Session Info

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Session

```
sessionInfo()

#> R version 4.5.1 (2025-06-13)
#> Platform: x86_64-pc-linux-gnu
#> Running under: Ubuntu 24.04.3 LTS
#>
#> Matrix products: default
#> BLAS:   /usr/lib/x86_64-linux-gnu/openblas-pthread/libblas.so.3
#> LAPACK: /usr/lib/x86_64-linux-gnu/openblas-pthread/libopenblasp-r0.3.26.so;  LAPACK version 3.12.
#>
#> locale:
#>  [1] LC_CTYPE=en_US.UTF-8       LC_NUMERIC=C
#>  [3] LC_TIME=en_US.UTF-8        LC_COLLATE=en_US.UTF-8
#>  [5] LC_MONETARY=en_US.UTF-8    LC_MESSAGES=en_US.UTF-8
#>  [7] LC_PAPER=en_US.UTF-8       LC_NAME=C
#>  [9] LC_ADDRESS=C               LC_TELEPHONE=C
#> [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C
#>
#> time zone: Etc/UTC
```

```
#> tzcode source: system (glibc)
#>
#> attached base packages:
#> [1] stats     graphics  grDevices utils     datasets  methods   base
#>
#> other attached packages:
#> [1] lavaan_0.6-20   semmcci_1.1.6   rProject_0.0.21
#>
#> loaded via a namespace (and not attached):
#>  [1] httr_1.4.7       cli_3.6.5.9000   knitr_1.50       rlang_1.1.6
#>  [5] xfun_0.53        stringi_1.8.7    highr_0.11       generics_0.1.4
#>  [9] jsonlite_2.0.0   glue_1.8.0       backports_1.5.0  pbivnorm_0.6.0
#> [13] plyr_1.8.9       rprojroot_2.1.1  stats4_4.5.1     RefManageR_1.4.0
#> [17] quadprog_1.5-8   evaluate_1.0.5   lifecycle_1.0.4  stringr_1.5.2
#> [21] compiler_4.5.1   Rcpp_1.1.0       timechange_0.3.0 bibtex_0.5.1
#> [25] R6_2.6.1         parallel_4.5.1   mnormt_2.1.1     magrittr_2.0.4
#> [29] tools_4.5.1      lubridate_1.9.4  xml2_1.4.0
```

