Reviewer's report

Title: Impaired psychological recovery in the elderly after the Niigata-Chuetsu Earthquake in Japan: a population-based study

Version: 1 Date: 22 June 2006

Reviewer: Dean McKenzie

Reviewer's report:

General

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Overall, I found the paper to be very informative, very clear and very interesting. However, I think that the statistical section may need some revision. With revised analyses in place of, or in addition to, the Friedman's / Jonckeere-Terpstra tests, I definitely think that the paper is worthy of publication, and think it will be a highly relevant paper. I think that the authors should discuss the analyses with an independent statistician and perhaps have him or her read the manuscript before resubmitting, but I am not suggesting that the Journal engage an expert statistician to read the manuscript.

1/ The statistical analyses involve factor analysis of binary (and Likert, which some biostatisticians would consider to be ordinal, although behavioral scientists argue, partly on the basis of tradition, that such scales are higher than ordinal) items. It has long been known that this can be problematic, particularly when Pearson correlations are used for binary data, rather than tetrachoric correlations. Two papers that talk about the problems of factor analysing binary data are Muthen B, 'A general structural equation model....' Psychometrika, 1984, 49, 115-132 and Christoffersen A (1975), 'Factor analysis of dichotomized variables', Psychometrika, 1975, 40, 5-22. How does AMOS 5 handle binary data? I am *not* suggesting that these analyses be done again, but I do suggest that the problem at least be mentioned, and also mention whether or not AMOS uses special algorithms for binary and ordinal data.

2/ I am not familiar with categorical regression. At the very least, a general reference for such techniques, in addition to the implementation (eg SPSS) should be given, so that the interested reader may obtain more details. Also, if a 'new' technique is used, the reader may expect justification why such a technique is used instead of more well-known techniques such as multiple regression with dummy variables, e.g., the new technique may give clearer picture, or it may be more powerful, but this needs to be justified in a sentence or two. Given that two contemporary 'sate of the art techniques' such as confirmatory factor analysis and categorical regression were used, I'm not sure why Friedman's test and Scheffe's test were used. The first is a nonparametric test, the second is parametric. It might make more sense if something like MANOVA / Mixed models (available in SPSS) was used, along with Shcffe post hoc tests, or whether this was used along with categorical or conventional multiple linear regression (which would give more power and options than simple Jonchheere-Terpstra test, e.g., it could give the strength of the association rather than just saying whether it was significant or not). Cohen, Cohen, Aiken and West's book on Applied multiple regression (published by Erlbaum 2003) or other general regression text will talk about how to analyse categorical predictors using dummy variables, how to look at effects over time (a simple method would be to look at changes between time 1 and time 2, and between time 1 and time 3, using analysis of ovariance within regression model), and tests of trend. It may aslo be possible to do this within categorical regression, but am less familiar with that technique, or to use repeated emasures ANOVA/MANOVA. I would not see all this as a major undertaking, and should be able to be done within a week or two, depending upon statistical advice.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1/ The introduction refers to posttraumatic stress disorder whereas the discussion refers to psychological distress. The GHQ is generally accepted as a measure of psychological distress, there are other self-report tests for PTSD such as the PCL etc. It should be made clear that psychological distress, and not PTSD, is being assessed.

2/ The original source reference for the GHQ should be cited, eg either Goldberg 1972 'The detection of psychiatric illness....' or the Goldberg and Williams 1988 user manual.

3/ It is 'Cronbach', not 'Chronback'.

4/ It should be 'Goodness of fit', not 'Goodness of fits'.

5/ Promax is often spelt with a capital P.

6/ A general reference on factor analysis, and perhaps one on structural equation modelling, should be citec in addition to the implementation (AMOS).

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests