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The Impact of Supplementing Traditional Risk Information with Polygenic Risk Score Concerning Type 2 Diabetes and Coronary Heart Disease on Health Behavior: A Randomized Controlled Trial

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Supplementary File 4

R packages

Analysis	Function	Package
Imputation	mice(), pool()	mice (Van Buuren & Groothuis-Oudshoorn, 2011)
Logistic regression (all)	glm() / brglmFit()	base R / brglm2 (Kosmidis & Firth, 2021)
Marginal means	emmeans(), contrast() / avg_predictions(), avg_comparisons()	emmeans (Lenth, 2023) / marginaleffects (Arel-Bundock, 2024)
Median difference	qcomhd()	WRS2 (Mair & Wilcox, 2020)
OLS regression (all)	lm()	base R
Plots	ggplot_the_model() / ggplot() / plot_predictions()	custom function by Jeffrey Walker (Walker, 2020) / ggplot2 (Wickham, 2016) / marginaleffects (Arel-Bundock, 2024)
Power analysis (interaction)	power_interaction()	InteractionPowerR (Baranger et al., 2023)
Robust regression (interaction)	lmrob()	robustbase (Maechler et al., 2024)
Robust regression (primary)	rlm()	MASS (Venables & Ripley, 2002)
Standardized effect size	t_to_d(), r_to_d(), r_to_oddsratio()	effectsize (Ben-Shachar et al., 2020)

References

- Arel-Bundock V (2024) marginaleffects: Predictions, Comparisons, Slopes, Marginal Means, and Hypothesis Tests. R package version 0.20.1, <https://CRAN.R-project.org/package=marginaleffects>.
- Baranger DAA, Finsaas MC, Goldstein BL, Vize CE, Lynam DR, Olinio TM (2023) Tutorial: Power Analyses for Interaction Effects in Cross-Sectional Regressions. *Advances in Methods and Practices in Psychological Science* 6:25152459231187531. <https://doi.org/10.1177/25152459231187531>
- Ben-Shachar MS, Lüdtke D, Makowski D (2020) effectsize: Estimation of Effect Size Indices and Standardized Parameters. *Journal of Open Source Software* 5:2815. <https://doi.org/10.21105/joss.02815>
- Buuren S van, Groothuis-Oudshoorn K (2011) mice: Multivariate Imputation by Chained Equations in R. *Journal of Statistical Software* 45:1–67. <https://doi.org/10.18637/jss.v045.i03>
- Kosmidis I, Firth D (2021) Jeffreys-prior penalty, finiteness and shrinkage in binomial-response generalized linear models. *Biometrika* 108:71–82. <https://doi.org/10.1093/biomet/asaa052>

Lenth, R (2023) emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.9.0, <https://CRAN.R-project.org/package=emmeans>

Mair P, Wilcox R (2020) Robust statistical methods in R using the WRS2 package. Behav Res 52:464–488. <https://doi.org/10.3758/s13428-019-01246-w>

Maechler M, Rousseeuw P, Croux C, Todorov V, Ruckstuhl A, Salibian-Barrera M, Verbeke T, Koller M, Conceicao EL, Anna di Palma M (2024) robustbase: Basic Robust Statistics. R package version 0.99-2, <http://robustbase.r-forge.r-project.org>

Venables WN, Ripley BD (2002) Modern Applied Statistics with S. Springer New York, New York, NY

Walker JA (2020) Elements of Statistical Modeling for Experimental Biology. Unpublished manuscript.

Wickham H (2009) ggplot2: Elegant Graphics for Data Analysis. Springer New York, New York, NY