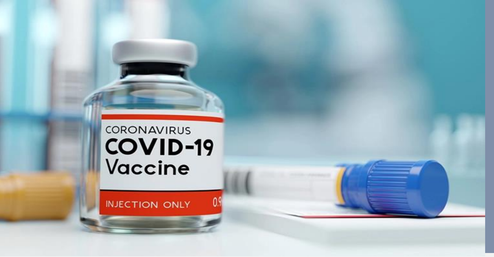


Effects of Priming on Self-Reported COVID-19 Vaccination Intention

Christopher S. Tapp, Kaila A. Kosuljandic, Aidan J. Sammel, Breanna M. Sutter, Tanvir R. Tiwana

KWANTLEN POLYTECHNIC UNIVERSITY

INTRODUCTION

- Vaccinations save two to three million lives yearly for more than 20 life threatening diseases (World Health Organization, n.d.c).
- As of February 2021, there have been over 2.5 million confirmed deaths due to COVID-19 (World Health Organization, n.d.a).
- Vaccine hesitancy is a roadblock for achieving herd immunity (Salmon et al., 2015).
- Liao et al. (2019) examined the possible effect on behavior choice due to priming.
- To explore strategies to combat vaccine hesitancy, we examined the effects of priming with vaccine information.
- **We hypothesized the following outcomes:**
  1) Benefit and balanced vaccine information groups would have an increased intention to receive the COVID-19 vaccine compared to the "no vaccine information" and "vaccine risk information" groups.
  2) "Risk information" group would have a decreased intention to receive the vaccine compared to the "no vaccine information" group.

METHODS

DESIGN

- A one-way between-subjects ANOVA was conducted with four groups: (1) no vaccine information (control group), (2) positively framed vaccine benefits, (3) balanced vaccine benefits and risks, and (4) negatively framed vaccine risks.

PARTICIPANTS

- Sample size n = 66. Participant ages ranged from 18 to 25 and were recruited online via KPU's Psychology research pool (SONA).
- **Group 1:** Control: n = 16 (88% female)
- **Group 2:** Vaccine benefits: n = 16 (81% female)
- **Group 3:** Balanced: n = 16 (81% female)
- **Group 4**: Vaccine risks: n = 18 (71% female)
- All participants received a 0.5% bonus mark for participation in this study.

MATERIALS

- A standard COVID-19 data sheet was provided to all conditions, which included information on confirmed cases and deaths, spread, persons at risk, symptoms, and prevention strategies, excluding vaccine information (Khazeni et al., 2009; Mayo Clinic, n.d; Shmerling, 2021; World Health Organization, n.d.b). Vaccine data sheets for each condition, provided no further information (group 1), only vaccine benefits information (group 2), balanced benefits and risks information (group 3), or only vaccine risks information (group 4).
- Select survey content used as originally presented or adjusted from the COVID-19 Community Response Survey toolkit/guide (National Library of Medicine, n.d.). The responses to this survey content were not analyzed and were used to hide our DV.
- A self-developed survey was created to measure participant intention to receive the COVID-19 vaccine, measured on a 6-point Likert scale.

METHODS CONTINUED

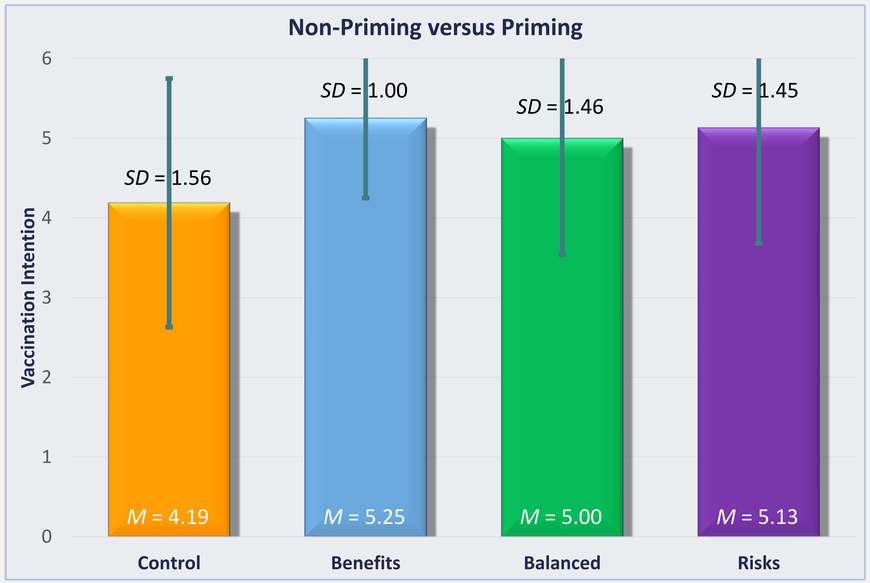
PROCEDURE

- Participants were randomly assigned to 1 of the 4 groups through Qualtrics: (1) no addition information, (2) benefit information, (3) balanced benefit and risks, (4) risk information.
- All groups read a standard text concerning the COVID-19 disease and pandemic, then read group-specific vaccination information. Participants then completed attention check questions before filling out the survey. Vaccination intention was one of the items in the survey. Participants were debriefed as to the purpose of the study upon completing the survey.

