distressing

emotional experiences may assist in the benefit finding and meaning making requisite in PTG. Additionally, these findings make sense in the context of both the functional descriptive model (Tedeschi & Calhoun, 2004) and the OVP theory of growth (Joseph & Linley, 2006) which posits that not only is a certain level of distress necessary to promote growth in the aftermath of trauma, but that deliberate engagement with and processing of the distress-related internal experiences are necessary to facilitate PTG. Experiential avoidance may be particularly detrimental to the process of PTG given that it interferes with a vital component necessary to facilitate PTG. Breast cancer patients whose friends and family avoided discussing the cancer with them reported inhibited cognitive processing of their illness, which was associated with less PTG, indicating that experiential avoidance may interfere with adaptive processing of traumatic experiences requisite in PTG (Cordova et al., 2001).

Although experiential avoidance has been shown to moderate the relationship between PTSS and PTG (Kashdan & Kane, 2011), the direct relationship between experiential avoidance and PTG has not been established, and research has not yet examined how experiential avoidance may interact with other factors associated with PTG. Investigating the direct link between experiential avoidance and PTG and examining how experiential avoidance may alter the associations between previously identified factors related to PTG (i.e., social support) is necessary to further elucidate the negative impact of experiential avoidance in the aftermath of trauma.

Current Study

Social support has emerged as one of the most consistent predictors of PTG across trauma types (Chan & Rhodes, 2013; Kolokotroni et al., 2014; Mark et al., 2018;

Tsai et al., 2015) with some research indicating that social support may interact with relevant demographic factors in the context of PTG (Swickert & Hittner, 2009). Social support appears to promote PTG by facilitating effective coping (i.e., deliberate processing, meaning making) (Cordova et al., 2001; Scignaro et al., 2011; Swickert & Hittner, 2009). Although social support is clearly relevant in the process of PTG less is known about internal mechanisms, such as self-compassion and experiential avoidance, that may be similarly implicated in PTG. Based on the extant literature, self-compassion and experiential avoidance may be two key internal mechanisms which contribute to or interfere with the deliberate processing and meaning-making requisite in the development of PTG. Given that both self-compassion and experiential avoidance are malleable internal processes, if either are relevant in the process of PTG, this might reveal a potential point of intervention that could enhance PTG among trauma survivors.

The overarching goal of the present study was to expand our knowledge regarding what factors are associated with positive outcomes following trauma exposure, and how these factors may interact with each other. The aims of the current study were to: 1) replicate and expand prior research regarding the relationships between PTG, social support, self-compassion, and experiential avoidance; 2) investigate if self-compassion has an indirect effect on the association between social support and PTG; 3) evaluate whether self-compassion moderates the relationship between social support and PTG; 4) examine whether experiential avoidance moderates the relationship between social support and PTG. Based on the theoretical framework of PTG, self-compassion, and experiential avoidance, in conjunction with existing research regarding factors that facilitate PTG, it was hypothesized that:

1. Aim 1: Self-compassion and social support will be positively associated with PTG, and experiential avoidance will be inversely related to PTG.
2. Aim 2: There will be an indirect effect of self-compassion on the relationship between social support and PTG. Specifically, social support will be positively related to self-compassion which in turn will be tied to high levels of PTG.
3. Aim 3: Self-compassion will moderate the relationship between social support and PTG. Higher levels of self-compassion will strengthen the positive relationship between social support and PTG, while lower levels will weaken this relationship.
4. Aim 4: Experiential avoidance will moderate the relationship between social support and PTG, where the positive relationship between social support and PTG will be weakened at high levels of experiential avoidance and strengthened at low levels of experiential avoidance.

Method

Participants

Three hundred and ninety-eight trauma-exposed adult participants (age $M = 30.56$, $SD = 10.64$) recruited through Amazon's Mechanical Turk (MTurk) website (41.7%) and the University of Missouri-St. Louis Human Subjects pool in the Department of Psychological Sciences (SONA) (58.3%) were included in the current study. An initial 535 participants enrolled in the study. Thirty participants did not endorse experiencing a criterion-A traumatic event and thus did not meet inclusion criteria. An additional 34 participants completed the questionnaire in ten minutes or less and 67 participants failed to complete more than 50% of the survey and were thus excluded from

the present study. One participant failed three of the four attention checks, and five participants were identified to be careless responders and were removed. This resulted in a final sample of 398 participants. Approximately sixty-eight percent were female (32.4% male), and 68.6% identified as White/Caucasian (18.1% Black/African American; 5.5% Multiracial/Biracial; 4.5% Asian/Asian American/Pacific Islander; 1.3% American Indian; 1.4% Middle Eastern; and 0.8% 'Other'), and 14.1% of participants identified as Hispanic/Latino. Household income was rated categorically, with a mean household income of 3.19 ($SD = 1.24$), which corresponds to \$25,001-50,000. Forty-one percent of participants reported being single (36.7% married, 13.3% in a committed relationship, 5.5% not married but living with a partner, 2.0% divorced, 0.8% separated, 0.7% widowed), and 52% of participants reported that they completed some college (27.6% completed college, 9.0% completed graduate or professional school, 6.0% completed high school, 4.8% completed some graduate or professional school, 0.5% completed some high school). Rates of trauma exposure were as follows: 65.8% transportation accident, 56.8% physical assault/abuse, 52.8% other uncomfortable sexual experience, 48.0% life-threatening illness or injury, 47.5% natural disaster, 43.8% sexual assault, 38.5% serious accident at work, home, or during recreational activity, 38.4% fire or explosion, 33.4% assault with a weapon, 33.4% sudden accidental death, 31.2% sudden violent death, 27.9% severe human suffering, 21.4% serious injury, harm, or death caused by the participant, 18.8% exposure to a toxic substance, 18.1% combat or war zone exposure, and 14.1% captivity. Additionally, 54.5% of participants reporting experiencing another stressful life event that was not captured by the aforementioned categories. Mean endorsement number of traumatic events was 7.53 ($SD = 4.88$).

Procedures

Participants were recruited from MTurk and SONA to complete an online survey. MTurk is an internet-based platform that allows individuals to complete surveys for monetary compensation. Recruitment was limited to MTurk workers residing in the United States of America with a HIT approval rate greater than 95%. The inclusion criteria for the current study were: 1) age 18 and older, 2) acknowledgment of experiencing at least one *DSM-5* traumatic event. There were no exclusion criteria. MTurk participants were compensated \$2.50 for their time and undergraduates received course credit. All study procedures were approved by the University of Missouri-St Louis Institutional Review Board (IRB).

