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Mental Health Risks in the Local Workforce Engaged in Disaster Relief and Reconstruction

Xiao L. Wang,[1] Cecilia L. W. Chan,[1] Zhan B. Shi,[2] and Bin Wang[3]

Abstract

To build a sustainable workforce for long-term disaster relief and reconstruction, more effort must be made to promote local relief workers' mental health. We conducted 25 semistructured interviews with local relief officials 10 months after the 2008 earthquake in China to investigate the stress and coping experiences in their personal lives as survivors. We conducted thematic analysis of interview transcripts. Traumatic bereavement and grief, housing and financial difficulties, and work–family conflict were the three main sources of stress in the respondents' personal lives. The coping themes were finding meaning and purpose in life through relief work, colleagues' support and understanding, suppression or avoidance of grief, appreciation for life, hardiness, optimism, letting nature take its course, and making up for loss. We suggest that relief work has a double-edged-sword effect on workers' coping abilities. We discuss the implications of this effect for work–life balance measures and trauma and grief counseling services.

Keywords

bereavement / grief; China, Chinese culture; coping and adaptation; crisis management; interviews, semistructured; mental health and illness; occupational health; trauma

Recent natural disasters such as Hurricane Katrina in the United States in 2005, the Sichuan earthquake in China in 2008, the earthquake in Haiti in 2009, the floods in Pakistan in 2010, and the earthquake and tsunami in Japan in 2011 left hundreds of thousands of people dead or missing and millions of people homeless. Although international and domestic aid receives a lot of attention in disaster relief, importance should also be attached to restoring public services and local workforces, which include local civil servants and professionals (e.g., health care workers, teachers, and social workers). These individuals have extensive knowledge of and access to local resources, are more in tune with local culture and social norms, and are most likely to commit to postdisaster reconstruction.

Nevertheless, the sustainability of a local workforce during long-term, postdisaster reconstruction is subject to workers' mental health conditions. There is a lack of research on the mental health risks of local disaster relief workers. Research on first responders reveals significantly prevalent rates of posttraumatic stress disorder (PTSD) and depression (Benedek, Fullerton, & Ursano, 2007). Although local relief workers share similar duties and entailed risk, such as witnessing violence with first responders, they still differ in that they are also disaster survivors and likely to be suffering from trauma and loss (Neria, Nandi, & Galea, 2008).

For example, after the devastating Sichuan earthquake, which measured 8.0 on the Richter magnitude scale (Richter, 1935) and occurred amid a population of approximately 160,000 (i.e., one of the three worst-hit counties within the quake-hit province), 990 out of 1,591 (62.2%) of the surviving government officials who engaged in disaster relief lost immediate family members including children, spouses, or parents. Among these officials, 204 experienced multiple losses involving children and spouses, with 18 losing children, spouses, and parents (Lin & Zhou, 2009). There was also a suicide risk. Two important leaders from the aforementioned group of 1,591 relief officials committed suicide 11 months after the earthquake, both having lost a son in the disaster.

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It is not difficult to imagine the damage that incidents of this sort inflict on the morale and manpower of the workforces dedicated to the administration of disaster relief and reconstruction. Nevertheless, not enough evidence is available about the impact of disasters on local relief workers' personal lives and its relation to their mental health. In transactional models of stress, Lazarus and Folkman (1984) emphasized the critical roles that the cognitive appraisal of demands and coping resources play in psychological stress and mental health. As such, in this study, we investigated the stress in the personal lives of local relief workers in terms of perceived demands and coping resources in the aftermath of disasters.

In a recent qualitative study, Wang, Shi, Ng, Wang, and Chan (2011) described the work experiences of local relief officials in earthquake-affected areas and revealed that a substantial percentage (almost 40%) of local officials who lost loved ones in the earthquake experienced grief during relief work. This suggests that attempts to separate work and personal lives are largely unsuccessful, as is evident in the abundance of studies on conflict, balance, and enrichment between these two important life areas (Kinnunen, Feldt, Mauno, & Rantanen, 2010). Therefore, to study stress generated by disasters in local relief workers' personal lives, we also consider influences from their work lives.

