02_table2_plmlmm

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The results are generated by `02_table2_plmlmm_code.R` with different setups with anchor time points

```
source("R/00_functions.R")
## the R file below is the code for results
# source("02_table2_plmlmm_code.R")
file_location <- "results/result_anchors_2023-08-23/"
files <- list.files(path = "results/result_anchors_2023-08-23/", pattern = ".Rdata")
files
```

```
## [1] "anchor_time_c(3, 6, 9, 12)_alpha_0.80_2023-08-21 15:57:04.Rdata"
## [2] "anchor_time_c(4, 8, 12)_alpha_0.80_2023-08-22 00:44:32.Rdata"
## [3] "anchor_time_c(5, 10, 15)_alpha_0.80_2023-08-18 22:02:49.Rdata"
## [4] "anchor_time_c(6, 10, 11, 12)_alpha_0.80_2023-08-23 14:52:55.Rdata"
## [5] "anchor_time_c(6, 9, 12, 15)_alpha_0.80_2023-08-22 00:48:12.Rdata"
## [6] "anchor_time_c(6, 9, 12)_alpha_0.80_2023-08-18 19:06:46.Rdata"
## [7] "anchor_time_c(8, 10, 12)_alpha_0.80_2023-08-21 15:43:08.Rdata"
```

```
anchortime <- map_dfr(files, ~pullout(file_location, .)) %>%
  mutate(term = rep(c("bias", "mse", "cov50", "cov80", "cov90"), 7))
```

```
options(digits = 4)

bias <- anchortime %>%
  filter(term == "bias") %>%
  unnest() %>%
  mutate(Time = c("t(3, 6, 9, 12)",
                  "t(4, 8, 12)",
                  "t(5, 10, 15)",
                  "t(6, 10, 11, 12)",
                  "t(6, 9, 12, 15)",
                  "t(6, 9, 12)",
                  "t(8, 10, 12)")) %>%
  mutate(Time = factor(Time, levels = c("t(4, 8, 12)",
                                        "t(5, 10, 15)",
                                        "t(6, 9, 12)",
                                        "t(8, 10, 12)",
                                        "t(3, 6, 9, 12)",
                                        "t(6, 10, 11, 12)",
                                        "t(6, 9, 12, 15)"))) %>%
  arrange(Time) %>%
  dplyr::select(-term) %>%
  dplyr::select(Time, sgl_n, eld_n, mhl_n, mhl_p)
```

```
## Warning: ‘cols‘ is now required when using ‘unnest()‘.
## i Please use ‘cols = c(eld_n, mhl_n, mhl_p, sgl_n)‘.
```

```
rmse <- anchortime %>%
  filter(term == "mse") %>%
  unnest() %>%
  mutate(Time = c("t(3, 6, 9, 12)",
                  "t(4, 8, 12)",
                  "t(5, 10, 15)",
                  "t(6, 10, 11, 12)",
                  "t(6, 9, 12, 15)",
                  "t(6, 9, 12)",
                  "t(8, 10, 12)")) %>%
  mutate(Time = factor(Time, levels = c("t(4, 8, 12)",
                                        "t(5, 10, 15)",
                                        "t(6, 9, 12)",
                                        "t(8, 10, 12)",
                                        "t(3, 6, 9, 12)",
                                        "t(6, 10, 11, 12)",
                                        "t(6, 9, 12, 15)"))) %>%
  mutate_if(is.numeric, sqrt) %>%
  arrange(Time) %>%
  dplyr::select(-term) %>%
  dplyr::select(Time, sgl_n, eld_n, mhl_n, mhl_p)
```

```
## Warning: ‘cols‘ is now required when using ‘unnest()‘.
## i Please use ‘cols = c(eld_n, mhl_n, mhl_p, sgl_n)‘.
```

```
cov50 <- anchortime %>%
  filter(term == "cov50") %>%
  unnest() %>%
  unnest() %>%
  mutate(Time = c("t(3, 6, 9, 12)",
                  "t(4, 8, 12)",
                  "t(5, 10, 15)",
                  "t(6, 10, 11, 12)",
                  "t(6, 9, 12, 15)",
                  "t(6, 9, 12)",
                  "t(8, 10, 12)")) %>%
  mutate(Time = factor(Time, levels = c("t(4, 8, 12)",
                                        "t(5, 10, 15)",
                                        "t(6, 9, 12)",
                                        "t(8, 10, 12)",
                                        "t(3, 6, 9, 12)",
                                        "t(6, 10, 11, 12)",
                                        "t(6, 9, 12, 15)"))) %>%
  arrange(Time) %>%
  dplyr::select(-term) %>%
  dplyr::select(Time, sgl_n, eld_n, mhl_n, mhl_p)
```

