# Affect and SM Use - SMASH Study

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## Descriptive Statistics

```
## Days in Study

# summarize max days in study
Max_days <- data %>%
  group_by(pid) %>%
  summarise(Max_day = max(day_in_study, na.rm=TRUE))

# get mean/sd day in study
mean(Max_days$Max_day, na.rm=TRUE)
```

```
## [1] 30.57895
```

```
sd(Max_days$Max_day, na.rm=TRUE)
```

```
## [1] 5.620555
```

## Models Prediciting Evening Negative Mood

```
###check utility of random slopes
model1 <- lmer(NAf_pm_p ~ sum_sm_p + NAf_am_p + sum_sm_p_c + day_in_study + (1 | pid), data = day)
model2 <- lmer(NAf_pm_p ~ sum_sm_p + NAf_am_p + sum_sm_p_c + day_in_study + (sum_sm_p | pid), data = da

anova(model1, model2)
```

```
## Data: day
## Models:
## model1: NAf_pm_p ~ sum_sm_p + NAf_am_p + sum_sm_p_c + day_in_study + (1 | pid)
## model2: NAf_pm_p ~ sum_sm_p + NAf_am_p + sum_sm_p_c + day_in_study + (sum_sm_p | pid)
##        npar    AIC    BIC  logLik deviance Chisq Df Pr(>Chisq)
## model1    7 2466.7 2492.2 -1226.3   2452.7
## model2    9 2470.7 2503.5 -1226.3   2452.7     0  2          1
```

```
model3 <- lmer(NAf_pm_p ~ count_sm_p + NAf_am_p + count_sm_p_c + day_in_study + (1 | pid), data = day)
model4 <- lmer(NAf_pm_p ~ count_sm_p + NAf_am_p + count_sm_p_c + day_in_study + (count_sm_p | pid), data

anova(model3, model4)
```

```
## Data: day
## Models:
## model3: NAf_pm_p ~ count_sm_p + NAf_am_p + count_sm_p_c + day_in_study + (1 | pid)
## model4: NAf_pm_p ~ count_sm_p + NAf_am_p + count_sm_p_c + day_in_study + (count_sm_p | pid)
##        npar    AIC    BIC  logLik deviance Chisq Df Pr(>Chisq)
## model3    7 2462.5 2488.0 -1224.2   2448.5
## model4    9 2466.5 2499.3 -1224.2   2448.5     0  2          1
```

```
#----------------------------------------------Bayesian multilevel models-------------------------------

## Negative mood - sumduration
NA_sm_sum_bayes  <- brm(NAf_pm_p ~ sum_sm_p + NAf_am_p + sum_sm_p_c + day_in_study + (1 | pid), prior =
```

```
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 1: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 1: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 1: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 1: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 1: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 1: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 1: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.809 seconds (Warm-up)
## Chain 1:                0.154 seconds (Sampling)
## Chain 1:                0.963 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 2: Adjust your expectations accordingly!
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
```

```
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 2: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 2: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 2: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 2: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 2: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 2: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 2: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.821 seconds (Warm-up)
## Chain 2:                0.26 seconds (Sampling)
## Chain 2:                1.081 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 0 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 3: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 3: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 3: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 3: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 3: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 3: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 3: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.774 seconds (Warm-up)
## Chain 3:                0.234 seconds (Sampling)
## Chain 3:                1.008 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 4).
## Chain 4:
## Chain 4: Gradient evaluation took 0 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 4: Adjust your expectations accordingly!