Disaster relief puts prolonged, highly physical, cognitive and social demands on workers in unfavorable physical work environments for long hours, with exposure to additional aggression from survivors (Wang et al., 2011). According to the job demands–resources model (Bakker & Demerouti, 2007), these demands require sustained physical, emotional, and temporal resources that compete with the personal needs of local relief workers. Moreover, considering Demerouti, Bakker, and Bulters' notion of a resource "loss spiral" in their Conservation of Resources (COR) theory, strong conflict between the demands of relief work and the personal needs of the workers can send local relief workers into a coping resource loss spiral that makes them susceptible to mental illnesses such as depression and anxiety (Demerouti, Bakker, & Bulters, 2004; Grandey & Cropanzano, 1999; Kinnunen et al., 2010).

After disasters, survivors often experience an increased reliance on family connectedness, and the satisfaction of such needs has proven crucial to their well-being (Hobfoll et al., 2007; Vigil & Geary, 2008). Accordingly, situations in which disaster relief makes it difficult for local relief workers to be with family members could pose a threat to their mental health. In addition, disaster relief work might also interfere with the grieving processes of bereaved local relief workers. For instance, Wang and colleagues (2011) revealed that the grief-related needs of such survivors might become disenfranchised by their roles as disaster relief workers, which in turn might complicate their grieving processes and precipitate prolonged grief (Doka, 2002; Latham & Prigerson, 2004).

Alternatively, a coping resource "gain spiral" might also result. For example, within the dual-process coping theory for bereavement, the oscillation between attending to grief (loss-oriented coping) and taking on new roles that cultivate a new purpose in life (restoration-oriented coping) can facilitate a reconciliation with bereavement (Stroebe & Schut, 1999, 2001). This implies that engaging in disaster relief work might facilitate the processes of coping with trauma and loss. As such, we do not distinguish between the work lives and personal lives of local relief workers. Our goals are to provide coherent accounts of the stress that local relief workers perceive in their personal lives and to explore the effects of such stress on their disaster-relief roles.

Given that people do not live in a social/economic/cultural vacuum, the ways people make sense of and cope with disasters and other painful life changes are shaped by their social roles and cultural traditions. In traditional Chinese culture, significant incidents such as natural disasters are believed to be the result of external forces that are beyond the control of any individual, such that their occurrence does not reflect badly on anyone. In contrast, the adversities that individuals encounter in life are considered opportunities to develop internal strengths and virtues that prepare them for future achievements and greater purposes (Jing, 2006). This concept is expressed in Chinese as *Ting Tian Ming, Jin Ren Shi* (accept what happens to you, while always trying your best). Such perspectives might influence how the Chinese local relief workers in our study viewed and coped with adversities in the aftermath of the earthquake.

Following the stress-appraisal-coping and COR theories, we studied the perceived sources of stress and the coping experiences of local relief workers after the 2008 Chinese earthquake. Our findings will be helpful to the administration of disaster relief and reconstruction with respect to the management of mental health risks in the local workforce. Because of a lack of existing research evidence, we adopted a qualitative research methodology for this study.

Methods

Research Setting and Data Collection

Data collection consisted of two steps. First, 10 months after the 2008 China earthquake we chose a quake-hit town as our investigation site on the merits of its representativeness in terms of the scale of destruction and resident mortality rates of earthquake-hit regions. Around two thirds of its residents (more than 19,000 people) died in the earthquake. We then conducted a purposive sampling

of local government officials based on their major roles in postdisaster relief and reconstruction efforts following the earthquake.

Approximately half of the studied town's original government officials died in the earthquake. People with some management experience—such as department store managers and teachers—were urgently recruited by the local government and assigned to rescue and relief missions. At the time of this study there were 83 local disaster-relief officials, including those from the town government and its affiliated villages. Around two fifths of these individuals worked in other professions before the earthquake.

