

# AsPredicted Questions

(version 2.00)

**1) Data collection.** Have any data been collected for this study already?

No, no data have been collected for this study yet.

**2) Hypothesis.** What's the main question being asked or hypothesis being tested in this study?

People with upper quartile HPS scores show significantly lower performance rates in regards to processing speed and the number of correct answers in verbal intelligence tasks paired with emotional distractors than people with lower quartile HPS scores.

There will be no differences in the performance rate in tasks paired with neutral distractors or no distractors.

**3) Dependent variable.** Describe the key dependent variable(s) specifying how they will be measured.

- dependent variables: performance, operationalized through number of correct answers and answer time
- independent variables: HPS score, distractors

**4) Conditions.** How many and which conditions will participants be assigned to?

- there will be four conditions, each consisting of 12 verbal reasoning tasks paired with different kinds of distractors (*number of tasks may be limited to 10*)
- each task has a time limit of 40 secs (*time limit may be lowered to 30secs*)
- conditions:
  - distractor with positive valence
  - distractor with negative valence
  - neutral distractor
  - no distractor

**5) Analyses.** Specify exactly which analyses you will conduct to examine the main question/hypothesis.

The statistical analysis will be conducted

- between people with upper quartile HPS scores vs. lower quartile HPS scores
  - 18 analyses, all ANOVA's are balanced
    - one-factorial ANOVA with fixed effects for each distractor condition group for number of correct answers
    - one-factorial ANOVA with fixed effects for each distractor condition groups for answer time
    - point-biserial correlation for answer time for each distractor condition
    - point-biserial correlation for number of correct answers in each distractor condition
    - two factorial ANOVA with two fixed effects for number of correct answers
    - two factorial ANOVA with two fixed effects for answer time
- across the whole sample
  - 10 analyses
    - Pearson correlation of answer time and HPS Score for each distractor condition
    - Pearson correlation of number of correct answers and HPS Score for each distractor condition
    - checking for significant differences between all correlations for “number of correct answers”
    - checking for significant differences between all correlations for “answer time”
- within the group of people with upper quartile HPS scores
  - 20 analyses
    - one factorial ANOVA with repeat measurement for all possible combinations of distractor conditions for number of correct answers
    - one factorial ANOVA with repeat measurement for all possible combinations of distractor conditions for answer time
- within the group of people with lower quartile HPS scores
  - 20 analyses

- one factorial ANOVA with repeat measurement for all possible combinations of distractor conditions for number of correct answers
- one factorial ANOVA with repeat measurement for all possible combinations of distractor conditions for answer time

**6) Outliers and Exclusions.** Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

1. If a person's answer time is at least 2.5 SD deviations below mean value for 10% (5) or more of the items with wrong answers on more than half of them, they will be excluded.
2. If a person ticks the same answer in 50% or more of the tasks, they will be excluded.

**7) Sample Size.** How many observations will be collected or what will determine sample size?

- a priori power analysis, ANOVA, 45 persons at least

**8) Other.** Anything else you would like to pre-register?

If there are also significant differences between the upper and lower HPS quartiles in the neutral distractor condition, it may be concluded that a general inhibition problem is present in individuals with high HPS scores.

If there are significant differences in the no distractor condition as well, it may be concluded that performance under time pressure is generally lower for individuals with high HPS scores.

If a person is not a native speaker of German and or not C1 level they are not permitted to participate.

Persons below the age of 18 and above the age of 65 are not permitted to participate. Since there is no absolute age from which on cognitive abilities relevant to this experiment decline, we set a relatively high cutoff, which has previously been stated as an age where there are significant decline in cognitive and verbal abilities. Still, to prevent age to be a strong confounding factor, we will exclude the oldest participants, if the mean age of the highest / lowest quartile or the middle 50% deviates by more than 8 years.

potential confounding variables and how we try to control them

- time of day when the test is taken - to allow people to decide freely when they want to do the experiment, we will make it possible, to fill out the HPS and to do the experiment at separate times.
- general concentration issues for participants - allow breaks in between the different distractor conditions
- ability of fluid reasoning with verbal material - we assume that there is no significant difference in ability correlating to HPS Score
- mood - to keep participants in a somewhat stable and positive mood at the start of each distractor condition, we allow breaks in between the conditions, and add cute animal pictures on the break screen
- low performance through time pressure induced stress - there may be a multitude of reasons independent from HPS Score why people perform worse under time pressure, however, similar to fluid reasoning ability, we do not expect significant differences in the frequency of those independent reasons occurring depending on the HPS Score

The distractors are taken from the OASIS database.

Due to the lack of freely accessible verbal reasoning items we generated them ourselves, which unfortunately means that they are not validated.

**9) Name.** Give a title for this AsPredicted pre-registration

HYPOMANIC PERSONALITY – influence of emotional distractors on performance, Berlin, November 2023.

Finally. For record keeping purposes, please tell us the type of study you are pre-registering.

University assignment.