



4-25-2023

## Unvaxxed and Unafraid: Unvaccinated Americans Perceive Less Disease Risk Than Do Vaccinated Americans

David J. Hauser  
*Queen's University*

Brian P. Meier  
*Gettysburg College*

Follow this and additional works at: <https://cupola.gettysburg.edu/psyfac>



Part of the [Health Psychology Commons](#), [Personality and Social Contexts Commons](#), and the [Social Psychology Commons](#)

**Share feedback** about the accessibility of this item.

---

### Recommended Citation

Hauser, D. J., & Meier, B. P. (2023). Unvaxxed and unafraid: Unvaccinated Americans perceive less disease risk than do vaccinated Americans. *Social and Personality Psychology Compass*, e12749. <https://doi.org/10.1111/spc3.12749>

This open access article is brought to you by The Cupola: Scholarship at Gettysburg College. It has been accepted for inclusion by an authorized administrator of The Cupola. For more information, please contact [cupola@gettysburg.edu](mailto:cupola@gettysburg.edu).

---

# Unvaxxed and Unafraid: Unvaccinated Americans Perceive Less Disease Risk Than Do Vaccinated Americans

## Abstract

Is disease risk perception accurately calibrated among the unvaccinated? People shift their attitudes to rationalize their choices, so those who choose to be unvaccinated may be motivated to feel less at risk. In three studies (total N = 1446), we asked Americans how worried they were about catching/spreading influenza and COVID-19 and whether they were vaccinated against those diseases. Unvaccinated participants felt less at risk of catching/spreading the diseases they were unvaccinated against than vaccinated participants. For instance, unvaccinated participants felt ~24% less at risk of catching/spreading COVID-19 and had ~28% stronger intention to engage in activities that carried a high risk of COVID-19 transmission (Study 3). Overall, those who choose to be the most vulnerable to disease feel and act the least vulnerable.

## Keywords

behavioral intentions, cognitive dissonance, COVID-19, health decision-making, influenza, risk perception, vaccination

## Disciplines

Health Psychology | Personality and Social Contexts | Psychology | Social Psychology

## Creative Commons License



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

# Unvaxxed and unafraid: Unvaccinated Americans perceive less disease risk than do vaccinated Americans

David J. Hauser<sup>1</sup>  | Brian P. Meier<sup>2</sup> 

<sup>1</sup>Department of Psychology, Queen's University, Kingston, Ontario, Canada

<sup>2</sup>Department of Psychology, Gettysburg College, Gettysburg, Pennsylvania, USA

## Correspondence

David J. Hauser.

Email: [david.hauser@queensu.ca](mailto:david.hauser@queensu.ca)

## Abstract

Is disease risk perception accurately calibrated among the unvaccinated? People shift their attitudes to rationalize their choices, so those who choose to be unvaccinated may be motivated to feel less at risk. In three studies (total  $N = 1446$ ), we asked Americans how worried they were about catching/spreading influenza and COVID-19 and whether they were vaccinated against those diseases. Unvaccinated participants felt less at risk of catching/spreading the diseases they were unvaccinated against than vaccinated participants. For instance, unvaccinated participants felt ~24% less at risk of catching/spreading COVID-19 and had ~28% stronger intention to engage in activities that carried a high risk of COVID-19 transmission (Study 3). Overall, those who choose to be the most vulnerable to disease feel and act the least vulnerable.

## KEYWORDS

behavioral intentions, cognitive dissonance, COVID-19, health decision-making, influenza, risk perception, vaccination

## 1 | INTRODUCTION

Being vaccinated against a disease substantially reduces the risk of catching and spreading the disease (MMR, CDC, 2021a; seasonal influenza, CDC, 2021b; COVID-19, Harris et al., 2021; Tenforde et al., 2021; Thompson et al., 2021). But is the perception of disease risk for vaccinated/unvaccinated persons aligned with the scientific

-----  
This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2023 The Authors. Social and Personality Psychology Compass published by John Wiley & Sons Ltd.

reality of their situations? If people are rational consumers of scientific information (Brown, 2009; Sturgis & Allum, 2004), risk perception should be aligned with scientific evidence. News media (e.g. CNN; McPhillips, 2021), public health campaigns (such as those disseminated by the CDC; CDC, 2023), and government officials (Caldwell et al., 2022) provide facts about the benefits of vaccines and the risks of remaining unvaccinated. This should accurately calibrate perceptions of risk for vaccinated/unvaccinated individuals. Vaccinated people should feel at low risk of getting/spreading the diseases for which they are vaccinated, and unvaccinated people should feel at high risk of getting/spreading the diseases against which they are unprotected. Additionally, because risk perception motivates caution (Brewer et al., 2007), unvaccinated people should act more cautiously to prevent catching/spreading the diseases against which they are unprotected.

However, disease risk perception among vaccinated/unvaccinated individuals may not align with scientific reality because risk perception is attuned to choice. As predicted by cognitive dissonance theory, people shift their attitudes to correspond with already-made choices (Festinger, 1957). Choosing to be unvaccinated and feeling vulnerable to catching a disease are dissonant thoughts. Beliefs are easier to change than already-made choices (Festinger, 1957), so unvaccinated individuals may be motivated to view themselves as having a low risk of contracting the disease against which they are unprotected and act less cautiously than vaccinated individuals. Also, unvaccinated individuals may consume media that is congenial to their choices (e.g., stories that COVID-19 is not real, that vaccines are ineffective, etc; Hart et al., 2009), effectively inhabiting a different reality that is divorced from scientific consensus.

Additionally, attitudes determine choices (Fishbein & Ajzen, 1975). COVID-19 risk perception may influence peoples' decisions to get vaccinated. Those who are less worried about a disease often have less intention to get vaccinated against it; for instance, at the onset of the COVID-19 pandemic, individuals who perceived less risk of COVID-19 had less intention to get vaccinated against it when a vaccine would become available in the future (Meier et al., 2021). Thus, people who initially felt less vulnerable to COVID-19 likely chose to forgo vaccination and people who felt more vulnerable to COVID-19 likely chose to get vaccinated. This process could potentially widen the gap in risk perception for the disease among the vaccinated/unvaccinated.

As a result, disease risk perception may be opposite of scientific reality; unvaccinated individuals may instead feel less at risk of catching/spreading a disease against which they are unvaccinated than vaccinated individuals, and unvaccinated individuals may have stronger intention to engage in activities that carry a high risk of disease transmission than vaccinated individuals. If this were the case, it suggests that the unvaccinated and unprotected feel and act more invulnerable to easily communicable diseases than the vaccinated. Individual choice may outweigh science communication in shaping disease risk perception.

In the current research, we ask: Do unvaccinated Americans feel less at risk of catching and spreading diseases against which they are unvaccinated than vaccinated Americans? Relatedly, do people who are unvaccinated have weaker intention to engage in activities that carry a high risk of disease transmission than those who are vaccinated?

We examined these questions in three surveys conducted on Americans in 2021. Studies were approved by the authors' ethical review boards and informed consent was obtained from all participants. In Study 1, American participants rated how worried they were about catching and spreading seasonal influenza. In Study 2, American participants rated how worried they were about catching and spreading and COVID-19 in several activities that carried a high risk of respiratory disease transmission (e.g., going to an indoor bar or nightclub where no mask is required). Study 3 replicated Study 2 but also asked American participants to indicate how strongly they intended to engage in these risky activities if invited. In all studies, participants (total  $N = 1446$ ) indicated their current vaccination status. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. All preregistrations, materials, data, and analysis code can be found at [https://osf.io/73qn2/?view\\_only=508b1afe15c54642b7f0a4f7180c79b6](https://osf.io/73qn2/?view_only=508b1afe15c54642b7f0a4f7180c79b6). See the Supporting Information S1 for more details about participant recruitment, additional measures, and additional analyses.

## 2 | STUDY 1

Study 1 assessed whether risk perception of seasonal influenza is skewed by vaccination status. Participants reported how worried they were about catching and spreading seasonal influenza and indicated their vaccination status. If beliefs are skewed by choices, then unvaccinated individuals should perceive themselves to be at less risk of catching and spreading the flu than unvaccinated individuals.

### 2.1 | Method

#### 2.1.1 | Participants

We sought an  $N$  over 350 in order to surpass 80% power for detecting an effect size between independent groups of  $d = 0.3$ , which we deemed to be the smallest effect size of interest (Faul et al., 2007). We recruited a sample of 393 participants from Prolific Academic (29% men, 70% women, <1% non-binary, <1% agender; age range 18–78; 32% vaccinated against influenza and 68% not vaccinated against influenza).

#### 2.1.2 | Materials and procedure

On 3 November 2021, participants were directed to an English-language online survey where they answered two questions related to their perceived risk of influenza. One question focused on their perceived risk of contracting the flu (i.e., “How worried are you about contracting influenza or the flu?”) and the other question focused on their perceived risk of spreading the flu (i.e., “How worried are you about inadvertently spreading influenza or the flu?”). Both questions were answered on a 7-point scale (1 = not at all worried to 7 = extremely worried). The responses were strongly correlated ( $r = 0.65$ ,  $p < 0.001$ ), so we computed an average flu risk perception ( $M = 3.42$ ;  $SD = 1.41$ ).

Participants also reported if they had been vaccinated against the flu this year (forced choice: no or yes). After completing the questionnaire, participants were debriefed and compensated.

### 2.2 | Results and discussion

Vaccination status predicted flu risk perception,  $t(391) = 3.61$ ,  $p < 0.001$ ,  $d = 0.39$ , 95% CI for the mean group difference [0.3, 0.8]. As shown in Figure 1, despite being more at risk of contracting/spreading the flu, unvaccinated participants perceived themselves to be less at risk of contracting/spreading it ( $M = 3.25$ ;  $SD = 1.38$ ) compared to vaccinated participants ( $M = 3.79$ ;  $SD = 1.42$ ).

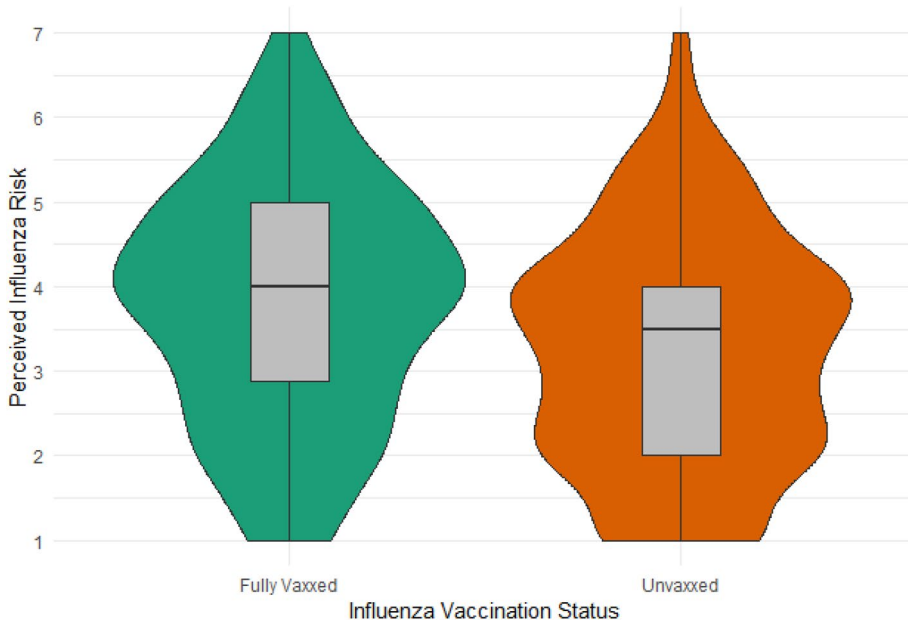
## 3 | STUDY 2

Study 2 examined the generalizability of the effect. Study 1 focused on seasonal influenza and, in Study 2, we assessed whether unvaccinated individuals perceived less risk of COVID-19 than vaccinated individuals.

### 3.1 | Method

#### 3.1.1 | Participants

We sought an  $N$  over 350 in order to surpass 80% power for detecting an effect size between independent groups of  $d = 0.3$ , which we deemed to be the smallest effect size of interest (Faul et al., 2007). We recruited a sample of 453 participants from CloudResearch's Approved List of Amazon Mechanical Turk workers (Hauser et al., 2022).



**FIGURE 1** Perceived risk of influenza by vaccination status in Study 1. Width of violin plot denotes frequency of responses at mean risk level. Gray boxes denote interquartile ranges: 25th, 50th, and 75th percentile responses corresponding to the bottom, middle, and upper horizontal lines, respectively.

Demographic breakdown is as follows: 47% men, 53% women, <1% non-binary; age range 18–76; 61% fully vaccinated against COVID-19, 5% partially vaccinated, 34% unvaccinated.

### 3.1.2 | Materials and procedure

On 3 June 2021, participants were directed to an English-language online survey. They first read a paragraph about the COVID-19 pandemic that either metaphorically described it as a battle, metaphorically described it as a wild-fire, or described it using literal language (randomly assigned between subjects). This manipulation had no effect on risk perception, nor did it interact with vaccination status, so it will not be discussed further. See [https://osf.io/73qn2/?view\\_only=508b1afe15c54642b7f0a4f7180c79b6](https://osf.io/73qn2/?view_only=508b1afe15c54642b7f0a4f7180c79b6) for more details.

Participants then read five activities (order randomized) that carried substantial risk of COVID-19 transmission as identified by the CDC (CDC, 2021c):

- going over to a trustworthy friend's house for dinner indoors, wearing no mask and staying physically distant from them;
- visiting an elderly friend or elderly relative indoors in their home for an afternoon, wearing a mask and staying physically distant from them;
- taking a cross-country flight where every seat is filled and you and all of the other passengers are wearing masks;
- eating with friends indoors at a restaurant, wearing no mask while seated and staying physically distant from other parties;
- going to an indoor bar or nightclub with friends, where no mask is required at your table.