Second, after obtaining ethical approval for our study, we recruited three volunteers with counseling backgrounds and trained them as qualified in-depth interviewers. We also provided follow-up field supervision of interview techniques each day during the data collection period. Our interviewers reached out to relief officials either by visiting them at the prefabricated housing areas for survivors or by contacting them via telephone. The interviewers invited the officials to participate, informed them of the purpose of the study, and sought their consent to arrange an interview. Finding time to conduct the interviews was difficult because of officials' busy schedules. The data collection and analysis stages in this study were undertaken concurrently, and we stopped soliciting interviews once the data were saturated. Twenty-five out of the 83 officials ultimately participated in the study.

Before each interview, the interviewer emphasized anonymity, confidentiality, and the reason for audiotaping before obtaining written consent from each participant. Interviews were conducted in Chinese in places that were quiet, private, and convenient for the participants. On average, each interview took between 45 and 60 minutes. Two local dialect speakers, both fourth-year psychology undergraduates, transcribed all of the interviews. Care was taken to make sure that we (the authors) had exclusive access to the personal data generated by this study.

Participants

Among the 25 local disaster relief officials who participated, 12 were women and 13 were men. Their ages ranged from 22 to 54, with a mean of 40 years. Their jobs included distributing relief material; maintaining hygiene, security, and daily supplies of water and electricity in prefabricated housing areas; providing health care; managing civil affairs (e.g., monthly subsidies for the disabled, elders, and children without families; unemployment; marriage registrations; birth control; and insurance); reconstruction and resettlement work; data collection and report writing; accounting; developing folk arts and culture; and media work (e.g., radio and television programs). Because the quake-hit regions were mostly rural areas, the government officials who played major roles in disaster relief were all at the grass-roots level, including those who did not participate in our interviews. Among these 25 officials, 13 were bereaved after the earthquake. The average number of immediate family members lost was three, with a range from one to six. Other participants lost extended family members, friends, and colleagues. Four participants were injured and four had family members who were injured in the earthquake.

Instrument

Following the stress-appraisal-coping theory, we developed a semistructured interview guide in Chinese to ask local relief officials about issues of concern in their personal lives, how they saw these issues, and how they coped with them. We also set up an expert panel that included a social worker, an organizational psychologist, and a psychiatrist to review the interview guide's content validity, face validity, and linguistic accuracy. We conducted three pilot interviews to revise and finalize the interview guide, which ultimately included two sections. The first section consisted of open-ended questions such as: What are your job responsibilities in disaster relief? What are the sources of stress in your personal and family life? How do you view the stress? How do you face the stress? The second section collected demographic information including gender and age.

Data Analysis

We analyzed interview transcripts using thematic analysis. Thematic analysis is a method for identifying, analyzing, and reporting themes or patterns within data (Boyatzis, 1998; Braun & Clarke, 2006). We chose a hybrid approach to thematic analysis. As Fereday and Muir-Cochrane (2006, pp. 82-83) described, this approach "incorporates both the data-driven inductive approach (Boyatzis, 1998) and the deductive a priori template of codes approach suggested by Crabtree and Miller (1999)." First, for each interview, transcript semantic units corresponding to each interview question were identified. An intact semantic unit could take the form of a word, a phrase, or a sentence. We then grouped semantic units with the same meaning together and applied a code to encapsulate each meaning.

Once we generated a series of codes, we then calculated the frequency of each code as the number of semantic units under the code, and the semantic units from the same interview transcript would only be counted once. We identified themes from a series of codes that described a similar cause, action, or consequence. Next, to facilitate the coding process, we developed a code manual that defined these code meanings, series, and themes and used

constant comparative methods to collect themes and codes (Glaser, 1992). We stopped collecting and comparing themes and codes when we reached saturation (i.e., when no new major themes or codes were found). Three randomly selected interview transcripts were used in the development of the preliminary code manual.

Second, we trained two coders, both fourth-year psychology undergraduates, in thematic analysis. They used the preliminary code manual to independently conduct a pilot coding exercise with five randomly selected interview transcripts. The objective of this pilot coding exercise was to revise and supplement the preliminary code manual and help the coders gain experience. The two coders discussed semantic units with inconsistent coding under the supervision of the principal investigator until a consensus was reached. Subsequently, the coders were allowed to code the remaining 20 interview transcripts independently.

