Affect and SM Use - SMASH Study - Traditional SM Only

Melissa Dreier

10/07/2022

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 = day

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 2465.9 2491.5  -1226   2451.9
## model2    9 2469.9 2502.8  -1226   2451.9     0  2          1
```

```r
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), dat

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 2487.5  -1224     2448
## model4    9 2466 2498.8  -1224     2448     0  2          1
```

```r
#----------------------------------------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: 0.417 seconds (Warm-up)
## Chain 1:                0.156 seconds (Sampling)
## Chain 1:                0.573 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: 0.397 seconds (Warm-up)
## Chain 2:                0.237 seconds (Sampling)
## Chain 2:                0.634 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: 0.419 seconds (Warm-up)
## Chain 3:                0.137 seconds (Sampling)
## Chain 3:                0.556 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: 0.419 seconds (Warm-up)
## Chain 4:                0.126 seconds (Sampling)
## Chain 4:                0.545 seconds (Total)
## Chain 4:
```

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

```
## # Fixed effects
##
## Parameter    | Mean |       95% CI |     pd | % in ROPE | Rhat |     ESS
## -----------------------------------------------------------------------
## (Intercept) | -1.37 | [-6.87, 4.12] | 67.90% |    45.08% | 0.999 | 5689.00
## sum_sm_p    |  0.02 | [-0.02, 0.07] | 83.33% |      100% | 0.999 | 4209.00
## NAf_am_p    |  0.11 | [ 0.00, 0.21] | 97.78% |      100% | 1.000 | 4641.00
## sum_sm_p_c  | -0.01 | [-0.06, 0.03] | 71.35% |      100% | 0.999 | 4646.00
## day_in_study |  0.12 | [-0.13, 0.36] | 84.85% |     100% | 1.001 | 4501.00
##
## # Fixed effects sigma
##
## Parameter | Mean |        95% CI |  pd | % in ROPE | Rhat |     ESS
## ------------------------------------------------------------------
## sigma     | 18.06 | [16.61, 19.70] | 100% |       0% | 1.001 | 5482.00
```

```
standard_error(NA_sm_sum_bayes)
```

```
##        Parameter          SE
## 1     b_Intercept 2.83342233
## 2      b_sum_sm_p 0.02187369
## 3      b_NAf_am_p 0.05438436
## 4    b_sum_sm_p_c 0.02376609
## 5 b_day_in_study 0.12240325
## 6          sigma 0.78705910
```

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 0.001 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 10 seconds.
## Chain 1: Adjust your expectations accordingly!
## Chain 1:
## Chain 1:
```

4

```
## 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: 0.647 seconds (Warm-up)
## Chain 1:                0.227 seconds (Sampling)
## Chain 1:                0.874 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: 0.604 seconds (Warm-up)
## Chain 2:                0.23 seconds (Sampling)
## Chain 2:                0.834 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: 0.655 seconds (Warm-up)
## Chain 3:                0.146 seconds (Sampling)
## Chain 3:                0.801 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: 0.653 seconds (Warm-up)
## Chain 4:                0.263 seconds (Sampling)
## Chain 4:                0.916 seconds (Total)
## Chain 4:
```

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

```
## # Fixed effects
##
## Parameter     |     Mean |        95% CI |     pd | % in ROPE |  Rhat |     ESS
## -------------------------------------------------------------------------------
## (Intercept)   |    -1.51 | [-7.06, 3.95] | 70.10% |    45.92% | 1.001 | 4763.00
## count_sm_p    |     0.04 | [ 0.00, 0.08] | 98.52% |      100% | 0.999 | 5143.00
## NAf_am_p      |     0.11 | [ 0.01, 0.22] | 98.12% |      100% | 0.999 | 5657.00
## count_sm_p_c  | -7.20e-03 | [-0.03, 0.02] | 72.35% |      100% | 0.999 | 4692.00
## day_in_study  |     0.12 | [-0.12, 0.36] | 83.33% |      100% | 1.001 | 4990.00
##
## # Fixed effects sigma
##
## Parameter | Mean |        95% CI |     pd | % in ROPE |  Rhat |     ESS
```

```
## ----------------------------------------------------------------------
## sigma      | 17.93 | [16.55, 19.43] | 100% |        0% | 1.000 | 5146.00
```

```
standard_error(NA_sm_count_bayes)
```

```
##         Parameter         SE
## 1     b_Intercept 2.82812602
## 2    b_count_sm_p 0.01871292
## 3      b_NAf_am_p 0.05335975
## 4  b_count_sm_p_c 0.01243715
## 5    b_day_in_study 0.12300645
## 6           sigma 0.74438306
```

