Reviewer's report

Title: Vitamin D deficiency and psychotic features in mentally ill adolescents

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Reviewer: Julia Rucklidge

Reviewer's report:

This paper investigated the relationship between vitamin D levels and psychotic symptoms. The study presents new data to support other studies, provides further evidence of a potential risk factor and as such is of great interest to readers on this topic. The data are not overstated.

No Major Compulsory Revisions

Minor Essential Revisions

The writing is clear and readable and I found few issues to raise. One thought I did have was why did the authors stick only to psychosis? Given they also had data on the relationship between vitamin D and mood symptoms, it seems worthwhile to also discuss these findings. While these findings are embedded in the tables, they could be more explicitly discussed.

I found that the way the authors reported on patient characteristics in Table 1 a bit unusual and it took me a while to figure out what the numbers meant. I am referring specifically to the Yes/no data (% yes) – I think it is easier to just be given the number in one category (like yes) and then in parentheses the percentage. Otherwise, it looks like the authors are reporting on number of yeses to total number in the sample until one looks at the columns and figures it out (maybe this is just me but I assume others might struggle as well!).

The figures need some work in that the quality isn’t great and the numbers at the bottom (means, SDs etc) seem abit lost from the figure.

I found the paragraph on demographics and other related variable differences quite dense and think the authors could divide the section up and make each point clearer.

I think that there should be a discussion on vitamin D and mood.

I found this sentence a bit odd on page 8: “Our finding was recently replicated in the pediatric population”. Isn’t it the other way round that this current study replicates other findings?

Level of interest: An article of importance in its field

Quality of written English: Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

'I declare that I have no competing interests'