Regarding coding reliability, Weber (1990) pointed out that making valid inferences from a text requires that the classification procedure be reliable in terms of consistency. In other words, different people should code the same text in the same way. Neuendorf (2002) suggested using intercoder reliability, or the amount of agreement or correspondence among two or more coders. The average consistency rate for our two coders across the 25 transcripts was above 85%, which is sufficient according to Krippendorff (2004). Likewise, semantic units with inconsistent coding in the remaining 20 transcripts were discussed by the two coders under the supervision of the principal investigator until a consensus was reached. Coding categories with a frequency lower than 5 and not related to the aims of this study are not reported in this article.

Results

Corresponding to interview questions, the results are characterized by two general themes, specifically perceived sources of stress and coping experiences. Using our findings as a window, we analyzed local relief officials' personal lives to assess possible mental health risks.

Perceived Sources of Stress in Personal and Family Lives

We identified three major themes related to perceived sources of stress in local relief officials' personal lives: traumatic bereavement and grief, housing and financial difficulties, and work–family conflict.

Traumatic bereavement and grief. Among the 25 interviewed officials, more than half lost family members in the earthquake. Examples of their bereavement narratives included: "The earthquake erased two of the four generations of my family. Only my mom, my sister, and I survived. Of the seven family members, four died, including my dad, wife, and children." "My husband, son, and mother-in-law all died in the earthquake." "In my family, there were six people. Now there are only two left, my mom and I." "Six people in my family died in the earthquake: my mom, wife, sister, niece, brother-in-law, and my son's girlfriend." "My mom and my children died in the earthquake." "My daughter, granddaughter, and my sisters died in the earthquake." "My husband was killed in the earthquake." "The earthquake took my oldest son."

During the interviews, all of the bereaved officials exhibited deep grief over their deceased loved ones. One official who lost his father, wife, and children was a teacher before the earthquake. He gave the following account:

> The loss is too much in my family. A lot of my students were also killed in the earthquake, which is a huge shock to me. The reality is too overwhelming and I don't think I can accept the fact. I feel pangs of anguish at all times; I have to suppress them. I hope I can forget everything about the earthquake by occupying myself with work. Holidays or those quiet moments are most painful and flustering moments for me because I would remember my prequake life and my loved ones. I'm worried that the impact of the earthquake on me will be with me for the rest of my life physically and psychologically. I don't believe I could ever forget it.

Another official who lost his mother, wife, and sister confided,

> I've been in agony over losing my loved ones since the earthquake. I force myself to accept the fact that they're gone, and to appear tough. Sometimes I feel they are still around. Ah! I miss my home, I miss the happy life before the earthquake, and I miss the feeling and bustle of all family members being together. Everybody needs to have a home, even though it might be a very little home!

As the above narratives show, bereavement was a traumatizing experience for local disaster relief officials after the earthquake, and became a significant source of distress in their personal lives.

Housing and financial difficulties. In the interviews, around half of the local relief officials disclosed that they struggled with housing difficulties. Because of a shortage of housing resources following the earthquake and the higher priority given to fellow survivors, local relief officials had to work and live together in rental housing. Moreover, they also faced various kinds of

financial difficulties such as low income, the unemployment of family members after the earthquake, and high expenses for the care of children and elders and for medications. Around half of the participants who reported housing and financial difficulties were also bereaved. For example, one official who suffered from bone marrow necrosis shared his worries:

> My salary since the earthquake has been very low. I can't even afford daily expenses. I want to make money because I need to take medicine for quite a long period, which will cost a lot of money. I really don't know what I shall do after all my savings are used up.

Other accounts suggested housing and financial difficulties: "I really need money because I need to pay tuition fees for my daughter's college and I also need to get a place to live." "The situation is that there are big expenses but little income. I have no place to live and no money, making me very stressed. I don't have money to buy things or even medicine." "I lost my house in the earthquake and I still need to borrow money to rent a place to stay. My salary is really low, and I have a lot of loans that I need to repay." These accounts confirm the serious impact that housing and financial difficulties had on basic survival after the earthquake, when they became salient issues for local relief officials.

Work–family conflict. In the aftermath of the earthquake, because of the scale and urgency of relief and reconstruction work, local officials had a very busy work schedule. More than half of the participants reported conflicts between their work and their personal lives. As a result, some of the participants neglected their own physical and mental well-being, including daily routines, grieving, and conducting mourning rituals. For example, one relief official revealed,

> I can only sleep for two to three hours every day. I've not had weekends since the earthquake. I don't have time for myself. I seldom left the prefabricated housing area unless it was for work. The weather is getting cold, but I'm too busy at work to go back to fetch clothes.

Likewise, another official who lost her husband, son, and mother-in law in the earthquake said, "The busy work schedule makes my sleeping and eating times irregular. I'm not able to do my own things either, such as keeping a diary, not to mention forming a new family."

Many of the participants did not have time to look after or be with their surviving family members. For instance, one official who lost her husband in the earthquake explained, "I have to put aside the needs of my surviving family members and give up the joy of being with them." Similarly, another official reported,

> My only surviving kid, my daughter, studies in a city, all alone and uncared for. I'm too busy at work and don't have time to look after her. She is unhappy with me and can't understand why it is like this. But I don't even have time to communicate with her.

Although the participants reported being very stressed at work, some also felt tremendous pressure to be good parents, good spouses, and good children outside their work environments. For example, one official lost his only child and mother in the earthquake, and his wife had become pregnant again at the time of this study. He said,

> The work stress and workload are very heavy. My child was taken away by the earthquake, so I definitely need to have another kid. After work, I still need to take care of my pregnant wife. I have to control my temper and can't even show it.

The foregoing accounts demonstrate the competing demands of work and family on resources such as time and physical and emotional energy. In addition, some of the bereaved officials interviewed did not seem to have the time or opportunities to cope with their own losses.

Coping Experiences of Local Disaster Relief Officials

In the face of postquake hardships, as revealed in the interviews, local relief officials' coping experiences generally included finding meaning and purpose in life through relief work, the support and understanding of colleagues, the suppression or avoidance of grief, an appreciation for life, hardiness, optimism, letting nature take its course, and making up for loss. The frequencies of the aforementioned types of coping experiences are listed in Table 1.

Finding meaning and purpose in life through relief work. The interviews revealed that despite the trauma and loss that effectively shattered local relief officials' personal lives, many of the participants cultivated new meaning and purpose in their lives by identifying with and dedicating themselves to disaster relief and reconstruction work. One official stated,

> When I think of those people who might need my help, I will regain strength and be strong again, plunging into hardships and challenges. Serving people and working for their well-being has been a consolation to me. I am gratified by working and

Table 1. Psychosocial Coping Experiences of Local Relief Workers

Psychosocial Coping Experiences	Frequency: Informers (Bereaved)	Percentage of Informers
Searching for meaning and purpose in life through relief work	18 (11)	72%
Support of and understanding from coworkers	12 (9)	48%
Suppression and avoidance of grief	8 (8)	32%
Greater appreciation for life	8 (7)	32%
Hardiness	6 (6)	24%
Optimism	9 (5)	36%
Letting nature take its course	6 (5)	24%
Making up for loss	4 (4)	16%

Note. $N = 25$

> living in a way that is more down to earth, purposeful, and reassuring. People's kindness, trust, and appreciation make my work valuable and make me feel fulfilled. I want to lead a fulfilled and meaningful life through this work.

Likewise, another official who lost her husband, son, and mother-in-law confirmed,

> I was elected by my people; in return, I shouldn't let them down. I devote myself wholeheartedly to the postquake restoration work. It is important to develop folk arts and culture, and it is also important to help people look for new means of livelihood. My people have given me a lot of compliments. I feel a sense of accomplishment at work, and also confident in my problem-solving abilities.

These accounts imply that some local relief officials found a renewed sense of meaning or mission in work that contributed to bolstering their spirits amid the harsh reality of postquake relief and reconstruction work, and the loss of loved ones.

