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Dispositional mindfulness moderates the relationship between depression and posttraumatic growth in Chinese adolescents following a tornado

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ABSTRACT

This study explored whether dispositional mindfulness moderated the relationship between depression and posttraumatic growth. A total of 435 Chinese adolescents who experienced a tornado in Yancheng city reported their level of depressive symptoms (The Center for Epidemiologic Studies Depression Scale for Children; CES-DC), posttraumatic growth (Posttraumatic Growth Inventory; PTGI) and dispositional mindfulness (Mindfulness Attention Awareness Scale; MAAS). The current study found that for individuals with higher dispositional mindfulness, their depression was associated with more posttraumatic growth, while the individuals with lower dispositional mindfulness showed no such association. These findings suggest that individuals high in dispositional mindfulness possess the potential to benefit from the process of adaptive coping in response to depression following a traumatic experience. The implications of the results for research and mindfulness-based interventions targeting depression were discussed.

1. Introduction

A violent tornado struck the city of Yancheng in China on June 23, 2016. This tornado was among the deadliest that has hit China within half a century. More than 1.6 million people were affected and the disaster area covered about 17,000 km^2 (Lyu, Wang, Cheng, & Shen, 2017), which left the city severely damaged. Beyond the physical, environmental, and economic toll of this tornado, catastrophic disasters as such may also lead to mental health problems in individuals who have either experienced the disaster directly, or live among the affected community (Houston et al., 2015).

It has long been shown that people exposed to traumatic events often experience psychological distress (Ozer & McDonald, 2006). Indeed, trauma experience is one important risk factor for depression (Wingo et al., 2010). Victims of natural disasters typically report increased levels of major depressive symptoms (Chou et al., 2007). Of these victims, adolescents may be especially vulnerable to the negative outcomes of exposure to natural disasters, given the highly influential and critical developmental period of adolescence (Crews, He, & Hodge, 2007) coupled with the potential longevity of these post-disaster psychological symptoms (e.g., Briere & Elliott, 2000; Liu et al., 2011). For example, adolescents who have been exposed to extreme trauma in areas that were heavily affected by natural disasters generally report chronic and severe levels of posttraumatic stress and depressive symptoms (Goenjian et al., 2001).

However, research has shown that, apart frsom negative psychological outcomes, traumatic experiences can also bring about positive psychological changes in individuals who have endured the challenges stemming from the trauma (Calhoun & Tedeschi, 2004; Clay, Knibbs, & Joseph, 2009; Taku, Cann, Calhoun, & Tedeschi, 2008, Taku, Kilmer, Cann, Tedeschi, & Calhoun, 2012; Zoellner & Maercker, 2006). Indeed, there is an emerging literature on the experience of these positive psychological changes following traumatic events, also known as posttraumatic growth (PTG) among adolescents (Meyerson, Grant, Smith Carter, & Kilmer, 2011). Of the various forms of traumatic events studied, PTG is particularly high among adolescents who have experienced a natural disaster (Cryder, Kilmer, Tedeschi, & Calhoun, 2006; Kilmer et al., 2009).

Because of the frequency with which treatment-seeking trauma victims manifest depressive symptoms, a more comprehensive understanding of the relationship between the disorder and growth outcomes is highly valuable to clinicians and therefore warrants more research attention (Grubaugh & Resick, 2007). Even though past research has tested the association between depression and PTG among adolescents (Milam, Ritt-Olson, Tan, Unger, & Nezami, 2005), findings have not been consistent. Some researchers have found a moderately significant

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positive correlation between psychological symptoms and PTG (Wolchik, Coxe, Tein, Sandler, & Ayers, 2009). On the other hand, Milam et al. (2005) found a negative association between depressive symptoms and PTG. However, this negative relationship was no longer statistically significant after adjusting for other variables such as ethnicity, optimism, and religiosity. Lastly, there are also studies that showed no significant association between depression and PTG (Milam, Ritt-Olson, & Unger, 2004; Vaughn, Roesch, & Aldridge, 2009). Given the importance of this research area and lack of congruence in existing findings, the current paper aimed to clarify the relationship between depression and PTG in adolescences who have recently experienced a natural disaster.

One possible reason underlying the inconsistent findings on the association between depression and PTG would be the limitations in methodology. Some studies have relied on measures that were either not specifically developed to capture PTG (Salter & Stallard, 2004) or not designed for use with adolescent populations (Meyerson et al., 2011). In the reviewed studies examining PTG in youth, a majority of the studies used a version of the Posttraumatic Growth Inventory (PTGI) that has not been customized (e.g. simplified language or additional instructions to facilitate understanding) to address the specific developmental needs of adolescents (Taku et al., 2008). Such methodological drawbacks challenge the validity of the measures and thus the results of the studies.

