Coping mediates between social support, neuroticism, and depression after earthquake and examination stress among adolescents

Zhonghua Wang and Yiqun Gan*

Department of Psychology, Peking University, No. 5 Yiheyuan Road, Beijing 100 871, China

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The objective of this study was to investigate the mediating role of coping strategies in the relationships between neuroticism, social support, and depression in two groups of adolescents: earthquake group and examination group. Adolescents facing earthquake stress (earthquake group, \(N = 219\)) completed measures of neuroticism, perceived social support, coping strategies, and self-rating depression. Similarly, adolescents facing examination stress (examination group, \(N = 241\)) completed the same measures. Results indicated that the earthquake group reported more use of secondary control engagement coping, whereas the examination group reported more use of primary control engagement coping. In addition, neuroticism was more strongly associated with coping in earthquake group and coping strategies explained significantly larger part of the relationship between neuroticism and depression. In contrary, perceived social support was more strongly associated with coping in examination group, and coping strategies explained significantly larger part of the relationship between perceived social support and depression.

Keywords: coping; social support; earthquake-related stress; depression symptoms; adolescents; mediation models

Coping has been defined as an attempt to manage demands that are created by stressful events (Lazarus & Folkman, 1984). For example, Bolger (1990) described coping as “personality in action under stress.” Substantial evidence suggests that coping process is one of the most important mediators between contextual variables, individual variables, and adaptive outcomes like depression (Carver et al., 1993; Rayburn et al., 2005).

The structure of coping has been described according to a number of models, including problem-focused and emotion-focused coping, engagement and disengagement coping, as well as primary and secondary control coping (Skinner, Edge, Altman, & Sherwood, 2003). In a review of 100 studies that assessed coping, Skinner et al. (2003) recommended a hierarchical structure of coping strategies. The top of this structure distinguishes between engagement and disengagement coping. Individuals who use engagement coping orient toward stressors, attempting to manage the stressful situation and its related emotions. Individuals who employ disengagement coping orient away from stressors, distancing themselves from the stressor and its related emotions. At the next level of the hierarchical structure,
Skinner et al. (2003) further classified engagement coping into primary control and secondary control engagement coping. Primary control engagement coping is also called assimilative coping, with which individuals aim to change the situations or the stressors. Typical examples are active coping and planning. Secondary control engagement coping is also called accommodative coping, with which individual aims to adapt his or her attitudes toward the situation. Typical examples are reinterpretation and acceptance. Numerous studies have indicated that coping strategies are highly associated with mental health. In general, engagement coping predicts lower levels of psychological distress including anxiety and depressive symptoms, whereas disengagement coping predicts higher levels of distress (e.g., Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001).

Coping not only affects adjustment in isolation, but also mediates the interactions of other psychosocial measures and adaptive outcomes, including both social context and individual variables such as dispositional attributes. Among individual variables, previous studies have shown that dispositional attributes can directly facilitate or constrain certain coping strategies (Bolger & Zuckerman, 1995; Connor-Smith & Flachsbart, 2007). For example, research has suggested that highly optimistic people use less avoidance and more approach coping, which correlated with better mental and physical health (Carver et al., 1993). Approach-oriented strategies, such as reappraisal and acceptance, have been shown to mediate the relationship between optimism and better mental health in stressful circumstances (Brissette et al., 2002; Carver et al., 1993).

Neuroticism is characterized by anxiety, emotional instability, and self-consciousness (Enns & Cox, 1997). Numerous studies have supported the association between neuroticism and symptoms of depression in both clinical and non-clinical samples and in various situations (e.g., Boyce, Parker, Barnett, Cooney, & Smith, 1991; Muris, Roelofs, Rassin, Franken, & Maver, 2005). In addition, neuroticism is one of the traits that is most clearly linked to coping (Connor-Smith & Flachsbart, 2007). Individuals who score high in measures of neuroticism experience higher levels of stress and tend to relieve unpleasant arousal with disengagement strategies, such as denial, behavioral disengagement, and the venting of emotions (Connor-Smith & Flachsbart, 2007). In sum, it is reasonable to predict that primary control, secondary control, and disengagement strategies may serve as significant mediators in the relationship between neuroticism and depression.