Support of and understanding from coworkers. The support of and understanding among coworkers were major resources that might have contributed to sustaining local relief officials' coping efforts in the face of hardships and challenges. For example, one relief official who, with the exception of her mother, lost her entire family, told us,

> We assist each other, help each other, and explain to one another if one knows more about something. The atmosphere at work is better and I can see my people at any time, which gives me a sense of connectedness and warmth.

Another official, who lost her husband, shared,

> My colleagues are very kind to me. They look after me a lot. My colleagues are nice people; we chat together and understand each other. Compared to working hard on your own, working together with colleagues can alleviate some stress.

Because of the busy and demanding schedule of relief and reconstruction work, the participants were with their colleagues most of the time. Our results indicate that despite the hustle and bustle at work, being around and cooperating with colleagues in a caring and understanding way gave them a sense of connection and support. This was particularly true for the bereaved officials.

Suppression and avoidance of grief. To cope with poignant grief, many of the bereaved officials chose to suppress their pain or to try to find ways to distract themselves. For example, one official said, "I felt very sad every time when I thought about my son. It's been half a year and I've been trying my best to restrain myself." Likewise, another official reported, "I feel pangs of anguish at all times. I have to suppress them. I hope I can forget what happened in the earthquake by occupying my mind with work." Still another official, who lost her sisters, daughter, and granddaughter, shared a similar view: "I prefer working to sitting at home. The agony of losing my loved ones would surround me if I sat at home. Despite work being very busy, I feel better at work."

Greater appreciation for life. Notwithstanding their harsh realities, some of the participants developed a greater appreciation for life after the earthquake that was embodied in their gratitude and desire to live happier and better lives. One official, whose mother died in the earthquake, explained:

> I've been through a lot in old times, so difficulties now mean almost nothing to me. We should not only look forward but also learn to look backward, whereby we might even feel better. Each day, you can be happy or unhappy, so why don't you make it a happy day?

Similarly, another relief official who lost her husband in the earthquake confirmed,

> At least I came out of the earthquake alive and intact. I'm still young, or at least I feel I still have a relatively young mentality. I'm thinking how I can take better care of myself. I don't want to live for others anymore.

This appreciation for being alive and the active decision to enjoy life boosted these participants' will to move on despite the trauma and loss inflicted by the earthquake.

Hardiness. Many of the local relief officials interviewed displayed a hardiness characterized by the courage and commitment indicated in the following accounts. One participant said,

> I've been turning my sorrow into strength. I believe the woes of life can strengthen a person's character. I often encourage myself to conquer the hardship. The more difficult the situation is, the stronger my will is to overcome difficulties.

Likewise, another official who lost her husband reported,

> Because there are only two of us left, I ask my son to be strong and I tell him I will be strong too. I still want to work. I still can move and walk, so I don't need other people's sympathy. Special times can test people, especially officials; therefore, no matter how hard or difficult the conditions become, I won't quit. I shall have high aspirations, rely on myself, and improve myself continuously.

These accounts illustrate the influence of traditional Chinese culture on local relief officials' attitudes regarding how to face life's adversities. Additionally, we noted a strong desire among local relief officials not to burden others.

Optimism. The interviews revealed that some relief officials maintained optimistic life attitudes in the face of difficulties. For example: "I'm an open-minded person and I tend to consider things from different angles. Moreover, the sky won't fall, and even if it fell down, I wouldn't be the tallest under it." "I'm an optimistic person. I often tell myself that after holding out through this difficult period, everything will get better again." "I don't think too much of today's things. I would like to think about how I should live tomorrow, or the day after tomorrow." These accounts demonstrate various optimistic attitudes, including open-mindedness, faith in the power of the community, focus on the future over the present, self-confidence, and a belief in one's own luck.

Letting nature take its course. Some of the participants showed great flexibility in relation to the changes in their lives, which they expressed in their accounts: "Let nature take its course." "I lived in a different way when I had money, but I'm also happy now that I don't have money." "If there is food, I will eat it; if there is less food, I will eat less. It's as simple as that." "As far as the housing issue is concerned, the more money there is, the bigger the house I will buy; if there is less money, then I will buy a smaller one." Beneath this flexibility lay an attitude of acceptance about what had been lost.

