

Supplement 2

Baseline characteristics of RCTs for neuropathic pain

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1 Pain intensity inclusion thresholds

- Original data source: Finnerup et al 2015, Appendix 4¹.
 - All numeric values were used (after removing duplicate entries).
 - All visual analogue values were converted to a 0 to 10 scale.

```
# Inclusion criteria thresholds extracted from the supplementary
# materials of Finnerup et al., 2015
cut_off <- c(5, 4, 4, 2, 4, 3, 4, 6, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
4, 6, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4,
4, 4, 4, 4, 4, 4, 4, 3, 3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 5, 3, 4,
4, 4, 4, 4, 4, 4, 4, 5, 5, 5, 5, 4, 4, 4, 3, 5, 4, 4, 4, 5, 5,
4, 4, 5, 3, 4, 4, 4, 5, 4, 3, 3, 3, 3, 3, 3, 3, 4, 7, 5, 4, 3, 2,
3, 4, 4, 2.5, 2.5, 4, 4, 4, 4, 5, 4, 4, 8, 4, 4, 4, 5, 3, 4, 4, 4)
```

¹Finnerup NB, Attal N, Haroutounian S, McNicol E, Baron R, Dworkin RH, Gilron I, Haanpää M, Hansson P, Jensen TS, Kamerman PR, Lund K, Moore A, Raja SN, Rice ASC, Rowbotham M, Sena E, Siddall P, Smith BH, Wallace M. Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis. Lancet Neurol 2015;14:162–173. doi:10.1016/S1474-4422(14)70251-0

```

# Generate summary statistics
## 6-number summary
summary(cut_off)

##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      2.000   4.000   4.000   4.015   4.000   8.000

## Tabular summary of inclusion thresholds
data.frame(cutoff = cut_off) %>%
  group_by(cutoff) %>%
  summarise(count = n(),
            percent = round(100 * (count/length(cut_off)), 1)) %>%
  knitr::kable(., caption = 'Summary of pain inclusion thresholds')

```

Table 1: Summary of pain inclusion thresholds

cutoff	count	percent
2.0	2	1.5
2.5	2	1.5
3.0	16	12.2
4.0	93	71.0
5.0	14	10.7
6.0	2	1.5
7.0	1	0.8
8.0	1	0.8

2 Explore baseline pain intensity data

2.1 Import data

- Original data source: Finnerup et al 2015, Appendix 4¹,

```
data <- read_csv('data/baseline-data.csv')
```

2.2 Explore data

2.2.1 Median

```

data %>%
  filter(mean_or_median == 'median') %>%
  summarise(min = round(min(value, na.rm = TRUE), 1),
            Q25 = round(quantile(value, probs = 0.25, na.rm = TRUE), 1),
            mean = round(mean(value, na.rm = TRUE), 1),
            median = round(median(value, na.rm = TRUE), 1),
            Q75 = round(quantile(value, probs = 0.75, na.rm = TRUE), 1),
            max = round(max(value, na.rm = TRUE), 1)) %>%
  knitr::kable(., caption = 'Summary: median values')

```

Table 2: Summary: median values

min	Q25	mean	median	Q75	max
4.7	4.9	5.8	5	5.9	8.4

2.2.2 Mean

```
data %>%
  filter(mean_or_median == 'mean') %>%
  summarise(min = round(min(value, na.rm = TRUE), 1),
            Q25 = round(quantile(value, probs = 0.25, na.rm = TRUE), 1),
            mean = round(mean(value, na.rm = TRUE), 1),
            median = round(median(value, na.rm = TRUE), 1),
            Q75 = round(quantile(value, probs = 0.75, na.rm = TRUE), 1),
            max = round(max(value, na.rm = TRUE), 1)) %>%
  knitr::kable(., caption = 'Summary: mean values')
```

Table 3: Summary: mean values

min	Q25	mean	median	Q75	max
3.7	5	6.2	6.4	7.2	8.7

2.2.3 SD

```
data %>%
  filter(!is.na(sd)) %>%
  summarise(min = round(min(sd, na.rm = TRUE), 1),
            Q25 = round(quantile(sd, probs = 0.25, na.rm = TRUE), 1),
            mean = round(mean(sd, na.rm = TRUE), 1),
            median = round(median(sd, na.rm = TRUE), 1),
            Q75 = round(quantile(sd, probs = 0.75, na.rm = TRUE), 1),
            max = round(max(sd, na.rm = TRUE), 1)) %>%
  knitr::kable(., caption = 'Range of SD values')
```