## Chain 4:
## Chain 4:
## Chain 4: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 4: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 4: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 4: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 4: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 4: Iteration: 1000 / 2000 [ 50%]  (Warmup)
```

```
## Chain 4: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 4: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 4: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 4: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 4: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 4: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 4:
## Chain 4:  Elapsed Time: 0.941 seconds (Warm-up)
## Chain 4:                0.273 seconds (Sampling)
## Chain 4:                1.214 seconds (Total)
## Chain 4:
```

```
model_parameters(NA_sm_sum_bayes, centrality = "mean")
```

```
## # Fixed effects
##
## Parameter    |     Mean |        95% CI |     pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------------
## (Intercept)  |    -2.16 | [-7.51, 3.04] | 78.05% |    40.42% | 0.999 | 4896.00
## sum_sm_p     | 9.44e-03 | [-0.02, 0.03] | 76.28% |      100% | 1.000 | 5166.00
## NAf_am_p     |     0.11 | [ 0.01, 0.22] | 97.95% |      100% | 1.000 | 4578.00
## sum_sm_p_c   | 1.86e-04 | [-0.04, 0.04] | 50.52% |      100% | 1.000 | 3829.00
## day_in_study |     0.11 | [-0.13, 0.35] | 81.25% |      100% | 1.000 | 3772.00
##
## # Fixed effects sigma
##
## Parameter |  Mean |         95% CI |   pd | % in ROPE |  Rhat |     ESS
## ----------------------------------------------------------------------
## sigma     | 18.08 | [16.65, 19.66] | 100% |        0% | 1.000 | 4329.00
```

```
standard_error(NA_sm_sum_bayes)
```

```
##        Parameter         SE
## 1    b_Intercept 2.72087307
## 2     b_sum_sm_p 0.01289870
## 3     b_NAf_am_p 0.05453104
## 4   b_sum_sm_p_c 0.01864012
## 5 b_day_in_study 0.12436667
## 6          sigma 0.75810824
```

```
## Negative mood - counts

NA_sm_count_bayes  <- brm(NAf_pm_p ~ count_sm_p + NAf_am_p + count_sm_p_c + day_in_study + (1 | pid), p
```

```
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
```

```
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 1: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 1: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 1: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 1: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 1: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 1: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 1: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.768 seconds (Warm-up)
## Chain 1:                0.205 seconds (Sampling)
## Chain 1:                0.973 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 2: Adjust your expectations accordingly!
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 2: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 2: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 2: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 2: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 2: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 2: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 2: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.873 seconds (Warm-up)
## Chain 2:                0.199 seconds (Sampling)
## Chain 2:                1.072 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 0 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  600 / 2000 [ 30%]  (Warmup)
```

```
## Chain 3: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 3: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 3: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 3: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 3: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 3: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 3: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.738 seconds (Warm-up)
## Chain 3:                0.273 seconds (Sampling)
## Chain 3:                1.011 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '48186b7868f5edea6c7fb9df0f161535' NOW (CHAIN 4).
## Chain 4:
## Chain 4: Gradient evaluation took 0 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 4: Adjust your expectations accordingly!
## Chain 4:
## Chain 4:
## Chain 4: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 4: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 4: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 4: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 4: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 4: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 4: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 4: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 4: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 4: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 4: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 4: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 4:
## Chain 4:  Elapsed Time: 0.85 seconds (Warm-up)
## Chain 4:                0.233 seconds (Sampling)
## Chain 4:                1.083 seconds (Total)
## Chain 4:
```

```
model_parameters(NA_sm_count_bayes, centrality = "mean")
```

```
## # Fixed effects
##
## Parameter    |      Mean |        95% CI |     pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------------
## (Intercept)  |     -1.54 | [-7.34, 4.21] | 70.10% |    42.61% | 1.000 | 4106.00
## count_sm_p   |      0.03 | [ 0.00, 0.06] | 97.82% |      100% | 1.000 | 4912.00
## NAf_am_p     |      0.11 | [ 0.01, 0.23] | 98.20% |      100% | 1.000 | 3438.00
## count_sm_p_c | -7.16e-03 | [-0.03, 0.02] | 71.23% |      100% | 0.999 | 4366.00
## day_in_study |      0.13 | [-0.12, 0.37] | 85.20% |      100% | 1.001 | 3990.00
##
## # Fixed effects sigma
##
## Parameter |  Mean |         95% CI |   pd | % in ROPE |  Rhat |     ESS
```

```
## ------------------------------------------------------------------------
## sigma     | 17.94 | [16.52, 19.45] | 100% |        0% | 1.000 | 4183.00
```

```
standard_error(NA_sm_count_bayes)
```

```
##        Parameter         SE
## 1    b_Intercept 2.97173149
## 2   b_count_sm_p 0.01592315
## 3     b_NAf_am_p 0.05488913
## 4 b_count_sm_p_c 0.01304138
## 5 b_day_in_study 0.12547925
## 6          sigma 0.74148177
```

### Positive Affect on SM predicting social media use

```
###check utility of random slopes
model1 <- lmer(sum_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (1 | pid), data = day)
