

**BETWEEN-SUBJECTS DESIGN / INDEPENDENT SAMPLES T-TEST**

Research Question: Does wearing an invisibility cloak lead to more mischievous behavior than not wearing an invisibility cloak?

* 24 Participants
* Placed participants in an enclosed community with hidden cameras.
* Between-subjects manipulation (IV) - whether or not wore cloak
  + 12 Ps given an invisibility cloak.
  + 12 Ps not given an invisibility cloak.
* Outcome variable (DV) – mischievous behavior (measured how many mischievous acts Ps performed in a week)

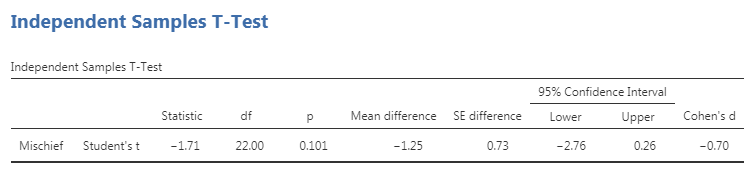
*Null hypothesis?*

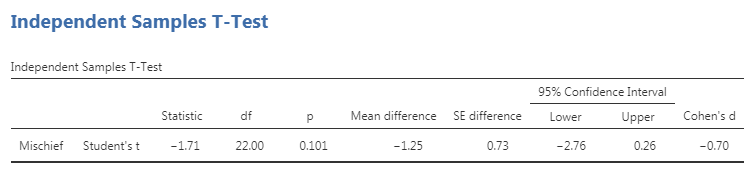
Layout of your data file

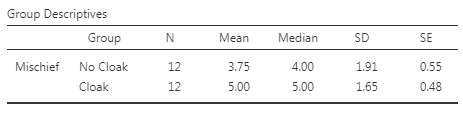
Each participant will have data for two variables in the data file:

1 variable for IV (*Cloak* will be variable name).

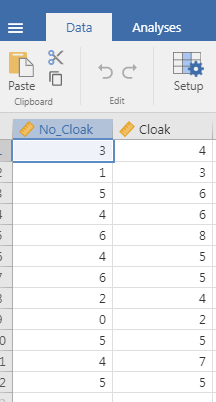
1 variable for DV (*Mischief* will be variable name)

* Captures the # of mischievous acts for each P
* Each P has either “No Cloak” or “Cloak” as their data





We ran an independent samples t-test to examine whether there were differences in mischievousness when comparing those wearing an invisibility cloak with those not wearing one. While on average, participants given a cloak of invisibility appeared to engage in more acts of mischief (*M* = 5.00, *SE* = 0.48) than those not given a cloak (*M* = 3.75, *SE* = 0.55), this difference was not significant, *t*(22) = −1.71, *p* = .10, 95% CI [-2.76, 0.26].



**WITHIN-SUBJECTS DESIGN / PAIRED SAMPLES T-TEST**

Research Question: Does wearing an invisibility cloak lead to more mischievous behavior than not wearing an invisibility cloak?

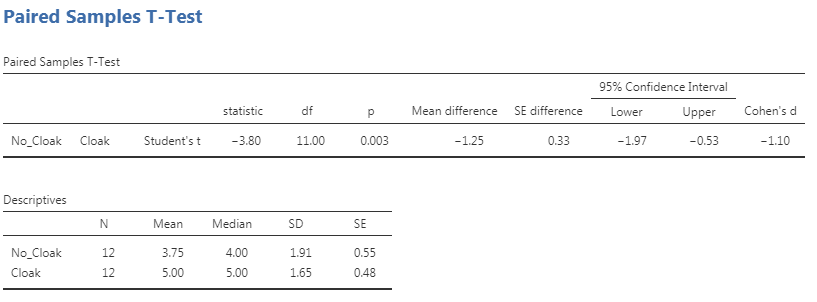
* 12 Participants
* Placed participants in an enclosed community with hidden cameras.
* Within-subjects manipulation (IV) - whether or not wore cloak
  + For 1st week, Ps are not given any sort of cloak.
  + For 2nd week, all Ps are given an invisibility cloak.
* Outcome (DV) – mischievous behavior (measure how many mischievous acts Ps perform when wearing cloak and when not wearing cloak)

*Null Hypothesis:*

Layout of your data file

Each participant will have data for two variables:

* 1 variable that captures the # of mischievous acts the P committed the week that the P ***was not*** wearing a cloak (*No\_Cloak* will be variable name.)
* 1 variable that captures the # of mischievous acts the P committed the week that the P ***was*** wearing a cloak (*Cloak* will be variable name.)