Table 4: Range of SD values

min	Q25	mean	median	Q75	max
0.8	1.3	1.6	1.7	1.8	2.9

3 Weighted medians

- Three studies, four median values.
- Hahn et al., 2004 (active), Hahn et al., 2004 (placebo), Yuen et al., 2002, Low et al., 1995

```
# Process data
median <- data %>%
  filter(included_in_analysis == 'yes') %>%
  filter(mean_or_median == 'median') %>%
  # Calculate total sample size
  mutate(total_sample = sum(sample_size)) %>%
  # Calculate weights
  mutate(weights = sample_size / total_sample)

## Weighted median
weighted.median(x = median$value,
                w = median$weights)

## [1] 5.07
```

4 Pooled mean

- Formula sourced from: <https://www.ncbi.nlm.nih.gov/books/NBK56512/>

```
# Process data
mean <- data %>%
  filter(included_in_analysis == 'yes') %>%
  filter(mean_or_median == 'mean') %>%
  # Multiply mean by the sample size
  mutate(mean_by_n = value * sample_size)

# Pooled mean
sum(mean$mean_by_n) / sum(mean$sample_size)

## [1] 6.243982
```

5 Pooled SD

- Formula sourced from: <https://www.ncbi.nlm.nih.gov/books/NBK56512/>

```
# Process data
sd <- data %>%
  filter(included_in_analysis == 'yes') %>%
  filter(mean_or_median == 'mean') %>%
  filter(!is.na(sd)) %>%
  # Square the SD
  mutate(SD_squared = sd^2) %>%
  # Calculate sample size -1
  mutate(n_minus_1 = sample_size - 1) %>%
  # Get the number of groups
  mutate(k = length(unique($.authors))) %>%
  # Calculate (n-1)SD^2
  mutate(numerator = SD_squared * n_minus_1)
```

```
# Pooled SD
sqrt(sum(sd$numerator) / (sum(sd$sample_size) - sd$k[[1]]))

## [1] 1.665597
```

6 Session information

```
sessionInfo()

## R version 4.0.2 (2020-06-22)
## Platform: x86_64-apple-darwin17.0 (64-bit)
## Running under: macOS Catalina 10.15.5
##
## Matrix products: default
## BLAS: /Library/Frameworks/R.framework/Versions/4.0/Resources/lib/libRblas.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/4.0/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] stats      graphics  grDevices  utils      datasets  methods   base
##
## other attached packages:
## [1] spatstat_1.64-1      rpart_4.1-15          nlme_3.1-148
## [4] spatstat.data_1.4-3  forcats_0.5.0         stringr_1.4.0
## [7] dplyr_1.0.0          purrr_0.3.4           readr_1.3.1
## [10] tidyr_1.1.0          tibble_3.0.1          ggplot2_3.3.2
## [13] tidyverse_1.3.0
##
## loaded via a namespace (and not attached):
## [1] Rcpp_1.0.4.6          lubridate_1.7.9        lattice_0.20-41
## [4] deldir_0.1-25         assertthat_0.2.1       digest_0.6.25
## [7] R6_2.4.1              cellranger_1.1.0       backports_1.1.8
## [10] reprex_0.3.0          evaluate_0.14          highr_0.8
## [13] httr_1.4.1            tensor_1.5             pillar_1.4.4
## [16] rlang_0.4.6           readxl_1.3.1           rstudioapi_0.11
## [19] blob_1.2.1            Matrix_1.2-18          goftest_1.2-2
## [22] rmarkdown_2.3         splines_4.0.2          polyclip_1.10-0
## [25] munsell_0.5.0         broom_0.5.6            compiler_4.0.2
## [28] modelr_0.1.8          xfun_0.15              pkgconfig_2.0.3
## [31] mgcv_1.8-31           htmltools_0.5.0        tidyselect_1.1.0
## [34] fansi_0.4.1           crayon_1.3.4           dbplyr_1.4.4
## [37] withr_2.2.0           grid_4.0.2             jsonlite_1.6.1
## [40] gtable_0.3.0          lifecycle_0.2.0        DBI_1.1.0
## [43] magrittr_1.5          scales_1.1.1           cli_2.0.2
## [46] stringi_1.4.6         fs_1.4.1               xml2_1.3.2
## [49] ellipsis_0.3.1        generics_0.0.2         vctr_0.3.1
## [52] spatstat.utils_1.17-0 tools_4.0.2            glue_1.4.1
## [55] hms_0.5.3             abind_1.4-5            yaml_2.2.1
```

```
## [58] colorspace_1.4-1      rvest_0.3.5            knitr_1.29
## [61] haven_2.3.1
```