Measures

Demographics. Participants completed a demographic measure that included age, biological sex, gender, race, ethnicity, sexual orientation, education level, relationship status, and annual income. Due to low cell sizes for non-white racial groups, race was dichotomized into two groups, white ($n = 273$, coded as 1) and racially minoritized ($n = 125$, coded as 2).

Trauma Exposure. Participants completed the Life Events Checklist (LEC-5; Weathers et al., 2013) to assess for trauma exposure. The measure assesses exposure to 17 Criterion-A traumatic events (e.g., natural disaster, physical assault, sexual assault), as defined by the *DSM-5* (APA, 2013), and asks participants to indicate if the event “Happened to me”, “Witnessed it”, “Learned about it”, is “Part of my job”, “Not Sure”, or “Doesn’t Apply”. Individuals who endorsed “Happened to me”, “Witnessed it”, and/or “Part of my Job” for at least one traumatic experience met criteria for being trauma

exposed. Test-retest reliability and validity across samples have been established (Gray et al., 2004).

Posttraumatic Growth. Participants completed the 21-item Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) to assess PTG following a traumatic event. However, the measure does not require participants to specify one traumatic event, or an ‘index event’. Participants were asked to indicate the degree to which each change has occurred in their life as a result of traumatic experience(s) using a 6-point Likert scale where 0 = *I did not experience this change as a result of my crisis* and 5 = *I experienced this change to a very great degree as a result of my crisis*. The PTGI consists of 5 subscales corresponding to the 5 components of PTG: relating to others (e.g., “I have a greater sense of closeness with others”), new possibilities (e.g., “I established a new path for my life”), personal strength (e.g., “I know better that I can handle difficulties”), spiritual change (e.g., “I have a better understanding of spiritual matters”), and appreciation for life (e.g., “I can better appreciate each day”). The PTGI also produces a total score reflective of overall PTG which will be used in the present study. There is currently no agreed upon cut-off score for the PTGI, but higher scores indicate higher levels of PTG, and some studies have indicated that probable PTG is determined by scores above the 75th percentile on the PTGI (Jin et al., 2014). The measure has previously demonstrated high internal consistency ($\alpha = 0.90$) (Taku et al., 2008). Internal consistency for the current sample was excellent, $\alpha = .95$.

PTSS. Participants completed the PTSD Checklist for *DSM-5* (PCL-5) (Weathers et al., 2013). The PCL-5 assesses for current *DSM-5* PTSD symptom levels. Participants indicate how often they have experienced various symptoms within the past month, and

responses are arranged on a 5-point Likert scale. The PCL-5 has demonstrated high internal consistency (α 's 0.75-.95; Wortmann et al., 2016). Internal consistency for the current sample was excellent, $\alpha = .96$. One hundred and eighty-six participants (46.7%) met clinical criteria for probable PTSD as measured by a PCL-5 score of 33 or above, with mean PTSS being 32.21 ($SD = 19.43$).

Social Support. Participants completed the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) to assess perceptions of social support from three sources: family (e.g., “My family really tries to help me”), friends (e.g., “I can count on my friends when things go wrong”), and significant other (e.g., “There is a special person who is around when I am in need”). The MSPSS is a 12-item measure in which participants will indicate how much they agree with each statement using a 7-point Likert scale in which 1 = *Very Strongly Disagree* and 7 = *Very Strongly Agree*. The MSPSS has been shown to exhibit adequate internal consistency ($\alpha = 0.88$) and test-retest reliability ($r = 0.85$) (Zimet et al., 1988). The current sample demonstrated satisfactory internal consistency, $\alpha = .90$.

Self-Compassion. Participants completed the Self-Compassion Scale (SCS; Neff, 2003), a 26-item self-report measure designed to assess level of self-compassion. Participants indicated how often they have behaved in various manners using a 5-point Likert scale where 1 = *Almost Never* and 5 = *Almost Always*. The SCS consists of subscales: Self-Kindness (e.g., “When I’m going through a very hard time, I give myself the caring and tenderness I need”), Self-Judgement (e.g., “I’m disapproving and judgmental about my own flaws and inadequacies”), Common Humanity (e.g., “When things are going badly for me, I see the difficulties as part of life that everyone goes

through”), Isolation (e.g., “When I fail at something that's important to me, I tend to feel alone in my failure”), Mindfulness (e.g., “When I'm feeling down I try to approach my feelings with curiosity and openness”), and Over-identification (“When I fail at something important to me I become consumed by feelings of inadequacy”). The self-judgement, isolation, and over-identification items are reverse scored. A mean total score can be calculated to indicate an overall level of self-compassion, the total score was used in the current study. The SCS has demonstrated high internal consistency ($\alpha = 0.94$) (Neff et al., 2007, Neff, 2016) and good test-retest reliability ($r = 0.93$) (Neff, 2003). Internal consistency for the current sample was good, $\alpha = .91$.

Experiential Avoidance. Participants completed the Brief Experiential Avoidance Questionnaire, (BEAQ; Gámez et al., 2014) a 15-item measure of experiential avoidance. The BEAQ assesses 6 domains related to experiential avoidance: Behavioral Avoidance (e.g., “I'm quick to leave any situation that makes me feel uneasy”), Distress Aversion (e.g., “The key to a good life is never feeling any pain”), Procrastination (e.g., “I try to put off unpleasant tasks for as long as possible”), Distraction/Suppression (e.g., “When unpleasant memories come to me, I try to put them out of my mind”), Repression/Denial (e.g., “I feel disconnected from my emotions”), and Distress Endurance (e.g., “Fear or anxiety won't stop me from doing something important”) using a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), and also produces a total score, with higher scores indicating greater experiential avoidance. In the current study the total score will be used. The BEAQ has demonstrated good internal consistency ($\alpha = .80- .89$) (Gámez et al., 2014). Internal consistency for the current sample was adequate, $\alpha = .87$. The BEAQ has also established good convergent validity with the

initial 62-item Multidimensional Experiential Avoidance Questionnaire (Gámez et al. 2011).

Data Analytic Plan

Analyses were conducted using SPSS 28. Assumptions of homoscedasticity and linearity were assessed by examining if the residuals versus fitted values plot appeared to be relatively random without any apparent pattern. Multivariate normality was assessed using Mahalanobis Distances with a critical cutoff value of 16.266 (for the three dependent variables) and multivariate Q-Q plots. No issues of multicollinearity were detected (variance inflation factors [VIF] < 3). Data was missing in less than 1% (one item from the PTGI and one item from the BEAQ) of cases and was handled using mean imputation. Prior to running the main analyses, potentially relevant variables (i.e., age, race, ethnicity, biological sex, gender, sexual orientation, relationship status, income, recruitment source, PTSS) were examined in relation to the dependent variable to assess the need for covariates in subsequent analyses. As previously noted, Race was coded as 1 = *White people* and 2 = *Racially minoritized populations*. Ethnicity was coded as 1 = *Hispanic* and 2 = *Non-Hispanic*. Biological sex was coded as 1 = *Male* and 2 = *Female* and gender was coded as 1 = *Male*, 2 = *Female*, 3 = *Trans Female/Trans Woman*, 4 = *Trans Male/Trans Man*, 5 = *Genderqueer/Gender Nonconforming*, 6 = *I prefer to use language not listed*. Sexual orientation was coded as 1 = *Heterosexual/Straight*, 2 = *Gay*, 3 = *Lesbian*, 4 = *Bisexual*, 5 = *Asexual*, 6 = *Not listed*. Relationship status included “Single”, “Married”, “Separated”, “Divorced”, “Not married but living with a partner”, “Widowed”, and “In a committed relationship” but for the purpose of this study was re-coded as 1 = *Single*, 2 = *In a relationship*. Finally, recruitment source was coded as 1 =

SONA participants, 2 = *MTurk* participants. A power analysis was conducted using G*Power 3 to determine the number of participants needed to obtain adequate statistical power. A multiple linear regression with four predictor variables, α error probability at .05, power of .95, and the ability to detect a medium effect size ($f^2=.15$) requires a sample size of 129 participants. The PROCESS macro was used to test for the presence of indirect effects and for the moderation analyses (Hayes, 2017).

Hypothesis 1. Associations between PTG, social support, self-compassion, and experiential avoidance were examined using bivariate correlations.

Hypothesis 2. Model 4 of the Hayes PROCESS macro (Hayes, 2017) was used to investigate if self-compassion had an indirect effect on the association between social support and PTG, Social support was set as the predictor (X), self-compassion was set as the mediator (M), and PTG was set as the outcome (Y).

Hypotheses 3. Moderation analyses were conducted using Model 1 of the Hayes PROCESS macro to test the moderating role of self-compassion on the relationship between social support and PTG. Social support was set as the predictor (X), self-compassion was set as the moderator (M), and PTG was set as the outcome (Y). Given that self-compassion is a continuous construct the mean, one standard deviation below the mean, and one standard deviation above the mean were used to define moderate, relatively low, and relatively high ranges of self-compassion (Hayes, 2017).

Hypothesis 4. To evaluate whether experiential avoidance moderates the relationship between social support and PTG, Model 1 of the Hayes PROCESS macro was used. Social support was set as the predictor (X), experiential avoidance was set as the moderator (M), and PTG was set as the outcome (Y). The experiential avoidance

questionnaire is also a continuous measure, therefore, one standard deviation below the mean, and one standard deviation above the mean were used to define moderate, relatively low, and relatively high ranges of experiential avoidance (Hayes, 2017). Simple slope analyses were conducted to probe the interaction.

Results

Preliminary analyses. Group differences between the MTurk and student participants were examined, and the analyses revealed several demographic differences between the two recruitment sources. Compared to the undergraduates, MTurk participants were older ($M_{\text{age}} = 38.13$ years, $SD = 10.18$ vs. $M_{\text{age}} = 25.14$ years, $SD = 7.05$), $t(396) = 15.04$, $p < .001$; $d = 1.53$; had a higher income ($M_{\text{income}} = 3.54$, $SD = 1.03$ vs. $M_{\text{income}} = 2.93$, $SD = 1.33$), $t(396) = 4.95$, $p < .001$; $d = .50$; and were more likely to be in a relationship, $\chi^2(1, N = 398) = 59.87$, $p < .001$. There were also significant gender and racial differences between the two groups, $\chi^2(1, N = 398) = 73.48$, $p < .001$; $\chi^2(1, N = 398) = 7.07$, $p = .008$, with significantly more women and racially minoritized people in the undergraduate group compared to the MTurk group. Additionally, MTurk participants were significantly more likely to identify as Hispanic compared to the undergraduate participants, $\chi^2(1, N = 398) = 23.68$, $p < .001$.

Compared to UMSL students, MTurk participants had significantly higher levels of PTG, $t(396) = -2.15$, $p = .032$, self-compassion, $t(396) = -3.50$, $p < .001$, and experiential avoidance, $t(396) = -4.57$, $p < .001$. Racially minoritized people endorsed significantly higher levels of PTG compared to white participants, $t(396) = -3.11$, $p = .002$. PTSS were positively associated with both PTG ($r = .38$, $p < .001$) and experiential avoidance ($r = .54$, $p < .001$) and inversely related to self-compassion ($r = -.34$, $p < .001$)

and social support ($r = -.18, p < .001$). None of the other variables of interest were significantly linked to PTG. As such, only recruitment source, race, and PTSS were included as covariates in the main analyses.

Age was positively associated with levels of self-compassion ($r = .23, p < .001$), with older participants reporting higher levels of self-compassion compared to younger participants. Gender was also linked to self-compassion, as male participants endorsed higher levels of self-compassion compared to female participants, $t(396) = 3.08, p = .002$. Ethnicity was related to levels of experiential avoidance, with Hispanic participants reporting higher levels of experiential avoidance compared to non-Hispanic participants, $t(396) = 4.35, p < .001$. Participants in romantic relationships also endorsed higher levels of experiential avoidance, $t(396) = -3.33, p < .001$ and reported higher levels of social support, $t(396) = -2.79, p = .005$.

Bivariate Relationships. Pearson bivariate correlations are presented in Table 1. As predicted, PTG was positively related to self-compassion and social support, although these were relatively weak correlations ($r = .12-.14$). Contrary to expectations, PTG was positively associated with experiential avoidance, and again this was a relatively weak association ($r = .16$). Notably, PTG was positively tied to PTSS with a medium effect size ($r = .38$). Self-compassion was positively linked to social support ($r = .21$), and both self-compassion and social support were both inversely related to experiential avoidance ($r_s = -.12 - -.43$) and PTSS ($r_s = -.18 - -.34$). Experiential avoidance and PTSS were correlated with a strong effect size ($r = .54$).

