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Social support following a natural disaster: A longitudinal study of survivors of the 2013 Lushan earthquake in China

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ABSTRACT

The idea that social support post-disaster is beneficial to survivors' mental health is widely accepted by both researchers and practitioners. However previous social support studies are mainly focused on perceived social support, and the limited received social support studies have produced mixed results. In this study we modelled the influence of both quantity and quality of received social support on long-term mental health outcomes in a longitudinal study of 2013 Lushan earthquake survivors in China. Survivors were invited to complete a questionnaire interview 7 months after the earthquake and were followed up 31 months later (n = 161). Hierarchical regression analyses that controlled for disaster exposure variables showed that greater quality of social support received 7 months after disaster predicted lower levels of posttraumatic stress symptoms and psychological distress two years later, however quantity of received social support was not significant in predicting these two outcomes. These results remained robust when controlled for gender, negative life events and family financial status. The findings of this study suggest that what appears to be critical in the process of supporting disaster survivors is the quality, not necessarily the quantity, of support provided.

1. Introduction

Each year millions of people are affected by disasters resulting from both natural hazards and human activities. There is substantial evidence that disasters can lead to a range of mental health problems, such as posttraumatic stress disorder (PTSD), depression and anxiety (Bonanno et al., 2010; Cofini et al., 2015; Gigantesco et al., 2013; Kokai et al., 2004; Liang et al., 2019; Minardi et al., 2016; Norris et al., 2002; Xu et al., 2018). It has been generally assumed that post-disaster social support may buffer these negative consequences, however studies investigating the association between social support and mental health in the aftermath of disaster have produced inconsistent results. This inconsistency is partly due to the complex construct of social support (Kaniasty and Norris, 2004) with studies focusing on social support measuring received support (actual receipt of help; e.g., Cerda et al., 2013), social embeddedness (quality and type of relationships with others; Wyndol and Duane, 1985), perceived support (the belief that help would be available if needed; e.g., Chan et al., 2015; Chang et al., 2014; Cherry et al., 2015; Feder et al., 2013; Ward et al., 2018), or a mixture of the above (Ren et al., 2015; Zhang et al., 2017).

Compared with other facets of social support, received social support is less frequently addressed in disaster studies and the pattern of the findings observed when relevant measures are included have been mixed. For example, a small number of relevant studies have suggested a beneficial role of actual support received on psychological well-being in disaster context (e.g., Cerda et al., 2013; Deković et al., 2008; Hussain et al., al.,2013; Norris and Kaniasty, 1996), while other studies have revealed no effects, or worse, documented positive associations between received support and increased mental health problems (e.g., Lowe et al., 2015; Morgan et al., 1995; Shiotani, 2014).

One key limitation of these prior disaster studies is that the social support instruments typically used assessed only the quantity (or frequency) of social support received. It may be that other features of received social support also matter, such as what type of support is provided and when and how it is delivered, as well as other dimensions related to the broader concept of quality of received support. For

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example, one qualitative study found that except for insufficiency of aid, survivors also complained about support that was distributed unfairly, or in a delayed or conditional manner (Ibañez et al., 2003).

The concept of quality of received social support is the foundation of the social support effectiveness model (SSE, Rini and Dunkel Schetter, 2010; Rini et al., 2006), which was initially developed to improve understanding of the effectiveness of support received by pregnant women from their partners. The SSE model encompassed dimensions of both quantity and quality, and identified five features which underlie the effectiveness of received social support: needs matching in quantity, needs matching in type, the skilfulness /sensitivity of support delivering, the ease of obtaining support, and the extent to which received help might negatively influence recipients' self-concept. The SSE model provides a solid theoretical framework for assessing the effectiveness of social support but does not address all features important for support received in disaster context where substantial social support is provided by government or other organizations through intensive disaster aid distribution. In this context, research also suggests that dissatisfaction with aid distribution (such as unfairness or lack of transparency) predicts lower levels of subsequent social psychological well-being (Kaniasty, 2012). Thus, characteristics of the disaster aid distribution such as justice and fairness should also be considered in evaluating quality of received social support in disaster context.

The aim of this study was to examine the influences of both quantity and quality of received social support on mental health outcomes in a longitudinal study of earthquake survivors in China. It was conducted in the aftermath of a 7.0 magnitude earthquake that severely devastated Lushan County, Sichuan Province, China. The Lushan earthquake, which struck on April 20, 2013, affected close to 2 million people and resulted in 196 deaths, 21 missing individuals, and more than 13,000 injured survivors.

2. Methods

2.1. Participants and procedure

The first survey (T1) was conducted 7 months after the disaster. Participants were recruited from four towns, two from the worst-hit disaster areas and two from less severely affected areas. Convenience sampling was used in each town and participants were recruited during a free influenza vaccination program for the entire geographical area that was affected by the earthquake. Individuals 18 years of age and older and who were at the disaster area when the earthquake occurred were invited to participate. A total of $n = 199$ survivors were recruited at the first survey. The respondents were interviewed face to face at meeting rooms of the hospitals where free influenza vaccination program was conducted.

The follow-up survey was conducted two years later, 31 months following the earthquake (T2). All the respondents participating at the first survey were invited via telephone before the study's entrance into the field. Those respondents who changed their phone numbers were contacted with help of local residents. Thirty-eight people were lost at the follow-up (i.e., 19% attrition rate), amounting to 161 completed interviews. The participants were interviewed face-to-face in their homes or at appropriate locales near their residences. Seven respondents (4%) could not be met in person and were interviewed via a telephone.

The research and ethics committees of Peking University Institute of Mental Health (reference number: 201,531) and The University of Melbourne (reference number: 1,544,838) approved the study and all participants interviewed face-to-face were provided written informed consent to participate in the study, for those interviewed by phone oral informed consent was used instead.

2.2. Measures

2.2.1. Mental health

Post-traumatic stress symptoms were assessed at both times of data collection (T1 - 7 months and T2 - 31 months after the earthquake) using the PTSD Checklist-Civilian Version (PCL-C; Weathers et al., 1991). The PCL-C consists of 17 items that correspond to symptoms of PTSD as described in DSM-IV. Participants reported how much they have been bothered by each symptom in the last month, with responses ranging from *not at all* (1) to *extremely* (5). A severity score can be calculated as the sum of raw scores, with values ranging from 17 to 85. The internal reliability coefficients of the PCL-C scores in this study were excellent (T1 $\alpha = 0.93$; T2 $\alpha = 0.92$).

Psychological distress was measured using the 12-item General Health Questionnaire (GHQ-12; Cheng et al., 1990) at 7 months and 31 months after the earthquake (T1 & T2). The GHQ-12 is a widely used instrument assessing common mental health problems of depression, anxiety, somatic symptoms and social withdrawal. The present study used the original scoring method (Goldberg and Williams, 1988), with possible scores ranging from 0 to 12, where higher values indicate relatively severe psychological distress. The GHQ-12 scores evidenced good Cronbach's internal reliability coefficients at both times in this study (T1 $\alpha = 0.84$; T2 $\alpha = 0.83$).

2.2.2. Quantity of received social support

Quantity of received social support was assessed using an instrument modelled on the Inventory of Post-Disaster Social Support (IPSS, Kaniasty and Norris, 2000; Norris et al., 2001). The scale included 14 items that asked how often different types of support were received since the earthquake (until the day of interviews), and were scored on a 4-point scale (1 = *almost never*, 2 = *rarely*, 3 = *often*, 4 = *very often*), with values ranging from 14 to 56. This scale was administered at the first survey, and assessed social support received in the 7-month period since the earthquake. Instructions explained that helping acts referenced in the measure could have been provided by anyone in their social network (i.e., the source of support was not specified), and did not have to be related directly to the disaster. Items addressed four types of support received: tangible support (5 items, e.g., "offered or provided place to stay or helped you repair your house"); emotional support (3 items, e.g., "was comforted with physical affection"); informational support (3 items, e.g., "was helped with understanding a situation"); and companionship support (3 items, e.g., "was invited to have fun together"). The internal consistency reliability of this scale was 0.87, with higher scores indicating greater amounts of received social support (*Mean* = 30.04; *SD* = 7.85).

2.2.3. Quality of received social support

The quality of received social support was measured using a scale that was developed for this study and covered multiple features of the content and distribution of social support. These included facets which were drawn from Rini and Dunkel Schetter's SSE model (Rini and Dunkel Schetter, 2010; Rini et al., 2006), and addressed the quantity, easiness, needs matching and skilfulness of received support. Additional facets addressed the fairness, timeliness and conflicts encountered while receiving aid, and were based on studies of receiving social support in the context of disaster aid distribution (e.g., Kaniasty, 2012).