For each activity, participants rated how worried they were about catching COVID-19 in this situation on a seven point unipolar scale (1 = not at all worried; 7 = extremely worried) and how worried they were about inadvertently spreading COVID-19 in this situation on a seven point unipolar scale (1 = not at all worried; 7 = extremely worried).

Finally, participants completed a comprehension check and indicated their vaccination status from the following options: I am fully vaccinated against COVID-19; I am partially vaccinated against COVID-19; I am not vaccinated against COVID-19. The study did not specify the difference between “fully vaccinated” and “partially vaccinated.” However, this study was conducted in June of 2021, and during this phase of the COVID-19 pandemic, booster doses (i.e., third doses of Pfizer or Moderna) had not yet been made available to the American public (U.S. FDA, 2021). The popular convention at the time was that a person in America was “fully vaccinated” after having received two doses of Pfizer or Moderna and was “partially vaccinated” if they had received just one dose and not yet had their second dose.

After completing other demographic questions (gender, age, state of residence, etc), participants were debriefed and compensated.

### 3.2 | Results and discussion

Principal components analysis suggested the 10 ratings of worry about catching and spreading COVID-19 across activities all loaded positively onto a single factor. Thus, all ratings were averaged together to form a risk perception index ( $\alpha = 0.96$ ).

As shown in Figure 2, vaccination status predicted risk perception in Study 2,  $F(2, 450) = 20.53, p < 0.001$ , partial  $\eta^2 = 0.08$  for the omnibus main effect. Unvaccinated Americans perceived less risk of catching/spreading COVID-19 ( $M = 3.05, SD = 1.75$ ) than did vaccinated Americans ( $M = 4.11, SD = 1.62$ ),  $t(450) = 6.35, p < 0.001, d = 0.61$ , 95% CI for the mean group difference [0.7, 1.4] for the planned contrast of fully vaccinated versus unvaccinated groups. Despite being more at risk of contracting/spreading COVID-19, unvaccinated Americans perceive themselves to be less at risk of contracting/spreading the disease.

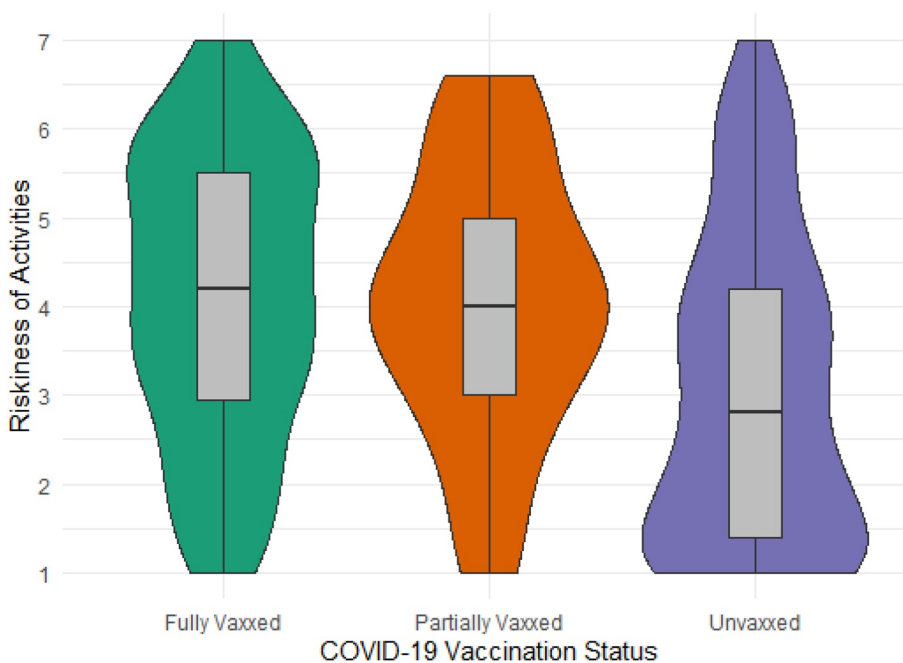


FIGURE 2 Perceived riskiness of activities by COVID-19 vaccination status in Study 2. Width of violin plot denotes frequency of responses at mean risk level. Gray boxes denote interquartile ranges: 25th, 50th, and 75th percentile responses corresponding to the bottom, middle, and upper horizontal lines, respectively.

## 4 | STUDY 3

Study 3 sought to replicate the effect from Studies 1 and 2 in a preregistered study on a new sample and with riskier behaviors. Additionally, Study 3 included a measure of risky behavior intention to assess whether unvaccinated individuals had stronger intention to engage in behaviors that carried a high risk of COVID-19 transmission.