model2 <- lmer(sum_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (SM_Pos_p | pid), data = day)

anova(model1, model2)
```

```
## Data: day
## Models:
## model1: sum_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (1 | pid)
## model2: sum_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (SM_Pos_p | pid)
##        npar    AIC    BIC  logLik deviance Chisq Df Pr(>Chisq)
## model1    6 4855.2 4879.2 -2421.6   4843.2
## model2    8 4859.2 4891.2 -2421.6   4843.2     0  2          1
```

```
model3 <- lmer(count_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (1 | pid), data = day)
model4 <- lmer(count_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (SM_Pos_p | pid), data = day)

anova(model3, model4)
```

```
## Data: day
## Models:
## model3: count_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (1 | pid)
## model4: count_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (SM_Pos_p | pid)
##        npar    AIC    BIC  logLik deviance  Chisq Df Pr(>Chisq)
## model3    6 4553.5 4577.5 -2270.8   4541.5
## model4    8 4557.3 4589.3 -2270.7   4541.3 0.2071  2     0.9017
```

```
#-----------------------------------------Bayesian multilevel models-------------------------------

## Positive affect & minutes of SM

PA_on_SM_day_bayes  <- brm(sum_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (1 | pid), prior = prior1,
```

```
##
```

```
## SAMPLING FOR MODEL '05c0d149a2abb9cbabb0e636c6caa81b' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 1: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 1: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 1: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 1: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 1: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 1: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 1: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.534 seconds (Warm-up)
## Chain 1:                0.248 seconds (Sampling)
## Chain 1:                0.782 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL '05c0d149a2abb9cbabb0e636c6caa81b' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 2: Adjust your expectations accordingly!
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 2: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 2: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 2: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 2: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 2: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 2: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 2: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.606 seconds (Warm-up)
## Chain 2:                0.253 seconds (Sampling)
## Chain 2:                0.859 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '05c0d149a2abb9cbabb0e636c6caa81b' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 0 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
```

```
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 3: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 3: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 3: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 3: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 3: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 3: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 3: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.533 seconds (Warm-up)
## Chain 3:                0.283 seconds (Sampling)
## Chain 3:                0.816 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '05c0d149a2abb9cbabb0e636c6caa81b' NOW (CHAIN 4).
## Chain 4:
## Chain 4: Gradient evaluation took 0 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 4: Adjust your expectations accordingly!
## Chain 4:
## Chain 4:
## Chain 4: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 4: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 4: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 4: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 4: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 4: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 4: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 4: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 4: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 4: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 4: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 4: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 4:
## Chain 4:  Elapsed Time: 0.668 seconds (Warm-up)
## Chain 4:                0.3 seconds (Sampling)
## Chain 4:                0.968 seconds (Total)
## Chain 4:
```

```
model_parameters(PA_on_SM_day_bayes, centrality = "mean")
```

```
## # Fixed effects
##
## Parameter    |  Mean |          95% CI |     pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------------
## (Intercept)  |  2.35 | [-26.11, 30.28] | 56.43% |    52.87% | 1.001 | 4127.00
## SM_Pos_p     |  0.24 | [ -0.33,  0.79] | 80.23% |      100% | 1.000 | 4308.00
```

```
## SM_Pos_p_c   |  0.07 | [ -0.31,  0.45] | 63.58% |      100% | 1.001 | 4071.00
## day_in_study | -0.18 | [ -1.25,  0.85] | 62.28% |      100% | 1.001 | 3928.00
##
## # Fixed effects sigma
##
## Parameter |  Mean |          95% CI |   pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------
## sigma     | 99.07 | [92.46, 106.07] | 100% |        0% | 1.000 | 4784.00
```

```
standard_error(PA_on_SM_day_bayes)
```

```
##        Parameter         SE
## 1    b_Intercept 14.4361138
## 2     b_SM_Pos_p  0.2825340
## 3   b_SM_Pos_p_c  0.1968159
## 4 b_day_in_study  0.5382654
## 5          sigma  3.4645408
```

```
## Positive affect & SM checks

PA_on_SM_count_day_bayes  <- brm(count_sm_p ~ SM_Pos_p + SM_Pos_p_c + day_in_study + (1 | pid), prior =
```

```
##
## SAMPLING FOR MODEL 'b5c39774b8af55be5ded9013196a638c' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 1: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 1: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 1: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 1: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 1: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 1: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 1: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.601 seconds (Warm-up)
## Chain 1:                0.22 seconds (Sampling)
## Chain 1:                0.821 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'b5c39774b8af55be5ded9013196a638c' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0.001 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 10 seconds.