The scale comprised of 12 items which were scored on a 5-point response scale (1 = *never*, 2 = *seldom/rarely*, 3 = *sometimes*, 4 = *often*, 5 = *very often*), with a range of total (sum) values between 12 and 60. The questions referred to the adequacy of the amount of support received (2-items, e.g., "…the amount of help you received after the earthquake was not enough for your needs), ease of obtaining this support (3-items, e.g., "…getting the help you needed was just too difficult to accomplish"), the extent to which aid matched their needs (2-items, e.g., "…the help you received matched in terms of what you needed, that is, the type of help you received was what you wanted, it

was what you needed"), skilfulness with which it was provided (one item, "…the help you received from others was provided skilfully and sensitively, that is, in such a way that you did not feel uncomfortable for needing it"), perceived fairness (one item, "…you were treated unfairly"), timeliness of provision (one item, "…the help you needed arrived too late for it to be useful"), and presence of conflicts while receiving support (2-items, e.g., "…involved in conflicts or disagreements in the process of receiving post-disaster aid"). This scale was administered at the follow-up survey, but the participants were asked to retrospectively appraise the quality of support received in the first 7 months after the earthquake. Hence, the measurements of both the quality and the quantity of received social support referenced the same timeframe of disaster aftermath. The internal reliability of this scale was 0.75, with higher scores indicating greater quality of received social support (*Mean* = 44.55; *SD* = 7.23).

2.2.4. Disaster exposure

The experience of disaster was assessed with two indices administered at the first survey time point (7 months after the earthquake). The index of earthquake trauma exposure, scored from 0 to 5, was based on answers to five questions: (1) being injured, (2) being trapped in the rubble, (3) death of a family member/other close person, (4) injury to a family member/other close person, and (5) whether there were things that made you feel guilt or regret. Answers were recoded as "0" (No) and "1" (Yes) (*Mean* = 0.56; *SD* = 0.52).

The second index of disaster exposure, a measure of material losses, was comprised of five items that asked respondents to appraise their earthquake losses in terms of: (1) damage to their apartment/home; (2) income/financial losses; (3) employment-related stoppages/job loss; (4) getting into financial debt due to reconstruction needs; and (5) the extent to which material losses were more (or less) severe as compared to other survivors. Responses to these items ranged from 0 to 2, and were aggregated into a sum score representing an assessment of material losses (*Mean* = 5.76; *SD* = 2.61).

2.2.5. Covariates

Two covariates of mental health and social support used in additional analyses were collected at the follow-up survey (31 months after the earthquake). Family financial status was assessed using a single-item 6-point scale, asking participants to rate their financial situation considering the context of their current needs and financial responsibilities (1 = very poor, 6 = prosperous; *Mean* = 2.80; *SD* = 0.87). Negative life events were assessed using a 13-item checklist (Li et al., 2008), referencing events that occurred within the past year of the follow-up survey, or earlier if they still had an impact on the participants' lives. The checklist covered: (1) Love or marriage issues; (2) Fertility issues; (3) Conflicts with a partner; (4) Conflicts with other family members; (5) Conflicts with people outside of family; (6) Conflicts among family members but not involving the respondent; (7) Illness or serious injury to self; (8) Economic issues; (9) Work or study issues; (10) Serious illness or death of family members or close friends; (11) Being physically abused; (12) Being sexually abused; and (13) Other negative life events. The items were combined into an index of total number of negative life events (range 0–13; *Mean* = 1.40; *SD* = 1.47).

2.3. Data analysis

The unique influences of quantity and quality of received social support on posttraumatic stress symptoms and psychological distress, respectively, were examined using hierarchical multiple regression analyses in SPSS version 25. Posttraumatic stress and psychological distress symptoms, measured at 31 months after the earthquake, were the outcome variables in two separate models which utilized the same sets of predictors. Predictor variables were entered in a series of stages. The mental health scores, posttraumatic stress or psychological distress symptoms, collected at 7 months after the earthquake (T1) were specified in the initial stage to estimate stability effects. Second, measures of disaster exposure were subsequently entered to account for their share of the variance in the outcome variables. Measures of quantity of received social support and quality of received social support were then specified in the third and fourth stages, respectively, in order to examine the unique influences of these variables. Finally, the interaction between quantity and quality of received social support were entered in a fifth stage to estimate potential moderation effects (i.e., to examine whether the influence of quantity of received social support on post-disaster mental health varied by the quality of received social support). The constituent variables for interactions were centred before the interaction terms were computed as their cross-products (Aiken et al., 1991). Subsequent analyses also examined whether results from the aforementioned models differed when the equations included gender, negative life events and family financial situation as control variables.