Among social context variables, coping resources, such as perceived social support, are the most important predictors of adjustment. Coping could also mediate the interaction between perceived social support and individuals' adjustments. On one hand, perceived social support appears to directly decrease the use of harmful disengagement coping strategies and increase the use of beneficial engagement coping strategies (see Dunkel-Schetter, Folkman, & Lazarus, 1987; Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000). For example, perceived social support may facilitate the use of primary control coping strategies, such as planning and active coping, because individuals who score high on measures of perceived support tend to believe that their social network could fully support them. On the other hand, both instrumental and emotional support could make coping efforts more effective, which, in turn, would decrease distress (Calvete & Connor-Smith, 2006). Perceived social support also provides a basis for positive thinking and cognitive restructuring and, as a result, directly increases secondary
Numerous studies have indicated that coping can partially (e.g., Holland & Holahan, 2003) or fully (e.g., Fleishman et al., 2000) mediate the effects of perceived support on psychological symptoms. Although previous studies have investigated coping’s mediating role in the relationship between psychological variables and mental health, most of these studies were conducted in the context of general life events. Very few studies have explored the mediating effects of coping under extreme conditions. In a study focusing on adolescents displaced by Hurricane Katrina, researchers found that participants’ hurricane-related trauma experiences and psychological distress may have been mediated in part by family coping strategies. However, no study has compared coping’s mediating roles under different stressful conditions. Further, no attempts have been made to simultaneously compare the impacts of both dispositional attributes and coping resources on coping strategies.

The present study focuses on comparing coping’s roles in the relationship between neuroticism (one of the most important distributional attributes), perceived social support (one of the most important contextual variables), and depression in two distinct groups of students: one group facing earthquake stress and the other group facing examination stress.

The earthquake group consisted of adolescents who survived the Sichuan earthquake, measuring 8.0 on the Richter scale and hit Sichuan Province, China, at 2:28 pm. On 12 May 2008, Sichuan earthquake caused devastating damage with 40,075 people lost their lives. Natural disasters such as earthquakes often result in widespread traumatic stress and lead to high-level distress reactions among survivors, especially for children and adolescents (Cieslak et al., 2009; Giannopoulou et al., 2006). In present study, the earthquake group was consisted of adolescents who survived and were living in semi-permanent camps when we conducted the study. They had to deal with numerous extremely stressful events following the earthquake.

For comparing purpose, examination group was consisted of students who were not affected by the earthquake and only needed to cope with the stress of examination. We chose this situation as one of the most typical stressful events for adolescents in China. For one thing, high-school students experienced great pressure to perform well on the highly competitive National Entrance Examination for admission to universities, thus every single frustration in the examinations may indicate potential loss in the final one and as a result brought significant stress. On the other hand, Chinese parents’ strong emphasis on education makes examination results as one of the most enduring and widespread typical stressful events for adolescents.

The first aim of present study was to compare the use preference of specific coping strategies among adolescents in these two groups. The second aim was to compare the mediating role that coping played in the relationship between neuroticism and depression for adolescents when facing these two kinds of stressful situations. Studies have indicated that the influence of distributional attributes on coping strategies can vary depending on the stressful conditions. Although very few studies have examined this interaction in highly stressful situations like earthquakes, some researchers have implied that the relationship between dispositional attributes and coping strategies may be stronger under extremely stressful conditions because they allow more room for individual differences (Strelau, 2001). On the contrary, shorter or less intensely stressful situations allow for less variability in coping strategies.
strategies (Connor-Smith & Flachsbart, 2007; Moos & Holahan, 2003). Thus, in extreme conditions, dispositional attributes would play a more significant role than contextual variables in predicting coping strategies. We hypothesized that neuroticism’s influence on depression could be partially mediated by coping in both earthquake and examination groups, and the mediating effect would be stronger in earthquake group than in examination group.