Other than that, the inconsistency in past findings may also reflect the presence of moderating variables, which hitherto have not been accounted for. One potential group of moderators of the relationship between depression and PTG would be protective factors or variables that positively influence posttraumatic reactions (Hanley, Garland, & Tedeschi, 2016). Despite the significance of external factors, internal, cognitive coping processes have been suggested to be most central to posttraumatic reactions (Garland, Farb, Goldin, & Fredrickson, 2015; Joseph, Murphy, & Regel, 2012; Tedeschi & Calhoun, 2004). Mindfulness, or the tendency to “pay attention in a particular way: on purpose, in the present moment, and non-judgmentally” (Kabat-Zinn, 1994, p.4), is one form of the abovementioned internal regulatory processes. Mindfulness may serve as an important protective factor in the wake of traumatic life experience as it helps buffer against negative posttraumatic outcomes and facilitates the possibility of finding meaning in the face of adversity (Hanley, Peterson, Canto, & Garland, 2015). To clarify the relationship between depression and PTG in adolescents, we examined the role of dispositional mindfulness or individual tendencies to practice mindfulness, as a possible moderator of this relationship.

A vast body of literature from correlational studies has demonstrated the health benefits of mindfulness in both clinical and community samples, including adolescent samples (Ciesla et al., 2012; Khusid & Vythilingam, 2016). More recently, the associations between mindfulness and the psychopathology associated with trauma as well as posttraumatic growth have been increasingly studied (Garland et al., 2015; Hanley, 2016). Garland (2007) found that mindfulness may facilitate adaptation to adverse life circumstances by enhancing positive reappraisal, a cognitive coping strategy through which stressful experiences are reframed as benign, meaningful, or growth-promoting. This mindful reappraisal process could, in turn, promote positive affect and improve psychological well-being. For instance, Kearney, McDermott, Malte, Martinez, and Simpson (2012) have shown that mindfulness-based interventions can significantly reduce depressive symptoms from baseline levels among war veterans. One study evaluated the concurrent associations between mindfulness and psychopathology symptoms among adults experiencing traumatic events. This study found levels of mindfulness were significantly negatively associated with levels of depression (Bernstein, Tanay, & Vujanovic, 2011).

In addition to promoting the use of cognitive reappraisal per se, mindfulness may also facilitate meaning-making processes during reappraisal – hence increasing the likelihood of PTG. According to the mindfulness-to-meaning theory (Garland et al., 2015), positive appraisal that flows from mindfulness can increase one's appreciation for adversity as an opportunity for personal transformation and growth. This postulation has been supported by empirical findings of positive associations between dispositional mindfulness and PTG in various populations (Chopko & Schwartz, 2009; Hanley et al., 2015, Hanley et al., 2016).

Equipped with a stronger tendency to exercise positive reappraisal and to create meaning from experiences, more mindful individuals may experience more PTG in response to more distress. Because more mindful individuals possess a stronger focus on moment- to- moment experiences and practice greater acceptance (Williams, 2008), they are more likely to experience distress in a more in-depth manner, both cognitively and emotionally. Through an active and more adaptive readjustment of the undesired cognitions which arise from negative experiences (Follette, Palm, & Pearson, 2006; Hanley et al., 2016; Thompson, Arnkoff, & Glass, 2011), more mindful individuals may experience increased psychological growth from post-traumatic depression in comparison to those who are less mindful (Hanley & Garland, 2014).

2. The current study

The main goal of the current study was to examine whether dispositional mindfulness moderated the relationship between depression and PTG. We hypothesized that (1) dispositional mindfulness would be associated with lower depressive symptoms; but (2) with higher PTG, and that (3) the relationship between depression (predictor) and PTG (dependent variable) would be moderated by dispositional mindfulness. Specifically, the higher an individual's level of dispositional mindfulness, the stronger the positive relationship between depression and posttraumatic growth. Using a cross-sectional design, we tested these predictions in a sample of student survivors of the Yancheng tornado. Given the increased mental health vulnerability of adolescents exposed to traumatic events (American Psychiatric Association, 2013) and a lack of studies on the protective role of dispositional mindfulness on posttraumatic outcomes among adolescents, the current study would not only foster a better understanding of the relations between depression, PTG and dispositional mindfulness, but also offer practical implications for mindfulness-based intervention work among Chinese adolescent students experiencing natural disasters.

3. Methods

3.1. Participants

The participants in the study were adolescents recruited from ten randomly-selected classrooms of two middle schools in Yancheng, Jiangsu, China, where the tornado occurred. Excluding the incomplete responses from four participants, data from 431 participants were available for analysis. Participants were aged from 12 to 17 years (M = 14.75, SD = 1.022), and 179 (41.5%) were male. Among the 431 participants, 133 (30.8%) had seen their houses damaged, including 3 with houses that were completely destroyed. Nine of the participants were trapped during the tornado, and six were injured. Seventy-eight (18.1%) participants had relatives or friends who were trapped, eighty (18.6%) had relatives or friends who were injured, while twenty-seven (6.3%) had relatives or friends who died.

3.2. Procedure

The data was collected in March 2017, which was nine months after the Yancheng tornado. The researchers conducted the survey without the presence of local teachers. Prior to the survey, permissions were sought from the school principal and teacher at the school; parental permissions were waived.[1] Written consent forms were obtained from