Reviewer's report

Title: A three generation study of the intergenerational mental health relationships between grandparents, parents and children

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Reviewer: Thomas Olino

Reviewer's report:

The present study examines the familiality of mental health problems in children as a function of mental health problems in their parent and grandparents. This is a small literature, thus, the present work is of interest. The study also benefits from, I think, the largest sample reporting on three generations and psychopathology. There are a number of areas where the manuscript may be tightened and clarified to improve on the presentation of the work. I hope that these comments are taken (and articulated) as constructively as intended.

Major Compulsory Revisions

Although the authors do present strong arguments for relying on cut-points and dichotomizing maternal and paternal K6 scores and child SDQ scores, I have a strong preference for relying on continuous variables.

I like the sequence of the models presented. Linking G3 to G2 and G2 to G1 and G3 to G1 is nicely laid out. When the authors focus on combining these pairs into a single model, however, I would prefer that the authors do so by examining interaction terms (i.e., G3*G2). The basic request is to be able to see which ORs differ for the combinations of G3 and G2.

Were there any differences in associations found between the cohorts? There could be differences in manifestations or processes related to manifestations of psychopathology between 4-5 and 8-9 year old children, particularly if G3 were caretakers for 4-5 year old children.

Minor Essential Revisions

I think it would be helpful for the authors to be more explicit in their assessment that “... there are wider variations in methodologies and in diagnostic tools...”. I presume this refers to the completeness of the pedigrees that are assessed, direct or indirect assessments, and questionnaires or interview methods. It could be nice to describe these differences in sum, or when presenting each study.

In addition, what are the authors’ thoughts on common findings across these studies?

Relatedly, I think the authors have an opportunity to examine a question that has not been explored in the published studies. I do not think that any published studies have looked at specific mediational pathways within maternal and
paternal G3-G2 lines in the same cohort. That is, does maternal G2 psychopathology mediate the relationship between maternal grandmother and grandfather psychopathology and G3 problems and does paternal G2 psychopathology mediate the relationship between paternal grandmother and grandfather psychopathology and G3 problems? This would be a relatively straight-forward but complicated path model, but it would be very much estimable. If informative, the tests of moderation could also be examined, albeit in a slightly different form.

Discretionary Revisions

The authors description of their “second notable finding” highlights an important future research direction. What are the altered processes in G2 that support the link between G3 and G1 when G2 is not affected by psychopathology?

In terms of exposure to psychopathology in G3 – I wonder if there might be other crude ways of examining total exposure to G3 psychopathology for both maternal and paternal grandparents together. Might that differentiate between youth with and without problems?

The limitations noted are comprehensive and provide a tempered context for interpreting the results. However, the novelty of the data and potential additional analyses should provide important new information for folks planning studies for the future.

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests