

## COVID-19 Misinformation study (#41240)

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### Author(s)

Ciara Greene (University College Dublin) - ciara.greene@ucd.ie

Gillian Murphy (University College Dublin) - gillian.murphy@ucc.ie

### 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?

Q1. How do misinformation warnings affect acceptance of misinformation from fake COVID-19 news stories?

Q2. How does exposure to misinformation about COVID-19 affect intended health behaviours? Is this effect moderated by exposure to a warning about fake news?

Q3. How do false memories for fake COVID-19 news stories influence intended health behaviours? Is this effect moderated by exposure to a warning about fake news?

Q4. How is perceived truthfulness of a story associated with related behavioural intentions?

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

Participants will read a series of true and false news stories relating to COVID-19. After each story, participants will be asked 'do you remember this event?'. Possible responses are a) I have a clear memory of seeing/hearing about this; b) I have a vague memory of this event occurring; c) I don't have a memory of this, but it feels familiar; d) I remember this differently and e) I don't remember this. Responses of a) or b) to the fake stories will be considered false memories.

We will measure both how many fake stories people remember (false memory count) and ability to discriminate between true and fake stories ( $d'$ , where hits are defined as memories for true stories and false alarms are defined as memories for fabricated stories). Participants will also report where they remember hearing/seeing each story.

Intention to engage in health-related behaviours will be recorded on a scale of 1 to 7. The critical behaviours related to the fake stories presented in the study are drink more coffee, eat more spicy food, download a contact tracing app and get a COVID vaccine.

After being informed about the possible presence of fake news, participants will be asked to rate the truthfulness of each story (0 = definitely not true, 100 = definitely true).

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

Participants will be assigned to one of four conditions, depending on the public health messages they are exposed to at the beginning of the study; Positive Fake News Warning, Negative Fake News Warning, No Fake News Warning, No Public Health Messages. All participants will view two of the four fake news stories (randomly assigned).

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

All analyses will be conducted using an alpha level of .05, two-tailed and Tukey post hoc tests where appropriate.

Q1a: We will conduct a one-way ANOVA, where the DV is false memory count (0-2) and the IV is warning condition (4 levels).

Q1b: Same analysis but assessing discrimination between true and false stories, using  $d'$  as the DV.

Q1c: A series of one-way ANOVAs (one for each true or false story) where the IV is warning condition and DV is truthfulness rating for that story.

Q2. For each of the four health behaviours, we will conduct a two-way ANOVA (IV1: exposure to related story, IV2 = warning condition; DV = planned behaviour change).

Q3. In addition, for each health behaviour we will conduct a two-way ANOVA amongst those who saw each fake story (IV1 = story response (remembered/did not remember), IV2 = warning condition; DV = planned behaviour change).

Q4. For each health behaviour, we will conduct Pearson's correlations between planned behaviour change and the truthfulness rating of the related story (analysis restricted to those who saw each story).

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

Participants will be excluded if they report using a search engine or asking someone for help during the survey, or if they fail both of our attention check questions.

Participants who state that they have already been infected with COVID-19 will be excluded from the analysis of behavioural intentions.

### 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.

No need to justify decision, but be precise about exactly how the number will be determined.

We are collaborating with a news media outlet to share our survey and so will make the survey available to all readers from 19th May 2020. We will stop data collection on 5th June 2020.

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

The number of sources selected for the true and false memory stories will be compared via independent samples t-test.

We will also record level of media engagement, subject knowledge and anxiety about COVID-19 to assess whether these variables predict false memories. Participants will be asked to complete the 7-item Cognitive Reflection Test also, but to maximise response rate this will not be compulsory. We will conduct a multiple linear regression, where the outcome variable is false memory count and the predictor variables are (1) COVID MCQ score (out of 10) (2) anxiety about COVID (3 item scale) (3) engagement with COVID media (3 item scale); (4) CRT score. Alpha level = .05, two-tailed. We will repeat this analysis using  $d'$  as the DV.