Packages

```
unname(installed.packages()[, 1])

#>   [1] "bmemLavaan"        "mi"                "rsem"
#>   [4] "sem"               "semmcci"           "abind"
#>   [7] "Amelia"            "arm"               "arrow"
#>  [10] "ash"               "askpass"           "assertthat"
#>  [13] "backports"         "base64enc"         "betaDelta"
```

```
#>  [16] "betaMC"           "betaNB"           "betaSandwich"
#>  [19] "BH"               "bibtex"           "BiocManager"
#>  [22] "bit"              "bit64"            "bitops"
#>  [25] "blob"             "bootStateSpace"   "brew"
#>  [28] "brio"             "broom"            "bslib"
#>  [31] "cachem"           "callr"            "car"
#>  [34] "caracas"          "carData"          "cellranger"
#>  [37] "cffr"             "checkmate"        "cli"
#>  [40] "clipr"            "clock"            "clusterGeneration"
#>  [43] "coda"             "cOde"             "collections"
#>  [46] "colorspace"       "commonmark"       "conflicted"
#>  [49] "corpcor"          "covr"             "cowplot"
#>  [52] "cpp11"            "crayon"           "credentials"
#>  [55] "crosstalk"        "cTMed"            "ctsem"
#>  [58] "curl"             "data.table"       "DBI"
#>  [61] "dbplyr"           "Deriv"            "desc"
#>  [64] "deSolve"          "devtools"         "diagram"
#>  [67] "dials"            "DiceDesign"       "diffobj"
#>  [70] "digest"           "distributional"   "distro"
#>  [73] "doBy"             "docopt"           "downlit"
#>  [76] "dplyr"            "DT"               "dtplyr"
#>  [79] "duckdb"           "dynr"             "dynUtils"
#>  [82] "ellipse"          "ellipsis"         "evaluate"
#>  [85] "expm"             "fansi"            "farver"
#>  [88] "fastDummies"      "fastmap"          "fclust"
#>  [91] "fda"              "fdrtool"          "fds"
#>  [94] "fitDTVARMx"       "FNN"              "fontawesome"
```

```
#>  [97] "forcats"          "foreach"          "Formula"
#> [100] "fs"               "fst"              "fstcore"
#> [103] "furrr"            "future"           "future.apply"
#> [106] "gargle"           "generics"         "gert"
#> [109] "ggplot2"          "ggrepel"          "gh"
#> [112] "gitcreds"         "glasso"           "glmnet"
#> [115] "globals"          "glue"             "googledrive"
#> [118] "googlesheets4"    "gower"            "GPArotation"
#> [121] "GPfit"            "graphicalVAR"     "gridExtra"
#> [124] "gsubfn"           "gtable"           "gtools"
#> [127] "hardhat"          "haven"            "hdrcde"
#> [130] "here"             "highr"            "Hmisc"
#> [133] "hms"              "htmlTable"        "htmltools"
#> [136] "htmlwidgets"      "httpuv"           "httr"
#> [139] "httr2"            "ids"              "ifaTools"
#> [142] "igraph"           "infer"            "ini"
#> [145] "inline"           "ipred"            "isoband"
#> [148] "iterators"        "jomo"             "jpeg"
#> [151] "jquerylib"        "jsonlite"         "jsonvalidate"
#> [154] "kernlab"          "knitr"            "ks"
#> [157] "labeling"         "Lahman"           "languageserver"
#> [160] "later"            "latex2exp"        "lava"
#> [163] "lavaan"           "lazyeval"         "lhs"
#> [166] "lifecycle"        "lintr"            "listenv"
#> [169] "litedown"         "littler"          "lme4"
#> [172] "locfit"           "longMI"           "loo"
#> [175] "lubridate"        "magick"           "magrittr"
```

```
#> [178] "markdown"          "MatrixModels"      "matrixStats"
#> [181] "mclust"            "memoise"           "metaSEM"
#> [184] "metaVAR"           "mice"              "microbenchmark"
#> [187] "mime"              "miniUI"            "minqa"
#> [190] "mitml"             "mize"              "mlVAR"
#> [193] "mnormt"            "modeldata"         "modelenv"
#> [196] "modelr"            "MplusAutomation"   "multicool"
#> [199] "mvtnorm"           "nloptr"            "numDeriv"
#> [202] "nycflights13"      "OpenMx"            "openssl"
#> [205] "ordinal"           "pan"               "pander"
#> [208] "parallelly"        "parsnip"           "patchwork"
#> [211] "pbapply"           "pbivnorm"          "pbkrtest"
#> [214] "pcaPP"             "pdftools"          "pillar"
#> [217] "pkgbuild"          "pkgconfig"         "pkgdown"
#> [220] "pkgload"           "plogr"             "plyr"
#> [223] "png"               "posterior"         "pracma"
#> [226] "praise"            "prettyunits"       "printr"
#> [229] "processx"          "prodlim"           "profvis"
#> [232] "progress"          "progressr"         "promises"
#> [235] "proto"             "ps"                "psych"
#> [238] "purrr"             "qgraph"            "qpdf"
#> [241] "quadprog"          "quantreg"          "quarto"
#> [244] "QuickJSR"          "R.cache"           "R.methodsS3"
#> [247] "R.oo"              "R.utils"           "R2jags"
#> [250] "R2WinBUGS"         "R6"                "ragg"
#> [253] "rainbow"           "rappdirs"          "rbibutils"
#> [256] "rcmdcheck"         "RColorBrewer"      "Rcpp"
```

```
#> [259] "RcppArmadillo"     "RcppEigen"         "RcppGSL"
#> [262] "RcppParallel"      "RcppTOML"          "RCurl"
#> [265] "Rdpack"            "readr"             "readxl"
#> [268] "recipes"           "RefManageR"        "reformulas"
#> [271] "rematch"           "rematch2"          "remotes"
#> [274] "reprex"            "reshape2"          "reticulate"
#> [277] "rex"               "rhub"              "rjags"
#> [280] "rlang"             "RMariaDB"          "rmarkdown"
#> [283] "roxygen2"          "rpf"               "RPostgres"
#> [286] "rProject"          "rprojroot"         "rsample"
#> [289] "RSQLite"           "rstan"             "rstantools"
#> [292] "rstudioapi"        "rversions"         "rvest"
#> [295] "Ryacas"            "S7"                "sass"
#> [298] "scales"            "selectr"           "semlbci"
#> [301] "semmcci"           "sessioninfo"       "sfd"
#> [304] "shape"             "shiny"             "simStateSpace"
#> [307] "slider"            "snow"              "snowfall"
#> [310] "sourcetools"       "SparseM"           "sparsevctrs"
#> [313] "SQUAREM"           "StanHeaders"       "stringi"
#> [316] "stringr"           "styler"            "symSEM"
#> [319] "sys"               "systemfonts"       "tailor"
#> [322] "tensorA"           "testthat"          "texreg"
#> [325] "textshaping"       "tibble"            "tidymodels"
#> [328] "tidyr"             "tidyselect"        "tidyverse"
#> [331] "timechange"        "timeDate"          "tinytex"
#> [334] "tune"              "tzdb"              "ucminf"
#> [337] "urlchecker"        "usethis"           "utf8"
```

```
#> [340] "uuid"            "V8"              "vctrs"
#> [343] "viridisLite"     "vroom"           "waldo"
#> [346] "warp"            "whisker"         "whoami"
#> [349] "withr"           "workflows"       "workflowsets"
#> [352] "xfun"            "xml2"            "xmlparsedata"
#> [355] "xopen"           "xtable"          "yaml"
#> [358] "yardstick"       "zip"             "base"
#> [361] "boot"            "class"           "cluster"
#> [364] "codetools"       "compiler"        "datasets"
#> [367] "foreign"         "graphics"        "grDevices"
#> [370] "grid"            "KernSmooth"      "lattice"
#> [373] "MASS"            "Matrix"          "methods"
#> [376] "mgcv"            "nlme"            "nnet"
#> [379] "parallel"        "rpart"           "spatial"
#> [382] "splines"         "stats"           "stats4"
#> [385] "survival"        "tcltk"           "tools"
#> [388] "utils"
```

References

Pesigan, I. J. A., & Cheung, S. F. (2024). Monte Carlo confidence intervals for the indirect effect with missing data. *Behavior Research Methods*, *56*(3), 1678–1696. https://doi.org/10.3758/s13428-023-02114-4

R Core Team. (2025). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/