The effect of attribute framing on booster intentions (UPDATE TO: #78120) (#78369)

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1) Have any data been collected for this study already?
It's complicated. We have already collected some data but explain in Question 8 why readers may consider this a valid pre-registration nevertheless.

2) What's the main question being asked or hypothesis being tested in this study?
COVID-19 booster vaccine programmes are being implemented across an increasing number of countries. This includes the UK, where some individuals will be required to switch from their previous COVID-19 vaccine to a different vaccine type. However, treatment switches have previously been demonstrated to result in poorer health outcomes (e.g., Gasteiger et al., 2021; Doyle et al., 2010), which may reduce vaccine uptake.

The World Health Organisation (WHO) have suggested framing as a potential intervention to increase uptake, with attribute framing (O'Connor et al., 1996) producing the largest effect size of those studies reviewed.

The present study therefore investigates the role of attribute framing (positive vs. negative) and vaccine familiarity (framed information for: same booster as previous, different but familiar booster, different and unfamiliar booster) on self-report change in intention to be vaccinated pre-to-post framing manipulation.

It is hypothesised that, relative to a standard (negatively framed) Patient Information Leaflet (PIL), positive framing of side effects will increase willingness to be vaccinated. The effect of positive framing is anticipated to interact with vaccine familiarity, where the effect of framing is expected to be stronger for less familiar vaccines.

3) Describe the key dependent variable(s) specifying how they will be measured.
The primary outcome variable concerns intention to be vaccinated following the framing manipulation. This will be assessed via a single-item measure as follows: "If you were offered [framed vaccine type: Pfizer-BioNTech, AstraZeneca, Moderna] as a booster vaccine to maintain protection against COVID-19 viruses, how likely would you be to accept?". The item will be accompanied by a 100-point Visual Analogue Scale (VAS) with anchors at 0 (definitely would not accept vaccine) and 100 (definitely would accept vaccine).

Secondary outcome variables are: perception of booster vaccine risk (single-item); perception of booster vaccine side effect severity (single-item); vaccine contentment (data reduction of three items (satisfaction, happiness, anxiety) where intercorrelation exists); side effect risk perception (verbal descriptors and frequency of occurrence).

4) How many and which conditions will participants be assigned to?
The present study employs a factorial 2 (Framing Valence: positive vs. negative) * 3 (Vaccine Familiarity: PIL same as previous vaccination, PIL for different but familiar booster, PIL for different and unfamiliar booster) design. This results in randomisation to one of twelve different experimental conditions.

All participants will have previously received either the AstraZeneca or Pfizer COVID-19 vaccine (see inclusion criteria below), which account for the majority of vaccinations administered in the UK. This means that those in the ‘same as previous vaccine’ condition will view the PIL for either the AstraZeneca or Pfizer vaccine (dependent on their vaccine history). Those in the ‘different but familiar’ condition will see the PIL for the common vaccine (i.e., AstraZeneca/Pfizer) that they did not receive. Finally, those in the ‘different and unfamiliar’ condition will view the PIL for the Moderna vaccine (which has been less infrequently administered in the UK).

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
Primary analysis will consist of a between-subjects 2*3 ANCOVA, with baseline intentions (same wording as above) as the covariate. Orthogonal contrasts for the factor associated with Vaccine Familiarity will be coded as follows: Contrast 1 (different booster PILs [familiar and unfamiliar combined] vs. same PIL as previous vaccine); Contrast 2 (different but familiar PIL vs. different and unfamiliar PIL). Interactions between the two vaccine familiarity contrasts and the effect of framing will be performed.

Subsidiary ANCOVAs will be conducted on subsets of the data that represent the potential booster vaccine switches occurring in the UK. Representative of switches from AstraZeneca to Pfizer and Moderna, a 2 (Framing) * 2 (Vaccine Familiarity: different familiar [Pfizer] vs. different unfamiliar [Moderna]) ANCOVA will be conducted on data provided from those having received the AstraZeneca vaccine. Representative of a switch from Pfizer to Moderna, a one-way ANCOVA investigating the effect of framing (positive vs. negative) on the perception of the Moderna PIL will be performed among those receiving the Pfizer vaccine.
The same analyses will be applied to secondary outcomes with the relevant baseline measure as the covariate. This is with the exception of side effect risk perception, which is only measured post-manipulation and is therefore analysed without the inclusion of a baseline covariate.

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

Participants must:
1) be 18 years of age or older
2) be fluent English speakers
3) currently reside in the UK
4) have had two doses of either an AstraZeneca or Pfizer COVID-19 vaccine (no other combination)
5) not know of any medical reason (e.g., allergy) that would prohibit acceptance of either the AstraZeneca or the Pfizer COVID-19 vaccine
6) not have received a third booster dose of a COVID-19 vaccine

Participants will be screened and those ineligible to participate will be excluded prior to informed consent.

All serious attempts at survey completion will be retained in the dataset. Non-serious attempts are categorised as follows: 1) those completing the survey quicker than a reasonable reading rate (8 minutes, 5th percentile of soft-launch data); 2) failure to answer ‘catch’ questions appropriately; 3) stating that side effects were experienced, then skipping all specific side effect items (i.e., inconsistent answers); 4) difference in previous vaccine type (AstraZeneca vs. Pfizer) identified during screening and during the survey (i.e., inconsistent answers); 5) spending more than five minutes on the timed manipulation page; 6) respondents stating that they had receiving a specific vaccine then later stating that they had never heard of that vaccine (i.e., inconsistent answers); 7) consistently clicking on the same rating.

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.

We will stop testing once the full sample has been collected (1,200 participants) or until December 1st, 2021, whichever occurs first.

Sample size is determined by a power analysis for an additional supplementary study run in conjunction with the present pre-registration. To power this study, a power analysis with an alpha of .05 and power of 95% to detect a small effect size ($f^2 = 0.02$), for a regression model with up to 9 predictor variables, was conducted (N = 1,188). This number was then increased to ensure an equal number of participants were randomised across the 12 experimental conditions (each N = 100) in the present study.

Details of the pre-registration of this additional study can be found under the title: "Perceptions, beliefs, and attitudes towards COVID-19 booster vaccines: Predictors of vaccine uptake"

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

If the overall mean baseline booster intention is >90 out of 100, suggesting potential ceiling effects for baseline booster intentions in at least some participants, we will conduct subgroup sensitivity analysis repeating the main analyses for those with baseline intentions <90 and >=90, separately.

A soft launch (running 27th October 7:19pm – 28th October 4:47am AEDT) was conducted to confirm that the survey structure and procedure functioned as intended. 140 respondents provided complete data, of which 27 were excluded (final n = 113; 9.4% of the total sample).

After data cleaning, two additional exclusion criteria have been added. Nb. NO OTHER components of the pre-registration have been changed. Additional exclusions are: 1) participants spending five minutes or more reading the timed manipulation materials; 2) participants who respond that they received a previous vaccine type, then later indicate that they have never heard of that specific vaccine (i.e., inconsistent response). Based on soft launch data, we have also updated an existing exclusion criterion: participants will be removed when taking <=8 minutes to complete the survey (i.e., 5th percentile of the soft launch data).

No formal analysis was run on the collected data and we have retained our original preregistration submitted prior to any data collection (The effect of attribute framing on intention to receive a COVID-19 booster (#78120), created 10/26/2021 10:22 PM (PT)) for comparison.

##################################################################### IMPORTANT #####################################################################

This pre-registration is part of a set of similar and related pre-registrations sharing at least one author. When one of these pre-registrations was shared by an author, the rest were shared automatically. Links to all of them, including this one, appear below:

https://aspredicted.org/s8ra6.pdf