Reviewer's report

Title: The impact of drought on the association between food security and mental health in a nationally representative Australian sample

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Reviewer: Herb Emery

Reviewer's report:

I am satisfied with the authors’ work to address my concerns about imputation and the lack of a conceptual framework for the paper. I find, however, that I am not clear how the paper contributes to the literature since I don’t agree that empirical analysis supports the authors’ conclusions.

In the background section of the paper, the authors define the contribution of the paper to be:

“This study will address the knowledge gap by examining associations between indicative measures of food insecurity and mental health in Australia during the last great drought, and exploring whether these associations are sensitive to levels of drought exposure across urban and rural locations.”

I am not clear that this study adds anything to the literatures looking at psychological distress and food insecurity, and drought and mental health since the findings here confirm what the authors claim is shown in the literature. Counter to what is stated in the background section, this paper does not support the claim that drought affects food insecurity since food insecurity prevalence does not differ with the different drought exposures. Only one p-value in Table 5 indicates statistical significance.

So what this paper demonstrates is that psychological distress is higher when households are food insecure (Table 4); food insecurity is not influenced by drought (Table 5), and psychological distress is not really correlated with drought exposure (Table 6). The presentation of results in Table 6 shows that psychological distress is significantly lower for all categories of drought exposure from “Constant long dry”. The authors do not report a test of whether the effects of all other categories of drought exposure differ from one another but since they are all roughly the same magnitude, I expect that the only result from table 6 is that rural people exposed to constant long dry have higher psychological distress. Table 7 shows that within any given drought exposure, FI households have higher distress but the authors do not test for differences in these increased levels of psychological distress across drought exposures.

So in my interpretation of the results presented, there is no evidence that drought exposure explains food insecurity risk or levels of psychological distress. As such, I do not agree with the authors’ conclusions that they have presented evidence that drought affects the association between food insecurity and mental health.
health or that their results are informative for the development of climate adaptation strategies.

**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:**

I declare that I have no competing interests