Pilot Analyses

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Introduction

In this document I will detail our planned analyses using our pilot data from 15 manuscripts. Please note that additional analyses may be present in the final manuscript. All results reported in brackets `[XX, XX]` represent 95% confidence intervals.

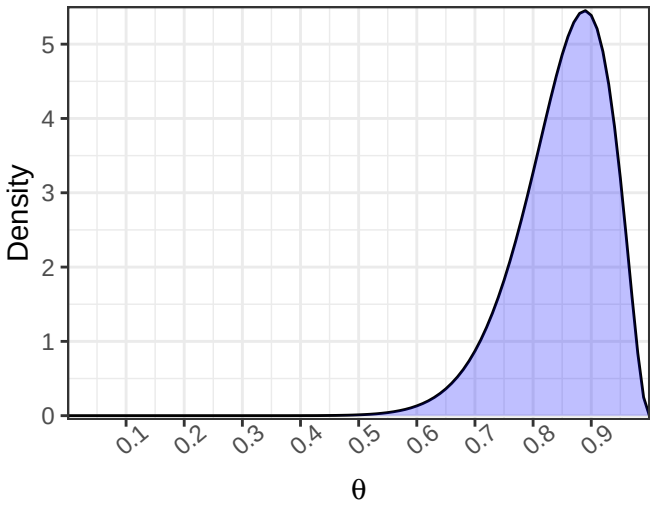
```
library(readr)
library(tidyverse)
library(brms)
library(epitab)
df_pilot <- read_csv("df_pilot.csv") %>%
  mutate_if(is.character,as.factor)
```

Hypothesis Tests

First, we have two hypotheses included in our manuscript.

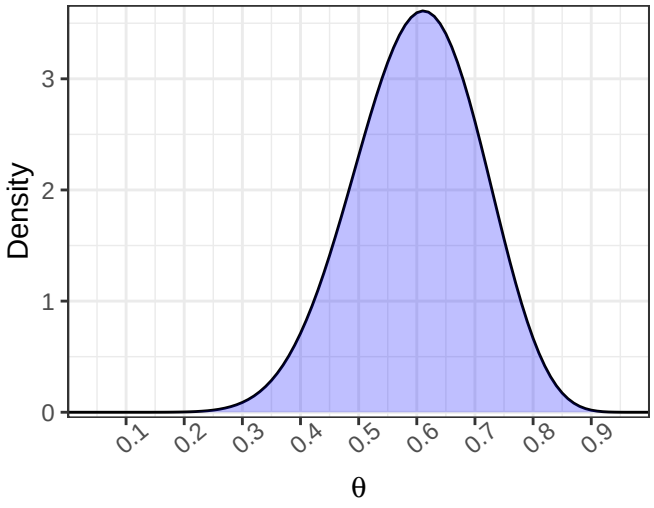
1. For manuscripts with hypotheses, more than 80% will include some support for their hypothesis.

- Prior of $\beta(17, 3)$



2. The proportion of manuscripts that explicitly state they are testing hypotheses is greater than 60%.

- Prior of $\beta(12, 8)$



Rate of Positive Results

From the pilot results, we would conclude that our hypothesis is less likely than the null hypothesis and therefore the positive result rate is more likely to be less than 80%

```
#Set prior
prior_1 = set_prior("beta(17, 3)", class = "b", lb = 0, ub = 1)

#transform data
hyp_pos = df_pilot %>%
  filter(hypo_tested == "Yes") %>%
  summarize(
    pos = sum(di_sup == "Y"),
    N = length(di_sup),
    rate = pos/N
  )
```

```
#Build model
m_test <- brm(
  pos | trials(N) ~ 0 + Intercept,
  family = binomial(link = "identity"),
  prior = prior_1,
  data = hyp_pos,
  refresh = 0
)
```

```
h_test <- hypothesis(m_test, "Intercept > 0.8")
knitr::kable(h_test$hypothesis, caption = "Hypothesis Test #1")
```

Table 1: Hypothesis Test #1

Hypothesis	Estimate	Est.Error	CI.Lower	CI.Upper	Evid.Ratio	Post.Prob	Star
(Intercept)-(0.8) > 0	-0.0347651	0.0750573	-0.1656635	0.0763424	0.5631106	0.36025	

```
test_pos = posterior_interval(m_test,
                    prob = .95)
knitr::kable(test_pos, caption = "Hyp Test #1: 95% Posterior C.I.")
```

Table 2: Hyp Test #1: 95% Posterior C.I.

	2.5%	97.5%
b_Intercept	0.5990816	0.8935397
lp__	-5.5427593	-2.9766924