

Checklist for reporting regression modelling analyses

Marie Laure Delignette-Muller – 18th Decembre 2025

To write in the “Methods” section

- If necessary, describe the statistical procedures used to **transform the raw data prior to analysis** (e.g. log transformation of continuous data or collapsing continuous data into categorical data) and explain your reasoning (e.g. to make distributions closer to the normal distribution, or because of a great number of zero values).
- Describe the **purpose of your analysis**.
- Make it clear which model is used for each analysis rather than listing all the models used in one place.
- For each analysis, describe the **dependent variable** (outcome measure) **and its statistical nature** (e.g. continuous, binary, time-to-event with censored data, count data) with your choice of model type (e.g. linear model, logistic regression, Cox regression or Accelerated Failure Time survival model).
- For each analysis describe **all the explanatory variables** (predictors in predictive models), with their statistical nature, and the categories for categorical variables.
- Clearly state which **interactions were taking into account**, with your corresponding reasoning.
- If you used one, describe your **model-building process** (detection and management of multicollinearity among explanatory variables, method used to select explanatory variables, ...).
- For mixed models, describe your choice of **fixed effects and random effects**, and if there are more than one random effects, write if they are crossed or nested.
- Describe how the assumptions of the models were checked (**regression diagnostics**) by favoring graphical methods other hypothesis testing.
- Describe which **statistical tools you used** (R packages, and functions used in each package)

To write in the “Results” section

- Report the results of model assumption checks (**regression diagnostics**), with optional plots in the Supplemental Information.
- Give the **results from your model-building process** if you used one.
- Report the **regression coefficients** (fixed effects in mixed models) of each explanatory variable with **confidence intervals**, in a table, **or even better in a forest plot** (for example using one of those R packages [sjPlot](#), or [jtools](#), or [ggstats](#), [summ](#), [modelsummary](#)). *P-values are optional and should never be considered the final result : they measure the strength of evidence against the absence of an effect.*
- **Do not eliminate, in your table or plot of regression coefficients, those with P-values > 0.05.**
- Provide an **explanation of how each type of regression coefficient should be interpreted**, particularly for readers who are unfamiliar with multivariate regression models.
- For continuous explanatory variables, think about **standardizing the regression coefficients** (and if done describe this standardization step) or **changing the scale of the explanatory variable** (e.g. multiplying it by 0.1, or 10, 100, ...), and clearly explain how it should be interpreted.
- For categorical explanatory variables, **make explicit the choice of the reference group**.
- For mixed models, provide **estimations of random effects with confidence intervals**.

Useful references

- Harrison, X. A., Donaldson, L., Correa-Cano, M. E., Evans, J., Fisher, D. N., Goodwin, C. E., ... & Inger, R. (2018). A brief introduction to mixed effects modelling and multi-model inference in ecology. *PeerJ*, 6, e4794.
- Jones, L., Barnett, A., & Vagenas, D. (2025). Linear regression reporting practices for health researchers, a cross-sectional meta-research study. *PLoS one*, 20(3), e0305150.
- Lang T, Altman DG. 2013. Basic statistical reporting for articles published in clinical medical journals: the SAMPL Guidelines. In: Smart P, Maisonneuve H, Polderman A, editors. *Science Editors' Handbook*. European Association of Science Editors: 175 <https://www.equator-network.org/wp-content/uploads/2013/03/SAMPL-Guidelines-3-13-13.pdf>
- Wallisch, C., Bach, P., Hafermann, L., Klein, N., Sauerbrei, W., Steyerberg, E. W., ... & Topic Group 2 of the STRATOS Initiative. (2022). Review of guidance papers on regression modeling in statistical series of medical journals. *PLoS one*, 17(1), e0262918.