The third aim of present study was to compare the mediating roles of coping in the relationship between perceived social support and depression in these two groups. Comparing with dispositional attributes, contextual variables like perceived social support may exhibit distinguished influence on depression in the two groups. As discussed above, for general life-related stressors, the effects of dispositional attributes on coping strategies might be weakened; thus, coping resources might exhibit more powerful influence. On the other hand, for general stressors, instrumental and emotional social support might be more available and their effects may be stronger. Hence, we hypothesized that the influence of perceived social support on depression would be partially mediated by coping in both groups but the mediating effect would be stronger in the examination group than in the earthquake group.

Finally, we selected adolescents rather than adults as our participants in the current study for the following reasons. Research has suggested that since temperament formed the basis for coping strategies, personality may be more strongly tied to coping for younger individuals (Connor-Smith & Flachsbart, 2007). Younger individuals who have not fully developed verbal and cognitive abilities would have more limited coping repertoire than adults, and it is possible their coping strategies would better reflect their personalities and inherent coping tendencies.

Methods

Participants and procedure

Participants in both groups were second-year high-school students, who volunteered to finish the questionnaires in return for a small incentive. We debriefed the participants through email and offered professional help to those with significant symptoms of depression, especially those from earthquake group.

The earthquake group consisted of 219 students aged 15–19 years (mean = 16.4, SD = 1.5) from Mianzhu high school. Mianzhu is located only 60 km from the epicenter of the Sichuan earthquake and was profoundly affected by the earthquake. Data were collected 3 months after the earthquake when the students were living in temporary housing and attending school in temporary classrooms. Although trauma exposure data were not collected so as to avoid potential harm to the survivors, we made some other efforts to make sure all the participants were actually involved in the earthquake. Firstly, after the data were collected, we contacted the home teachers of all the students who participated in our study to ensure that each of them had been in Mianzhu during the period between the earthquake happening and data collection. Since participants were required to include their names on questionnaires, the confirmation was easy to conduct afterwards. Secondly, since the Chinese Government forbade people from leaving Sichuan province after the earthquake for safety reasons, it was reasonable to assume that all of the participants involved had
experienced the earthquake. The final earthquake group sample consisted of 133 girls (63.3%) and 77 boys (36.7%). Five students (2.4%) did not indicate their names and were excluded from further analysis. Four students did not indicate their gender (1.9%). Ninety-two percent of the students were single children (four students [1.9%] did not report their sibling status) and 54% of them were presently living in the city (two students [.9%] did not report their city of residence).

The examination group consisted of 241 students aged 15-19 years old ($M = 16.9$, $SD = 1.8$) from a high school in Shanxi province, China, which is located 1300 km from the epicenter of the Sichuan earthquake. Data were collected in August 2008, nearly at the same time as the earthquake group. The participants just experienced the final exam on 14th June (2 months before the data were collected in our study). They were also facing next set of the exams in 3 months (the mid-term exams). The final sample consisted of 126 girls (52%), 114 boys (47.5%), and one student did not indicate his/her gender (.4%). Forty-five percent of the students were the only children in their family (two students [.8%] did not report their sibling status).

The examination group was carefully chosen to match the earthquake group (in terms of city scale, school size, and teaching level) so as to minimize the sample difference between them. Preliminary analyses of demographic characteristics revealed that these two samples were similar in age and gender. In addition, independent sample $t$-tests revealed no significant differences ($p > .10$) in neuroticism and depression between these two groups (see Table 1). Thus, we considered these two samples to be well matched.