## Chain 2: Adjust your expectations accordingly!
```

```
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 2: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 2: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 2: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 2: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 2: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 2: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 2: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.552 seconds (Warm-up)
## Chain 2:                0.284 seconds (Sampling)
## Chain 2:                0.836 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'b5c39774b8af55be5ded9013196a638c' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 0 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 3: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 3: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 3: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 3: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 3: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 3: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 3: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.515 seconds (Warm-up)
## Chain 3:                0.317 seconds (Sampling)
## Chain 3:                0.832 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'b5c39774b8af55be5ded9013196a638c' NOW (CHAIN 4).
## Chain 4:
## Chain 4: Gradient evaluation took 0 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 4: Adjust your expectations accordingly!
## Chain 4:
## Chain 4:
## Chain 4: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 4: Iteration:  200 / 2000 [ 10%]  (Warmup)
```

```
## Chain 4: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 4: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 4: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 4: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 4: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 4: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 4: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 4: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 4: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 4: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 4:
## Chain 4:  Elapsed Time: 0.48 seconds (Warm-up)
## Chain 4:                0.313 seconds (Sampling)
## Chain 4:                0.793 seconds (Total)
## Chain 4:
```

```
model_parameters(PA_on_SM_count_day_bayes, centrality = "mean")
```

```
## # Fixed effects
##
## Parameter    |  Mean |          95% CI |     pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------------
## (Intercept)  |  2.53 | [-17.19, 21.67] | 60.22% |    52.92% | 1.000 | 4961.00
## SM_Pos_p     |  0.78 | [  0.39,  1.14] |   100% |      100% | 1.000 | 5128.00
## SM_Pos_p_c   | -0.04 | [ -0.30,  0.22] | 61.70% |      100% | 1.000 | 4691.00
## day_in_study |  0.13 | [ -0.62,  0.88] | 63.18% |      100% | 1.000 | 5477.00
##
## # Fixed effects sigma
##
## Parameter |  Mean |         95% CI |   pd | % in ROPE |  Rhat |     ESS
## ----------------------------------------------------------------------
## sigma     | 68.22 | [63.60, 73.25] | 100% |        0% | 1.000 | 4923.00
```

```
standard_error(PA_on_SM_count_day_bayes)
```

```
##        Parameter        SE
## 1    b_Intercept 9.9066655
## 2     b_SM_Pos_p 0.1930173
## 3   b_SM_Pos_p_c 0.1344963
## 4 b_day_in_study 0.3786181
## 5          sigma 2.4533402
```

### Negative Affect on SM predicting social media use

```
###check utility of random slopes
model1 <- lmer(sum_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (1 | pid), data = day)
model2 <- lmer(sum_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (SM_Neg_p | pid), data = day)

anova(model1, model2)
```

```
## Data: day
## Models:
## model1: sum_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (1 | pid)
## model2: sum_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (SM_Neg_p | pid)
##        npar    AIC    BIC  logLik deviance Chisq Df Pr(>Chisq)
## model1    6 3339.5 3361.6 -1663.8   3327.5
## model2    8 3343.5 3373.0 -1663.8   3327.5     0  2          1
```

```
model3 <- lmer(count_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (1 | pid), data = day)
model4 <- lmer(count_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (SM_Neg_p | pid), data = day)

anova(model3, model4)
```

```
## Data: day
## Models:
## model3: count_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (1 | pid)
## model4: count_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (SM_Neg_p | pid)
##        npar    AIC    BIC  logLik deviance Chisq Df Pr(>Chisq)
## model3    6 3328.3 3350.4 -1658.1   3316.3
## model4    8 3332.3 3361.8 -1658.1   3316.3     0  2          1
```

```
#-----------------------------------------------Bayesian multilevel models-------------------------------


## Negative affect & minutes of SM

NA_on_SM_day_bayes  <- brm(sum_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (1 | pid), prior = prior1,
```

```