Indirect Effects. Mediation analyses were run to determine whether self-compassion had an indirect effect on the association between social support and PTG (see

Figure 1). The regression model was significant, $F(5, 392) = 25.60, p < 0.001, r^2 = .25$, indicating that collectively self-compassion and social support are linked to PTG (see Table 2). Social support ($B = 0.37, t(394) = 4.36, p < 0.001$) and self-compassion ($B = 9.27, t(392) = 5.20, p < 0.001$) both demonstrated significant direct effects on PTG.

When entered into the regression model together, the strength of the relationship between social support and PTG was reduced ($B = 0.30, t(392) = 3.52, p < 0.001$), revealing an indirect effect through self-compassion. Bootstrap analyses supported this indirect effect.

Moderation Analyses. The overall regression model for self-compassion, social support, and PTG was significant $F(6, 391) = 22.45, p < .001, r^2 = .26$ (see Table 3).

Racially minoritized people reported higher levels of PTG than white participants. PTSS was associated with higher levels of PTG. Both social support and self-compassion were positively associated with PTG. Contrary to expectations, self-compassion did not moderate the relationship between social support and PTG.

The model for experiential avoidance, social support, and PTG was significant $F(6, 391) = 17.81, p < .001, r^2 = .21$. Racially minoritized people reported higher levels of PTG than white participants and PTSS was positively related to PTG. Social support was positively associated with PTG. Experiential avoidance was not related to PTG. Nonetheless, a significant moderation effect was observed (see Table 3). Unexpectedly, average and high levels of experiential avoidance were associated with stronger positive relationships between social support and PTG, average: $B = .38, t(391) = 4.47, p < .001$; high: $B = .57, t(391) = 4.58, p < .001$. At low levels of experiential avoidance, the relationship between social support and PTG disappeared, $B = .19, t(391) = 1.64, p = .102$. Please see Figure 2 for a visual representation of the moderation model.

Discussion

PTG has received growing attention in the literature, with research highlighting the beneficial nature of PTG and evidence that PTG is associated with increased mental functioning and general health among individuals with PTSD compared to those who do not endorse PTG (Tsai et al., 2015). This suggests that enhancing PTG can be beneficial irrespective of current PTSD diagnosis. Thus, understanding what factors promote or interfere with the development of PTG is essential for supporting positive outcomes for trauma survivors. Although social support has emerged as one of the most consistent predictors of PTG across studies, samples, and trauma types (Chan & Rhodes, 2013; Kolokotroni et al., 2014; Mark et al., 2018; Tsai et al., 2015), less is known about internal mechanisms (e.g., self-compassion and experiential avoidance) that may be implicated in PTG. Identifying potentially malleable factors that may contribute to PTG is a paramount initial step required for researchers to work towards establishing interventions that can bolster these factors and lead to increased thriving following adverse life events. Similarly, understanding what factors may interfere with the process of PTG is essential for identifying potential risk factors that may inhibit individuals from experiencing positive change following exposure to a traumatic event. The present study therefore extends the existing trauma-related research by: 1) examining the relationships between PTG, social support, self-compassion, and experiential avoidance; 2) investigating whether there is an indirect effect between social support and PTG through self-compassion; 3) evaluating whether self-compassion moderates the relationship between social support and PTG; and 4) determining whether experiential avoidance moderates the association between social support and PTG.

The current study utilized two recruitment sources, a university subject pool and Amazon's MTurk, in part to diversify the sample and increase the potential for generalizability of findings. Given the use of two data sources, some differences were expected. Indeed, recruitment source emerged as a covariate and was thus controlled for in the subsequent analyses. There were also some relevant demographic differences including age, gender, race, ethnicity, income, and relationship status. Given that MTurk participants were both older and more likely to be in a relationship than the undergraduate participants, it is not unexpected that they also reported higher household income than the UMSL students. These demographic differences between the two data sources may have helped make the results more generalizable to the broader population than if only a sample of undergraduates had been used.

Aligned with prior research that has found higher rates of PTG among racially minoritized populations compared to white people (Bellizzi et al., 2010; Bryant-Davis et al., 2011; Manove et al., 2019), the current study observed higher levels of PTG among racially minoritized participants compared to white participants. Although the present study did not examine religiosity, it has been theorized that racial differences of PTG may be a result of greater religiosity among racially minoritized populations in the United States compared to white people (Manove et al., 2019). For example, in a study where race, religious coping, and positive reframing were all found to be associated with higher levels of PTG, Black participants endorsed greater PTG as well as more religious coping compared to White participants (Willey et al., 2022). Furthermore, social support and religiosity may also interact, as religious communities may provide opportunities for both social support and self-disclosure. Although examination of these potential explanations

for racial differences in levels of PTG were beyond the scope of this study, future work should aim to investigate how race, religiosity, and social support may interact in the context of PTG. Another potential contributing factor to racial differences of PTG could potentially be level of PTSS, as research has shown that lifetime prevalence of PTSD is higher among Black people (8.7%) compared to White people (7.4%) in America (Roberts et al., 2011), and this heightened degree of distress could potentially lead to more meaning making and transformative growth. However, research has not yet investigated the role of PTSS in the relationship between race and PTG, and within the current study no differences in PTSS were observed between white and racially minoritized participants. Importantly, the current study did not examine racial differences in PTSS among white and Black participants specifically but rather between white people and people with racially marginalized identities. Due to low cell sizes for non-white racial groups race was dichotomized, which severely limited the ability to detect any meaningful racial differences in the present study. While individuals with racially minoritized identities may have some shared experiences of marginalization, there are important unique differences between racial groups that cannot be captured when grouping them together.