Making up for loss. As the interviews revealed, bereaved local relief officials, especially those who lost partners or children in the earthquake, expressed optimistic hopes, such as remarrying and having more children. As one official explained, "My child was taken away by the earthquake, so I definitely need to have another kid." This demonstrates an interest among bereaved local relief officials in moving forward in their lives.

Other behavioral coping strategies. Other behavioral coping strategies mentioned by participants included engaging in various activities of interest; e.g., reading; playing chess, Mahjong, and/or card games; dancing; playing badminton; surfing the Internet; gardening; having a pet; watching TV/movies; and drinking. (Drinking here refers to solitary drinking that served as a kind of tranquilizer.) One noteworthy discovery was that some of the participants wrote out their feelings. For example, one relief official admitted, "I'm writing a diary to record the hardships that I've been going through and to encourage myself as well. I write articles to memorize my deceased loved ones, sometimes on the Internet." Likewise, another official who lost his mother, wife, and sister reported, "I feel much more relaxed after putting what has been in my mind into writing." The frequencies of the aforementioned behavioral coping experiences are listed in Table 2.

Discussion

Local workforces are one of the most important sustainable resources for long-term relief and reconstruction efforts after disasters such as the 2008 earthquake in China. Thus, the mental health of local relief workers becomes a salient concern because they are also disaster survivors. We characterize the participants as disaster survivors in terms of sources of stress and coping experiences.

Ten months after the earthquake, many of the participants expressed that they found their losses very traumatizing and that they experienced deep grief. According to existing evidence, traumatic bereavement poses a risk of developing prolonged grief (Currier, Holland, & Neimeyer, 2006; Hunt, 2004; Neimeyer, Baldwin, & Gillies, 2006; Stroebe & Schut, 2005), which often coincides with depression and posttraumatic stress (Zhang, El-Jawahri, & Prigerson, 2006). In addition to housing problems, financial difficulties, and the ensuing concerns about daily subsistence, local relief officials were also confronted with competing demands from their relief

Table 2. Behavioral Coping Experiences of Local Relief Workers

Behavioral Coping Experiences	Frequency: Informers (Bereaved)	Percentage of Informers
Engaging in activities of interest (e.g., hobbies)	12 (7)	48%
Watching TV/movies	8 (3)	32%
Solitary drinking	5 (2)	20%
Writing memorial articles	2 (2)	8%

Note. $N = 25$

work and their personal lives. Consequently, such officials were more likely to experience a loss spiral of resources based on the COR theory. Nevertheless, the participants' coping experiences suggest the opposite.

One notable common theme that emerged from most of the interviews was that of the participants sharing a strong sense of purpose, meaningfulness, and fulfillment in their postquake relief and restoration work. Drawing on posttraumatic growth literature, we think that perceived meaningfulness, self-worth, and self-efficacy among local relief officials might prove conducive to coping with trauma and loss (Folkman, 2008; Gillies & Neimeyer, 2006; Zoellner & Maercker, 2006). Moreover, as the results show, many local relief officials, including bereaved individuals, felt more connected at work and considered their work atmospheres to be more positive compared with that of their homes. They preferred to stay at work, despite the stress. This is in accordance with Hobfoll and colleagues (2007), who emphasized the importance of connectedness in recovery from mass trauma. For bereaved local relief officials, feeling connected and positive were particularly important in their posttraumatic growth, because such feelings facilitated the oscillation between confrontation with and avoidance of grief (Folkman, 2001, 2008; Stroebe & Schut, 2001; Varvel et al., 2007).

The housing and financial difficulties that the participants experienced after the disaster had a bearing on their daily subsistence and survival. Nonetheless, we found that they held positive life attitudes, including optimism, hardiness, appreciation, and acceptance. This reflects the fundamental Chinese life philosophy—*Ting Tian Ming, Jin Ren Shi*—in which practitioners advocate acceptance of what has happened, a strong commitment to life, and self-development through ordeals.

In addition, we found that many of the local relief officials in severely hit quake regions had to work and even live together with their colleagues in rental housing, which might have characterized their coping experiences. For instance, Walter (2009) maintained that geographical distance and separation between home and work can facilitate the oscillation between confronting and avoiding grief. Working and living together in the same rented spaces might pose a risk of neglecting grief and hindering loss reconciliation (Maercker & Zoellner, 2004; Stroebe & Schut, 2001). Specifically, this dynamic provides fertile soil for emotional contagion and crossover among colleagues (Bakker, Westman, & van Emmerik, 2009). This potential for a crossover of positive psychological states among relief officials, as indicated by a shared perception of positive work atmospheres, might help sustain the coping efforts of local relief officials and facilitate posttraumatic growth (Bakker & Demerouti, 2009; King, King, Fairbank, Keane, & Adams, 1998; Waysman, Schwarzwald, & Solomon, 2001; Zoellner & Maercker, 2006).

For those who experienced significant personal distress, such as bereaved officials, this kind of social environment can also be perceived negatively. Unlike in Western culture, emotional expression is discouraged (Kim, Sherman, Ko, & Taylor, 2006) and active support-seeking behavior is not appreciated in Chinese culture (Chun, Moos, & Cronkite, 2006; Ryder et al., 2008). This inclination is evident in statements such as, "I don't need people's sympathy" and "relying on myself." Working and living in this kind of environment might also subject local relief officials to a risk of neglecting or suppressing their grief. For example, Wang and colleagues (2011) found that some local relief workers felt they had to suppress their grief in front of other survivors and colleagues so as to appear strong. However, this might lead to the disenfranchisement of their grief, which would further complicate the grieving process (Doka, 2002).

We also noted that the competing demands of the work–family conflicts reported by participants might have aggravated the distress generated by disenfranchised personal and family needs because of their roles as relief officials and civil servants. For instance, unlike their fellow quake survivors, many local relief officials reported that they did not have the time or opportunity to conduct mourning rituals. Chinese culture considers such rituals as being of essential importance to the well-being of the deceased, who lives in the world of *YIN* (the dead). A continuing bond beyond the grave is naturally facilitated and formed by engaging in these rituals (Lalande & Bonanno, 2006). Neimeyer et al. (2006) contended that a continuing bond with the deceased can help family members reconcile their bereavement.

The scale and urgency of relief work and the critical roles that local officials play can render attending to personal and family needs difficult, which poses a risk of delaying or disturbing reconciliation with trauma and loss. Moreover, based on the findings of work–family conflict research, we argue that it can deplete local relief officials' opportunities to regain vital resources such as energy, daily rhythms and routines, family support, and entertainment (Innstrand, Langballe, Espnes, Falkum, & Aasland, 2008). This is in accordance with the COR theory, which postulates that high work–family conflict is likely to bring about a coping resource loss spiral, which might result in poor well-being outcomes (Demerouti et al., 2004; Kinnunen et al., 2010).

Despite the limitation that our interpretation of this study's results is bound by the participants' roles as civil servants, our intention remained to provide a window into local relief workers' personal and family lives as an opportunity to assess potential mental health risks. With the current study, we identified a double-edged-sword effect of doing relief work on local disaster relief workers' mental health. Engaging in meaningful relief work provided participants with renewed purpose and a temporary positive social haven from poignant traumatic memories and daily subsistence worries that might contribute to their ability to sustain their coping efforts. Nevertheless, such relief work also subjected participants to a risk of neglecting or even inhibiting their personal and family needs.

Accordingly, mental health aid workers should take the abovementioned aspects into account when designing intervention programs for local disaster relief workers. For example, at the management level, relief work should exercise flexibility in scheduling to enable local workers to attend to their personal and family needs, in addition to the cultivation of a more open and caring trauma support culture at work. At the individual level, mental health aid workers can emphasize the importance of meaningful engagement such as participating in post-disaster relief work, encouraging self-care among local relief workers, and organizing individual or group counseling sessions for those who suffer from severe post-traumatic stress and grief.

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