**Measures**

**Coping**

The COPE Inventory includes 56 items assessing the frequency that 14 coping strategies were employed by participants in a given stressful situation. Twelve subscales of COPE were chosen in present study: active coping, planning, suppression of competing activities, restraint coping, acceptance, positive reinterpretation, behavioral disengagement, mental disengagement, denial, emotional venting, alcohol use, and religion. Each of them was measured with four items on a scale from 0 (I did not do this at all) to 3 (I did this a lot). Participants from earthquake group were asked to rate how frequently they used each of these 12 coping strategies when dealing with earthquake. On contrary, participants from examination group were required to rate how frequently they used each of these strategies when dealing with examinations.

**Neuroticism**

The neuroticism subscale from the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992) short version was used to measure neuroticism. NEO-FFI contains 60 items measuring the “Big Five” dimensions of personality: neuroticism (N), extraversion (E), openness (O), agreeableness (A), and conscientiousness (C). The neuroticism subscale contains 12 items ranging from 1 (strongly disagree) to
5 (strongly agree). In present study, the internal consistency coefficient (Cronbach’s alpha) was .83 for earthquake group and .81 for examination group.

**Perceived social support**

A 12-item Multidimensional Scale of Perceived Social Support (MPSSS) was used to measure subjective reports of social support that were available from family, friends, and specific others. Each item was rated using a Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). The English version of this scale was constructed by Zimet, Dahlem, Zimet, and Farley (1988), and it has shown good reliability and validity in various samples (e.g., Landeta & Calvete, 2002). Its Chinese version was revised by Jiang (1993). In present study, MPSSS had an internal consistency coefficient of .84 for earthquake sample and .85 for examination sample.

**Depressive symptoms**

Zung’s Self-Rating Depression Scale, which was developed by Zung, Richards, and Short (1965), was used to assess depressive symptoms. This scale consists of 20 items that were scored according to a four-point Likert scale ranging from 1 (never or seldom) to 4 (very often), wherein each item accesses the presence of a particular
depression symptom in the past week. The Chinese version was revised by Zhang (1993). In present study, SDS had internal consistency coefficients of .85 and .82 for earthquake sample and examination sample, respectively.

Demographic information
Respondents were also required to answer general demographic questions about their age, gender, grade, whether they were the only child in their family, and living arrangements.

Data analysis procedures
The correlation analyses and t-tests were conducted with SPSS 15.0. The mediating models were assessed with SEM, using LISREL 8.72. Following the recommendations from a number of authors (Hu & Bentler, 1999; Quintana & Maxwell, 1999), the goodness of fit was assessed using the comparative fit index (CFI), the goodness of fit index (GFI), and the root mean square error of approximation (RMSEA). Missing data were estimated using the FIML method in LISREL.

Results
Prior to the inferential analysis, the data for each COPE subscale were examined for outliers and for assumptions of normality. Two subscales of COPE, religion and alcohol use, were bimodally distributed; hence, they were excluded from further analysis; however, since drinking was discouraged among adolescents and the majority of Chinese do not hold religious beliefs, these two strategies are seldom used by Chinese adolescents, and we believe that the exclusion of these two strategies would not bring significant bias to our study. Furthermore, according to Skinner et al.’s (2003) thorough review of the literatures concerning coping strategies, religion and alcohol use were not among the five major categories of coping (problem solving, support seeking, avoidance, distraction, and positive cognitive restructuring) or any of the four additional potential core categories (rumination, helplessness, social withdrawal, and emotional regulation). Therefore, we believe that the exclusion of these two strategies would not impact the comprehensiveness of the coping strategies in the current study.

Overview of analysis
Consistent with the hierarchical structure of coping that had been suggested by Connor-Smith and Flachsbart (2007), the remaining 10 coping strategies were classified into three categories: primary control engagement coping, secondary control engagement coping, and disengagement coping. Primary control engagement coping included four specific strategies: active coping, planning, the suppression of competing activities, and restraint. Secondary control engagement coping included two specific strategies: acceptance and positive reinterpretation. Disengagement coping included four strategies: denial, emotional venting, mental disengagement, and behavioral disengagement.
A one-way MANOVA revealed no gender differences between girls’ and boys’ mean scores in the two groups for all of the scores. There were no significant differences for other demographic variables (age, grade, being the only child in the family, and living arrangements).