Similarly in line with previous findings, PTSS was positively related to PTG (Pietrzak et al, 2010; Jin, Xu, & Liu, 2014; Wamser-Nanney et al., 2018; Xu & Liao, 2011). Notably, there is mounting evidence in the current literature of a curvilinear relationship between PTSD and PTG, where individuals with moderate levels of PTSD report the greatest amount of PTG (Shakespeare-Finch & Lurie-Beck, 2014; Tsai et al., 2015). Thus, a certain degree of trauma-related distress appears to be crucial for

facilitating and maintaining psychological growth following trauma-exposure. A potential explanation for the curvilinear relationship between PTSD and PTG is that PTG occurs, and is greatest, when trauma symptoms are distressing enough to promote positive meaning-making inherent in PTG (Pietrzak et al., 2010; Tedeschi & Calhoun, 2004; Xu & Liao, 2011). It may be that if an individual exhibits resilience in the aftermath of trauma they may be more likely to return to “baseline” pre-trauma functioning rather than experience the transformative change associated with PTG. Event centrality, the degree to which an individual perceives a traumatic experience to be integral to their life, may also be relevant in understanding the complex relationship between PTSS and PTG. Indeed, research has found event centrality to be positively associated with both PTSS and PTG (Wamser-Nanney et al., 2018; Wolfe & Ray, 2015). Examining factors (e.g., experiential avoidance, self-compassion, event centrality) that may be relevant to both the development and maintenance of PTSD and the process of PTG may provide useful information in understanding the relationship between these two constructs.

These findings make several valuable contributions to the literature. First, as anticipated, social support and self-compassion were both positively related to PTG. These findings align with the substantial amount of prior research that has found a positive link between social support and PTG (García et al., 2014; Kolokotroni et al., 2014; Koutrouli et al., 2012; Mark et al., 2018; Prati & Pietrantonio, 2009; Tsai et al., 2015). However, many prior studies have identified this relationship within certain trauma types (e.g., combat, cancer survivors, natural disasters) while the present study provides evidence that this association is present across a range of trauma types.

Although the tie between social support and PTG has been consistently demonstrated before, there is limited research examining the direct link between self-compassion and PTG. The results from the current study, which indicate that higher levels of self-compassion are associated with higher levels of PTG, align with the small body of work that has observed a positive association between these two constructs. (Basharpoor et al., 2020; Khursheed & Shahnawaz, 2020; Wong & Yeung, 2017). Given the well-established connection between social support and PTG, and the conceptual and theoretical similarities between social support and self-compassion it makes sense that they are similarly related to PTG. The association between self-compassion and PTG may be partially understood by greater feelings of social connectedness inherent in self-compassion (Aspy & Proeve, 2017; Neff & Germer, 2013). Additionally, self-compassion is tied to more adaptive coping strategies, ability to repair negative emotional states, and lower levels of thought suppression and emotional avoidance (Barnard & Curry, 2011; Finlay-Jones, 2017; Neff et al., 2007; Yamaguchi et al., 2014), which likely promote PTG in the aftermath of trauma exposure. It may be that individuals high in self-compassion are able to acknowledge and effectively process their trauma-related distress while experiencing greater feelings of social-connectedness, which contributes to the positive transformation associated with PTG. Future research would benefit from longitudinal work examining potential mechanisms of action in the relationship between self-compassion and PTG to determine directionality as well as what about self-compassion may lead to increased PTG.

Unexpectedly, PTG was also positively related to experiential avoidance. This finding does not align with leading theories that posit avoidance of painful thoughts,

feelings, and memories can interfere with the trauma-recovery process, including the meaning making that contributes to PTG (Ehlers & Clark, 2000; Hayes et al., 2006; Joseph & Linley, 2006; Tedeschi & Calhoun, 2004). This result is also less consistent with prior findings that avoidant coping strategies are associated with greater psychopathology and lower quality of life (Hayes et al., 1996). However, as previously mentioned PTG does not necessarily exist independently from psychopathology but rather can co-exist. Given the evidence that there is a curvilinear relationship between PTSD and PTG (Shakespeare-Finch & Lurie-Beck, 2014; Tsai et al., 2015) and that experiential avoidance was positively associated with both PTG and PTSS, it may be that experiential avoidance is a relevant factor in understanding this complicated relationship. Additionally, it is notable that although trauma-related avoidance specifically has been linked to lower levels of PTG (Hagenaars & van Minnen, 2010), broader measures of general experiential avoidance have not been examined in relation to PTG. This may be a critical difference. Thus, it may be that some degree of general experiential avoidance that is not directly tied to trauma-reminders is potentially adaptive in the context of PTG. However, since this is the first study to the author's knowledge to investigate the direct link between PTG and experiential avoidance, this could be a spurious finding and replication is needed. Future work should examine PTG in relation to both general experiential avoidance and trauma specific avoidance to disentangle potential differences between these two constructs.

In line with the second hypothesis, self-compassion demonstrated an indirect effect on the relationship between social support and PTG. This finding suggests that individuals' degree of self-compassion may help explain the well-established relationship

between social support and PTG. Specifically, social support may enhance levels of PTG through increased self-compassion among those who have experienced trauma. It may be that aspects of self-compassion, including self-kindness and a sense of common humanity, help facilitate improvement in the five domains of PTG (enhanced relationships with others, more nuanced views of one's strengths and limitations, a greater appreciation for life, spiritual change, and feelings about new possibilities). Additionally, individuals with high levels of self-compassion may utilize social support in a more effective manner that facilitates adaptive processing inherent in the development in PTG. This pattern of results emphasize that external and internal factors likely interact to promote positive trauma-related outcomes. To the author's knowledge prior work has not examined the indirect effect of self-compassion on the relationship between social support and PTG; however, one study investigating the indirect effect of social support on PTSD via self-compassion found that self-compassion accounted for 38% of the total relationship between social support and PTSS (Maheux & Price, 2016). Given the relationship between PTSD and PTG, it is not surprising that self-compassion may be similarly relevant in understanding the impact of social support on both trauma-related outcomes. Future longitudinal research is essential in determining directionality of these relationships to provide a more complete picture of the role of self-compassion in the link between social support and PTG. Research might also benefit from investigating whether increasing self-compassion enhances trauma survivors' use of social support, and if this subsequently bolsters PTG.