3. Results

3.1. Sample

The follow-up sample ($n = 161$) was predominantly female ($n = 108$, 67%), aged between 20 and 76 years old (*Mean* = 41.61, *SD* = 12), and the participants completed 8.8 years of education on average (*SD* = 3.95; range: 0–18 years).

The non-responders of the follow-up survey were not significantly different from the remaining participants in terms of age ($t_{197} = 1.31$, $p = .19$), years of education ($t_{197} = -0.91$, $p = .36$), and gender ($x^2_{199} = 0.59$, $p = .44$), baseline PTSD ($t_{197} = 0.46$, $p = .31$), and baseline GHQ ($t_{197} = -0.22$, $p = .42$). However, the participants who did not complete the follow-up survey suffered lower material losses than the completers ($t_{197} = -2.67$, $p = .058$), experienced less earthquake trauma ($t_{197} = -2.27$, $p < .001$), and received less social support ($t_{197} = -1.58$, $p = .04$).

3.2. Mental health change

Paired *t*-tests indicated that PCL-C scores declined significantly from 7 months after the earthquake ($M = 34.25$, $SD = 12.29$) to 31 months after the earthquake ($M = 29.98$, $SD = 11.64$), t (160) = 5.01, $p < .001$), for the sample as a whole. Likewise, GHQ scores declined significantly between 7 months ($M = 4.10$, $SD = 3.07$) and 31 months following the earthquake ($M = 2.57$, $SD = 2.77$), t (160) = 6.73, $p < .001$.These findings indicate improvements in survivors' mental health over time.

3.3. Regression analyses

Results from the regression models of both posttraumatic stress symptoms and psychological distress are shown in Table 1. Tests to examine if the data met the assumption of collinearity indicated that multicollinearity was not a concern (T1 PCL-C, VIF = 1.31; Earthquake trauma, VIF = 1.11; Material losses, VIF = 1.22; Support quantity, VIF = 1.22; Support quality, VIF = 1.30; Interaction, VIF = 1.06). The final model of posttraumatic stress scores as the outcome variable with five predictor variables and an interaction explained 42.2% of the variance in symptoms assessed 31 months after Lushan Earthquake, *adjusted* $R^2 = 0.400$, $F(6, 153) = 18.65$, $p < .001$. Posttraumatic stress symptoms 7 months after the earthquake (Step 1) accounted for 35.3% of the variance in PCL-C scores, $F(1, 158) = 86.07$, $p < .001$, indicating rank-order stability in posttraumatic stress symptoms over time. Earthquake trauma and material losses entered at Step 2 explained an additional 5.2% of the variance in PCL-C scores, above the stability effect, $F(2, 156) = 6.76$, $p = .002$, and suggested that survivors who experienced greater disaster exposure reported more symptoms of posttraumatic stress.

Table 1
Predicting posttraumatic stress symptoms and psychological distress 31 *months after 2013 Lushan earthquake: summary of multiple hierarchical regression analysis.*

Predictors	T2 PTSD				T2 GHQ			
	Hierarchical model[a]			Final model[b]	Hierarchical model[a]			Final model[b]
	β	*t*	ΔR^2	*β*	*β*	*t*	ΔR^2	*β*
Step 1 – T1 PTSD/GHQ	0.59	9.28***	353***	0.46***	0.52	7.67***	.271***	0.45***
Step 2			0.052**				0.008	
Earthquake trauma	0.17	2.71**		0.18**	0.07	0.94		0.08
Material losses	0.15	2.14*		0.13+	0.05	0.74		0.02
Step 3 – quantity of received social support	−0.01	−0.17	0.000	0.04	0.004	0.05	0.000	0.08
Step 4 – quality of received social support	−0.15	−2.19*	0.018*	−0.15*	−0.27	−3.75***	0.060***	−0.26***
Step 5 – quantity × quality	−0.008	−0.12	0.000	−0.008	0.06	0.88	0.003	0.06

Note. $N = 161$.
+ $p \leq .06$.
* $p \leq .05$.
** $p \leq .01$.
*** $p \leq .001$.
[a] The entries are standardized (β) regression coefficients and corresponding *t*-values obtained when the variables was first entered, and R^2 changes for each block of the multiple hierarchical regressions equation.
[b] The entries are standardized (β) regression coefficients obtained in the final block of the multiple regression equation when all predictor variables were entered.

