

Causal asymmetry in intuitive theories of minds and brains (#26558)

Created: 08/06/2019 07:26 AM (PT)

Public: 08/01/2021 05:47 AM (PT)

Author(s)

Jussi Valtonen (New York University) - jussi.valtonen@helsinki.fi

Andrei Cimpian (New York University) - andrei.cimpian@nyu.edu

Woo-Kyoung Ahn (Yale University) - woo-kyoung.ahn@yale.edu

1) Have any data been collected for this study already?

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

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

Do mental health professionals endorse causally asymmetric beliefs about minds and brains? We have found that lay participants believe that mental processes are easier to change than brain processes, and that intervening on the mind will cause greater changes in the mind than in the brain, whereas intervening on the brain will change the mind and the brain more equally. We will investigate whether practicing clinicians hold similarly asymmetric beliefs.

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

- Expected changes in the mind and the brain from treatment with therapy and drugs:

Participants will read four clinical vignettes (two about characters with depression and two with anxiety). Each character either sees a therapist or takes drugs for 12 months. The participants will be asked two questions: (1) How much of a change did this treatment cause in the character's mental processes? (2) How much of a change did this treatment cause in the character's brain processes? Thus, there will be four (2 types of treatment X 2 mental vs. brain) questions: Ther-to-M, Ther-to-B, Med-to-M, Med-to-B. The responses will be quantified as 0-100.

- Expected changes in the mind and the brain in the abstract: Participants will be asked two questions. (B-to-M): When there is a change in a person's brain, how often would you say there is also a change in the person's mind? (M-to-B): When there is a change in a person's mind, how often would you say there is also a change in the person's brain?

- Expected changes in the mind and the brain from an imaginary intervention: Participants will be asked two questions. (FSB-to-M): Imagine that future scientists were able to alter exactly 25% of a person's brain. How much of a change would this cause in their mind? (FSM-to-B): Imagine that future scientists were able to alter exactly 25% of a person's mind. How much of a change would this cause in their brain?

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

Each participant will answer questions in all 2 x 2 x 2 conditions (anxiety vs. depression; therapy vs. medication; brain vs. mental processes). The participants will answer questions about both brain and mental processes for each vignette. One character with depression [anxiety] will receive medication and the other therapy.

All participants will also be asked the questions about change in the abstract, followed by the imaginary intervention questions.

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

The expected changes from therapy and drugs items will be analyzed using a repeated-measures 2x2x2 ANOVA (anxiety vs. depression; therapy vs. drugs; expected change in mental vs. brain processes). Our main interest will be in the interaction between intervention type (therapy vs. drugs) and expected effects on brain vs. mental processes. A statistically significant interaction, in which the participants expect therapy to affect mental processes more than brain processes, but drugs to affect mental and brain processes (more) equally, will be regarded as evidence that clinicians endorse causally asymmetric beliefs. We do not expect differences in the results between anxiety vs. depression, but more importantly, potential differences between anxiety vs. depression are not directly relevant for our main questions of interest.

The questions about change in the abstract and imaginary interventions will be analyzed using two separate paired-samples t-tests. A significant difference in the means in the hypothesized direction (i.e., that a change in the brain is accompanied by a change in the mind more often/to a greater extent than vice versa) will be considered as evidence for causally asymmetric beliefs.

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

Participants will be excluded who do not answer one or more of the main four vignette questions about expected changes in the mind and the brain from treatment with therapy and drugs. Participants will be excluded who state that they have worked 0 years as a licensed practitioner.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

Participants will be recruited until responses can be analyzed from approximately 170 participants, which is the sample size from our previous studies with lay participants.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

We will also analyze whether participants' expectations about the effects of therapy and drugs and of imaginary interventions correlate with their responses to the questions about expected changes in the abstract, as well as with what percentage of clients diagnosed with depression/anxiety the participants refer clients for prescriptions and/or prescribe psychiatric drugs for.

We will also ask demographic questions (gender identity, age, Hispanic/Latino/a/x, race, education, state they practice in) and the participants' orientation/approach to clinical work, how long they have worked as licensed practitioners, and whether they have the right to prescribe medications or not. In exploratory analyses, we will investigate the relationships between these variables and the ones described above, as well as test whether these variables moderate any of the effects above.