Despite findings that social support and self-compassion are independently associated with PTG, and more recent research that indicates these two constructs may

interact, the current study found that self-compassion did not moderate the relationship between social support and PTG. Various levels of self-compassion did not appear to change the strength of the relationship between social support and PTG. Given that self-compassion had an indirect effect on the link between social support and PTG in the current study but was not found to moderate this relationship, it may be that self-compassion is better understood as a mechanism by which social support is related to PTG rather than as a factor that changes the association between these two constructs. These findings imply that varying levels of self-compassion do not change the vital role social support plays in adaptive responses to trauma, a positive finding that suggests low levels of self-compassion may not interfere with the benefits of social support for trauma survivors. Additionally, the presence of an indirect effect suggests that self-compassion may enable people to optimize their social support for effective processing and coping after trauma exposure. Indeed, self-compassion has been linked to greater help-seeking behaviors (Gilbert, 2009; Gumley et al., 2010). As this is one of the first studies to examine the interactions between social support, self-compassion, and PTG it is essential that future research work to further disentangle these relationships. Longitudinal studies will be necessary to determine the temporal nature of the relationships between social support, self-compassion, and PTG. Additionally, future research should examine the role of trauma type (e.g., interpersonal versus non-interpersonal trauma) to assess whether the interaction between self-compassion, social support, and PTG differ for individuals who have experienced interpersonal trauma (e.g., rape) compared to those who have experienced non-interpersonal trauma (e.g., car accident). It may be that self-compassion is either more or less relevant in the link between social support and PTG for survivors of

interpersonal trauma. Similarly, there may be unique effects of self-compassion on different types of social support (e.g., emotional versus instrumental).

Although there is a paucity of research examining the role of experiential avoidance in PTG, there is evidence that PTSD avoidance symptoms are tied to lower levels of PTG (Hagenaars & van Minnen, 2010). Social relationships that avoid discussing aspects of the trauma are also inversely related to PTG (Cordova et al., 2001). However, results from the current study revealed unexpected findings regarding the direct relationship between experiential avoidance and PTG as well as the role of experiential avoidance as a moderator for the link between PTG and social support. Although experiential avoidance did emerge as a moderator, unexpectedly, average and high levels of experiential avoidance were associated with stronger positive associations between social support and PTG. Also contrary to the hypotheses, at low levels of experiential avoidance the positive relationship between social support and PTG disappeared. It may be that social support is most beneficial in enhancing PTG among individuals who tend to avoid uncomfortable or painful thoughts and feelings but is less helpful or necessary among those who actively engage with their own distressing thoughts and feelings independently. In line with leading theories of PTG that indicate that active engagement with trauma-related thoughts, feelings, and memories are essential for the development of PTG, existing research posits that social support may bolster PTG through more effective coping (e.g., deliberate processing) (Cordova et al., 2001; Scrignaro et al., 2011; Swickert & Hittner, 2009). As such, individuals with high or average levels of experiential avoidance may not engage in this deliberate processing by themselves, and thus supportive social relationships may be necessary for these individuals to foster PTG.

Future work should explore potential differences in who benefits most from social support in the aftermath of trauma, and what types of support may be most effective in promoting PTG. Additionally, there may be important cultural differences in the impact of experiential avoidance on trauma trajectories, what types of social support are beneficial in the aftermath of trauma, how experiential avoidance interacts with social support in the process of PTG, and what additional factors may be relevant in these relationships. Research with diverse samples is necessary to determine these potential differences.

The finding that the relationship between social support and PTG was strongest for participants who endorsed high levels of experiential avoidance, implies that these individuals may be least likely to develop PTG in the absence of supportive relationships. Additionally, the fact that the link between social support and PTG disappeared at low-levels of experiential avoidance indicates that trauma-survivors who do not engage in experiential avoidance may employ more effective coping strategies on their own and thus social support may not be necessary to foster growth among this group. Reducing levels of experiential avoidance among individuals who do not have supportive social relationships may be one potential avenue for bolstering PTG among this group. Longitudinal research should investigate the effects of reducing experiential avoidance on the process of PTG and examine whether enhancing social support for individuals with high levels of experiential avoidance increases levels of PTG.

Limitations

The results of the present study should be considered in the context of several key limitations. First, the utilization of a cross-sectional design precludes determination of

causality between the variables of interest. It cannot be deduced whether high levels of self-compassion and positive perceptions of social support lead to PTG or if individuals who have experienced PTG engage in more self-compassion and perceive their relationships to be more supportive and fulfilling. Similarly, it cannot be determined if some degree of general experiential avoidance fosters PTG or if individuals who experience PTG have a greater tendency to engage in experiential avoidance more broadly. Additionally, although the analyses used in the current study indicate that self-compassion is a relevant factor in the relationship between social support and PTG, the use of cross-sectional data prohibits the inference of any directionality within these interactions. Longitudinal research would allow for the ability to detect potential causal relationships between these variables which would more clearly inform possible interventions. Additionally, data were collected retrospectively assessing trauma exposure over the lifespan. Given that PTG does not appear to occur automatically but rather develops over time, the length of time since trauma exposure is likely a key component in understanding what factors contribute to or interfere with the development of PTG. Future research would benefit from examining length of time since trauma exposure as a potential factor in the development and course of PTG, as well as whether or not trauma type is relevant for the in the PTG trajectory.

The use of self-report measures in the current study has the potential to introduce self-report bias and issues of shared variance or social desirability. For example, the PCL-5 (Weathers et al., 2013) may be less accurate than a structured interview with a clinician, given that a structured clinical interview (e.g., CAPS-5) is considered the gold-standard to assess symptoms of PTSD. Additionally, the PTGI (Tedeschi & Calhoun,

1996) may reflect the individual's perception of their own growth which could differ from both actual growth or other's perceptions of their growth (Zoellner & Maercker, 2006). Similarly, some individuals may not be aware the extent to which they are avoiding their internal experiences, particularly if this has been a consistent pattern throughout their lives. As such, the BEAQ (Gámez et al., 2014) may not fully capture the extent to which someone is engaging in experiential avoidance. Of note, the level of PTG in the current sample may have impacted the findings in this study. The measure of PTG does not have specific cut-off values and there is significant variability in what is considered low, moderate, or high levels of PTG across studies. Some studies have proposed that a score of 85 or above indicates high levels of PTG (Husson et al., 2017), while others have utilized a score of 63 (Rodríguez-Rey & Alonso-Tapia, 2017) or 57 (Xu & Liao, 2011) as a cut-off for a moderate degree of PTG, and still others have recommended that probable PTG is determined by scores above the 75th percentile on the PTGI (Jin et al., 2014). A recent meta-analysis used 60% of the highest PTGI score or 60% of the highest score of each item as a cut-off value for medium levels of PTG (Wu et al., 2019). Although these discrepancies make it challenging to choose a specific value that best categorizes different levels of PTG, the average score on the PTGI in the current study fell below all these previously proposed cut-offs ($M = 50.41$, $SD = 24.64$, Range 0-105). Thus, results may not be generalizable to individuals with higher levels of PTG. However, thirty-three percent of the current sample endorsed PTG scores of 63 or greater. As such, there may also be important differences in the interactions between self-compassion, experiential avoidance, and social support among people with lower levels

of PTG. Findings should be replicated within samples of both high levels of PTG as well as samples with lower levels of PTG.

