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
```

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

#View(Max_days)

#setwd("C:/Users/Missy Dreier/OneDrive - Rutgers University/Documents/Papers/2022_SMASH_Affect/Paper writing/Current Researc
h in Ecological and Social Psychology/RR1")

#getwd()

#write.csv(Max_days, file = "Days_in_study.csv", row.names = F)


wide <- data[which(data$day_in_study==1 & data$hour_in_study==1),] # create dataset with 1 row/participant for demographics

gender <- wide %>% select("pid", "GenderBirth") # subset data to just ID and sex

totals <- day %>% group_by(pid) %>%
  dplyr::summarise(sum_sm = sum(sum_sm, na.rm = TRUE), NAf_am = mean(NAf_am, na.rm=TRUE), NAf_pm = mean(NAf_pm, na.rm=TRUE),
count_sm = sum(count_sm, na.rm = TRUE), SM_Pos = mean(SM_Pos, na.rm=TRUE), SM_Neg = mean(SM_Neg, na.rm=TRUE))

## summarize dataset

daygen <- merge(totals, gender, by = "pid") #merge


t.test(sum_sm ~ GenderBirth, data = daygen) #test sex differences in SM screen time
```

```
##
##  Welch Two Sample t-test
##
## data:  sum_sm by GenderBirth
## t = 2.0984, df = 6.2206, p-value = 0.07902
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -301.7959 4167.1999
## sample estimates:
## mean in group 0 mean in group 1
##        3296.910        1364.208
```

```
t.test(count_sm ~ GenderBirth, data = daygen) #test sex diffs in SM checking
```

```
##
##  Welch Two Sample t-test
##
## data:  count_sm by GenderBirth
## t = 0.58062, df = 12.903, p-value = 0.5715
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -2518.788  4368.352
## sample estimates:
## mean in group 0 mean in group 1
##        4748.167        3823.385
```

```
t.test(SM_Pos ~ GenderBirth, data = daygen) #test sex diffs in positive affect SM
```

```
##
##  Welch Two Sample t-test
##
## data:  SM_Pos by GenderBirth
## t = -1.516, df = 11.357, p-value = 0.1568
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -43.695110   7.971083
## sample estimates:
## mean in group 0 mean in group 1
##        40.71464        58.57665
```

```
t.test(SM_Neg ~ GenderBirth, data = daygen) #test sex diffs in negative affect SM
```

```
##
##  Welch Two Sample t-test
##
## data:  SM_Neg by GenderBirth
## t = 0.50739, df = 6.8502, p-value = 0.6278
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -13.67337  21.10232
## sample estimates:
## mean in group 0 mean in group 1
##        15.04517        11.33070
```

```
t.test(NAf_am ~ GenderBirth, data = daygen) #test sex diffs in general negative affect AM
```

```
##
##  Welch Two Sample t-test
##
## data:  NAf_am by GenderBirth
## t = -0.7743, df = 13.35, p-value = 0.4523
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -25.67002  12.09766
## sample estimates:
## mean in group 0 mean in group 1
##        13.81093        20.59711
```

```
t.test(NAf_pm ~ GenderBirth, data = daygen) #test sex diffs in general negative affect PM
```

```
##
##  Welch Two Sample t-test
##
## data:  NAf_pm by GenderBirth
## t = -0.94029, df = 14.141, p-value = 0.3629
## alternative hypothesis: true difference in means between group 0 and group 1 is not equal to 0
## 95 percent confidence interval:
##  -26.55351  10.35672
## sample estimates:
## mean in group 0 mean in group 1
##        14.73500        22.83339
```