Comparison of the earthquake group and the examination group

Table 1 summarizes means, standard deviations, and t-tests for differences between earthquake and examination groups. First, the two groups exhibited no statistically significant differences in neuroticism and depression. Second, participants in earthquake group reported perceiving more social support. Third, the earthquake group reported more use of secondary control engagement coping, both for acceptance and positive reinterpretation. In contrast, participants in examination group reported more use of primary control engagement coping strategies. Specifically, the examination group reported more use of active coping, planning, and the suppression of other activities (there was no statistically significant difference in restraint). Finally, the results for the four disengagement coping strategies were not consistent. The earthquake group reported significantly higher scores in mental disengagement and significantly lower scores in emotional venting than the examination group. There was no group difference for behavior disengagement and denial.

The mediating role of coping in the interactions between neuroticism, perceived social support, and depression in the earthquake and examination groups

We conducted both zero-order correlation and partial correlation analyses, controlling for the effects of demographic variables (gender, age, only child status, and living arrangements). There were no changes in the levels of significance after controlling for demographic variables, thus we used only the zero-order correlations for further analysis. The correlation matrix is presented in Table 2, wherein the earthquake group is below the diagonal and the examination group is above the diagonal. As expected, neuroticism was positively correlated with depression and disengagement

<table>
<thead>
<tr>
<th>Table 2. Correlations between neuroticism, perceived social support, coping strategies and depressive symptoms in the earthquake and examination groups.</th>
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<td>1. Neuroticism</td>
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<td>2. Perceived social support</td>
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<td>Note: Correlations for the examination group are presented above the diagonal and correlations for the earthquake group below the diagonal.</td>
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</table>

\*p < .05; **p < .01; ***p < .001.
coping and was negatively related to perceived support and primary and secondary engagement coping. Perceived social support was negatively correlated with depression and positively correlated with primary and secondary control engagement coping.

The mediating models of coping and perceived social support were tested for the following hypotheses: (1) in the earthquake group, neuroticism would be negatively associated with primary and secondary engagement coping and positively associated with disengagement coping, and all three coping categories would serve as mediators in the relationship between neuroticism and depression; (2) in the examination group, only disengagement coping would play a significant mediating role in the relationship between neuroticism and depression; (3) perceived social support would be positively associated with primary and secondary control engagement coping, and these two coping categories would serve as mediators in the relationship between neuroticism and depression.

Due to the relatively small sample size, items were parceled according to their subscales before testing the mediation models. Items were parceled as follows: 12 items from the neuroticism subscale were randomly parceled into four indicators so as to construct latent neuroticism (factor loadings: .56 to .75 for earthquake group and .56 to .71 for examination group). Perceived social support and depression were measured by four indicators each that were parceled according to the dimensions of the scales (factor loadings: .58 to .90 for earthquake group and .58 to .89 for examination group). A latent primary control engagement coping construct was created using four parceled indicators: active coping, planning, problem solving, emotional regulation, and emotional expression subscales (factor loadings: .31 to .80 for earthquake group and .31 to .75 for examination group). Latent secondary control coping was indicated by four parceled indicators: two from the acceptance subscale and two from positive interpretation (factor loadings: .62 to .84 for earthquake group and .49 to .63 for examination group). Latent disengagement coping was indicated by four parceled indicators: denial, mental disengagement coping, behavioral disengagement coping, and emotional venting (factor loadings: .47 to .57 for earthquake group and .56 to .84 for examination group).

**Earthquake group**

The hypothesized mediation model of coping (Model 1) was estimated in the earthquake group and the fit indices were good for this model (see Table 3). As expected, neuroticism predicted less use of primary and secondary control engagement coping and more use of disengagement coping (see Figure 1, Panel A). Perceived social support predicted more use of primary and secondary control engagement coping. Disengagement predicted higher depression levels, whereas primary control engagement coping predicted lower depression levels. As expected, a negative correlation existed between secondary control coping and depression; however, it was not statistically significant.