Additional limitations of the present study include the inability to include trauma type and type of social support in the analyses. There are likely important differences in how self-compassion and experiential avoidance interact with social support in the context of PTG for individuals exposed to interpersonal versus non-interpersonal trauma. Trauma type is an important factor to consider in most studies, and it may be particularly relevant in understanding the role of social support in trauma trajectories given the social nature of interpersonal trauma. Furthermore, additional trauma-related factors such as relationship to perpetrator and repeated versus isolated instances of victimization may also be relevant factors in gaining a comprehensive understanding of the links between self-compassion, experiential avoidance, Similarly, it is possible that self-compassion and experiential avoidance interact differently with emotional social support compared to instrumental social support in the process of PTG. Thus, future work should explore these potential differences to more accurately inform clinical practice.

Finally, although two recruitment sources may have improved some aspects of generalizability, more than half of the total sample identified as female (67.6%) and White/Caucasian (68.6%). As a result, the study findings may not generalize to a larger, more diverse population. As previously noted, there may be demographic differences in the relevancy of additional factors (e.g., religion, coping styles) in these interactions. It is particularly important that future work include a more diverse sample given that there may be unique cultural differences the roles of self-compassion and experiential avoidance in the relationship between social support and PTG.

Conclusions

Despite these limitations, the results of this study contribute to the trauma literature by expanding upon our understanding of internal mechanisms that may be implicated in the development and process of PTG. The present findings align with prior research that social support is implicated in PTG (García et al., 2014; Kolokotroni et al., 2014; Koutrouli et al., 2012; Mark et al., 2018; Prati & Pietrantonio, 2009; Tsai et al., 2015) and provide support for the notion that self-compassion and experiential avoidance are also relevant. The direct positive association between self-compassion and PTG points to a potentially malleable internal resource that could be harnessed to increase levels of PTG among trauma survivors. The unexpected positive relationship between experiential avoidance and PTG may indicate that there is more nuance in the connection between avoidance and PTG. This finding also may be relevant in disentangling the complicated relationship between distress (PTSS) and growth (PTG).

Additionally, the present study broadens our understanding of the link between social support and PTG by investigating the role that both self-compassion and experiential avoidance play in this well-established relationship. The findings indicate that the tie between social support and PTG may not be entirely linear and is likely influenced by several internal mechanisms including, but not limited to, self-compassion and experiential avoidance. Future work is needed to replicate the findings from the current study and to explore additional factors that may be relevant (e.g., trauma type, religion, cultural factors, types of social support).

Although the indirect relationship between social support and PTG via self-compassion does not provide any information regarding causality, it does suggest that

inter- and intrapersonal factors may interact in the context of PTG. Future longitudinal work is essential in determining directionality of this interaction. If self-compassion does serve as a mechanism by which social support leads to increased levels of PTG, this could serve as a potential intervention foci. Fortunately, research indicates that self-compassion is a malleable internal resource that can be increased through various self-compassion interventions and emerging findings suggest that self-compassion interventions are also associated with reductions in PTSS (Au et al., 2017; Kearney et al., 2013; Lang et al., 2020; Müller-Engelmann et al., 2019). Thus, if increasing self-compassion has the potential to bolster PTG among trauma survivors, there are potentially important implications regarding not only symptom reduction but also the ability to enhance feelings of personal strength, spiritual awakenings, and a greater appreciation for life, others, and the self.

The moderating effect of experiential avoidance on the relationship between social support and PTG has its own set of clinical implications. Specifically, this finding implies that the utility of social support in fostering PTG may vary depending on an individual's level of experiential avoidance. Trauma survivors who endorse high levels of experiential avoidance may be at greatest risk of not experiencing PTG without the support of close relationships. Thus, enhancing social support and connection for this sub-group may be particularly critical. Alternatively, for individuals whom this is not possible, reducing levels of experiential avoidance may increase their capability for growth. Overall, this study supports the idea that both internal and external mechanisms are relevant in the development and process of PTG and supports the continued examination of the interaction between inter- and intra-personal factors in the context of

PTG. Gaining a more comprehensive understanding of the internal processes that are relevant in the trauma recovery process and how they interact with key factors such as social support is essential not only in identifying individuals at greater risk of maladaptive trauma trajectories but also in informing potential interventions for improving trauma-related outcomes and enhancing positive growth in the aftermath of trauma exposure.

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Table 1
Bivariate correlations for variables of interest

	1	2	3	4	5
1. Posttraumatic Growth	---				
2. Self-Compassion	.14**	---			
3. Social Support	.12*	.21**	---		
4. Experiential Avoidance	.16**	-.43**	-.12*	---	
5. Posttraumatic Stress Symptoms	.38**	-.34**	-.18**	.54**	---

Note. * $p < .05$, ** $p < .01$

Table 2

Regression model for social support, self-compassion, and posttraumatic growth

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI
Self-Compassion – Posttraumatic Growth (PTG)					
Social Support -> Self-Compassion	.01	.002	3.54	<.001	[.004 – .013]
Social Support -> PTG	.37	.086	4.35	<.001	[.206 – .543]
Self-Compassion -> PTG	9.27	1.78	5.20	<.001	[5.763 – 12.769]
Race -> PTG	5.56	2.38	2.33	.020	[.873 – 10.243]
PTSS->PTG	.61	.06	9.96	<.001	[.490 – .732]
Data Source -> PTG	.24	2.32	.10	.918	[-4.314– 4.81]
Indirect Effect	.08	.029			[.028 – .144]

Note. B = Unstandardized Beta; CI = Confidence Interval; PTG = Posttraumatic Growth; PTSS = Posttraumatic Stress Symptoms

Table 3

Moderation models for self-compassion and experiential avoidance on relationship between social support and posttraumatic growth (PTG)