```
## Warning: ‘cols‘ is now required when using ‘unnest()‘.
## i Please use ‘cols = c(eld_n, mhl_n, mhl_p, sgl_n)‘.
```

```
## Warning: `cols` is now required when using `unnest()`.
## i Please use `cols = c()`.
```

```
cov80 <- anchortime %>%
  filter(term == "cov80") %>%
  unnest() %>%
  mutate(Time = c("t(3, 6, 9, 12)",
                  "t(4, 8, 12)",
                  "t(5, 10, 15)",
                  "t(6, 10, 11, 12)",
                  "t(6, 9, 12, 15)",
                  "t(6, 9, 12)",
                  "t(8, 10, 12)")) %>%
  mutate(Time = factor(Time, levels = c("t(4, 8, 12)",
                                        "t(5, 10, 15)",
                                        "t(6, 9, 12)0.8",
                                        "t(6, 9, 12)0.9",
                                        "t(8, 10, 12)",
                                        "t(3, 6, 9, 12)",
                                        "t(6, 10, 11, 12)",
                                        "t(6, 9, 12, 15)"))) %>%
  arrange(Time) %>%
  dplyr::select(-term) %>%
  dplyr::select(Time, sgl_n, eld_n, mhl_n, mhl_p)
```

```
## Warning: `cols` is now required when using `unnest()`.
## i Please use `cols = c(eld_n, mhl_n, mhl_p, sgl_n)`.
```

```
cov90 <- anchortime %>%
  filter(term == "cov90") %>%
  unnest() %>%
  mutate(Time = c("t(3, 6, 9, 12)",
                  "t(4, 8, 12)",
                  "t(5, 10, 15)",
                  "t(6, 10, 11, 12)",
                  "t(6, 9, 12, 15)",
                  "t(6, 9, 12)",
                  "t(8, 10, 12)")) %>%
  mutate(Time = factor(Time, levels = c("t(4, 8, 12)",
                                        "t(5, 10, 15)",
                                        "t(6, 9, 12)",
                                        "t(8, 10, 12)",
                                        "t(3, 6, 9, 12)",
                                        "t(6, 10, 11, 12)",
                                        "t(6, 9, 12, 15)"))) %>%
  arrange(Time) %>%
  dplyr::select(-term) %>%
  dplyr::select(Time, sgl_n, eld_n, mhl_n, mhl_p)
```

```
## Warning: `cols` is now required when using `unnest()`.
## i Please use `cols = c(eld_n, mhl_n, mhl_p, sgl_n)`.
```

```
bias
```

```
## # A tibble: 7 x 5
##   Time             sgl_n eld_n mhl_n mhl_p
##   <fct>            <dbl> <dbl> <dbl> <dbl>
## 1 t(4, 8, 12)       3.07  2.83  2.84  2.74
## 2 t(5, 10, 15)      3.06  2.88  2.88  2.75
## 3 t(6, 9, 12)       3.13  2.82  2.82  2.74
## 4 t(8, 10, 12)      3.10  2.85  2.85  2.74
## 5 t(3, 6, 9, 12)    3.14  2.82  2.83  2.83
## 6 t(6, 10, 11, 12)  3.16  2.85  2.85  2.82
## 7 t(6, 9, 12, 15)   3.08  2.86  2.86  2.82
```

```
rmse
```

```
## # A tibble: 7 x 5
##   Time             sgl_n eld_n mhl_n mhl_p
##   <fct>            <dbl> <dbl> <dbl> <dbl>
## 1 t(4, 8, 12)       4.32  4.17  4.17  3.91
## 2 t(5, 10, 15)      4.42  4.18  4.18  3.92
## 3 t(6, 9, 12)       4.46  4.09  4.10  3.90
## 4 t(8, 10, 12)      4.44  4.13  4.13  3.90
## 5 t(3, 6, 9, 12)    4.44  4.14  4.15  3.98
## 6 t(6, 10, 11, 12)  4.50  4.13  4.13  3.98
## 7 t(6, 9, 12, 15)   4.36  4.18  4.18  3.96
```

```
cov50
```

```
## # A tibble: 7 x 5
##   Time             sgl_n eld_n mhl_n mhl_p
##   <fct>            <dbl> <dbl> <dbl> <dbl>
## 1 t(4, 8, 12)      0.459 0.487 0.485 0.594
## 2 t(5, 10, 15)     0.460 0.483 0.482 0.592
## 3 t(6, 9, 12)      0.445 0.486 0.485 0.594
## 4 t(8, 10, 12)     0.451 0.482 0.481 0.594
## 5 t(3, 6, 9, 12)   0.452 0.484 0.485 0.614
## 6 t(6, 10, 11, 12) 0.442 0.482 0.481 0.614
## 7 t(6, 9, 12, 15)  0.462 0.482 0.482 0.615
```

