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The analysis of multivariate longitudinal data: A review

Response to letter of M. Gebregziabher

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We thank Dr. Gebregziabher for providing an extensive list of models useful for the analysis of multivariate longitudinal data. All models presented focus on the analysis of hearing loss data only, and are special cases of one of the model families discussed in our paper, i.e., models for associations between latent evolutions. To name but one example, models with shared random intercepts but separate random slopes for different outcomes (case five in the letter of Gebregziabher) is an example of our random-effects model (Section 3.2 in Verbeke et al.¹), with appropriate restrictions on the variance components. We acknowledge that we did not explicitly discuss incorporating order restrictions. While such restrictions may be meaningful in some applications, they are not always justified. However, if they are deemed realistic, they can easily be incorporated in our general model families through appropriately restricting parameter spaces.

References

1. Verbeke G, Fieuws S, Molenberghs G and Davidian M. The analysis of multivariate longitudinal data: A review. *Statistical Methods in Medical Research* 2014; **23**: 42–59.

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