### 4.1 | Method

#### 4.1.1 | Participants

We sought an  $N$  over 200 in order to surpass 99% power for detecting an effect size between independent groups of  $d = 0.61$ , the effect size observed in Study 2 (Faul et al., 2007). We recruited a sample of 600 participants from Prolific Academic (45% men, 53% women, 2% non-binary, <1% preferred not to disclose; age range 18–73; 48% fully vaccinated against COVID-19, 5% partially vaccinated, 47% unvaccinated).

#### 4.1.2 | Materials and procedure

On 15 June 2021, participants were directed to an English-language online survey. They first assessed five activities (order randomized) that carried substantial risk of COVID-19 transmission. These activities were similar to those used in Study 2 but modified to potentially carry even more risk of COVID-19 transmission. This modification was made to assess whether vaccination status predicted risk perception in unambiguously risky contexts. The items follow:

- going over to an unvaccinated friend's house for dinner indoors where no one will wear masks;
- visiting an unvaccinated elderly friend or elderly relative indoors in their home for an afternoon where no one will wear masks;
- taking a cross-country flight where every seat is filled and you and all of the other passengers not required to wear masks;
- eating with six unvaccinated friends indoors at a restaurant, wearing no mask while seated but staying physically distant from other parties;
- going to an indoor bar or nightclub with friends, where no mask is required.

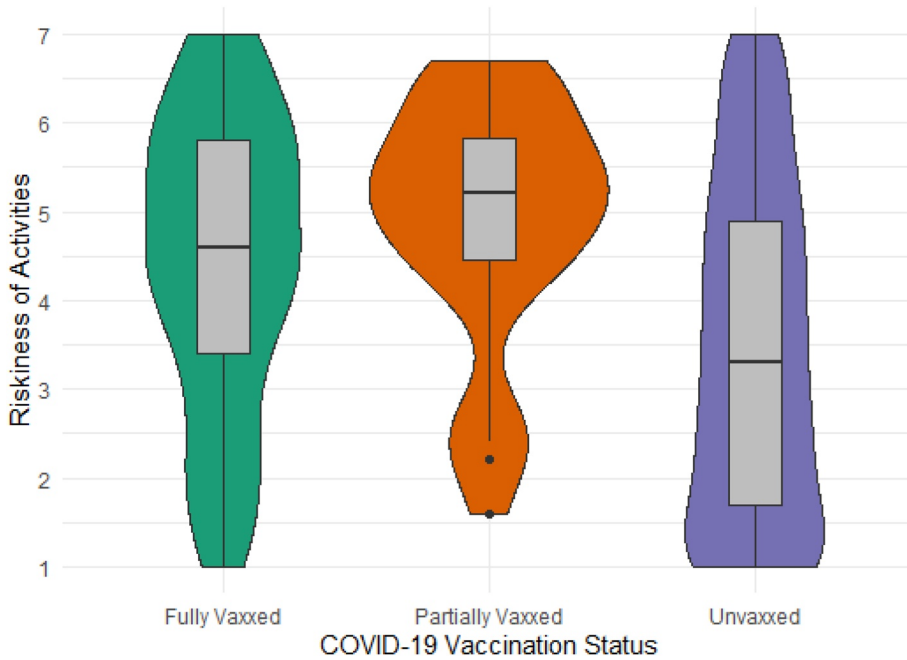
For each activity, participants rated how worried they were about catching COVID-19 in this situation on a seven point unipolar scale (1 = not at all worried; 7 = extremely worried), how worried they were about inadvertently spreading COVID-19 in this situation on a seven point unipolar scale (1 = not at all worried; 7 = extremely worried), and how strongly they would intend to participate in this activity if invited on a seven point unipolar scale (1 = very little intention; 7 = very strong intention).

Finally, participants indicated their vaccination status from the following options: I am fully vaccinated against COVID-19; I am partially vaccinated against COVID-19; I am not vaccinated against COVID-19. After completing other demographic questions (gender, age, state of residence, etc), the survey ended and participants were debriefed and compensated.

### 4.2 | Results and discussion

Principal components analysis of risk ratings (worry about catching COVID-19 and worry about spreading COVID-19) in each activity and intent to engage in each activity suggested a two factor solution. All risk ratings loaded positively





**FIGURE 3** Perceived riskiness of activities by COVID-19 vaccination status in Study 3. Width of violin plot denotes frequency of responses at mean risk level. Gray boxes denote interquartile ranges: 25th, 50th, and 75th percentile responses corresponding to the bottom, middle, and upper horizontal lines, respectively.