	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	
Self-Compassion- PTG					
Race	5.53*	2.38	2.32	.85	10.21
Data Source	.21	2.31	.09	-4.33	4.76
PTSS	.61***	.06	9.90	.49	.73
Social Support	.30***	.08	3.51	0.13	0.46
Self-Compassion	9.62***	1.80	5.35	6.08	13.15
Social Support X Self-Compassion	-.17	.12	-1.37	-.41	.07
Experiential Avoidance- PTG					
Race	8.00**	2.41	3.32	3.26	12.74
Data Source	3.91	2.32	1.68	-.66	8.47
PTSS	.54***	.07	7.84	.40	.67
Social Support	.38***	.09	4.47	.21	.55
Experiential Avoidance	-.20	.11	-1.83	-.41	.01
Experiential Avoidance X Self-Compassion	.01*	.01	2.21	.00	.03

Note. B = Unstandardized Beta; CI = Confidence Interval; PTG = Posttraumatic Growth; PTSS = Posttraumatic Stress Symptoms

Figure 1

Indirect Effect of Self-Compassion on the Relationship between Social Support and PTG

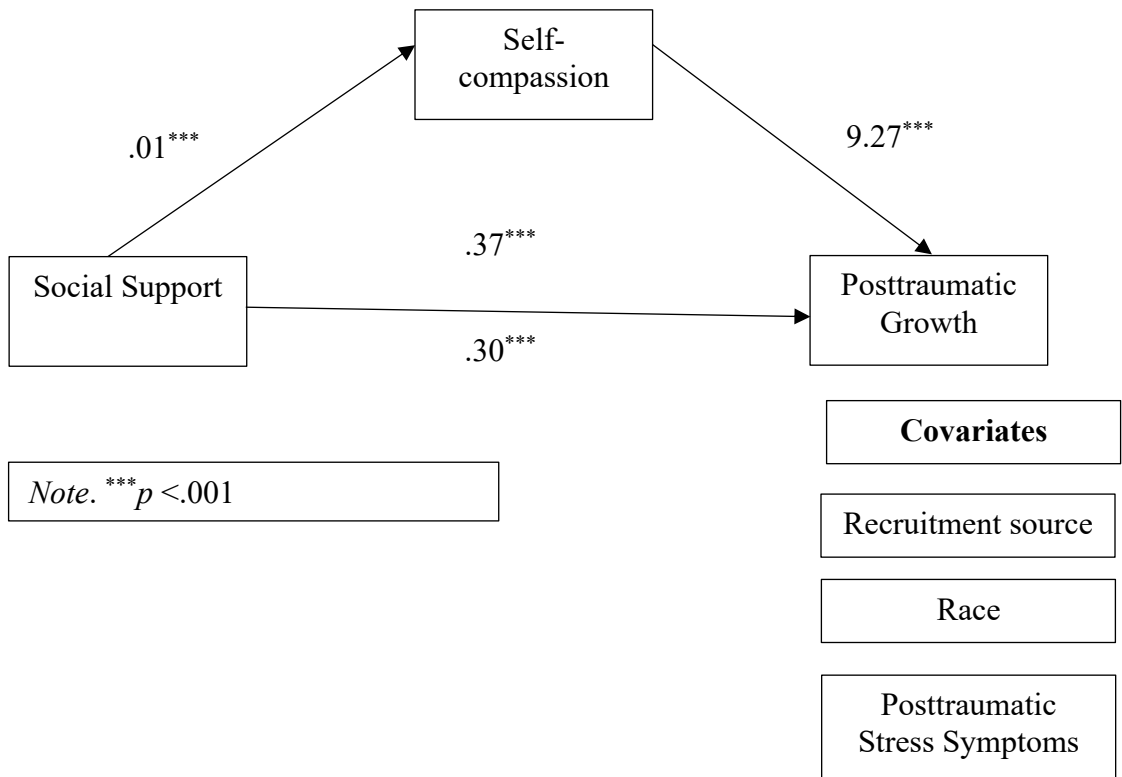
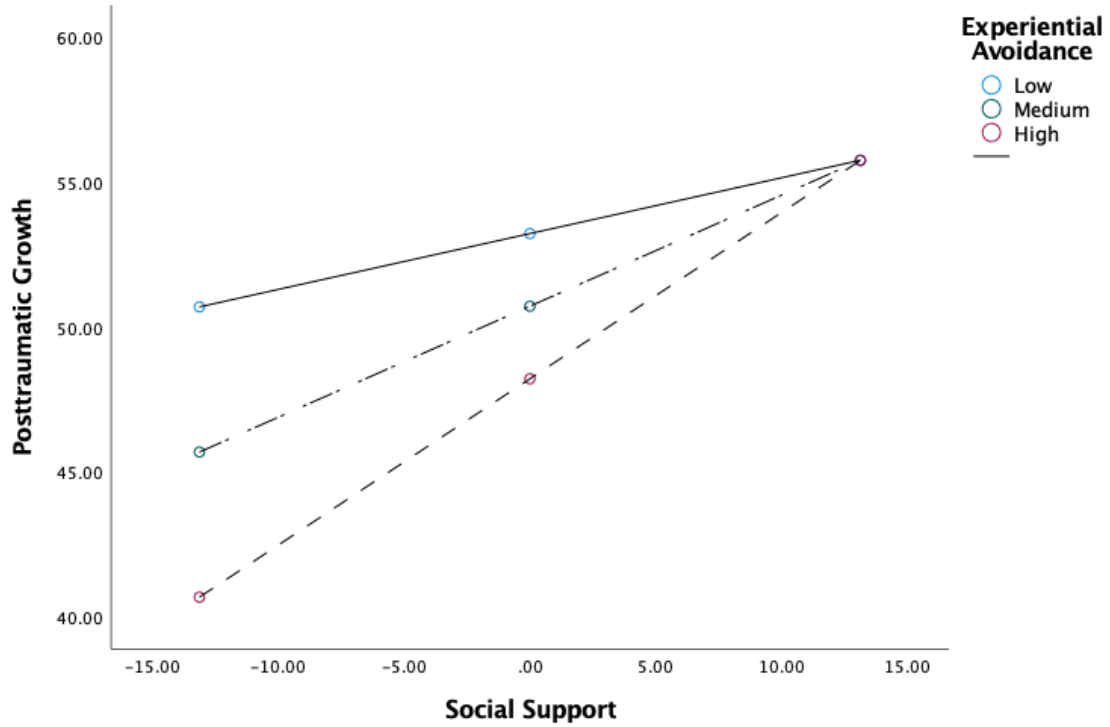


Figure 2

The relationship between social support and PTG at different levels of experiential avoidance



Note: The following covariates were controlled for: Recruitment Source, Race, and Posttraumatic Stress Symptoms