Dispositional mindfulness, negative posttraumatic beliefs, and academic burnout among adolescents following the 2016 Yancheng Tornado

Wei Xu, Yuanyuan An, Xu Ding, Guangze Yuan, Yulu Zhuang, Pei Hwa Goh

1. Introduction

Of common occurrence in eastern China during summers, tornados are one form of natural disasters that can bring about not only serious physical, but also psychological destruction to the people affected. Previous research has shown that exposure to traumatic experiences from disasters can be linked to heightened levels of post-disaster psychopathology (Furr, Comer, Edmunds, & Kendall, 2010; Norris, Friedman, & Watson, 2002; Rubonis & Bickman, 1991), many of which have cognitive underpinnings. Adolescents may be especially vulnerable to the negative cognitive and behavioral 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 & Elliot, 2000; Liu, Wang, Shi, Zhang, Zhang, & Shen, 1991), many of which have cognitive underpinnings. Adolescents may be especially vulnerable to the negative cognitive and behavioral 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 & Elliot, 2000; Liu, Wang, Shi, Zhang, Zhang, & Shen, 1991). Among adolescents, one area in particular that could be greatly affected by exposure to natural disasters would be academia.

1.1. Academic burnout

Academic burnout, or burnout within school contexts have been receiving increasing attention recently despite being traditionally studied in industrial and organizational work settings (Kiuru, Aunola, Nurmi, & Leskinen, E, & Salmela-Aro, K., 2008; Lin, 2014; Walburg, 2014). It can be characterized by emotional exhaustion from study demands, possession of detached attitudes toward academic tasks, and perceptions or displays of reduced efficiency or academic competence (Maslach, Schaufeli, & Leiter, 2001). Academic burnout may be particularly prevalent among adolescents exposed to natural disasters since experiencing stressful life events (such as experiencing natural disasters) is one of its important risk factors (Lin, 2014; Mather, Blom, & Svedberg, 2014). Indeed, there are evidences suggesting increased likelihood of academic burnout following exposure to natural disasters. For example, in Lin et al.’s (2013) study, 828 primary and secondary school students reported academic burnout especially the impairment in learning self-efficiency at 30 months after 2008 Wenchuan earthquake. A similar pattern of findings was found among 32 teachers within the area of the Wenchuan earthquake (Wu, Hou, Zang, Zhang, & Chang, 2009). Nevertheless, experience of disasters does not affect everyone the same way (Birkeland, Hansen, Blix, Solberg, & Heir, 2017). It is therefore important to identify the potential protective factors of academic burnout following exposure to natural disasters. In the current study, we examined the role of dispositional mindfulness as one potential protective factor in a sample of adolescents in Yancheng following the 2016 tornado.

1.2. Dispositional mindfulness and academic burnout

Dispositional mindfulness, defined as the human capacity involving sensitive awareness of the present without judgment (Brown & Ryan, 2003), has been found to be associated with a lower likelihood of
burnout in adult (Krasner et al., 2009) and also adolescent samples (Gustafsson, Skoog, Davis, Kenttä, & Habeer, 2015). Using a sample of 233 adolescent athletes, Gustafsson et al. (2015) found that dispositional mindfulness was negatively associated with burnout, and that this association was mediated by increment in positive affect. In support, mindfulness-based interventions have also been shown to be effective in reducing work-related burnout (Cohen-Katz, Wiley, Capuano, Baker, & Shapiro, 2004; Goodman & Schorling, 2012). In addition to that, dispositional mindfulness has been shown to be protective in the face of traumatic events. For instance, Nitzanassayag, Aderka, and Bernstein (2015) investigated 151 traumatized people immediately following the Mount Carmel Fire and found that dispositional mindfulness was negatively associated with posttraumatic distress including negative affect, depression, and posttraumatic stress symptoms. There is also substantial evidence of the effectiveness of mindfulness-based interventions in reducing the negative outcomes of traumatic events (Boden et al., 2012; King et al., 2013; Niles et al., 2012; Thompson, Arnkoff, & Glass, 2011).

While the protective role of mindfulness in reducing burnout and post-traumatic symptoms has been shown (separately) in past research, the current study was, to the best of our knowledge, the first to specifically examine the association between dispositional mindfulness and academic burnout among traumatized adolescents. As mindfulness is essentially a quality of consciousness, we proposed that dispositional mindfulness may shape individual differences in cognitive appraisal (Salmon, Sephton, & Dreeben 2011), specifically, the endorsement of certain attitudes or beliefs, following traumatic experiences. These appraisals would, in turn, predict academic burnout among traumatized adolescents. Further support for our proposition stem from both research on academic burnout and mindfulness: First, students with high academic burnout tend to adopt maladaptive cognitive styles (Zhang, Gan, & Cham, 2007), negative core beliefs (Ni & Wu, 2009), and negative self-evaluations (Lian, Sun, Ji, Li, & Peng, 2014). Second, mindfulness is negatively associated with rumination (Ciesla, Reilly, Dickson, Emanaul, & Updegraff, 2012; Raes & Williams, 2010), thought suppression (Garland & Roberts-Lewis, 2013), and negative automatic thoughts (Frewen, Evans, Maraj, Dozois, & Partridge, 2008); and positively associated with positive reappraisal (Hanley & Garland, 2014), self-acceptance (Xu, Rodriguez, Zhang, & Liu, 2015), and psychological flexibility (Thompson & Waltz, 2010). Lastly, mindfulness has also been found to negatively predict cognitive avoidance (Thompson & Waltz, 2008, 2010), cognitive fusion, and cognitive suppression (Nitzanassayag et al., 2015).