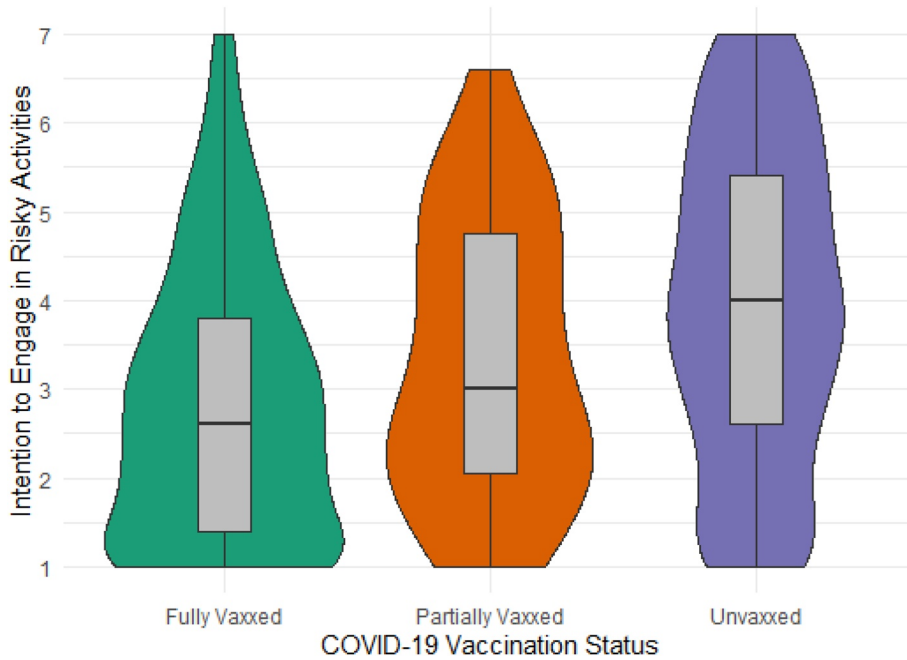
onto one factor, and all intent ratings loaded positively onto another factor. All risk ratings were averaged together to form a risk perception index ( $\alpha = 0.96$ ) and all intent ratings were averaged to form a behavioral intention index ( $\alpha = 0.90$ ).

As shown in Figure 3, Study 3 replicated the findings from previous studies. Vaccination status predicted risk perception,  $F(2, 597) = 26.42, p < 0.001$ , partial  $\eta^2 = 0.08$  for the omnibus main effect. Unvaccinated Americans perceived less risk of catching/spreading COVID-19 ( $M = 3.45, SD = 1.86$ ) than vaccinated Americans ( $M = 4.42, SD = 1.65$ ),  $t(597) = 6.67, p < 0.001, d = 0.52$ , 95% CI for the mean group difference [0.7, 1.3] for the planned contrast. Despite being more at risk of contracting/spreading COVID-19, unvaccinated Americans perceive themselves to be less at risk of contracting/spreading the disease.

Do unvaccinated Americans also more strongly intend to engage in activities that carry a high risk of COVID-19 transmission? As shown in Figure 4, vaccination status also predicted behavioral intentions,  $F(2, 597) = 32.39, p < 0.001$ , partial  $\eta^2 = 0.10$  for the omnibus main effect. Unvaccinated Americans more strongly intended to engage in activities that carried a high risk of COVID-19 transmission ( $M = 3.95, SD = 1.77$ ) than vaccinated Americans ( $M = 2.84, SD = 1.54$ ),  $t(597) = 8.05, p < 0.001, d = 0.63$ , 95% CI for the mean group difference [0.8, 1.4] for the planned contrast. Despite being more at risk of contracting/spreading COVID-19 in these activities, unvaccinated Americans more strongly intend to participate in these activities than vaccinated Americans.

## 5 | GENERAL DISCUSSION

Is disease risk perception among the unvaccinated aligned with scientific reality, or is it skewed by choices? Evidence suggests the latter. Across three studies, unvaccinated Americans perceived less risk of diseases against which they were unvaccinated compared to their vaccinated counterparts. Further, Study 3 demonstrated that Americans who



**FIGURE 4** Intention to engage in risky activities by COVID-19 vaccination status in Study 3. Width of violin plot denotes frequency of responses at mean intention level. Gray boxes denote interquartile ranges: 25th, 50th, and 75th percentile responses corresponding to the bottom, middle, and upper horizontal lines, respectively.

were unvaccinated against COVID-19 had stronger intention to engage in activities that carried a high risk of transmitting COVID-19 compared to their vaccinated counterparts. Overall, those who choose to be the most vulnerable to disease feel and act the least vulnerable. One's motivation to make the correct choice is often outweighed by one's motivation to see their choice as correct (Festinger, 1957).

The current findings imply that educating the public about the benefits of vaccines or the risks of remaining unvaccinated may not be sufficient means for increasing vaccine uptake in the hesitant. Many public health institutions endorse an 'educate and encourage' approach to increasing vaccine uptake. For instance, the World Health Organization suggests that increasing vaccine accessibility (e.g., making it available for those who want it), combined with information campaigns, are the key to encouraging vaccination uptake for COVID-19 and other diseases in general (WHO, 2021). The implicit assumption is that educating and encouraging the public will improve public health by accurately calibrating disease risk perception; unvaccinated individuals will learn that they are vulnerable, encouraging them to seek vaccination. However, we find that despite ample science communication and education opportunities, unvaccinated individuals actually feel and act less vulnerable to the diseases they are unvaccinated against than vaccinated individuals. Risk perception is opposite of scientific reality, likely swayed more by choices than by facts. Messages that focus on risk alone may not accurately calibrate risk perception.