```
cov80
```

```
## # A tibble: 7 x 5
##   Time             sgl_n eld_n mhl_n mhl_p
##   <fct>            <dbl> <dbl> <dbl> <dbl>
## 1 t(4, 8, 12)      0.741 0.763 0.762 0.858
## 2 t(5, 10, 15)     0.726 0.743 0.742 0.857
## 3 t(8, 10, 12)     0.742 0.752 0.751 0.858
## 4 t(3, 6, 9, 12)   0.739 0.757 0.757 0.869
## 5 t(6, 10, 11, 12) 0.727 0.753 0.752 0.869
## 6 t(6, 9, 12, 15)  0.744 0.752 0.752 0.870
## 7 <NA>             0.726 0.755 0.755 0.858
```

```
cov90
```

```
## # A tibble: 7 x 5
##   Time             sgl_n eld_n mhl_n mhl_p
##   <fct>            <dbl> <dbl> <dbl> <dbl>
## 1 t(4, 8, 12)      0.843 0.853 0.853 0.931
## 2 t(5, 10, 15)     0.822 0.836 0.835 0.929
## 3 t(6, 9, 12)      0.825 0.848 0.847 0.930
## 4 t(8, 10, 12)     0.841 0.843 0.842 0.930
## 5 t(3, 6, 9, 12)   0.835 0.849 0.849 0.937
## 6 t(6, 10, 11, 12) 0.830 0.845 0.845 0.937
## 7 t(6, 9, 12, 15)  0.842 0.843 0.843 0.939
```

saving the files as .tex

```
sessionInfo()
```

```
## R version 4.2.2 (2022-10-31)
## Platform: aarch64-apple-darwin20 (64-bit)
## Running under: macOS 14.0
##
## Matrix products: default
## BLAS:   /Library/Frameworks/R.framework/Versions/4.2-arm64/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/4.2-arm64/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] parallel  splines   stats     graphics  grDevices utils     datasets
## [8] methods   base
##
## other attached packages:
##  [1] JMbayes_0.8-85      rstan_2.21.8        StanHeaders_2.26.27
##  [4] doParallel_1.0.17   iterators_1.0.14    foreach_1.5.2
##  [7] survival_3.5-5      gamlss_5.1-7        gamlss.dist_6.0-5
## [10] MASS_7.3-60         gamlss.data_6.0-2   nlme_3.1-162
## [13] lubridate_1.9.2     forcats_1.0.0       stringr_1.5.0
## [16] dplyr_1.1.2         purrr_1.0.1         readr_2.1.4
## [19] tidyr_1.3.0         tibble_3.2.1        ggplot2_3.4.3
## [22] tidyverse_2.0.0     here_1.0.1
##
## loaded via a namespace (and not attached):
##  [1] RcppParallel_5.1.7 Formula_1.2-5      stats4_4.2.2       yaml_2.3.7
##  [5] backports_1.4.1    pillar_1.9.0       lattice_0.21-8     glue_1.6.2
##  [9] digest_0.6.33      checkmate_2.2.0    colorspace_2.1-0   htmltools_0.5.5
## [13] Matrix_1.5-3       pkgconfig_2.0.3    xtable_1.8-4       scales_1.2.1
## [17] processx_3.8.2     rjags_4-14         tzdb_0.4.0         htmlTable_2.4.1
## [21] timechange_0.2.0   generics_0.1.3     withr_2.5.0        nnet_7.3-19
## [25] cli_3.6.1          magrittr_2.0.3     crayon_1.5.2       evaluate_0.21
## [29] ps_1.7.5           fansi_1.0.4        jagsUI_1.5.2       foreign_0.8-84
```

```
## [33] pkgbuild_1.4.2     data.table_1.14.8  tools_4.2.2        loo_2.6.0
## [37] prettyunits_1.1.1  hms_1.1.3          lifecycle_1.0.3    matrixStats_1.0.0
## [41] freshr_1.0.2       munsell_0.5.0      cluster_2.1.4      callr_3.7.3
## [45] compiler_4.2.2     rlang_1.1.1        grid_4.2.2         rstudioapi_0.15.0
## [49] htmlwidgets_1.6.2  base64enc_0.1-3    rmarkdown_2.23     gtable_0.3.3
## [53] codetools_0.2-19   inline_0.3.19      DBI_1.1.3          R6_2.5.1
## [57] gridExtra_2.3      knitr_1.43         fastmap_1.1.1      utf8_1.2.3
## [61] Hmisc_5.1-0        rprojroot_2.0.3    stringi_1.7.12     Rcpp_1.0.11
## [65] vctrs_0.6.3        rpart_4.1.19       coda_0.19-4        tidyselect_1.2.0
## [69] xfun_0.39
```