Reviewer's report

Title: Use of folate and vitamin supplementation among U.S. adults with depression and anxiety: a cross-sectional, population-based survey

Version: 1 Date: 24 February 2011

Reviewer: Seren Roberts

Reviewer's report:

There has been much interest in the relationship between B-vitamins and depressive symptoms in recent years. This study is an interesting large-scale cross-sectional survey of vitamin supplement usage in the US.

The aim of the study was to compare use of vitamin supplements (including folate containing supplements) in people with or without depression and anxiety symptoms. The aim is clearly defined.

Other epidemiological studies exploring use of folate and vitamin supplements have been undertaken with subsets of populations or with smaller samples. This study reports findings from a large survey-based dataset and present interesting findings, particularly the variations across sexes, in the context of previous studies. However, sex-specific analyses were performed and the findings may reflect the higher reported rates of the three mental disorders categories in women than men.

The methods are adequately described. Data were collected by survey which has several limitations and introduces possible biases, some of which are discussed. A longitudinal study and exploration of the relationship between serum folate levels and supplementation would have improved the study design. Nevertheless, the general methods are appropriate to the question.

I have concerns that some of the data have been double counted in the analysis and seek reassurance that this did not occur. The authors report that 3 categories of mental disorder were used; current depression, ever diagnosed depression and ever diagnosed anxiety. However, these are not mutually exclusive categories and for analysis, there should be more categories e.g. current and ever diagnosed depression but no anxiety, current and ever diagnosed anxiety but no depression, ever diagnosed depression and anxiety but no current depression. Some of these categories are reported in figures 1 and 2. Clarification about the analysis of these subset categories is needed.

There is also a lack of clarity about the categorisation of vitamin and folate use. Responses to folate use (which were reports of taking folate containing vitamins) were categorised as 1) no folate; 2) >1 tablet a day; 3) 1-4 tablets a day (and more than 4 were removed from analysis due to small numbers) but there is no justification for the choice of categories. In my opinion, interval rather than ordinal categories would have been better. A richer picture may have been drawn if
analysis could have been performed on these data as a continuous variable. Dosage may also have been a better measure than number of tablets for folate use. However, the survey may not have allowed scope for this which is a key limitation.

I am uncertain about the categories of vitamin use used for analysis. Was it dichotomous - yes or no? Figure 3 implies this, yet I am uncertain why the authors did not use the same categories for folate use. Further clarity is sought about this. I would also like further clarity about the analysis of vitamin usage. The authors again treat ‘vitamin supplement’ and ‘folate supplement’ as discrete categories but they are not. I would assume some people were taking folate supplements but others would be taking folate containing multivitamin supplements and I am unsure whether this distinction can be made from the survey data. I think more detail is needed in the statistical analysis section, particularly detailing and justifying the analysis and categorisation procedures, which would significantly improve the paper.

The discussions and conclusions are well balanced and adequately supported to an extent but my concerns about the data categories used for analysis make it difficult to have full confidence in the reported findings which is why further clarification is needed.

Title and abstract are appropriate, although I would request that the running head be changed to “Folate and vitamin use and mental disorders” rather than ‘mental illness’ for consistency.

- Major Compulsory Revisions

1) Further clarification about the analyses is needed. In particular, reassurance that the categorisation systems used for the classification of mental disorders and vitamin/folate use did not result in double counting in the analysis. The reported proportion of people taking vitamins and/or folate-containing tablets from the whole sample should be reported more clearly.

2) There needs to be more detail in the analysis section about the analyses performed on these data.

3) The data needs to be presented more clearly e.g. in Table 2 the n value in each category should be provided. It is difficult to decipher e.g. how many men taking supplements were ever diagnosed with depression?

4) Where possible, analysis comparing vitamin usage between men and women should be included.

- Minor Essential Revisions

5) Change mental illness to mental disorder in the running title for consistency and minor typographical errors.

- Discretionary Revisions
6) Reference to other epidemiological studies e.g. those listed below.

T Kendrick, N Dunn, S Robinson, A Oestmann1, K Godfrey, C Cooper, H Inskip A longitudinal study of blood folate levels and depressive symptoms among young women in the Southampton Women’s Survey J Epidemiol Community Health 2008;62:966-972 doi:10.1136/jech.2007.069765

Ng TP, Feng L, Niti M, Kua EH, Yap KB. Folate, vitamin B12, homocysteine, and depressive symptoms in a population sample of older Chinese adults. J Am Geriatr Soc. 2009 May;57(5):871-6


**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**
I declare that I have no competing interests