Regarding coping's mediating effects on neuroticism, three coping types significantly mediated the relationship between neuroticism and depression, which explained 48% of the variance (the indirect effect of neuroticism on depression was .29, p < .001). Further analysis of indirect effects for each type of coping revealed that disengagement coping played the major mediating role in the relationship
between neuroticism and depression (indirect effects were .05, .02, and .24 for primary control engagement coping, secondary control engagement coping, and disengagement coping, respectively). Furthermore, a model comparison ratio was conducted to determine whether all of the three types of coping acted as mediators. Model 2, in which only disengagement coping was a mediator (direct paths from neuroticism and primary and secondary control engagement coping were constrained to zero), was compared to Model 1. The results of the chi-squared test (see Table 3) indicated that Model 1 was preferable ($\chi^2$ (2, $N = 219$) = 12.33, $p < .01$), which meant that all three coping types significantly mediated the relationship between neuroticism and depression in the earthquake group.

Regarding coping’s mediating effects on perceived social support, two coping types (primary and secondary engagement coping) significantly mediated the relationship between perceived social support and depression, which explained 36% of the variance (the indirect effect was $-.09, p < .01$). In order to further confirm that only two types of engagement coping play a significant mediating role, Model 3, wherein the path from perceived social support to disengagement coping was set free, was compared to Model 1. The results of the chi-square difference tests (see Table 3) indicate that Model 1 was preferable ($\Delta \chi^2 (1, N = 219) = .03, p > .10$). Additionally, the path from perceived social support to disengagement coping was not statistically significant ($p = .85$). These results indicated that only engagement significantly mediated the relationship between perceived social support and depression in the earthquake group.

### Examination group

The same procedure was followed for the examination group. Model 2, in which only disengagement coping mediated the relationship between neuroticism and depression, was estimated for the examination group (see Figure 1, Panel B). Model indexes showed a good fit (see Table 3). As in the earthquake group, the presence of neuroticism predicted more use of disengagement coping. Perceived social support

<table>
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<tr>
<th>Model</th>
<th>$\chi^2$</th>
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<td>Model 1 (best model)</td>
<td>427.22</td>
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<td>Model 2</td>
<td>439.55</td>
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<td>Model 3</td>
<td>427.19</td>
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<td><strong>Examination group</strong></td>
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<td>Model 1</td>
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<td>Model 2 (best model)</td>
<td>552.67</td>
<td>220</td>
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Note: Compared to Model 1, direct paths from neuroticism to primary control engagement coping and direct path from neuroticism to secondary control engagement coping were constrained to zero in Model 2; direct paths from perceived social support to disengagement coping was constrained to zero in Model 3. **p < .01.
predicted more use of primary and secondary control engagement coping. Disengagement coping was positively associated with depression. However, unlike in the earthquake group, neither of the paths from primary and secondary control engagement coping to depression was statistically significant for the examination group.

Regarding coping’s mediating effects on neuroticism, disengagement coping partially mediated the relationship between neuroticism and depression (the indirect
effects were .08, \( p < .01 \). However, the mediation effect was much lower than for the earthquake group. Disengagement coping only explained 12.1% of the variance. To further explore the coping-mediated model, we freed the paths from neuroticism to primary and secondary control engagement coping (Model 1) and compared Model 1 with Model 2. Results of the chi-squared difference test (see Table 3) indicated that Model 2 fit the data better for the examination group (\( \Delta \chi^2 (2, N = 240) = .41, p > .10 \)). In addition, the paths from neuroticism to primary and secondary control engagement coping were not statistically significant (\( \beta = -.04, p > .10 \) and \( \beta = -.05, p > .10 \), respectively). These results indicated that only disengagement coping significantly mediated the relationship between neuroticism and depression in the examination group.