One caveat to the current findings is that the choice to be unvaccinated must be a free choice. People are not motivated to rationalize choices they were forced or coerced to make (Linder et al., 1967). Likewise, we expect our findings to only apply to populations for whom vaccinations are plentiful and available. Some people may be unvaccinated not by choice but rather because of a lack of availability of vaccines or lack of opportunities to get vaccinated. We do not expect our results to generalize to this population; people only rationalize choices they make freely.

Hesitancy to be vaccinated in general occurs for a number of reasons (e.g., political influences, media influences, individual differences, implicit and explicit attitudes; Dubé et al., 2013; Hornsey et al., 2018; Howell et al., 2022). The current results suggest that for those who choose to be unvaccinated, risk perception is skewed. This faulty

risk perception could be both a cause and a consequence of vaccine hesitancy. Overall, those who choose to be the most vulnerable to disease feel and act the least vulnerable. Science communication, public health campaigns, facts, fear appeals, etc may not be enough to accurately calibrate risk perception of unvaccinated individuals because they fail to account for the power that choosing to be unvaccinated has on lessening the perceived risk of catching and transmitting diseases.

## AUTHOR CONTRIBUTIONS

David J. Hauser conceptualized the project idea. Brian P. Meier designed, conducted, and analyzed Study 1. David J. Hauser designed, conducted, and analyzed Study 2. Both Brian P. Meier and David J. Hauser designed, conducted, and analyzed Study 3. David J. Hauser drafted the manuscript upon which Brian P. Meier made revisions.

## ACKNOWLEDGMENTS

We thank Kira Atkinson and Michelle Cham for their assistance with designing the studies.

## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in OSF at <https://osf.io/73qn2/>.

## ORCID

David J. Hauser  <https://orcid.org/0000-0002-5480-5213>

Brian P. Meier  <https://orcid.org/0000-0003-4910-0873>

## REFERENCES

- Brewer, N. T., Chapman, G. B., Gibbons, F. X., Gerrard, M., McCaul, K. D., & Weinstein, N. D. (2007). Meta-analysis of the relationship between risk perception and health behavior: The example of vaccination. *Health Psychology, 26*(2), 136–145. <https://doi.org/10.1037/0278-6133.26.2.136>
- Brown, S. (2009). The new deficit model. *Nature Nanotechnology, 4*(10), 609–611. <https://doi.org/10.1038/nnano.2009.278>
- Caldwell, T., Hanna, J., McPhillips, D., & Maxouris, C. (2022). 'The highly contagious omicron variant will 'find just about everybody,' Fauci says, but vaccinated people will still fare better. CNN. <https://www.cnn.com/2022/01/11/health/us-coronavirus-tuesday/index.html>
- CDC. (2021a). Activities, gatherings, & holidays. Retrieved January 11, 2022, from <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/index.html>
- CDC. (2021b). CDC seasonal flu vaccine effectiveness studies. Retrieved January 11, 2022, from <https://www.cdc.gov/flu/vaccines-work/effectiveness-studies.htm>
- CDC. (2021c). Measles, Mumps, and Rubella (MMR) vaccination: What everyone should know. Retrieved January 11, 2022, from <https://www.cdc.gov/vaccines/vpd/mmr/public/index.html>
- CDC. (2023). Factors that affect your risk of getting very sick from COVID-19. Retrieved February 22, 2023, from <https://www.cdc.gov/coronavirus/2019-ncov/your-health/risks-getting-very-sick.html>
- Dubé, E., Loberge, C., Guay, M., Bramadat, P., Roy, R., & Bettinger, J. A. (2013). Vaccine hesitancy: An overview. *Human Vaccines & Immunotherapeutics, 9*(8), 1763–1773. <https://doi.org/10.4161/hv.24657>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. <https://doi.org/10.3758/bf03193146>
- U.S. FDA. (2021). FDA authorizes booster dose of pfizer-BioNTech COVID-19 vaccine for certain populations. Retrieved February 22, 2023, from <https://www.fda.gov/news-events/press-announcements/fda-authorizes-booster-dose-pfizer-biontech-covid-19-vaccine-certain-populations>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Addison-Wesley.
- Harris, R. J., Hall, J. A., Zaidi, A., Andrews, N. J., Dunbar, J. K., & Dabrera, G. (2021). Effect of vaccination on household transmission of SARS-CoV-2 in England. *New England Journal of Medicine, 385*(8), 759–760. <https://doi.org/10.1056/nejmc2107717>