Models Prediciting Next morning Negative Mood

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

## Negative mood - sumduration
NA_sm_sum_bayes  <- brm(NAf_am_p ~ sum_sm_p_lag + NAf_pm_p_lag + sum_sm_p_c + day_in_study + (1 | pid), prior = prior1, data
= day)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 7.8e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.78 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: 0.941 seconds (Warm-up)
## Chain 1:                0.343 seconds (Sampling)
## Chain 1:                1.284 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 6.7e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.67 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: 0.754 seconds (Warm-up)
## Chain 2:                0.477 seconds (Sampling)
## Chain 2:                1.231 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 2.7e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.27 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: 0.901 seconds (Warm-up)
## Chain 3:                0.351 seconds (Sampling)
## Chain 3:                1.252 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 5.3e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.53 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: 0.787 seconds (Warm-up)
## Chain 4:                0.235 seconds (Sampling)
## Chain 4:                1.022 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	7.46541907	0.95	1.72738527	13.01984812	0.99475	0.008421053
b_sum_sm_p_lag	conditional	0.01125510	0.95	-0.04740744	0.07046704	0.64475	1.000000000
b_NAf_pm_p_lag	conditional	0.15180223	0.95	0.02980496	0.27113263	0.99300	1.000000000
b_sum_sm_p_c	conditional	0.01600214	0.95	-0.03164987	0.06338566	0.74900	1.000000000
b_day_in_study	conditional	-0.52270527	0.95	-0.78302975	-0.26722937	1.00000	1.000000000
sigma	sigma	20.08113549	0.95	18.50120651	21.83907164	1.00000	0.000000000

6 rows | 1-8 of 10 columns

```
standard_error(NA_sm_sum_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	2.92276662
b_sum_sm_p_lag	0.03067249
b_NAf_pm_p_lag	0.06215554
b_sum_sm_p_c	0.02432724
b_day_in_study	0.13333985
sigma	0.83323450

6 rows

```
## Negative mood - counts

NA_sm_count_bayes  <- brm(NAf_am_p ~ count_sm_p_lag + NAf_pm_p_lag + count_sm_p_c + day_in_study + (1 | pid), prior = prior
1, data = day)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 6.2e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.62 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: 1.349 seconds (Warm-up)
## Chain 1:                0.484 seconds (Sampling)
## Chain 1:                1.833 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 2.1e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.21 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: 1.137 seconds (Warm-up)
## Chain 2:                0.557 seconds (Sampling)
## Chain 2:                1.694 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 5.1e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.51 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: 1.141 seconds (Warm-up)
## Chain 3:                0.484 seconds (Sampling)
## Chain 3:                1.625 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 2.1e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.21 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: 1.141 seconds (Warm-up)
## Chain 4:                0.391 seconds (Sampling)
## Chain 4:                1.532 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	7.866954009	0.95	1.85379092	13.96209971	0.99325	0.004210526
b_count_sm_p_lag	conditional	0.006598154	0.95	-0.02707748	0.04196714	0.64425	1.000000000
b_NAf_pm_p_lag	conditional	0.149310667	0.95	0.02975799	0.26728952	0.99275	1.000000000
b_count_sm_p_c	conditional	0.004829959	0.95	-0.02047063	0.03045223	0.63725	1.000000000
b_day_in_study	conditional	-0.511391353	0.95	-0.75925943	-0.26091777	1.00000	1.000000000
sigma	sigma	20.057959633	0.95	18.53784058	21.69770086	1.00000	0.000000000

6 rows | 1-8 of 10 columns

```
standard_error(NA_sm_count_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	3.07087315
b_count_sm_p_lag	0.01792396
b_NAf_pm_p_lag	0.06090471
b_count_sm_p_c	0.01340852
b_day_in_study	0.12671286
sigma	0.81054344

6 rows

Positive Affect on SM predicting social media use

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

## Positive affect & minutes of SM

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

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 8e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.8 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: 0.589 seconds (Warm-up)
## Chain 1:                0.453 seconds (Sampling)
## Chain 1:                1.042 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 2.5e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.25 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: 0.69 seconds (Warm-up)
## Chain 2:                0.359 seconds (Sampling)
## Chain 2:                1.049 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 2.8e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.28 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: 0.665 seconds (Warm-up)
## Chain 3:                0.489 seconds (Sampling)
## Chain 3:                1.154 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 3.1e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.31 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: 0.509 seconds (Warm-up)
## Chain 4:                0.275 seconds (Sampling)
## Chain 4:                0.784 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	14.85689214	0.95	3.3581271	26.5824274	0.99375	0.005526316
b_SM_Pos_p_lag	conditional	0.09248794	0.95	-0.1119780	0.3020779	0.80325	1.000000000
b_SM_Pos_p_c	conditional	-0.02139076	0.95	-0.1750787	0.1313063	0.60175	1.000000000
b_day_in_study	conditional	-0.79049650	0.95	-1.2091862	-0.3681070	1.00000	1.000000000
sigma	sigma	38.51886680	0.95	36.1016753	41.2654147	1.00000	0.000000000

5 rows | 1-8 of 10 columns