Regarding coping’s mediating effects on perceived social support, primary and secondary engagement coping significantly mediated the relationship between perceived social support and depression (the indirect effects were -.26, \( p < .01 \)), with coping explaining 42.3% of the variance. Similarly, we freed the path from perceived social support to disengagement coping (Model 3) and compared it with Model 2. Model fit indexes are listed in Table 3. The chi-squared difference test indicated that Model 2 was preferred (\( \Delta \chi^2 (1, N = 219) = .66, p > .10 \)). Furthermore, the path from perceived social support to disengagement coping was not statistically significant (\( p = .28 \)), which meant that only primary and secondary control engagement coping partially mediated the relationship between perceived social support and depression in the examination group. In addition, the relationship between perceived social support and depression was much stronger in the examination group (the total effect was -.25 for the earthquake group and -.63 for the examination group).

**Discussion**

The present study examines the roles that coping strategies and social support play in both an unusual extremely stressful circumstance and a more general stressful circumstance. Previous researchers have often required participants to evaluate their perceived stress level regarding general life events. Since participants’ stressors were hard to control, the results were difficult to explain. In the present study, we collected data for two distinct groups: a group affected by severe earthquake and a group facing general mid- and final examinations, in order to compare the roles that coping played in the relationship between dispositional attributes, contextual variables, and mental health.

The first aim of the present study was to compare the coping strategies that were used in these two groups. Consistent with previous studies, individuals in the earthquake group reported less use of primary control engagement coping and more use of secondary control engagement coping. Primary control coping strategies involve attempts to change stressors, making them harder to apply to an uncontrollable situation such as a large-scale disaster. Therefore, secondary control engagement coping strategies, such as acceptance, positive reinterpretation, and adjusting one’s outlook, would be more likely to be employed. These findings were consistent with coping flexibility theory that indicates that human beings may have an inherent tendency to choose the most beneficial ways of coping under different situations. In addition, participants’ use of disengagement coping strategies was
inconsistent. Adolescents in the earthquake group preferred mental disengagement coping strategies, such as engaging in work or daydreaming, and were less likely to use emotion venting, in order to distract themselves from stressors that were beyond their control.

Another aim of this study was to better understand the mechanisms through which dispositional attributes (e.g., neuroticism) and contextual variables (e.g., perceived social support) influence adaptive outcomes (depressive symptoms) under different stressful conditions.

The association between neuroticism and depression was stable in these two groups (the total effect was .60 for the earthquake group and .66 for the examination group), which is consistent with several previous studies (e.g., Derryberry, Reed, & Pilkenton-Taylor, 2003). Coping had stronger mediating effects on the relationship between neuroticism and depression among earthquake victims. Nearly 50% of the effects of neuroticism on depression in the earthquake group could be explained by coping. One explanation for this result was that the stressors may have moderated the individuals’ reaction levels of coping. Recent research has revealed that the neural bases of threat detection are also associated with coping processes (Hariri, Bookheimer, & Mazziotta, 2000; Lane et al., 1997). Perhaps when individuals experience a potential threat, they evaluate the severity of the stress and set their coping mechanisms accordingly. In that case, a large-scale disaster would result in a more intense coping reaction, in which coping mechanisms would act as buffers between individuals and stressors. Another explanation is that the reaction level of coping may remain constant, while the effects of personality on coping strategies vary. Some researchers have made a distinction between dispositional coping and situation-specific coping. Dispositional coping reflects inherent trait-like responses to stress, whereas situation-specific coping reflects responses to a particular stressor and are strongly influenced by situational factors, such as the nature or severity of the stressor (Moos & Holahan, 2003). Thus, it is possible that the coping response was all-or-nothing and the triggered levels were the same for both groups; however, the proportion that could be explained by personality varied. The examination group’s stressor was mostly controllable and within the capacity of individuals’ coping resources. Therefore, the sophisticated coping skills they have developed would play a more important role. Situational factors rather than personal traits would be taken into account when they decided which coping strategies to use. In contrast, in the earthquake group, stress levels exceeded people’s ordinary limits; hence, they would have less prior experience upon which to make decisions about the best coping strategies for the situation. In this case, personality would play a stronger role. This might also explain why disengagement coping showed more stable mediating effects than engagement coping across the two groups. As was shown in previous results, disengagement coping was strongly linked to mental health in both groups, making coping the crucial mediator between neuroticism and depression. This may be because disengagement coping orients individuals away from the stressful situation; thus, it is considered dispositional coping and is better predicted by neuroticism.