- Hart, W., Albarracín, D., Eagly, A. H., Brechan, I., Lindberg, M. J., & Merrill, L. (2009). Feeling validated versus being correct: A meta-analysis of selective exposure to information. *Psychological Bulletin*, 135(4), 555–588. <https://doi.org/10.1037/a0015701>
- Hauser, D. J., Moss, A. J., Rosenzweig, C., Robinson, J., & Litman, L. (2022). Evaluating CloudResearch's Approved Group as a solution for problematic data quality on MTurk. *Behavior Research Methods*. <https://doi.org/10.3758/s13428-022-01999-x>
- Hornsey, M. J., Harris, E. A., & Fielding, K. S. (2018). The psychological roots of anti-vaccination attitudes: A 24-nation investigation. *Health Psychology*, 37(4), 307–315. <https://doi.org/10.1037/hea0000586>
- Howell, J. L., Gasser, M. L., Kaysen, D., & Lindgren, K. P. (2022). Understanding parental vaccine refusal: Implicit and explicit associations about vaccines as potential building blocks of vaccine beliefs and behavior. *Social Science & Medicine*, 310, 115275. <https://doi.org/10.1016/j.socscimed.2022.115275>
- Linder, D. E., Cooper, J., & Jones, E. E. (1967). Decision freedom as a determinant of the role of incentive magnitude in attitude change. *Journal of Personality and Social Psychology*, 6(3), 245–254. <https://doi.org/10.1037/h0021220>
- McPhillips, D. (2021). *New CDC data shows the risk of dying from Covid-19 is 11 times higher for unvaccinated adults than for fully vaccinated adults*. CNN. Retrieved from <https://www.cnn.com/2021/10/15/health/cdc-covid-risk-higher-unvaccinated/index.html>
- Meier, B. P., Dillard, A. J., & Lappas, C. M. (2021). Predictors of the intention to receive a SARS-CoV-2 vaccine. *Journal of Public Health*.
- Romer, D., & Jamieson, K. H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the US. *Social Science & Medicine*, 263, 113356. <https://doi.org/10.1016/j.socscimed.2020.113356>
- Sturgis, P., & Allum, N. (2004). Science in society: Re-evaluating the deficit model of public attitudes. *Public Understanding of Science*, 13(1), 55–74. <https://doi.org/10.1177/0963662504042690>
- Tenforde, M. W., Self, W. H., Naioti, E. A., Ginde, A. A., Douin, D. J., Olson, S. M.,..., & Bongu, J. (2021). Sustained effectiveness of Pfizer-BioNTech and Moderna vaccines against COVID-19 associated hospitalizations among adults—United States, March–July 2021. *Morbidity and Mortality Weekly Report*, 70(34), 1156.
- Thompson, M. G., Burgess, J. L., Naleway, A. L., Tyner, H. L., Yoon, S. K., Meece, J., Olsho, L. E., Caban-Martinez, A. J., Fowlkes, A., Lutrick, K., Kuntz, J. L., Dunnigan, K., Odean, M. J., Hegmann, K. T., Stefanski, E., Edwards, L. J., Schaefer-Solle, N., Grant, L., Ellingson, K.,..., & Gaglani, M. (2021). Interim estimates of vaccine effectiveness of BNT162b2 and mRNA-1273 COVID-19 vaccines in preventing SARS-CoV-2 infection among health care personnel, first responders, and other essential and frontline workers—Eight US locations, December 2020–March 2021. *Morbidity and Mortality Weekly Report*, 70(13), 495–500. <https://doi.org/10.15585/mmwr.mm7013e3>
- WHO. (2021). COVID-19 and mandatory vaccination: Ethical considerations and caveats. Retrieved January 11, 2022, from <https://www.who.int/publications/i/item/WHO-2019-nCoV-Policy-brief-Mandatory-vaccination-2021.1>

## AUTHOR BIOGRAPHIES

**David J. Hauser** is an assistant professor of personality-social psychology at Queen's University in Kingston, Ontario. His research examines judgment and decision-making, namely how aspects of communication guides inferences, preferences, and reasoning.

**Brian P. Meier** is a professor of psychology at Gettysburg College in Gettysburg, Pennsylvania. His research examines on the social-cognitive mechanisms of behavior and personality, with focus on health-related behavior, the naturalness bias, mindfulness, religion, embodiment, and pro-social behavior.

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Hauser, D. J., & Meier, B. P. (2023). Unvaxxed and unafraid: Unvaccinated Americans perceive less disease risk than do vaccinated Americans. *Social and Personality Psychology Compass*, 17(7), e12749. <https://doi.org/10.1111/spc3.12749>