Author's response to reviews

Title: Are the Elderly More Vulnerable to Psychological Impact of Natural Disaster? A Population-Based Survey of Adult Survivors of the 2008 Sichuan Earthquake

Authors:

Zhaobao Jia (zhaobao.jia@smmu.edu.cn)
Weizhi Liu (liuweizhi@21cn.com)
Yang Cao (cao@smmu.edu.cn)
Jin Yan (jinyan@smmu.edu.cn)
Zhisheng Shun (mxcdcbgq@163.com)
Wenhua Tian (wh_tian@smmu.edu.cn)

Version: 2 Date: 9 March 2010

Author's response to reviews: see over
Dear Dr. Anastasios Koutsos,

Thank you very much for further considering of our manuscript for possible publication. The manuscript was revised according to your and the reviewers' comments, and carefully reviewed by the authors. Detailed responses are listed in the following pages.

If you have any questions, please feel free to contact us at wh_tian@smmu.edu.cn. Thank you very much for your attention!

With best wishes,

Dr. Wenhua Tian
Responses to Dr. Priscilla D. Allen

*I find no major compulsory revisions. Statistical methods seemed logical and appropriate.*

**Response:** Thank you very much for your generous words.

*Minor essential revisions (definitions and overview) - I recommend a brief section discussing the area that experienced the devastation from the Sichuan Earthquake (very brief overview for persons unfamiliar with the region and the impact - although the discussion on the number of injuries and deaths were stark and clear - noting the power of this disaster). Writing seemed effective and clear.*

**Response:** A brief description of the impact of Sichuan earthquake was added in the 1st paragraph of the “Methods” section as follows (colored, underlined, page 6):

“The earthquake spread about 100,000 square kilometers, left at least 5 million people without housing, and destroyed millions of livestock and a significant amount of agriculture. The official estimates of the direct economic losses were reported at 123.8 billion US$”

*I also highly recommend a brief section (even a paragraph) covering basic elements of PTSD - reader is assumed to possess knowledge in some areas*
regarding different types, levels, also describe the instrument a bit further to provide a more general usage tied to the traits of PTSD.

Response: A paragraph that described PTSD in detail was added in the “Background” section as follows (colored, underlined, page 4):

“Previous studies also discussed the psychological impacts of natural disasters, and posttraumatic stress disorder (PTSD) has been one of the focuses. PTSD is a severe anxiety disorder that can develop after exposure to any event which results in psychological trauma. It has been found to be the most prevalent type of psychiatric morbidity after disasters, such as earthquake and tsunami. Signs and symptoms of PTSD include re-experiencing original trauma(s), by means of flashbacks or nightmares; avoidance of stimuli associated with the trauma; and increased arousal, such as difficulty falling or staying asleep, anger, and hypervigilance”

Minor/descretionary revisions - I recommend an area dealing with a theoretical base for why elders may experience a greater level of PTSD.

Response: The possible reasons that the elderly were more likely to develop psychological problems after disasters were given in the 2nd paragraph of the “Discussion” section as follows (colored, underlined, page 13):

“Studies show that natural disasters may result in feelings of fear, helplessness and vulnerability in many people of all ages. The underlying mechanisms that the elderly were more likely to develop psychological
problems after disasters are still unclear. But there are some potential reasons. Pekovic et al. argued that due to the fact that an elder often already feels frail because of chronic health conditions, impaired cognitive abilities and decreased sensory awareness, the impact of an unexpected disaster may be overwhelming. Taylor and Vidovic et al. discussed the effect of adrenergic system and the hypothalamic-pituitary-adrenal axis on the neurobiology of PTSD, although there is no current evidence that the changes seen in these systems with aging affect the development or presentation of post-disaster PTSD in older individuals. Further basic researches are needed to focus on the mechanisms why post-disaster vulnerability to psychological problems is likely to be age-dependent, and provide sound proofs for interventions.”
Responses to Dr. Frank Chou

This is a population-based study that was conducted 15 months after the 2008 Sichuan earthquake to assess whether elderly survivors were more likely to develop posttraumatic stress disorder (PTSD) and general psychiatric morbidity. This study seems to have some contributions to post earthquake related themes.

Response: Thank you very much for your generous words.

However, there are some major concerns should be clarified.

Methodology

(1) Sampling: Although the authors described how to sample in detail. I wonder whether the number of elder group is equal to younger group (138)? Is it convenience sampling or random sampling?

Response: As described in the 2nd paragraph of the “Methods” section, we surveyed adult survivors in the earthquake-affected areas using a random multi-stage systematic sampling rather than convenience sampling. It’s a mere coincidence that the final sample sizes of the two age groups equal.

Procedures of participants selecting can also be found in Figure 1.

(2) Classification problem: The authors seem to divide the respondents into two groups by dichotomy (>=60 and <60). The range of age in younger adults
is too broad. Please explain in detail (e.g. the distribution of age range in younger adults. Otherwise, the authors should explain why they divide respondents by dichotomy.)

Response: The objective of our study is to determine whether the elderly (age $\geq 60$) were more likely to develop psychological problems than younger adult counterparts (18 < age < 60). To keep focus on the elderly, we didn’t divide younger adults to more sub-age groups, but consider the younger adult group as a whole. Similar studies can be found in the previous literature [1-3]. On the other hand, due to the limited sample size (138 elders and 138 younger adults), more age groups in the younger adults may result in decreased power of the analysis. Detailed statistics of the two age groups were shown in the 1$^{st}$ paragraph of the “Results” section.


(3) In page 9-10: The result showed that“ Information was gathered from 138 elders and 138 younger adults, and the response rates for the two groups were 90.8% and 78.9%, respectively.’ The response rate in the younger group was significantly lower than the elder one. Is there any bias?

Response: The discrepancy of the response rates for the two groups could be explained by the internal migration in the area, where plenty of younger adults
went to cities for better work and the elderly were mostly left at home (the 2nd paragraph, “Methods” section, page 7). As there was no evidence to certify the associations between post-disaster psychology and tendency for labor migration, and no statistically significant difference was found between the respondents and non-respondents on socio-demographic indicators (the 1st paragraph, “Results” section, page 10), the authors strongly believe the results were not biased.