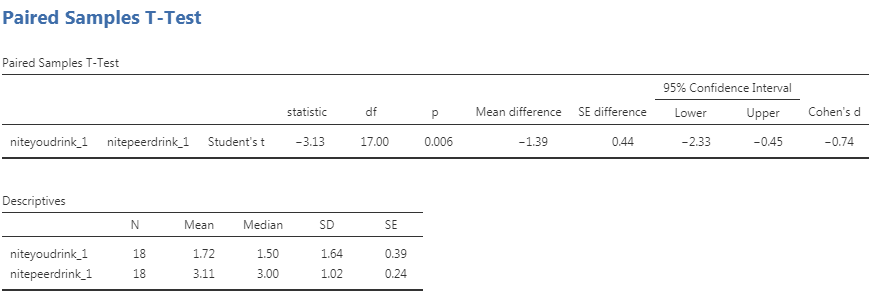


We ran a paired samples t-test to examine whether there were differences in mischievousness when people wore vs. did not wear an invisibility cloak. On average, when participants wore an invisibility cloak they engaged in significantly more acts of mischief (*M* = 5.00, *SE* = 0.48), than when they did not wear a cloak (*M* = 3.75, *SE* = 0.55), *t*(11) = −3.80, *p* = .003, 95% CI [-1.97, -0.53]. This difference represented a large effect, *d* = 1.10.

Research Question: Is students’ own frequency of drinking the same or different from their perceptions of how frequently their BSC peers drink?

Students answered two questions (variable names in parentheses):

* On average, how many nights per week do **you drink** alcoholic beverages? (nite**you**drink\_1)
* On average, how many nights per week do you think **the typical college student drinks** alcoholic beverages? (nite**peer**drink\_1)



1. What kind of research design (between-subj. or within-subj.) characterizes these data?
2. What is the independent/predictor variable? (describe it using a phrase)
3. What is the dependent/outcome variable? (describe it using a phrase)
4. How many students answered the two questions?
5. What does the number 3.11 represent, in the second table? (describe this number in a sentence)
6. What is the value of the test statistic, *t*?
7. Assume an alpha (α) of .05. Is there a significant difference between the frequency of students’ own drinking behavior and student perceptions of the frequency of their peers’ drinking behavior? Describe two pieces of evidence for your answer.
8. What is the effect size and how would you interpret that value?

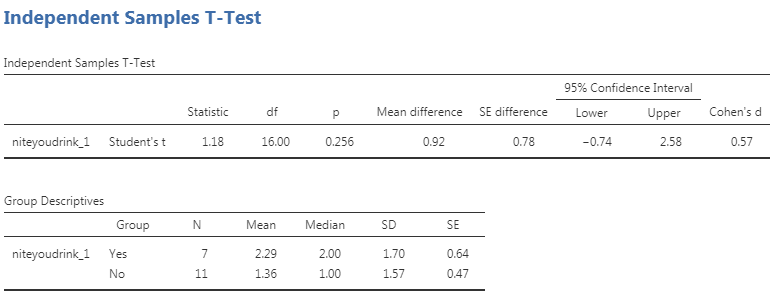
Fill in the APA-style template below. Round to 2 decimal places, except for p-values, where you’ll round to 3:

We ran a paired samples t-test to examine whether students’ own frequency of drinking was the same or different from their perceptions of how frequently their BSC peers drink. On average, participants themselves drink significantly [more/fewer?] nights per week (*M* = \_\_\_\_\_\_, *SE* = \_\_\_\_\_\_) than they estimate their peers to drink (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_), *t*(\_\_\_) = \_\_\_\_\_\_\_, *p* = \_\_\_\_\_\_, 95% CI [\_\_\_\_\_\_\_\_\_\_\_\_\_]. This difference represents a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect, *d* = \_\_\_\_\_\_.

Research Question: Do students involved in Greek life have the same or different frequency of drinking than students not involved in Greek life?

Students answered two questions (variable names in parentheses):

* On average, how many nights per week do you drink alcoholic beverages? (niteyoudrink\_1)
* Are you currently a member of a Greek organization, such as a fraternity or sorority? (greek)



1. What kind of research design (between-subj. or within-subj.) characterizes these data?
2. What is the independent/predictor variable? (describe it using a phrase)
3. What is the dependent/outcome variable? (describe it using a phrase)
4. What does the number 1.36 represent, in the second table? (i.e., describe this number in a sentence)
5. What is the value of the test statistic?
6. Assume an alpha (α) of .05. Is there a significant difference between Greeks and non-Greeks when it comes to the frequency of their drinking behavior? Describe two pieces of evidence for your answer.
7. For the prior example (the study on one’s own vs. peers’ drinking frequency), question 8 asked you to list and interpret the effect size. Why is that step not as important to do for this example?

Fill in the APA-style template below, rounding to 2 decimal places throughout.

We ran an independent samples t-test to examine potential differences in weekly drinking behavior among students involved and not involved in Greek life. While participants involved in Greek life appeared to drink more often (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) than those not involved in Greek life (*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*), this difference is not significant, *t*(\_\_\_) = \_\_\_\_\_\_\_\_\_, *p* = \_\_\_\_\_\_, 95% CI [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_].