The role of meaning-focused coping in significant loss
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When individuals face uncontrollable situations such as natural disasters, meaning-focused coping (MFC) can contribute to individuals’ adjustment. The objectives of the current study were to examine the role of MFC in post-traumatic growth and to explore how three different types of coping (problem-focused coping, emotion-focused coping, and MFC) affected the mental health of earthquake victims following the 2008 Sichuan Earthquake. Hierarchical regression analyses indicated that MFC had a significantly incremental value in predicting positive affect ($\Delta R^2 = 7.6\%$, $p < .01$) and well-being ($\Delta R^2 = 3.1\%$, $p < .01$), above and beyond problem-focused coping and emotion-focused coping. In contrast, for negative affect and depression, these incremental effects were not significant. Path analysis was conducted to test the mediating role of post-traumatic growth among the three coping styles and the outcome variables (well-being, positive affect, negative affect, and depression). The results showed that post-traumatic growth mediated the path from MFC to well-being and positive affect (for positive affect: Sobel $z = 3.74$, $p < .001$; for well-being: Sobel $z = 5.02$, $p < .001$). In addition, post-traumatic growth mediated the path from problem-focused coping to depression (Sobel $z = 2.21$, $p < .001$). The hypothetical model of emotion-focused coping did not converge.

Keywords: meaning-focused coping; post-traumatic growth; earthquake; path analysis; mediation

Introduction
The relationship between coping and adaptation has drawn attention from researchers for the last two decades (Mikulincer & Florian, 1996). However, most research has focused on the adaptive values of problem-focused coping and emotion-focused coping (Park & Folkman, 1997). Recently, meaning-focused coping (MFC), a third type of coping that is distinct from problem-focused coping and emotion-focused coping, has been proposed. However, the relationship between MFC and adaptation remains unclear.

MFC and its measurement
Meaning-focused coping does not attempt to change a problematic situation, nor does it directly decrease the pressure caused by negative emotions or distress. Instead, MFC aims to change the evaluation of a situation and to make beliefs, goals, and

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stressful situations more consistent so that individuals are more open to dealing with stressful situations (Pearlin, 1991).

The coping process of meaning evaluation is performed by re-evaluating the positive meaning of the event(s) (Thompson, 1985). People must answer questions: Why did this happen (e.g., Dollinger, 1986; Taylor, 1983)? Why did this happen to me (e.g., Brickman & Bulman, 1977; Frazier & Schauben, 1994)? After the incident, which part of my life changed (e.g., Collins, Taylor, & Skokan, 1990)? Which part of the event made me think that the event was meaningful to me (e.g., McIntosh, Silver, & Wortman, 1993; Silver, Boon, & Stones, 1983)? Park and Folkman (1997) suggested that MFC may result in positive consequences in three ways: (1) strengthening social resources (including the development of new social support networks and better relationships with family and friends); (2) enhancing personal resources (including cognitive and intellectual changes, strengthening self-reliance, self-understanding, empathy, and altruism, and changing basic values and goal priorities); and (3) developing new coping skills (including cognitive coping skills, problem solving, help-seeking skills, and the ability to manage and regulate emotions).

A few studies have demonstrated that MFC and adaptation are related (Holahan, Moos, Holahan, & Brennan, 1995), especially when an uncontrollable stress such as illness or loss is involved (Moskowitz, Folkman, Collette, & Yittinghoff, 1996). These studies, mostly conducted among chronically ill and HIV-infected patients, demonstrated a positive correlation between mental health and MFC. However, because of the lack of a reliable and valid instrument, the results are not sufficiently convincing. In addition, no previous study has attempted to explore the meditation role of post-traumatic growth, especially the different functional mechanisms of the three types of coping and the unique contribution of MFC.

Folkman (2009) pointed out the need for questionnaire development on MFC. She noted that the measurement of MFC is in its infancy and that a variety of tools must be developed, especially those associated with stress-related growth and help-seeking. Accordingly, the authors of the present study have developed the meaning-focused coping questionnaire, as reported in a previous study (Guo, Gan, & Tong, submitted). The scale had a total of 26 items divided into eight dimensions: (1) perspective and vision; (2) rumination; (3) beliefs; (4) long-term prevention strategies; (5) rational use of resources; (6) acceptance; (7) heuristic thinking; and (8) values and outlook on life.