##
## SAMPLING FOR MODEL 'b29c455a5dcc3bfaf9feb96e5bc1d956' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 1: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 1: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 1: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 1: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 1: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 1: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 1: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.492 seconds (Warm-up)
## Chain 1:                0.312 seconds (Sampling)
## Chain 1:                0.804 seconds (Total)
## Chain 1:
```

```
##
## SAMPLING FOR MODEL 'b29c455a5dcc3bfaf9feb96e5bc1d956' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 2: Adjust your expectations accordingly!
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 2: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 2: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 2: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 2: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 2: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 2: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 2: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.628 seconds (Warm-up)
## Chain 2:                0.256 seconds (Sampling)
## Chain 2:                0.884 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'b29c455a5dcc3bfaf9feb96e5bc1d956' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 0 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 3: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 3: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 3: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 3: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 3: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 3: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 3: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.571 seconds (Warm-up)
## Chain 3:                0.263 seconds (Sampling)
## Chain 3:                0.834 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'b29c455a5dcc3bfaf9feb96e5bc1d956' NOW (CHAIN 4).
## Chain 4:
## Chain 4: Gradient evaluation took 0 seconds
```

```
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 4: Adjust your expectations accordingly!
## Chain 4:
## Chain 4:
## Chain 4: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 4: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 4: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 4: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 4: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 4: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 4: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 4: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 4: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 4: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 4: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 4: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 4:
## Chain 4:  Elapsed Time: 0.53 seconds (Warm-up)
## Chain 4:                0.275 seconds (Sampling)
## Chain 4:                0.805 seconds (Total)
## Chain 4:
```

```
model_parameters(NA_on_SM_day_bayes, centrality = "mean")
```

```
## # Fixed effects
##
## Parameter    |  Mean |         95% CI |     pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------------
## (Intercept)  | 14.90 | [-3.37, 35.46] | 93.73% |    20.08% | 1.001 | 2586.00
## SM_Neg_p     |  0.20 | [-0.32,  0.75] | 76.22% |      100% | 1.000 | 4939.00
## SM_Neg_p_c   | -0.30 | [-1.17,  0.44] | 77.45% |      100% | 1.000 | 1712.00
## day_in_study | -0.66 | [-1.56,  0.25] | 92.80% |      100% | 1.000 | 4393.00
##
## # Fixed effects sigma
##
## Parameter |  Mean |         95% CI |   pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------
## sigma     | 69.73 | [64.37, 75.57] | 100% |        0% | 1.000 | 4992.00
```

```
standard_error(NA_on_SM_day_bayes)
```

```
##        Parameter         SE
## 1    b_Intercept 10.0238113
## 2     b_SM_Neg_p  0.2745050
## 3   b_SM_Neg_p_c  0.4070342
## 4 b_day_in_study  0.4610105
## 5          sigma  2.9509611
```

```
## Negative affect & SM checks

NA_on_SM_count_day_bayes  <- brm(count_sm_p ~ SM_Neg_p + SM_Neg_p_c + day_in_study + (1 | pid), prior =
```

```
##
## SAMPLING FOR MODEL '8fde46f45400f7c095010467357dbea2' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
## Chain 1: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 1: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 1: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 1: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 1: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 1: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 1: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 1: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 1: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 1: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 1: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 1: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 1:
## Chain 1:  Elapsed Time: 0.432 seconds (Warm-up)
## Chain 1:                0.288 seconds (Sampling)
## Chain 1:                0.72 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL '8fde46f45400f7c095010467357dbea2' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 2: Adjust your expectations accordingly!
## Chain 2:
## Chain 2:
## Chain 2: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 2: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 2: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 2: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 2: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 2: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 2: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 2: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 2: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 2: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 2: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 2: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 2:
## Chain 2:  Elapsed Time: 0.443 seconds (Warm-up)
## Chain 2:                0.23 seconds (Sampling)
## Chain 2:                0.673 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '8fde46f45400f7c095010467357dbea2' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 0 seconds
```

```
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 3: Adjust your expectations accordingly!
## Chain 3:
## Chain 3:
## Chain 3: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 3: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 3: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 3: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 3: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 3: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 3: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 3: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 3: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 3: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 3: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 3: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 3:
## Chain 3:  Elapsed Time: 0.44 seconds (Warm-up)
## Chain 3:                0.294 seconds (Sampling)
## Chain 3:                0.734 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '8fde46f45400f7c095010467357dbea2' NOW (CHAIN 4).
## Chain 4:
## Chain 4: Gradient evaluation took 0 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0 seconds.
## Chain 4: Adjust your expectations accordingly!
## Chain 4:
## Chain 4:
## Chain 4: Iteration:    1 / 2000 [  0%]  (Warmup)
## Chain 4: Iteration:  200 / 2000 [ 10%]  (Warmup)
## Chain 4: Iteration:  400 / 2000 [ 20%]  (Warmup)
## Chain 4: Iteration:  600 / 2000 [ 30%]  (Warmup)
## Chain 4: Iteration:  800 / 2000 [ 40%]  (Warmup)
## Chain 4: Iteration: 1000 / 2000 [ 50%]  (Warmup)
## Chain 4: Iteration: 1001 / 2000 [ 50%]  (Sampling)
## Chain 4: Iteration: 1200 / 2000 [ 60%]  (Sampling)
## Chain 4: Iteration: 1400 / 2000 [ 70%]  (Sampling)
## Chain 4: Iteration: 1600 / 2000 [ 80%]  (Sampling)
## Chain 4: Iteration: 1800 / 2000 [ 90%]  (Sampling)
## Chain 4: Iteration: 2000 / 2000 [100%]  (Sampling)
## Chain 4:
## Chain 4:  Elapsed Time: 0.45 seconds (Warm-up)
## Chain 4:                0.215 seconds (Sampling)
## Chain 4:                0.665 seconds (Total)
## Chain 4:
```

```
model_parameters(NA_on_SM_count_day_bayes, centrality = "mean")
```

```
## # Fixed effects
##
## Parameter    |  Mean |         95% CI |     pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------------
## (Intercept)  | 11.98 | [-5.64, 29.55] | 91.27% |    26.39% | 1.000 | 4021.00
```

```
## SM_Neg_p     |  0.43 | [-0.07,  0.93] | 94.88% |      100% | 1.000 | 5225.00
## SM_Neg_p_c   |  0.11 | [-0.55,  0.77] | 64.18% |      100% | 1.000 | 2965.00
## day_in_study | -0.60 | [-1.46,  0.26] | 90.95% |      100% | 0.999 | 4755.00
##
## # Fixed effects sigma
##
## Parameter |  Mean |         95% CI |   pd | % in ROPE |  Rhat |     ESS
## ------------------------------------------------------------------------
## sigma     | 68.70 | [63.35, 74.50] | 100% |        0% | 1.000 | 4644.00
```

```
standard_error(NA_on_SM_count_day_bayes)
```

```
##        Parameter        SE
## 1    b_Intercept 8.9254372
## 2     b_SM_Neg_p 0.2589177
## 3   b_SM_Neg_p_c 0.3369893
## 4 b_day_in_study 0.4413365
## 5          sigma 2.8637394
```