Reviewer’s report

Title: Directional and fluctuating asymmetry in finger and a-b ridge counts in psychosis: a case-control study

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Reviewer: Dr Elizabeth Cantor-Graae

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

This study assessed dermatoglyphic characteristics of the fingers and hands in patients with chronic psychotic illness and in normal healthy controls. Despite large sample size and adequate methodology, the study found very few indications of aberrant dermatoglyphic features in psychotic patients. As disturbed prenatal cerebral development is considered to play a role in the aetiology of psychosis, these negative findings raise important questions concerning the usefulness of dermatoglyphic features as markers of parallel disturbances in cerebral development.

Compulsory revisions:

1) More information is needed concerning the selection of control subjects, how they were recruited, whether they were screened for psychiatric history, and what their gender distribution was. In addition, the total number of subjects by gender and by group should be provided in Table 1.

2) The patients were drawn from a population-based prevalence study, and as the authors suggest, chronicity would be over-represented in the sample. Given the association between fluctuating asymmetry and illness severity, would the negative findings concerning fluctuating asymmetry in these presumably chronic patients be expected?

3) The inconsistencies in results across samples remain somewhat puzzling, considering the relative simplicity of the methods used for data collection (paper, ink). Readers might want to know to what extent the methods used for data analysis were similar to those used in previous studies. Also, what was the ethnic composition of the sample, and could ethnic heterogeneity in any way have contributed to these negative findings?
4) The authors have previously reported more minor physical anomalies in the same sample. Both minor physical anomalies and dermatoglyphics are proxy measures for disturbed prenatal development, and the temporal "window" of development for MPAs and ectodermal features would largely be overlapping. Or? The discrepancy between these two sets of findings within the same sample deserves further comment.

5) A large number of analyses were performed, and the authors rightly admit that some of their findings might have been due to chance. Indeed, there is a "sporadic" feeling to the few positive findings scattered across the sample. It might help to present a clearer statement at the outset of what the authors expected to find, e.g. reduced asymmetry, directional asymmetry (evidence of? reduced?), as it is difficult to determine whether the authors themselves regard these findings as "noise". This is particularly important for the results regarding directional asymmetry. Significant DA was found only in some measures and seemed unrelated to group status. What do these results really mean, e.g. was the amount and/or direction of this DA expected?

6) The statement regarding the curious lack of reduced laterality of dermatoglyphics is slightly confusing since there is no previous mention/description of "normal" laterality. Readers might want to know what aspects of dermatoglyphics are normally lateralized, and in what direction.

7) Minor details: the sequential structure of the manuscript needs revision, with "methods" provided before "results". The Figure should have a legend or a title. Table 2 needs a better heading (presumably these numbers are correlation coefficients).

Discretionary revisions:

1) One wonders about those patients whose prints were not suitable for analysis. Might they have been younger, and more severely ill at the time of data collection? Developmental factors have previously been more associated with early onset.

**Competing interests:**

None declared.