**The relationship between MFC and post-traumatic growth**

Post-traumatic growth (Tedeschi & Calhoun, 2004) refers to the positive psychological changes that occur when an individual responds to serious life stress. It is a constantly changing process that may involve personal characteristics, self-exposure and social support. After cognitive processing, individuals’ objectives and assumptions about life change, and they develop a new reference system for their cognitive structures (Tedeschi & Calhoun, 2004).

The existing literature directly and indirectly suggests that post-traumatic growth is an important correlate of MFC. For example, a study by Calhoun, Cann, Tedeschi, & McMillan (2000) found that meaning is an important reason for growth. Another study found that if an individual can adopt MFC strategies, then he/she will
turn a trauma into a process of positive growth following the initial negativity of a disaster (Janoff-Bulman & Frantz, 1997).

Previous research has considered post-traumatic growth as a process and an outcome variable. Researchers have used post-traumatic growth as either a dependent variable (e.g., Calhoun et al., 2000; Janoff-Bulman & Frantz, 1997) or an independent variable to predict adjustment (e.g., Fontana & Rosenheck, 1998; Linley & Joseph, 2004). Therefore, in the present study, we attempted to treat post-traumatic growth as a mediator, the mechanism to potentially explain the relationship between MFC and positive adjustment.

From the dimensions of MFC, we can observe that positive re-appraisal and acceptance, two important components of MFC, are closely related to post-traumatic growth. In particular, positive re-appraisal is a positive process of reconstructing the impact of traumatic events. Thompson (1985) found that positive meaning was related to less distress and better adjustment among people whose homes had been damaged by fire. However, as demonstrated across various studies, accepting the occurrence of a prior traumatic event is an important factor in personal growth (Calhoun et al., 2000). Park, Cohen, and Murch (1996) demonstrated that acceptance was a significant predictor of personal growth. Furthermore, Armeli, Gunthert, and Cohen (2001) showed that college students who used acceptance coping strategies had the highest levels of post-traumatic growth. Prior studies have also suggested that the longer a trauma lasted, the more growth people will report (Cordova, Cunningham, Carlson, & Andrykowski, 2001; Evers et al., 2001; Polatinsky & Esprey, 2000). However, the role of post-traumatic growth in the relationship between MFC and adaptation is still unclear.

The mechanism of the adaptive value of MFC

As previous research has indicated, people need different coping strategies at different stages of a traumatic incident. A study among cancer patients found that during the diagnosis and treatment phases, cancer patients may be occupied by immediate drug treatment, life management, and regulation (Epping-Jordan et al., 1999; Holland & Lewis, 2000; Stanton, 2006), and this adaptive coping style (problem-focused coping) may be the most effective at this stage (Jim, Richardson, Golden-Kreutz, Andersen, 2006; Stanton, Danoff-Burg, & Huggins, 2002). However, following completion of the initial phase of coping, patients who have suffered traumatic experiences must also face a long-term convalescence that has a significant impact on their long-term physical and mental health. Studies have shown that after completion of the initial treatment, an existential search for meaning plays an important role in adaptation during the next few years (e.g., Moadel et al., 2000; Xuereb & Dunlop, 2003).

The three coping styles that we have discussed are suitable for different situations. When individuals have the ability to control the situation, the effects of active coping strategies (problem-focused coping and emotion-focused coping) should be sufficient. However, when individuals confront uncontrollable situations, accepting or re-evaluating the situation could be more effective (Carver, Scheier, & Weintraub, 1989; Updegraff & Taylor, 2000). This concept challenges the traditional theory that emotion-focused coping is always effective in the face of uncontrollable stressors. Instead, in the face of irrevocable and uncontrollable events, MFC may be the
appropriate strategy whereas active coping and health-related outcomes may be negatively correlated. Therefore, we assume that MFC and positive mental health are positively related in certain situations whereas problem-focused coping is related to the reduction of negative mental health outcomes.

**Background and objectives of the present study**

Since Park and Forkman (1997) proposed the construct of MFC, other researchers (e.g., Folkman & Moskowitz, 2004; Schwarzer & Knoll, 2003; Stroebe & Schut, 1999) have provided evidence of this new way of coping. However, this topic has not received widespread attention, and the number of related studies has been relatively small. Reasons for this lack of attention may include the varying role of MFC depending on the severity of negative events and the varying duration of effects. Existing research tends to focus on the pressure of daily events and short-term effects (Folkman, 2009). Therefore, the objective of this research was to explore the effect of MFC on mental adaptation through post-traumatic growth.