RESULTS

- After the assumptions of normality and homogeneity of variance were assessed and met, we conducted a one-way ANOVA that indicated no significant differences between the groups: $F(3,62) = 1.92$, $p = .136$, $\eta^2 = .08$.
- See Figure 1 for the group means and standard deviations.
- Tukey's post hoc test results between **control group** **vs** **vaccine benefit group** ($p = .144$, Cohen's $d = .77$), **control** **vs** **balanced group** ($p = .330$, Cohen's $d = .59$), and **control** **vs** **risk group** ($p = .233$, Cohen's $d = .68$) demonstrated no differences between the groups.

FIGURE 1: MEAN RESPONSES AND STANDARD DEVIATION



ACKNOWLEDGEMENTS

This study was completed as a research project for PSYC 2400. We would like to thank our instructor, Dr. Shayna Rusticus, for her recommendation, direction, and support with this project.

DISCUSSION

- Our hypotheses were not supported by our data. No significant difference was detected between groups, possibly due to small sample size.
- Because a medium effect size was detected, we conducted post hoc tests to examine differences between each group. Again, no significant difference was detected between groups and medium effect sizes were found between the control group and each of the vaccine information groups, including the risk information group.
- The medium effect size could suggest that there may be an effect and that our analysis may not have had enough power to detect this effect statistically. It may be worth repeating this study with a sufficient sample size. The study's strengths and limitations should be kept in mind.
- This experimental study has multiple strengths: Simple design, anonymous, relatively short survey, single blind, easily replicated.
- Possible reasons why our hypotheses were not supported: the small sample size, priming conditions between groups were not different enough or did not have intended effect due to ineffective construction, and our self-developed scale might not have measured what was intended.
- Strategies to decrease vaccine hesitancy and increase vaccination rates are important topics of study. Further exploration with larger sample sizes could provide clearer data. Our study's independent variables and survey could be checked and adjusted, if needed, to be more certain of effectiveness. Sample populations could be extended to include all adult ages, or other specific age groups, a better balance of participant gender to identify gender differences, and lastly a pretest/test design could be implemented to detect changes in vaccination intention before and after the vaccine information intervention.

REFERENCES

Khazeni, N., Hutton, D. W, Garber, A. M., Hubert, N., Owens, D. K. (2009). Effectiveness and cost-effectiveness of vaccine against influenza (H1N1) 2009. *Annals of Internal Medicine*, *151*(12), 829–839. https://doi.org/10.7326/0000605-200912150-00157

Liao, Q., Lam, W. W. T., Wong, C. K. H., Lam, C., Chen, J., & Fielding, R. (2019). The relative effects of determinants on Chinese adults' decision for influenza vaccination choice: What is the effect of priming? *Vaccine*, *37*(30), 4124–4132. https://doi.org/10.1016/j.vaccine.2019.05.072

Mayo Clinic. (n.d.). *Herd immunity and COVID-19 (coronavirus): What you need to know*. https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/herd-immunity-and-coronavirus/art-20486808

National Library of Medicine. (n.d.). *COVID-19.* https://www.nlm.nih.gov/dr2/JHU_COVID-19_Community_Response_Survey_v1.3.pdf

Salmon, D. A., Dudley, M. Z., Glanz, J. M., & Omer, S. B. (2015). Vaccine hesitancy: Causes, consequences, and a call to action. *American Journal of Preventive Medicine*, *49*(6, Supplement 4), S391–S398. https://doi.org/10.1016/j.amepre.2015.06.009

Shmerling, R. H. (2021, February 8). *COVID-19 vaccines: Safety, side effects — and coincidence*. Harvard Health Blog. https://www.health.harvard.edu/blog/covid-19-vaccines-safety-side-effects-and-coincidence-2021020821906

World Health Organization. (n.d.a). *WHO coronavirus (COVID-19) dashboard*. https://covid19.who.int/

World Health Organization. (n.d.b). *Vaccines and immunization*. https://www.who.int/westernpacific/healthtopics/vaccines-and-immunization

World Health Organization, (n.d.c). *COVID-19 vaccines*. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines