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: 2 February 2011

Reviewer: MAY BEYDOU N

Reviewer's report:

RE: Use of folate and vitamin supplementation among US adults with depression and anxiety: a cross-sectional, population-based study

General comments: This is a generally well-written study of an interesting and innovative research question. Given that folate deficiency is causatively linked to depressive symptoms this study examined whether folate or vitamin supplementation among US adults differs between those with depression or anxiety compared to those without those conditions. The study is based on a large nationally representative database (the 2006 BRFSS) of US adults that had adequate information on dietary behaviors including use of supplements as well as data on current and previous depressive symptoms based on self-reports. The main findings were that “ever diagnosed with depression or anxiety” was positively associated with use of folate and vitamin supplements in men and more likely to take folate supplements in women. In both sexes, use of folate or vitamin supplementation did not differ by “current depression status” (as measured by PHQ-8). This paper can benefit from some minor and major revisions as listed below.

Specific comments:

1) Abstract:

1.1 Please change the term depression to elevated depressive symptoms (EDS), especially when this is determined using a screening test such as PHQ-8. Please also change this throughout the manuscript.

1.2 Please add the prevalence of EDS and ever diagnosed with depression in the results section in men and women.

1.3 Why isn’t PHQ-8 score also studied as a continuous variable. This can be done by using zero-inflated poisson regression analysis (ZIP). Please see reference below:

(1)

1.4. The last sentence of the results section is misleading since there were some significant difference in individual symptoms which were inversely related to supplement use. Please add those findings if possible.
1.5. “particularly among men” is misleading, since this was also found among women though the relationship was weaker. Please clarify.

2) Background:

2.1. It is unclear whether the authors have hypothesized that use of supplements is positively associated with prior diagnosis of depression and that current depression is hypothesized to be inversely related to use of those supplements. Please clarify whether those were the directions of the hypotheses.

2.2. The study does not examine serum folate levels as such. Thus there has to be a link between the main variable of interest (folate supplementation) to the discussion of the biological mechanism linking folate status to depression. There is some missing link here. For example, is it hypothesized that people with depression are more likely to be prescribed folate and other types of supplements that contain folate?

2.3. P. 4, Line 16, ref [9-16]: The following is a more complete list of references:

Please update accordingly.


b(12), and homocysteine as risk factors for cognitive decline in the elderly. Psychiatry Investig 2008;5(1):36-40.


2.5. P. 5, line 8: “vitamins”: do the authors mean “B-vitamins”?

3) Methods:

3.1. Statistical analysis: Please consider using zero-inflated poisson regression models to test differences between those who used supplements and those who didn’t in terms of current number of depressive symptoms (PHQ-8 continuous score), adjusting for potential confounders.

Also, type I error should be added.

Finally, how were sex-differences in associations tested? Please include some analysis that formally test effect modification by sex, e.g. adding sex*exposure interaction terms in non-stratified models along with the main effect of sex.

4) Results

4.1. P. 11, line 5: Please add the adjusted OR and not only p-values.

4.2. P. 11, lines 7-8: Please change this sentence to: “However, no significant associations of current depression with taking folate or vitamin supplements were observed in either sex”.

5) Discussion:

5.1. P. 14, line 16-18: This discussion part should be added to the limitations.

5.2. Please try to interpret findings from Figure 3 (individual symptoms).

6) Tables and Figures:

6.1 Table 1: Please add a row showing Means and SEM of PHQ-8 total score as well as individual symptom mean scores across depression outcomes.

6.2. Table 2: Please do the same as above across supplement use categories.

6.3. Please add some analysis of continuous PHQ-8 score vs. supplementation
as table or Figure.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

None.