Perceived social support was more strongly associated with depression in the examination group than in the earthquake group. The total effect of perceived social support on depression was .25 in the earthquake group and .66 in the examination group. Unlike neuroticism, primary and secondary engagement coping strategies
explained a large part of the relationship in the examination group. As expected, in both groups, perceived social support predicted more frequent use of primary and secondary control engagement coping, which was associated with fewer maladaptive outcomes in previous studies (Brisette et al., 2002; Compas et al., 2001). Perceived social support, as one of the most important coping resources, exhibited stronger effects in coping with general life events. It is possible that participants had past experience with using these resources to cope with stressful events in their daily lives; however, because individuals likely had limited or no previous experience with unusual extremely stressful conditions, the effectiveness of their coping resources may have been considerably weakened.

Finally, consistent with many studies, disengagement coping was positively associated with depression in these two groups; however, no negative association between engagement coping and depression was confirmed. This does not mean that engagement coping was less related to mental health; instead, our results may have been associated with our choice of depression, reflecting lack of adjustment, as the dependent variable. Researchers have indicated that engagement coping is more likely to contribute to positive mental health and is less linked to depression (Billings, Folkman, Acree, & Moskowitz, 2000).

**Limitations**

The present study had some limitations that must be acknowledged. First, cross-sectional data were used. Therefore, the long-term effects could not be tested and no valid cause-and-effect conclusions could be drawn. Although we tried to collect data within a three-month period, a large number of the participants in the earthquake group could not be tracked down because of high mobility within the area.

Second, the self-report measurement of all of the variables may be associated with a potential response bias because of the common method used for the variables and the participants’ attempts to be consistent. We followed the recommendations of Podsakoff, MacKenzie, Lee, and Podsakoff (2003) to control the common method variance. Our procedural remedies included the use of different scale endpoints and formats for the predictor and criterion measures.

Third, since requiring adolescents to recall their experience of the earthquake would have been inhumane and may have caused potential harm, trauma exposure data were not collected or controlled for in the present study.

**Implications**

In summary, our research expands the current knowledge of coping in response to comparing extreme and general stressful events. The comparison of the roles that coping played in these two distinct groups may be important for understanding the mediating role of coping in the relationships between dispositional attributes, contextual variables, and adaptive outcomes. In the earthquake group, a significantly larger part of neuroticism’s effects on depression could be explained by three types of coping strategies. In contrast, in examination group, only disengagement coping played significant mediating role. In addition, a significantly larger part of the effects for perceived social support on depression could be explained in the examination.
group, and only engagement coping was positively associated with perceived social support.

On a practical note, our study may offer counselors an alternative to the rigid negative prediction of the path from neuroticism to depression, especially for survivors from natural disasters. By addressing not only disengagement coping, but also primary and secondary control engagement coping, counselors may be able to more effectively reduce depressive symptoms in individuals who are dealing with extremely stressful situations. On contrary, clinical and community interventions for individuals facing general stressful life events may need to pay more attention to increasing social support and improving engagement coping. In addition, the preferred coping strategies of each group may also provide clues about how to direct interventions in different stressful situations. For example, it may be reasonable to encourage individuals who face general stressful life events to use more secondary control engagement coping and less emotion venting. In contrast, in circumstances of extreme unusual stress, it may be more effective to encourage them to apply more primary control engagement coping and mental disengagement.

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References


