Reviewer's report

Title: Explanations for female excess morbidity in adolescence: evidence from a school-based cohort in the West of Scotland

Version: 1 Date: 17 May 2007

Reviewer: John Cairney

Reviewer's report:

General

There is much to like about this manuscript; it explores an important topic for public health, viz., gender differences in adolescent health and well-being, and utilizes what appears to be an important data source on health and development in early adolescence. That said, I have several significant concerns with the manuscript in its present form.

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

(1) I am not at all convinced that this paper explores both physical and mental health outcomes. Headaches, stomach/ache and dizziness could easily be reactions to stress, and could be combined with symptoms of depression to form an overall construct of psychological distress (a measure and concept found commonly in the literature). The authors need to make a much more compelling case for these symptoms as markers of physical health, including an analysis to see how distinct these symptoms actually are from depression (correlation, factor analysis etc). If these are not distinct (or overlap considerably), I recommend analyzing either a single construct – distress - or simply restricting the analysis to depression only.

(2) The statistical analysis is problematic, largely because it departs quite significantly with common, well-established methods for estimating mediating and moderating effect (see Baron and Kinney, 1986; Mirowsky 1999). This is a significant limitation with this work. First, it is more conventional to begin with mediational analyses, not moderating effects as presented in Table 2. Perhaps because of the approach taken by the authors, this table is difficult to follow and requires greater detail to describe what is actually being presented. For example, do the Odds Ratios, for example, represent main effects, or do they represent the interactions? It is not clear. (On that, this is cross-sectional data. Avoid the use of the term relative odds, which implies Relative Risk, and is not appropriate given the data) Moreover, it seems as though the authors have simply run a series of simple logistic regressions, testing for gender and gender by risk factor interactions. Yet, there is no adjustment for multiple testing (i.e., accounting for the fact that by running so many tests, you significantly increase the probability of finding a significant effect, when one does not truly exist). The effect of gender by current smoking status, for example, would not likely survive a Bonferroni (or even a less conservative) adjustment. I think this problem, and much greater clarity of the results, could be achieved by taking a different approach to the data. First, I would run a series of staged regressions (as done in Table 3), for each outcome. This will provide a test of mediating effects. Please label the principal or focal variable “gender” so the reader can follow the analysis better. Next, I would force enter a set of interactions (between gender and each risk factor) into each of the four models (headaches, stomach, dizziness, depression – assuming you still have 4 outcomes, see point #1). Make sure all of the risk factors are in the model before interactions are included. You can do this two ways (force enter all interactions, or run separate models for each interaction – you will need to make an adjustment for conducting multiple tests, e.g., p,>01/# of tests). I think once you have done this, you may only have on interaction – gender by masculinity – to worry about it. To interpret the effect, you will need to estimate the simple slopes for both boys and girls separately (see Aiken and West, 1991). Until this analysis is conducted in this way, it is difficult to evaluate the discussion/conclusion in its present form.

(3) There are no psychometric or descriptive data (mean, sd’s range) provided for any of the scales that are used in this study. This must be included; especially for measures such as gender orientation, which appear to have been created by the authors.

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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) Page 4, First paragraph. There are recent papers that support age 15 as a critical age for examining gender differences in depression which should be cited:


The last paper in particular shows gender differences in depression to emerge by age 14-15, using longitudinal data from 3 different countries, including the UK, and multiple measures of depression.

(2) Why use BMI as a continuous measure, when standard cut-offs for children and adolescents have been created to measure overweight and obesity? (see Cole et al., 2000).

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

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

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