Later stages of the hierarchical regression revealed that quantity of received social support (Step 3) did not uniquely predict posttraumatic stress symptoms 31 months after the earthquake, when controlling for stability effects and disaster exposure. In contrast, quality of received social support (Step 4) was significantly associated with change in posttraumatic stress and accounted for an additional 1.8% of the variance (above and beyond other predictors including the quantity of received social support), $F(1, 154) = 4.78$, $p = .03$. This suggests that survivors reporting greater quality of support received after the disaster exhibited greater reductions in posttraumatic stress symptoms over time. The interaction between quantity of received social support and quality of received social support did not account significantly for PCL-C scores assessed at 31 months after the earthquake. Follow-up regression analyses that included additional control variables (gender, negative life events and family financial status) showed that the effect of quality of received social support on posttraumatic stress symptoms was slightly reduced, yet it was still marginally significant ($\beta = -0.141$, $p = .058$), and the nature of the association was substantively unchanged.

In terms of the psychological distress symptoms prediction model, tests for multicollinearity indicated that a very low level of multicollinearity was present (T1 GHQ, VIF = 1.24; Earthquake trauma, VIF = 1.08; Material losses, VIF = 1.19; Support quantity, VIF = 1.24; Support quality, VIF = 1.29; Interaction, VIF = 1.05), and the assumption of multicollinearity was deemed to have been met. The final model of psychological distress symptoms with five predictors and an interaction explained a total of 34.3% of the variance in GHQ-12 scores assessed at 31 months after the earthquake, adjusted $R^2 = 0.317$, $F(6, 153) = 13.30$, $p < .001$. GHQ-12 scores assessed at 7 months after the earthquake were significantly related to GHQ-12 scores assessed at 31 months after the earthquake, $\Delta R^2 = 0.271$, $F(1, 158) = 58.82$, $p < .001$. Earthquake trauma and material losses did not significantly explain the variance in the outcome variable, $\Delta R^2 = 0.008$, $F(2, 156) = 0.85$, $p = .43$.

Quantity of received social support (Step 3) was not found to significantly predict psychological distress 31 months after the earthquake, $\Delta R^2 = 0.000$, $F(1, 155) = 0.003$, $p = .96$. In contrast, quality of received social support (Step 4) was a significant predictor and accounted for an additional 6.0% of the variance in GHQ-12 scores assessed at 31 months after the earthquake, $F(1, 154) = 6.34$, $p < .001$. Survivors receiving social support of higher quality reported reduced levels of psychological distress over time. The interaction of quantity of received social support and quality of received social support (Step 5) was not statistically significant. Follow-up regression analyses that included additional control variables indicated that the effect of quality of received social support on psychological distress was slightly reduced but remained statistically significant ($\beta = -0.182$, $p = .018$).

4. Discussion

This study examined the prospective relationships involving two most important dimensions of received social support and mental health in the aftermath of a major earthquake in China. The results indicated that higher levels of quality, but not quantity, of social support received by earthquake victims within the first 7 months following the disaster predicted lower levels of posttraumatic stress symptoms and psychological distress assessed 31 months after the earthquake. These effects of quality of received social support were observed when accounting for mental health 7 months following the disaster (and thus stability effects), disaster exposure, and the quantity of received social support. Substantively the same findings were observed when control variables - gender, negative life events, and family financial status – were included in the equations.

To the best of our knowledge, this is the first theoretically based study that has explicitly assessed quality of received social support in a disaster context, by measuring both quantity and quality of received social support. This study can therefore provide a greater understanding of the impact of received social support on post-disaster mental health. That is, rather than “how much” of support is received, the key ingredients of the beneficial function of support receipt on psychological health are the ease of access to it, its adequately meeting the needs of the recipients, skilfulness and sensitivity of its delivery, and fairness and timeliness of received provisions. Several of these key dimensions have been noted in previous disaster research (Kaniasty and Norris, 2009; Kaniasty, 2012).

Our findings are partly congruent with results reported by Rini et al. (2011), who found that hematopoietic stem cell transplant survivors reported less mental health problems when they received more effective partner support (i.e., main effect of support quality). On the other hand, however, the potential moderating function of quality of social support in the link between support quantity and mental health, stipulated by the Social Support Effectiveness model (SSE, Rini and Dunkel Schetter, 2010), was not supported by the current findings. Rini et al. (2011) found that when received support was appraised as effective, the quantity of support received by trauma survivors was not associated with distress. Interestingly in their study, when partner support was ineffective, receiving greater quantities of support predicted elevated distress (i.e., support quantity by quality interaction). It has to be recognized that the two studies examined different stressors (community disaster versus personal illness), assessed

different sources of support (help from all sources versus help from a partner), as well as were conducted in different cultural contexts (China versus USA). More studies are needed to explore the potentially complex associations involving quantity and quality of received social support and diverse indicators of mental health over time for survivors of different types of stressful and traumatic events.