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 4244.8 4268.8 -2116.4   4232.8
## model2    8 4248.8 4280.8 -2116.4   4232.8     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 4396.6 4420.6 -2192.3   4384.6
## model4    8 4400.6 4432.6 -2192.3   4384.6     0  2          1
```

```
#------------------------------------------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 '09a0af407a72163b602a7f854ef7e47d' 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: 0.431 seconds (Warm-up)
## Chain 1:                0.277 seconds (Sampling)
## Chain 1:                0.708 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL '09a0af407a72163b602a7f854ef7e47d' 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: 0.428 seconds (Warm-up)
## Chain 2:                0.285 seconds (Sampling)
## Chain 2:                0.713 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '09a0af407a72163b602a7f854ef7e47d' 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: 0.454 seconds (Warm-up)
## Chain 3:                0.168 seconds (Sampling)
## Chain 3:                0.622 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '09a0af407a72163b602a7f854ef7e47d' 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: 0.436 seconds (Warm-up)
## Chain 4:                0.231 seconds (Sampling)
## Chain 4:                0.667 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)  | 8.28 | [-5.01, 21.71] | 88.48% |    28.11% | 1.000 | 5005.00
## SM_Pos_p     | 0.13 | [-0.13,  0.38] | 83.62% |      100% | 0.999 | 5648.00
```

```
## SM_Pos_p_c  | -0.05 | [-0.24,  0.13] | 70.85% |      100% | 0.999 | 5008.00
## day_in_study | -0.24 | [-0.75,  0.25] | 81.60% |      100% | 0.999 | 5436.00
##
## # Fixed effects sigma
##
## Parameter | Mean |          95% CI |  pd | % in ROPE |  Rhat |     ESS
## ----------------------------------------------------------------------
## sigma      | 46.45 | [43.41, 49.65] | 100% |      0% | 1.001 | 5045.00
```

```
standard_error(PA_on_SM_day_bayes)
```

```
##         Parameter         SE
## 1     b_Intercept 6.89021869
## 2      b_SM_Pos_p 0.13029964
## 3    b_SM_Pos_p_c 0.09428095
## 4 b_day_in_study 0.25960156
## 5          sigma 1.60300294
```

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 '0ef04eabbbb6ed1cf6561ff76738b4ce' 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: 0.411 seconds (Warm-up)
## Chain 1:                0.261 seconds (Sampling)
## Chain 1:                0.672 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL '0ef04eabbbb6ed1cf6561ff76738b4ce' 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: 0.393 seconds (Warm-up)
## Chain 2:                0.28 seconds (Sampling)
## Chain 2:                0.673 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '0ef04eabbbb6ed1cf6561ff76738b4ce' 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: 0.414 seconds (Warm-up)
## Chain 3:                0.254 seconds (Sampling)
## Chain 3:                0.668 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '0ef04eabbbb6ed1cf6561ff76738b4ce' 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: 0.404 seconds (Warm-up)
## Chain 4:                0.184 seconds (Sampling)
## Chain 4:                0.588 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)  | 4.33 | [-11.93, 19.86] | 69.95% |    46.42% | 0.999 | 4162.00
## SM_Pos_p     | 0.44 | [  0.14,  0.74] | 99.72% |      100% | 0.999 | 4954.00
## SM_Pos_p_c   | -0.02 | [ -0.24,  0.20] | 56.97% |      100% | 1.000 | 3802.00
## day_in_study | -0.07 | [ -0.70,  0.55] | 59.65% |      100% | 1.000 | 4973.00
##
## # Fixed effects sigma
##
## Parameter | Mean |        95% CI |   pd | % in ROPE | Rhat |     ESS
## -------------------------------------------------------------------
## sigma     | 56.17 | [52.42, 60.32] | 100% |       0% | 0.999 | 5571.00
```

```
standard_error(PA_on_SM_count_day_bayes)
```

```
##        Parameter        SE
## 1    b_Intercept 8.1832617
## 2     b_SM_Pos_p 0.1560393
## 3   b_SM_Pos_p_c 0.1133384
## 4 b_day_in_study 0.3151328
## 5          sigma 2.0064147
```

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 3125.9 3148.0  -1557    3113.9
## model2    8 3129.9 3159.4  -1557    3113.9     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 3228.3 3250.4 -1608.2    3216.3
## model4    8 3232.3 3261.8 -1608.2    3216.3     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 '34e6f3e92a4e77b6586ce11db1ce5e44' 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: 0.365 seconds (Warm-up)
## Chain 1:                0.22 seconds (Sampling)
## Chain 1:                0.585 seconds (Total)
## Chain 1:
```

```
##
## SAMPLING FOR MODEL '34e6f3e92a4e77b6586ce11db1ce5e44' 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: 0.312 seconds (Warm-up)
## Chain 2:                0.228 seconds (Sampling)
## Chain 2:                0.54 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL '34e6f3e92a4e77b6586ce11db1ce5e44' 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: 0.354 seconds (Warm-up)
## Chain 3:                0.225 seconds (Sampling)
## Chain 3:                0.579 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL '34e6f3e92a4e77b6586ce11db1ce5e44' 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: 0.371 seconds (Warm-up)
## Chain 4:                0.222 seconds (Sampling)
## Chain 4:                0.593 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)   | 14.80 | [ 1.79, 27.95] | 98.98% |     4.26% | 1.000 | 4161.00
## SM_Neg_p      |  0.32 | [-0.06,  0.69] | 95.23% |      100% | 0.999 | 5580.00
## SM_Neg_p_c    | -0.17 | [-0.71,  0.32] | 75.75% |      100% | 1.001 | 2785.00
## day_in_study  | -0.58 | [-1.23,  0.05] | 96.53% |      100% | 1.000 | 5177.00
##
## # Fixed effects sigma
##
## Parameter | Mean |        95% CI |  pd | % in ROPE |  Rhat |     ESS
## ---------------------------------------------------------------------
## sigma     | 48.66 | [44.85, 53.02] | 100% |       0% | 1.000 | 5252.00
```

```
standard_error(NA_on_SM_day_bayes)
```

```
##        Parameter        SE
## 1     b_Intercept 6.6727610
## 2      b_SM_Neg_p 0.1890778
## 3    b_SM_Neg_p_c 0.2577904
## 4 b_day_in_study 0.3220765
## 5          sigma 2.0829689
```

```
## 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 'ac79aab3302612a8999d0a59a235b574' 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: 0.351 seconds (Warm-up)
## Chain 1:                0.142 seconds (Sampling)
## Chain 1:                0.493 seconds (Total)
## Chain 1:
## 
## SAMPLING FOR MODEL 'ac79aab3302612a8999d0a59a235b574' 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: 0.299 seconds (Warm-up)
## Chain 2:                0.219 seconds (Sampling)
## Chain 2:                0.518 seconds (Total)
## Chain 2:
## 
## SAMPLING FOR MODEL 'ac79aab3302612a8999d0a59a235b574' 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: 0.295 seconds (Warm-up)
## Chain 3:                0.228 seconds (Sampling)
## Chain 3:                0.523 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'ac79aab3302612a8999d0a59a235b574' 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: 0.299 seconds (Warm-up)
## Chain 4:                0.192 seconds (Sampling)
## Chain 4:                0.491 seconds (Total)
## Chain 4:
```

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

```
## # Fixed effects
##
## Parameter     | Mean |          95% CI |     pd | % in ROPE | Rhat |     ESS
## ----------------------------------------------------------------------------
## (Intercept)   | 11.38 | [-3.60, 26.16] | 92.77% |    22.42% | 1.000 | 5942.00
```

```
## SM_Neg_p    |  0.48 | [ 0.04,  0.91] | 98.70% |      100% | 1.000 | 5263.00
## SM_Neg_p_c  |  0.12 | [-0.45,  0.67] | 66.33% |      100% | 1.000 | 3752.00
## day_in_study | -0.59 | [-1.34,  0.17] | 93.58% |      100% | 1.000 | 6299.00
##
## # Fixed effects sigma
##
## Parameter | Mean |        95% CI |  pd | % in ROPE | Rhat |      ESS
## ----------------------------------------------------------------------
## sigma     | 58.00 | [53.65, 62.97] | 100% |       0% | 0.999 | 5340.00
```

standard_error(NA_on_SM_count_day_bayes)

```
##          Parameter        SE
## 1     b_Intercept 7.7119436
## 2       b_SM_Neg_p 0.2219756
## 3     b_SM_Neg_p_c 0.2896286
## 4 b_day_in_study 0.3825247
## 5           sigma 2.3791031
```