Final Lasagna Plot

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2023-07-05

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# Getting sleep and drug files

sleepday <- read_sas("sleepfin.sas7bdat")

sleepevents <- read_sas("sleepevents2.sas7bdat")

Pill_data <- read_csv("Pill_Data2.csv")
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# Wrangling pill data, imported as a csv from excel.

# This code makes the time stamp the correct format so we can use it.

Pill_data$smrxt_bottle_datetime <- as.POSIXct(Pill_data$smrxt_bottle_datetime)

# Making the pill session type and renamed alias to mpid.
pills <- Pill_data  |>
  select(alias, smrxt_bottle_datetime) |>
  mutate(session_type = "Pill",
         start = smrxt_bottle_datetime) |>
  rename('mpid' = alias) |>
  select(-smrxt_bottle_datetime)

# Getting Surgery Data

surgery <- sleepevents|>
  select(mpid, surgdatetime, Opioid_or_Non_Opioid)
surg <-  distinct(surgery)

# Adding surgery to pills abd making it hours after surgery.
# Chose .05 so it would be noticeable on the graph. This is roughly 3 minutes.
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pillevents <- pills |>
  left_join(surg)|>
  mutate(start_session = start - surgdatetime,
         end_session = start_session + 3)|>
  select(-start, -surgdatetime) |>
  filter(start_session >=0, start_session <= 6120)
# Some mpids do not show up in the original sleepevents data set and have NA values here.
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# This code creates the desired awake intervals for each patient

lasagnatest <- sleepevents
lasagnatest <- mutate(sleepevents)
lasagnatest <- select(lasagnatest, study_id, mpid, onsetdatetime,
                      outbeddatetime, ID_Link_datetime, Opioid_or_Non_Opioid)
awake_time <- lasagnatest |>
  group_by(mpid)|>
  mutate(
    awake_start_datetime = outbeddatetime,
    awake_end_datetime = lead(onsetdatetime),
    session_type = "Awake",
  ) |>
  select(-onsetdatetime, -outbeddatetime)
# This code has the desired asleep intervals for each patient
sleepeventsTest <- sleepevents |>
  mutate(session_type = "Asleep") |>
  select(study_id, mpid, onsetdatetime, outbeddatetime, session_type,
         ID_Link_datetime, Opioid_or_Non_Opioid)
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# This code converts the time to 'hours after surgery' and combines them with pill events.

new_sleep_set <- sleepeventsTest|>
  mutate(hrs_onset_since_surg = onsetdatetime - ID_Link_datetime,
         hrs_outbed_since_surg = outbeddatetime - ID_Link_datetime)|>
  select(-ID_Link_datetime)
# The variables in this code now give us measures of time from the surgery.
new_awake_set <- awake_time|>
  mutate(hrs_awake_start_since_surg = awake_start_datetime - ID_Link_datetime,
         hrs_awake_end_since_surg = awake_end_datetime - ID_Link_datetime) |>
  select(-ID_Link_datetime)
# Combing all of the data sets
data1 <- new_sleep_set|>
  mutate(start_session = hrs_onset_since_surg,
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         end_session = hrs_outbed_since_surg)|>
  select(-hrs_onset_since_surg, -hrs_outbed_since_surg,
         -study_id, -onsetdatetime, -outbeddatetime)
data2 <- new_awake_set|>
  mutate(start_session = hrs_awake_start_since_surg,
         end_session = hrs_awake_end_since_surg)|>
  select(-study_id, -hrs_awake_start_since_surg, -hrs_awake_end_since_surg,
         -awake_start_datetime, -awake_end_datetime)
data3 <- rbind(data1, data2)|>
  mutate(end_session = end_session-.000001)
data4<-rbind(data3, pillevents)
```

Creating Lasagna Plot