```
standard_error(PA_on_SM_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	5.92622970
b_SM_Pos_p_lag	0.10596127
b_SM_Pos_p_c	0.07867866
b_day_in_study	0.21395038
sigma	1.31604605

5 rows

```
## Minutes of SM --> positive mood


SM_on_PA_day_bayes  <- brm(SM_Pos_p ~ sum_sm_p_lag + sum_sm_p_c + day_in_study + (1 | pid), prior = prior1, data = day)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 4.2e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.42 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: 0.664 seconds (Warm-up)
## Chain 1:                0.158 seconds (Sampling)
## Chain 1:                0.822 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 2.4e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.24 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: 0.758 seconds (Warm-up)
## Chain 2:                0.364 seconds (Sampling)
## Chain 2:                1.122 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 2.3e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.23 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: 0.832 seconds (Warm-up)
## Chain 3:                0.414 seconds (Sampling)
## Chain 3:                1.246 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 2.3e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.23 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: 0.783 seconds (Warm-up)
## Chain 4:                0.389 seconds (Sampling)
## Chain 4:                1.172 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	7.13092619	0.95	3.09029260	11.20749443	0.9995	0
b_sum_sm_p_lag	conditional	0.01604665	0.95	-0.02931794	0.05997336	0.7670	1
b_sum_sm_p_c	conditional	0.00126636	0.95	-0.03335761	0.03509490	0.5320	1
b_day_in_study	conditional	-0.47964633	0.95	-0.67458916	-0.28643881	1.0000	1
sigma	sigma	17.73622431	0.95	16.55764034	19.02808934	1.0000	0

5 rows | 1-8 of 10 columns

```
standard_error(SM_on_PA_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	2.07616832
b_sum_sm_p_lag	0.02247838
b_sum_sm_p_c	0.01769340
b_day_in_study	0.09820672
sigma	0.64087131

5 rows

```
## Positive affect & SM checks

PA_on_SM_count_day_bayes  <- brm(count_sm_p ~ SM_Pos_p_lag + SM_Pos_p_c + day_in_study + (1 | pid), prior = prior1, data = d
ay)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 4.8e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.48 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: 0.832 seconds (Warm-up)
## Chain 1:                0.554 seconds (Sampling)
## Chain 1:                1.386 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 2.2e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.22 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: 0.56 seconds (Warm-up)
## Chain 2:                0.416 seconds (Sampling)
## Chain 2:                0.976 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 2.2e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.22 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: 0.598 seconds (Warm-up)
## Chain 3:                0.407 seconds (Sampling)
## Chain 3:                1.005 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 2.3e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.23 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: 0.518 seconds (Warm-up)
## Chain 4:                0.422 seconds (Sampling)
## Chain 4:                0.94 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	8.5821125	0.95	-14.97961103	31.68149482	0.76825	0.3976316
b_SM_Pos_p_lag	conditional	0.3647546	0.95	-0.04305498	0.78717810	0.95600	1.0000000
b_SM_Pos_p_c	conditional	0.1833740	0.95	-0.12860749	0.50854143	0.86600	1.0000000
b_day_in_study	conditional	-0.8906806	0.95	-1.72702689	-0.09756134	0.98550	1.0000000
sigma	sigma	76.5899521	0.95	71.74241515	81.92662940	1.00000	0.0000000

5 rows | 1-8 of 10 columns

```
standard_error(PA_on_SM_count_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	11.9019911
b_SM_Pos_p_lag	0.2131571
b_SM_Pos_p_c	0.1628706
b_day_in_study	0.4216398
sigma	2.6417916

5 rows

```
## SM Checks --> positive mood


SM_count_on_PA_day_bayes  <- brm(SM_Pos_p ~ count_sm_p_lag + count_sm_p_c + day_in_study + (1 | pid), prior = prior1, data = day)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 5.2e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.52 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: 1.355 seconds (Warm-up)
## Chain 1:                0.517 seconds (Sampling)
## Chain 1:                1.872 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 3.4e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.34 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: 1.482 seconds (Warm-up)
## Chain 2:                0.426 seconds (Sampling)
## Chain 2:                1.908 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 3e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.3 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: 1.366 seconds (Warm-up)
## Chain 3:                0.503 seconds (Sampling)
## Chain 3:                1.869 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 8.6e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.86 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: 1.286 seconds (Warm-up)
## Chain 4:                0.616 seconds (Sampling)
## Chain 4:                1.902 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	7.675894469	0.95	3.309129433	11.93895544	0.9995	0
b_count_sm_p_lag	conditional	0.029059775	0.95	0.003279141	0.05390351	0.9865	1
b_count_sm_p_c	conditional	-0.005211073	0.95	-0.023315706	0.01203765	0.7235	1
b_day_in_study	conditional	-0.471834885	0.95	-0.671002683	-0.27663280	1.0000	1
sigma	sigma	17.639018071	0.95	16.444144539	18.89589784	1.0000	0

5 rows | 1-8 of 10 columns