The quality of social support received in the first 7 months after an earthquake served a unique protective function for survivors' mental health 31 months after the event. This finding offers clear implications for researchers, practitioners, disaster relief agencies and governmental institutions. What appears to be critical in the process of supporting disaster survivors is the quality, not just the quantity, of support provided. Typically, the first responders and disaster relief agencies attempt to distribute support quickly and fairly, but things may not occur as intended due to bureaucratic processes and pace and formality of the relief system. Disappointments, frustrations, and even conflicts are common in the aftermath of disasters, partly due to the fact that even generous aid may be distributed in ways that undermine its effectiveness (Kaniasty, 2012; Kaniasty and Norris, 2009). This observation applies also to informal support networks such as relatives, friends, and personal acquaintances. Much can be done to improve the manner of support delivery to survivors. Distributing adequate amount of aid in a timely, sensitive, nonthreatening and respectful way is critical for survivors' subsequent psychological and social well-being. Disaster aid distribution strategies should be carefully designed to be fair, transparent, and readily accessible to all affected. It is also important for practitioners to monitor disagreements and conflicts that may surface during the aid distribution processes, and to deal with them timely and confidently. More studies are needed to further examine which facets of the effectiveness of received social support are most beneficial in protecting survivors' mental health.

Major methodological limitations of the study should also be noted. The external validity of the findings are limited by unique characteristics of the sample; for example, it is a convenience sample, respondents were predominately women who were recruited from community clinics offering influenza vaccinations. It is unlikely that this sample was representative of all survivors of the Lushan earthquake, or victims of other disasters in China. Like all longitudinal studies, the current sample was further affected by sample attrition; the drop-out participants reported lower material losses than completers, experienced less earthquake trauma, and received less social support. A few participants had to be interviewed by telephone. Our measures of quantity and quality of received support effectiveness, although modelled on empirically established instruments, had not been validated prior to data collections. Although not unusual for social support appraisals, both the quantity and the quality of received support were assessed without referencing the source of provisions (e.g., family, friends, and people outside respondents' immediate support circle). The source distinctions are important for social support theory and interventions. Most importantly, however, the two dimensions of received social support were assessed at different times of data collection, whereby the quantity of received support was measured at 7 months after the earthquake, while the quality of support was measured at 31 months after the earthquake (2 years later). Nevertheless, the participants in both cases were asked to reflect retrospectively on help they received in the first 7 months after the earthquake.

In conclusion, this study demonstrated the protective function of quality of social support received in the first 7 months after an earthquake for survivors' posttraumatic stress symptoms and psychological distress assessed 31 months after the event. Quantity of received social support, on the other hand, was not found to be a significant predictor for posttraumatic stress symptoms and psychological distress. These findings indicate that what appears to be critical in the process of supporting disaster survivors is the quality, not necessarily the quantity, of support provided.

Conflicts of interest

None declared.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2019.01.085.

Appendix

Instrument on quality of received social support post-disaster

After the Lushan earthquake, you may sometimes need help or support *from the government, your friends and relatives. The following questions ask about help or support you may want to receive or actually received in the first 7 months and what you thought of it.*

1 = Never, 2 = seldom/rarely, 3 = sometimes, 4 = often, 5 = very often

01. How often did you feel that the amount of help you received after the earthquake was not enough for your needs?
02. How often did you feel you were treated unfairly when you received help after the earthquake?
03. How often were you involved in conflicts or disagreements in the process of receiving post-disaster aid?
04. How often did you have to compete with others for help and aid?
05. How often did feel that you were bullied, obstructed or persecuted by others when you received help?
06. How often did you feel that the help you needed arrived too late for it to be useful?
07. How often did you feel that getting the help you needed was just too difficult to accomplish?
08. How often did the help you received match the amount of aid that you needed? That is, the amount of aid was not too little or too much, it was just right?
09. How often the help you received matched (was fitting) in terms of what you need you needed… that is the type of help you received was what you wanted, was what needed?
10. How often did you feel that the people who were trying to help you did not know what to do to help you or did not understand your needs?
11. How often was the help you received from others provided skilfully and sensitively, that is, in such a way that you did not feel uncomfortable in needing it?
12. How often did people help you without you actually asking for help?

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