In this study, we focused on people who had experienced the Sichuan earthquake on 12 May 2008. On this date, a magnitude 8.0 (on the Richter scale) earthquake struck Sichuan province in southwestern China. Nearly 70,000 people were killed, 374,000 were injured, and 18,000 were listed as missing. The powerful earthquake wrought incalculable havoc on lives and properties in Sichuan Province, and its impact on millions of people will last a lifetime. Studies (e.g., Wang, Zhang, & Wang, 2009) indicate that post-traumatic stress disorder (PTSD) is a common mental health problem among earthquake survivors in China. The prevalence of probable PTSD among adult survivors in two different communities three months after the 2008 Sichuan earthquake in China was 37.8% and 13.0%, respectively. Among students with PTSD symptoms, visiting affected areas and being exposed to related news reports could be associated with post-traumatic growth (Yu, Lau, & Zhang, 2010).

By the time of our survey, two years after the Sichuan earthquake, people experienced a greater need to deal with the life changes brought on by the earthquake, such as housing problems and work re-adjustments. At this point, survivors’ daily lives had basically recovered, and coping began to shift to long-term adaptation. Survivors are forced to answer the question, what did the earthquake bring? Although the initial restoration has been completed, the impact will last much longer. Therefore, the study of MFC two years after the earthquake is necessary and important.

In the present study, MFC was used as an independent variable. The perception of stress was not measured for ethical reasons¹ and was thought to be relatively constant among the earthquake survivors.

We explore the role of MFC in this uncontrollable, irreversible, and traumatic situation and address the following question: does MFC play a protective role in individuals’ long-term mental health? We propose the following hypotheses:

1. For traumatic events, especially for victims of a natural disaster, MFC will have a positive effect on post-traumatic growth and mental health.
2. Three different types of coping (problem-focused coping, emotion-focused coping and MFC) provide different mechanisms to cope with traumatic events and lead to different psychological outcomes. In particular, MFC directly and
indirectly improves positive outcomes. By contrast, problem-focused coping and emotion-focused coping directly and indirectly decrease negative outcomes.

The hypothetical models of the current study are depicted in Figure 1.

**Method**

**Participants and procedures**

Four hundred questionnaires were sent to a senior high school in Mianyang City, China, a city that was among the most heavily hit areas in the 2008 Sichuan earthquake. During the earthquake, students in Mianyang experienced the collapse of their school buildings, serious damage to their school resources, and the death or serious injury of family members and classmates.

Of the 400 questionnaires, 371 were returned and 339 were valid, for an effective response rate of 84.8%. The valid criteria was to exclude those whose missing values

Figure 1. The hypothesized model: post-traumatic growth mediated the relationship between different types of coping and different aspects of mental health. (a) The mediation effect of post-traumatic growth between meaning-focused coping and positive mental health. (b) The mediation effect of post-traumatic growth between problem-focused coping and negative aspects of mental health.
were more than one third or those who provided random answers. Of the respondents, 173 were boys, 160 were girls, and six did not report their gender. Regarding grade level, 163 were in Year 1 of middle school, 175 were in Year 2, and 1 did not report a grade. Participants’ ages ranged from 14 to 19, with a mean age of 16.52 ± .80 years.

**Measures**

**Post-traumatic growth inventory**

Tedeschi and Calhoun (1996) developed the Post-Traumatic Growth Scale. This scale has a total of 21 items divided into five dimensions: interpersonal relationships (7 items), new possibilities (5 items), personal power (4 items), spiritual change (2 items), and life enjoyment (3 items). Students responded to items using a 5-point Likert scale ranging from 0 (I did not feel any change after the accident) to 5 (I felt a very large change after the accident). The retest reliability after two months was between .37 and .74. The Chinese version of the scale was used in this study, revised by Gao and Qian (2010). The Cronbach’s alpha internal consistency coefficient was .86, and for the subscales, Cronbach’s alphas were between .60 and .80. Confirmatory factor analysis showed a good construct validity ($\chi^2$/df = 2.05, RMSEA = .06, CFI = .94).

**Coping strategies**

It was measured using the Brief COPE (Carver et al., 1989), which was a 28-item scale. It measures how participants deal with stressful situations. This measure includes 14 subscales including Self-Distraction, Denial, Emotional Support, Positive Reframing, Instrumental Support, Substance Use, Active Coping, Behavioral Disengagement, Venting, Acceptance, Religion, Humor, Planning, and Self-Blame. Participants were asked to rate to which extent they often used each of these coping strategies on a 4-point scale. Considering the Chinese cultural background, we deleted the religion subscale.

**Self-rating depression scale (SDS)**

The English version of the SDS was originally developed by Zung (1965). Its Chinese version was revised with sound reliability and validity (Zhang, 1993). The SDS is a 20-item, self-administered questionnaire to measure depressive symptomatology. Respondents are asked to rate the presence of a depressive symptom on a Likert-type scale ranging from 1 (never or rarely) to 4 (most of the time), such that high scores indicate higher depressive symptomatology. The Cronbach’s alpha for the measure in the current study was .83.

**MFC scale**

The MFC scale has a total of 26 items divided into eight dimensions (e.g., perspective, beliefs, acceptance) and was originally developed by Guo et al. (under
review). Respondents were asked to rate the extent of their use of these strategies on a Likert-type scale ranging from 0 (never) to 4 (most of the time). The internal consistency coefficient was .86, and for the subscales, Cronbach’s alpha was between .60 and .80. Confirmatory factor analysis showed good construct validity ($\chi^2$/df = 2.05, RMSEA = .06, CFI = .94).

Positive and negative affect schedule

It is an adjective scale developed by Watson, Clark, and Tellegen (1988) that contains 20 items measuring positive (e.g., interested) and negative (e.g., guilt) emotional states. Respondents were asked to rate specific adjectives on a Likert-type scale ranging from 1 (none or a little) to 5 (very much). The Cronbach’s alpha for the Chinese version used in the current study was .83 for positive affect and .86 for negative affect.

Index of well-being, index of general affect

The index of well-being scale was developed by Campbell, Converse, and Rodgers (1976) and consists of two parts: an index of general affect, which includes eight items, with a weight of one; and an index of life satisfaction, which includes one item, with a weight of 1.1. This scale is widely used in empirical research. The Cronbach’s alpha for the Chinese version used in the current study was .89.

Results

The relationship between coping and post-quake adaptation

The means, standard deviations, and Pearson correlations among the three coping strategy scales, post-traumatic growth scores, well-being score, depression subscales, and positive affect and negative affect scores are shown in Table 1.

Hierarchical regression analyses for three types of coping

We conducted hierarchical regression analyses for three types of coping against each of the four outcome variables (positive affect, well-being, negative affect, and depression) with all demographic variables (age, gender, grade, controllability, and impact of events) entered as control variables in the first block, problem-focused coping and emotion-focused coping entered in the second block, and MFC entered in the last block. Thus, we were able to assess how much additional variance could be explained by MFC and determine the contribution of this type of coping on various outcome measures of mental health.

The results of these analyses are summarized in Table 2. MFC had significantly incremental predictive value for positive affect ($\Delta R^2 = 7.6\%, p < .01$) and well-being ($\Delta R^2 = 3.1\%, p < .01$) whereas for negative affect and depression, the incremental effects were not significant.
Path analyses of coping and mental health

Path analyses starting from the hypothetical models were conducted to examine the mediating role of post-traumatic growth among the three coping styles and the outcome variables (well-being, positive affect, negative affect, and depression). The expectation–maximization algorithm method was used to treat missing values. M-plus 5.0 was used to estimate and evaluate the model.

For the first model examining MFC, the hypothetical model fit the data well, $\chi^2/df = 2.57$, CFI = .919, RMSEA = .068 (more fit indices shown in Table 3). Post-traumatic growth mediated the path from MFC to well-being and positive affect (for positive affect: Sobel $z = 3.74$, $p < .001$; for well-being: Sobel $z = 5.02$, $p < .001$).

By contrast, the second model focusing on problem-focused coping did not fit the data well. After modification of the model by deleting two components of post-traumatic growth and negative affect as one dependent variable, the model fit significantly improved, $\chi^2/df = 1.99$, CFI = .987, RMSEA = .054 (more fit indices shown in Table 3). Therefore, in the model, post-traumatic growth mediated the path from problem-focused coping to depression (Sobel $z = 2.21$, $p < .001$). However, the hypothetical model of emotion-focused coping did not converge. The resulting models are shown in Figure 2.

Discussion

The relationship between MFC and post-traumatic growth

As indicated by the Pearson correlations in Table 1, the variables under study were significantly correlated in the expected direction. In particular, strong MFC was associated with more post-traumatic growth, fewer depression symptoms, and higher well-being and positive affect. These results were consistent with previous studies, supporting a relationship between MFC and adaptation (e.g., Schussler, 1992; Thompson, Nanni, & Levine, 1994; Upton & Thompson, 1992), especially when facing an uncontrollable stress such as illness or loss and when positive re-evaluation is more meaningful (Mattlin, Wethington, & Kessler, 1990). Individuals who cannot...
Table 2. Predictions of psychological outcomes by meaning-focused coping.

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<th>Positive affect</th>
<th>Well-being</th>
<th>Negative affect</th>
<th>Depression</th>
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<td>R²</td>
<td>R² change</td>
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<td>Model 1</td>
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<tr>
<td>Control variables</td>
<td>.24</td>
<td>.056*</td>
<td>.17</td>
<td>.03**</td>
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<tr>
<td>Model 2</td>
<td>.28</td>
<td>.22**</td>
<td>.11**</td>
<td>.26</td>
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<tr>
<td>Control variables</td>
<td>.06</td>
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<td>-.24**</td>
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<td>Emotional-focused coping</td>
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<td>Model 3</td>
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<td>Meaning-focused coping</td>
<td>.31**</td>
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Note: "—" indicates failing to enter the regression model.

*p < 0.05; **p < 0.01
incorporate the current meaning of the event into their worldview will manifest more maladjustment and depression (Lyubomirsky & Nolen-Hoeksema, 1993; Nolen-Hoeksema, 1987; Tait & Silver, 1989). Affleck, Tennen, Croog, and Levine (1987) found that patients with heart disease who used MFC to a great extent (e.g., established more intimate family relationships or learned new values) showed less depression and higher life satisfaction. Moskowitz et al. (1996) demonstrated that AIDS patients’ partners who used positive evaluation showed more positive emotions and were better able to accept their partners’ deaths.

Since the 1990s, a new understanding of trauma has arisen in psychology, emphasizing the positive impact of trauma on people. According to this view, by understanding trauma as an opportunity, individuals can learn how to overcome dilemmas and to enhance self-force and achieve self-transcendence. When faced with the departure of a loved one, a chronic disease, or a major loss, people using MFC benefit from post-traumatic growth and recover more quickly from stressful events. For example, Bower et al. (2005) showed in a study with 5–10 years of follow-up that cancer patients could increase their tolerance of vulnerability and establish some sense of positive growth.

Our results showed that MFC was likely to have a positive impact on long-term adaptation among people who experienced the 2008 earthquake. The adolescents who experienced the earthquake reported that they used several MFC strategies for the disaster, such as accepting the fact that the earthquake had occurred, accepting death, and trying to identify some benefit of the disaster.

**Mechanisms of the three coping styles in adolescents after the earthquake**

The results supported our hypothesis that MFC has the effect of improving positive outcomes whereas problem-focused coping has the effect of decreasing negative outcomes. We found that problem-focused coping had a positive effect on mental health by decreasing depression. Post-traumatic growth mediated the relationship between problem-focused coping and depression. By contrast, MFC had a positive effect on mental health only by increasing positive outcomes. However, contrary to our prediction, emotion-focused coping failed to improve adolescents’ well-being.

The results of the hierarchical regression analyses support our hypothesis that MFC positively predicts positive psychological adjustment above and beyond the two traditional types of coping.

According to Lazarus and Folkman (1987), all coping styles are not equally effective or useful across all situations. Roth and Cohen (1986) proposed that ignoring a problem and focusing on emotional suppression were associated with poor psychological outcomes, but active attempts to manage the problem were associated with better psychological outcomes. The appropriateness of a coping...
MFC1 to MFC8 are eight subdimensions of meaning-focused coping
MFC1: Perspective vision
MFC2: Rumination
MFC3: Beliefs
MFC4: Long-term prevention strategies
MFC5: Rational use of resources
MFC6: Acceptance
MFC7: Heuristic thinking
MFC8: Values, outlook on life

PTG1 to PTG5 are five subdimensions of post-traumatic growth
PTG1: interpersonal relationships
PTG2: new possibilities
PTG3: personal power
PTG4: spiritual change
PTG5: life enjoyment

(a) The Mediation Effect of Post-traumatic Growth between Meaning-focused Coping and Positive Mental Health

(b) The Mediation Effect of Post-traumatic Growth between Problem-focused coping and Negative Aspects of Mental Health

PTG1, PTG3, and PTG5 are five subdimensions of post-traumatic growth
PTG1: interpersonal relationships
PTG3: personal power
PTG5: life enjoyment

PFC1 to PFC2 are two item parcels of problem-focused coping

Figure 2. The mediation effects of post-traumatic growth between coping and mental health.
strategy depends on the person using it and the time and type of the situation. That is, choosing a coping strategy that fits the situation will produce better outcomes (goodness-of-fit hypothesis; Folkman & Moskowitz, 2004). The results of our study indicate that MFC and problem-focused coping are more useful coping strategies than emotion-focused coping when dealing with traumatic stress.

Implications

The present study is meaningful because it provides evidence for how Chinese adolescents endorse MFC and how this type of coping may affect post-quake growth and mental health based on a well-validated measure of MFC. This study also attempted to reveal the function of MFC in long-term adaptation among disaster survivors. The results confirmed the partially mediating role of post-traumatic growth in MFC and provided evidence for MFC as a unique resource for coping with a traumatic, uncontrollable disaster that has a long-lasting influence, above and beyond the two traditional types of coping. The results also challenged the classic rule of flexible coping: “controllable: problem focused coping; uncontrollable: emotion-focused coping” and called attention to the adaptive value and conditions of the third type of coping: MFC.

The results of this study also have practical value. First, insights into the mechanisms of how MFC functions in post-traumatic growth and mental health may help individuals learn how to cope in the face of an extremely traumatic and uncontrollable event, such as a devastating natural disaster.

Second, previous research (Fransella, Bell, & Bannister, 2004) has found that narrative therapy could improve peoples’ MFC ability. This approach not only helps individuals reframe meaning but also helps them practice this coping style during real life transitions. Our results provide new support for combining narrative therapy and MFC in health counseling and interventions for adolescents who have experienced trauma.

Limitations and future directions

The present study has several limitations that should be noted. First, because all variables were assessed with self-reported data, there may exist common method variance that could explain some of the observed relationships of MFC with other constructs, yielding potentially misleading conclusions. Following the recommendations of Podsakoff, MacKenzie, Lee, and Podsakoff (2003) to control for and assess common method variance, we used different scale endpoints and formats for the predictor and criterion measures as procedural remedies. Harman one-factor tests were conducted as a statistical remedy. The results showed that the first factor in our factor analysis accounted for only 15.61% of the total variance, suggesting that common method variance was not a significant problem in our study.

Second, our study was cross-sectional in design. Although regression analyses are usually interpreted as causal, we were prevented from making causal statements that could be provided by longitudinal studies. This is a problem particularly because we sought to test mediation using SEM, since mediation is always understood to be causal (Maxwell & Cole, 2007). Future research with a longitudinal design will be required to further investigate the three coping styles and the mechanisms underlying
long-term adaptation across different stages and different types of stressors on positive and negative mental health outcomes.

Third, the sample of the present study comprised survivors of a large natural disaster. However, we failed to measure trauma exposure as an important variable that might affect the associations under study. The omission of any important variable could distort the SEM model or even the regression model (Tabachnick & Fidell, 2000). In fact, we intended to collect trauma exposure data when we conducted the research, but this was not possible because of the trauma exposure measure’s potential to trigger negative emotions and remind students of the earthquake. Thus, we omitted these questions. Instead, we tried to control for trauma exposure by selecting a specific area affected by the earthquake. Our data were collected in Mianyang, which is located 60 km from the epicenter of the Sichuan Earthquake. Considering the severity of the earthquake, this area was significantly affected. In addition, the government has prohibited people from coming to this city since the earthquake occurred. Thus, it is reasonable to assume that all of the students involved had experienced the trauma.

Finally, our participants were restricted to earthquake survivors. Without a comparison group of individuals from the general population, we were not able to determine whether the associations found are typical for individuals who have experienced an earthquake or whether these associations would be the same in the general population. Therefore, the conclusions and the ecological validity of the present study should be restricted to people who have experienced traumatic events. Any generalization to other populations should be made with caution.

Acknowledgements
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Note
1. The Trauma Perception scale was omitted on the basis of a suggestion by the Ethics Working Group of the Chinese Clinical and Consulting Psychology Institution.

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