4 Conclusion

Generalized additive models provide an intuitive and flexible approach to modelling the repeating signals common to medical monitoring data. We hope researchers will use this introduction as a starting point for including GAMs in their data analyses. Both to answer specific research questions, and as a tool to explore and visualise the cardiac effects and respiratory effects on hemodynamic measurements and the effect of heart–lung interactions.

5 Recommended reading

Generalized Additive Models, An Introduction with R by Simon Wood [29].

GAMs in R by Noam Ross, A Free, Interactive Course using mgcv (https://noamross.github.io/gams-in-r-course/).

Modelling Palaeoecological Time Series Using Generalised Additive Models [20]. An introduction to GAMs with a more detailed description of the statistical considerations related to modelling time series and the inferences that can be drawn from the models.

Hierarchical generalized additive models in ecology: an introduction with mgcv [30]. The present paper only describes models fitted to data from one individual. A relevant next step is to fit one model across multiple individuals.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s10877-022-00873-7.

Acknowledgements The authors thank Dr. John George Karippacheril for an effective collaborative effort on extending his open source software, VitalSignCapture, to support exporting real time data from Drager ventilators.

Author contributions JE: Conception of study, design of data analyses, data collection, data analysis, interpretation of data and results, writing up of the first draft of the paper, revising the manuscript for important intellectual content, final approval of the version to be published.GLS: Design of data analysis, interpretation of data and results, revising the manuscript for important intellectual content, final approval of the version to be published.STV: Conception of study, interpretation of data and results, revising the manuscript for important intellectual content, final approval of the version to be published.

Funding JE is supported by Aarhus University and *Holger & Ruth Hesse's Mindefond*. GLS is supported by an Aarhus University Research Foundation Starting Grant.

Declarations

Conflict of interest STV is associate editor of Journal of Clinical Monitoring and Computing. JE and GLS report no competing interests.

Ethical approval Data was recorded as part of a project registered on ClinicalTrials.gov, NCT04298931 with regional ethical committee approval, case: 1-10-72-245-19.

Informed consent All participants provided written informed consent.

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