Reviewer's report

Title: WHO Systematic Review of Prevalence of Chronic Pelvic Pain: a neglected reproductive health morbidity

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Reviewer: Krina T Zondervan

Reviewer's report:

The authors provide a very detailed review on the prevalence of dysmenorrhoea, dyspareunia and chronic pelvic pain (CPP) world-wide, which shows importantly the extent of these problems in women. However, I have some major reservations with the way in which the results were generated, analysed, and interpreted. Note that I have had to deduce which studies were referred to by the numbered references in the text, as a reference list was not provided.

Firstly, the authors state they use a definition ‘based on duration and nature of pain: constant or intermittent, cyclical or noncyclical pain, that persisted for 3 months or more.’ However, the studies that were analysed did not all use this same definition. For example, the studies by Zondervan et al. used as definition for CPP having had intermittent or constant pelvic pain for at least 6 months (with pain in the last 3 months). It appears all studies and prevalence rates were grouped irrespective of their exact definition, which would in itself have produced heterogeneous estimates. An example represents the two studies into CPP mentioned on page 10, of which Mathias et al. found a 3-month prevalence of 15% and Zondervan et al. 24%. In the Zondervan et al. paper this discrepancy is explained: Mathias et al excluded mid-cycle pain from their definition, whereas Zondervan et al did not because it would have created a biased estimate of prevalence. This means that the two estimates cannot simply be aggregated.

The authors also appear to have confused the results from 2 separate studies by Zondervan et al.: in Table 3, including the results for CPP, they mention the 1999 article which was based on analysis of a GP database (MediPlus) containing routinely collected data; yet they state that a semi-structured questionnaire was used in data collection. Also, in calculating the prevalence of CPP from this study they simply divided the number of cases found from 1991-1995 by the denominator in the study, which consisted of all women with a visit to a GP in 1991. As the paper explains, this is an invalid way of calculating the prevalence, as it is essentially based on a cohort rather than a cross-section of the population; in the paper we correct for this, and give the appropriate figures which the authors do give in the notes.

Furthermore, the second Zondervan paper (2001), a population-based survey which was indeed based on a semi-structured questionnaire and which is quoted in the main text with regard to CPP prevalence, only appears in Table 1 for dysmenorrhoea prevalence and not for CPP prevalence. It appears to be one of the articles selected as one of two high-quality studies of CPP (page 10/11), which found 3-month prevalence rates of 15% and 24%, respectively, yet the prevalence of CPP from these two studies is aggregated as 6.2% on page 11. This seems inexplicable.

Irrespective of the inconsistencies shown in the paper, which unfortunately do not inspire confidence in the amalgamation of the other study results, I also feel that a statistical meta-analysis based on studies that used such different definitions is not appropriate and give the reader a false sense of accuracy of the data. In addition, the random effects model that is referred to on page 8, used to model heterogeneity, inherently assumes that the populations for which prevalence rates are aggregated are drawn from the same underlying population. I do not believe this to be the case,
certainly not for different ethnic populations.

In summary, I feel a lot of hard work has gone into amalgamating the data presented, and it is important work, but the results should first be thoroughly checked. Secondly, I do not think the data can be aggregated through meta-analysis, and that rather they should be presented in tables/figures showing the extreme heterogeneity of the results.

**What next?:** Reject because scientifically unsound

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes

**Declaration of competing interests:**

I declare that I have no competing interests