```
standard_error(SM_count_on_PA_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	2.176223677
b_count_sm_p_lag	0.012915620
b_count_sm_p_c	0.009022451
b_day_in_study	0.100135175
sigma	0.624240965

5 rows

Negative Affect on SM predicting social media use

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


## Negative affect & minutes of SM

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

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 7.1e-05 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 0.71 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: 0.797 seconds (Warm-up)
## Chain 1:                0.547 seconds (Sampling)
## Chain 1:                1.344 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 4.3e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.43 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: 0.708 seconds (Warm-up)
## Chain 2:                0.616 seconds (Sampling)
## Chain 2:                1.324 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 5.4e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.54 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: 0.828 seconds (Warm-up)
## Chain 3:                0.562 seconds (Sampling)
## Chain 3:                1.39 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 1.8e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.18 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: 0.847 seconds (Warm-up)
## Chain 4:                0.616 seconds (Sampling)
## Chain 4:                1.463 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	19.38707181	0.95	8.5330842	31.4028046	0.99950	0
b_SM_Neg_p_lag	conditional	-0.03401761	0.95	-0.3348122	0.2688844	0.58725	1
b_SM_Neg_p_c	conditional	0.01479522	0.95	-0.3974762	0.4311641	0.53300	1
b_day_in_study	conditional	-1.04444955	0.95	-1.5605544	-0.5337563	1.00000	1
sigma	sigma	39.39030976	0.95	36.4478930	42.6005421	1.00000	0

5 rows | 1-8 of 10 columns

```
standard_error(NA_on_SM_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	5.7744487
b_SM_Neg_p_lag	0.1511133
b_SM_Neg_p_c	0.2094706
b_day_in_study	0.2636675
sigma	1.5867062

5 rows

```
## Minutes of SM --> NA

SM_on_NA_day_bayes  <- brm(SM_Neg_p ~ sum_sm_p_lag + sum_sm_p_c + day_in_study + (1 | pid), prior = prior1, data = day)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0.000124 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 1.24 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: 1.783 seconds (Warm-up)
## Chain 1:                0.551 seconds (Sampling)
## Chain 1:                2.334 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 0.00012 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 1.2 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: 1.95 seconds (Warm-up)
## Chain 2:                0.517 seconds (Sampling)
## Chain 2:                2.467 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 6.7e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.67 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: 1.833 seconds (Warm-up)
## Chain 3:                0.597 seconds (Sampling)
## Chain 3:                2.43 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 7.7e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.77 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: 2.001 seconds (Warm-up)
## Chain 4:                0.963 seconds (Sampling)
## Chain 4:                2.964 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	3.615897083	0.95	-0.53961067	7.87494034	0.95475	0.1502632
b_sum_sm_p_lag	conditional	-0.007785546	0.95	-0.04999027	0.03348084	0.64075	1.0000000
b_sum_sm_p_c	conditional	0.007590345	0.95	-0.02859907	0.04197817	0.67325	1.0000000
b_day_in_study	conditional	-0.260765043	0.95	-0.46427559	-0.06923394	0.99725	1.0000000
sigma	sigma	15.228580203	0.95	14.06940882	16.57080368	1.00000	0.0000000

5 rows | 1-8 of 10 columns

```
standard_error(SM_on_NA_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	2.15075926
b_sum_sm_p_lag	0.02158728
b_sum_sm_p_c	0.01807335
b_day_in_study	0.10062675
sigma	0.63515757

5 rows

```
## Negative affect & SM checks

NA_on_SM_count_day_bayes  <- brm(count_sm_p ~ SM_Neg_p_lag + SM_Neg_p_c + day_in_study + (1 | pid), prior = prior1, data = d
ay)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0.000228 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 2.28 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: 1.714 seconds (Warm-up)
## Chain 1:                1.499 seconds (Sampling)
## Chain 1:                3.213 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 6.4e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.64 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: 1.945 seconds (Warm-up)
## Chain 2:                2.03 seconds (Sampling)
## Chain 2:                3.975 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 6.7e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.67 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: 1.934 seconds (Warm-up)
## Chain 3:                1.738 seconds (Sampling)
## Chain 3:                3.672 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 6.4e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.64 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: 1.583 seconds (Warm-up)
## Chain 4:                1.579 seconds (Sampling)
## Chain 4:                3.162 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	59.89043161	0.95	5.4477673	115.2807676	0.98500	0.006052632
b_SM_Neg_p_lag	conditional	-0.08333492	0.95	-0.6185377	0.4229375	0.62475	1.000000000
b_SM_Neg_p_c	conditional	-1.83966718	0.95	-5.3955185	1.5826267	0.86325	1.000000000
b_day_in_study	conditional	-1.71650115	0.95	-2.6345406	-0.7793919	0.99975	1.000000000
sigma	sigma	68.48084659	0.95	63.1051487	74.5044133	1.00000	0.000000000

5 rows | 1-8 of 10 columns

```
standard_error(NA_on_SM_count_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	27.7299114
b_SM_Neg_p_lag	0.2645747
b_SM_Neg_p_c	1.7554149
b_day_in_study	0.4816120
sigma	2.9162185

5 rows

```
## SM Checks --> NA

SM_count_on_NA_day_bayes  <- brm(SM_Neg_p ~ count_sm_p_lag + count_sm_p_c + day_in_study + (1 | pid), prior = prior1, data = day)
```

```
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 1).
## Chain 1:
## Chain 1: Gradient evaluation took 0.000164 seconds
## Chain 1: 1000 transitions using 10 leapfrog steps per transition would take 1.64 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: 1.912 seconds (Warm-up)
## Chain 1:                0.442 seconds (Sampling)
## Chain 1:                2.354 seconds (Total)
## Chain 1:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 2).
## Chain 2:
## Chain 2: Gradient evaluation took 4.6e-05 seconds
## Chain 2: 1000 transitions using 10 leapfrog steps per transition would take 0.46 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: 2.089 seconds (Warm-up)
## Chain 2:                0.675 seconds (Sampling)
## Chain 2:                2.764 seconds (Total)
## Chain 2:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 3).
## Chain 3:
## Chain 3: Gradient evaluation took 9.7e-05 seconds
## Chain 3: 1000 transitions using 10 leapfrog steps per transition would take 0.97 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: 2.341 seconds (Warm-up)
## Chain 3:                1.034 seconds (Sampling)
## Chain 3:                3.375 seconds (Total)
## Chain 3:
##
## SAMPLING FOR MODEL 'anon_model' NOW (CHAIN 4).
## Chain 4:
```

```
## Chain 4: Gradient evaluation took 6.2e-05 seconds
## Chain 4: 1000 transitions using 10 leapfrog steps per transition would take 0.62 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: 1.999 seconds (Warm-up)
## Chain 4:                0.365 seconds (Sampling)
## Chain 4:                2.364 seconds (Total)
## Chain 4:
```

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

Parameter <chr>	Component <chr>	Mean <dbl>	CI <dbl>	CI_low <dbl>	CI_high <dbl>	pd <dbl>	ROPE_Percentage <dbl>
b_Intercept	conditional	4.0291078482	0.95	-0.45434669	8.46243604	0.96125	0.1105263
b_count_sm_p_lag	conditional	-0.0010749037	0.95	-0.02545412	0.02428477	0.53675	1.0000000
b_count_sm_p_c	conditional	-0.0008359042	0.95	-0.02009837	0.01911302	0.53375	1.0000000
b_day_in_study	conditional	-0.2467478844	0.95	-0.44453459	-0.05095965	0.99450	1.0000000
sigma	sigma	15.2193555309	0.95	14.06736921	16.50938527	1.00000	0.0000000

5 rows | 1-8 of 10 columns

```
standard_error(SM_count_on_NA_day_bayes)
```

Parameter <chr>	SE <dbl>
b_Intercept	2.26105309
b_count_sm_p_lag	0.01302430
b_count_sm_p_c	0.01006786
b_day_in_study	0.10011233
sigma	0.62724533

5 rows