Author's response to reviews

Title: Low birthweight and preterm birth in young people with special educational needs: a magnetic resonance imaging analysis

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RESPONSE TO REVIEWERS

Re: Low birthweight and preterm birth in young people with special educational needs: a magnetic resonance imaging analysis

Reviewer #1:

We thank the reviewer for their kind comments regarding the paper.

Reviewer #2:

We thank the reviewer for their comments, and append below details regarding our responses to the specific points raised.

1) We are grateful for this suggestion, and have added the additional information to the end of paragraph 1 of the Background section. The additional sentence reads: \( \text{In Scotland, 2.2}\%\text{ of children aged 5-16 years are registered with the Support Needs System (SNS) as having additional support needs (expressed as a percentage of the total child population of the NHS Board areas covered by the SNS).} \)

In response to the second issue raised within the same point by the reviewer there are, to our knowledge, no further classifications of special needs in operation in Scotland that represent more severe impairments than those recorded by the SNS.

2) We agree with the reviewer that the issue of the relationship between low birthweight, preterm birth and cognitive outcome in terms of IQ is interesting. The reviewer also correctly states that IQ assessments were conducted on all
participants. Our intention here was to present IQ data only as part of a characterisation of the clinical and demographic baseline characteristics of the subjects (in order for the reader to appreciate their level of functioning) rather than to set out to investigate the relationship between obstetric adversity and IQ. We feel that presenting such an analysis would significantly alter the focus of the paper and indeed our study was not designed to investigate this issue. Further to receiving the reviewer's comments we have, for the reviewer's information, performed a Pearson correlation test investigating the relationship between IQ and the two main study variables (degree of low birthweight and degree of prematurity) and find no significant relationship (r = 0.053, p = 0.621 and r = 0.065, p = 0.528 respectively). For the reasons stated above, we feel it would detract from the focus of the paper to present this additional analysis. We thank the reviewer for their kind direction, and we are providing data as to the mean IQ for all participants in the Subject characteristics paragraph.

In response to the second issue raised within the same point by the reviewer, we have not recorded case histories for these participants (although we have ascertained that no history of the specific conditions mentioned in the list of exclusion criteria exists).

3) We thank the reviewer for this interesting suggestion, which we feel has much merit. We have, accordingly, replaced the correlation graphs within figures 3 and 4 with graphs expressing grey matter density as a function of birthweight and gestational age as suggested by the reviewer. We have indicated the relationship between GMD and birthweight (or gestational age) separately for those above and below the given thresholds. Furthermore, we have modified the corresponding text within the methods, results and discussion sections and figure legends to accommodate the changed figures.

Minor essential revision #1) We thank the reviewer for suggesting this additional clarification, and have accordingly revised the manuscript by inserting a sentence before the sentence on page 10 (Maximum voxel results), which reads: Voxelwise correction for multiple comparisons was performed using Gaussian random fields theory within SPM99 (Ashburner and Friston, 2000).

Once again, we are very grateful to the reviewers for their helpful comments, and we hope that they will be satisfied with the responses and amendments which have been made.

Thanks you for this opportunity to the revise the manuscript.

With best wishes
Yours sincerely
Dr Michael D Spencer