1.3. Dispositional mindfulness, negative beliefs, and academic burnout

Furthermore, the aim of the current study was also to test a potential mechanism underlying the relationship between mindfulness and academic burnout among traumatized adolescents. As mindfulness is essentially a quality of consciousness, we proposed that dispositional mindfulness may shape individual differences in cognitive appraisal (Salmon, Sephton, & Dreeben 2011), specifically, the endorsement of certain attitudes or beliefs, following traumatic experiences. These appraisals would, in turn, predict academic burnout among traumatized adolescents. Further support for our proposition stem from both research on academic burnout and mindfulness: First, students with high academic burnout tend to adopt maladaptive cognitive styles (Zhang, Gan, & Cham, 2007), negative core beliefs (Ni & Wu, 2009), and negative self-evaluations (Lian, Sun, Ji, Li, & Peng, 2014). Second, mindfulness is negatively associated with rumination (Ciesla, Reilly, Dickson, Emanaul, & Updegraff, 2012; Raes & Williams, 2010), thought suppression (Garland & Roberts-Lewis, 2013), and negative automatic thoughts (Frewen, Evans, Maraj, Dozois, & Partridge, 2008); and positively associated with positive reappraisal (Hanley & Garland, 2014), self-acceptance (Xu, Rodriguez, Zhang, & Liu, 2015), and psychological flexibility (Thompson & Waltz, 2010). Lastly, mindfulness has also been found to negatively predict cognitive avoidance (Thompson & Waltz, 2008, 2010), cognitive fusion, and cognitive suppression (Nitzanassayag et al., 2015).

1.4. The current study

To sum up, given the associations between dispositional mindfulness, negative posttraumatic beliefs, and academic burnout, we hypothesized that the endorsement of negative posttraumatic beliefs acts as a mediator in the relationship between mindfulness and academic burnout. Specifically, adolescents with higher mindfulness may develop less negative posttraumatic beliefs after a traumatic event, and hence experience lower levels of academic burnout in school. We examined this model in a sample of Chinese adolescents who had experienced a major tornado 6 months before the current study in Yancheng, Jiangsu Province, China. This major tornado (level EF–4) caused severe damage to the Yancheng area, which included 99 deaths and 846 injured.

## 2. Method

### 2.1. Participants

Participants were 253 adolescents from two middle schools within the main areas afflicted by the Yancheng Tornado. Excluding invalid answers of 6 participants, we were left with 247 adolescents. Participants were aged 14.04 years (SD = 0.925) on average, and 100 (40.5%) of them were boys. Among the 247 participants, 133 (53.84%) of them reported damages to their houses, including 30 houses destroyed completely. Nine of the participants were trapped during the tornado and six were injured. Seventy-eight (31.0%) participants’ had relatives or friends who were trapped while eighty (31.8%) had relatives or friends who were injured. Twenty-seven (10.9%) participants reported deaths of relatives or friends.

### 2.2. Procedures

This study was approved by the Ethics Committee of School of Psychology. Participants were asked, by the teachers who engaged in student mental health counseling, to specifically reflect on their experiences of the tornado, and then invited to participate in a study within a regular classroom setting. Participants were informed that they would be taking part in a study on distress, and were provided a brief description of the purpose of the study. Upon providing written informed consent on the first page of the questionnaire packet, participants completed the pencil-and-paper questionnaire packet, which took them approximately 30–40 min. During the course of their participation, participants were permitted to ask questions concerning the study as needed. Upon completion of the study, the researchers conducted a 10-min group game with the participants as reward for their participation.

### 2.3. Measures

#### 2.3.1. Mindful Attention Awareness Scale (MAAS)

The MAAS is a measure that is widely used to assess dispositional mindfulness (Brown & Ryan, 2003). In the current study, the Chinese version of the MAAS, which was revised by Deng et al. (2012) was used. This scale consisted of 15 items rated on a 6-point Likert scale from 1 (always) to 6 (never). Items were reverse scored and summed to form a mindfulness score, with higher scores indicating higher levels of dispositional mindfulness.

#### 2.3.2. Negative posttraumatic beliefs (NPB)

Five items adapted from Wang, Wang, and Maercker (2013) revised by Xu, Yu, He, Xie, and Wang (2014) were used to assess one’s endorsement of negative beliefs following traumatic events. Sample items include “I now believe that the world is a very dangerous place” and “I am worrying about bad things happening in the future”. Items were rated on a 5-point scale ranging from 0 (not at all) to 4 (very much so). Item scores were summed to form a NPB score, with higher scores reflecting more negative beliefs.

#### 2.3.3. Learning Burnout Questionnaire (LBQ)

The LBQ is a 21-item scale developed in a Chinese student sample to assess academic burnout (Hu & Dai, 2007). Items were rated on a 5-point scale ranging from 0 (not at all) to 4 (almost always). The LBQ includes 4 subscales: mental exhaustion, the lack of personal learning accomplishment, the alienative relationship between students and teachers, and physical exhaustion. Higher scores indicated greater severity of academic burnout.

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