Understanding of and Trust in the Centers for Disease Control and Prevention’s Revised COVID-19 Isolation and Quarantine Guidance Among US Adults

On December 27, 2021, the Centers for Disease Control and Prevention (CDC) announced changes to their guidance for individuals who are exposed to or test positive for COVID-19. The revised recommendations have prompted widespread discussion of both the scientific rationale and communication strategy, including criticism from the American Medical Association. In this survey study, we assessed understanding of and trust in the CDC’s initial public statement about the new guidance among US adults.

We administered the online survey to 603 participants recruited through Prolific between January 5 and 6, 2022. A copy of the survey instrument is available at https://osf.io/gwhfe/. The cohort was assembled using nonprobability convenience sampling of US adults, with quotas chosen to match 2019 US Census data on age (18–24, 25–39, or ≥40 years old), race (not white or white), ethnicity (not Hispanic/Latinx or Hispanic/Latinx), and education (no bachelor’s degree or bachelor’s degree); quotas were rounded to include at least one participant in every group. The study was approved by Harvard University’s Committee on the Use of Human Subjects, and participants, who were paid $2.00, provided informed consent electronically before beginning the survey. Associations between participant characteristics and passage comprehension were assessed using ordinal logistic regression implemented with the Python package statsmodels (version 0.13.0.dev0).

RESULTS

The demographic characteristics of the participants are listed in Table 1. Participants answered comprehension questions about the application of the isolation and quarantine guidelines to hypothetical scenarios, based on either a vaccination history specified in the question (“scenario” questions) or their own history (“personal” questions). One hundred fifty (25%) participants correctly answered all 4 scenario questions, and 180 (30%) participants correctly answered all 4 personal questions (Table 1). In an ordinal logistic regression analysis also considering age, gender, ethnicity, race, education, political partisanship, and geography, being unvaccinated for COVID-19 (OR, 0.63; 95% CI, 0.49–0.80; P < .001) and not having received a booster (OR, 0.75; 95% CI, 0.61–0.92; P = .005) were negatively associated with the number of correct responses to the personal questions.

The CDC web page stated that vaccination “decreases the risk of severe disease, hospitalization, and death from COVID-19” but gave quantitative information only for effectiveness against infection. When participants were asked to estimate the effectiveness against hospitalization from COVID-19, the modal response was 30–39% without a booster (139 [23%] participants; Fig. 1) and 70–79% with a booster (177 [29%] participants; Fig. 1), corresponding to the stated numbers for effectiveness against infection (35% and 75%, respectively). A majority of participants estimated that vaccination is less than 90% effective against death from COVID-19 both without (437 [72%] participants) and with a booster (342 [57%]; Fig. 1).

Participants were asked about their current attitudes towards the CDC’s COVID-19 guidance, as well as what their attitudes had been before the announcement, using the nonrandomized counterfactual format of Graham and Coppock. In response to these questions, 158 (26%) participants indicated that the
change in guidance lowered their overall trust of the CDC’s recommendations (Fig. 1). One hundred sixty-seven (28%) participants expressed reduced confidence that the agency relies on the best scientific evidence, and 265 (44%) said they now think it is more likely that economic factors influence CDC guidance (Fig. 1).

**DISCUSSION**

Public health messaging about Omicron and subsequent SARS-CoV-2 variants must balance speed, clarity, and responsiveness to rapid scientific changes.\(^2,4\) In a survey of a representative sample of US adults, comprehension testing of the CDC’s revised guidance revealed widespread gaps in understanding. The negative association of comprehension scores with vaccination status suggests the recommendations may be least accessible to individuals at greatest risk of infection.

When asked counterfactual questions, many participants expressed reduced trust in CDC recommendations about COVID-19 and a stronger belief that the agency’s guidance is influenced by economic considerations. Participants also

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**Table 1 Characteristics and Responses of Participants Who Completed the Online Survey About Change in CDC Isolation and Quarantine Guidance**

| Characteristic                              | Participants, % (N = 603) | 2019 US census %a |
|---------------------------------------------|---------------------------|--------------------|
| Age, y                                      |                           |                    |
| 18–24                                       | 70 (12)                   | 12                 |
| 25–39                                       | 163 (27)                  | 27                 |
| ≥40                                         | 370 (61)                  | 62                 |
| Genderb                                     |                           |                    |
| Female                                      | 329 (55)                  |                    |
| Male                                        | 269 (45)                  |                    |
| Non-binary, transgender, or other          | 14 (2)                    |                    |
| Ethnicity                                   |                           |                    |
| Hispanic or Latinx                          | 77 (13)                   | 16                 |
| Raceb                                       |                           |                    |
| Asian                                       | 45 (7)                    |                    |
| Black or African American                   | 78 (13)                   |                    |
| White                                       | 480 (80)                  | 78                 |
| Otherc                                      | 9 (1)                     |                    |
| Education                                   |                           |                    |
| High school diploma or lower               | 125 (21)                  |                    |
| Some college or associate’s degree          | 279 (46)                  |                    |
| Bachelor’s degree or higher                | 199 (33)                  | 33                 |
| Political partisanship                      |                           |                    |
| Democratic (including leaners)             | 290 (48)                  |                    |
| Republican (including leaners)d            | 142 (24)                  |                    |
| Independent or other                      | 171 (28)                  |                    |
| Geography                                   |                           |                    |
| Urban areac                                 | 159 (26)                  |                    |
| Suburban area                               | 320 (53)                  |                    |
| Rural area                                  | 124 (21)                  |                    |
| COVID-19 vaccination history                |                           |                    |
| Unvaccinatedf                              | 133 (22)                  |                    |
| Partially or fully vaccinated, no boosterc | 199 (33)                  |                    |
| Fully vaccinated, booster                  | 271 (45)                  |                    |
| Comprehension score (scenarios)d           |                           |                    |
| 4                                          | 150 (25)                  |                    |
| 3                                          | 188 (31)                  |                    |
| 2                                          | 161 (27)                  |                    |
| 0–1                                        | 104 (17)                  |                    |
| Comprehension score (personal)d            |                           |                    |
| 4                                          | 180 (30)                  |                    |
| 3                                          | 231 (38)                  |                    |
| 2                                          | 127 (21)                  |                    |
| 0–1                                        | 65 (11)                   |                    |
| Self-reported impressions of passaged      |                           |                    |
| Accurate and should be trusted              | 276 (46)                  |                    |
| High-quality evidence                      | 269 (45)                  |                    |
| Clear and easy to read                     | 396 (66)                  |                    |

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*aPercentage of US population based on 2019 Census data for characteristics used in quota sampling.
bParticipants could select more than one option.

dIncludes participants who selected “American Indian or Alaska Native,” “Native Hawaiian or Other Pacific Islander,” or “Another option not listed here.”

eIdentifying as a Republican was negatively associated with the number of correct responses to both the scenario (OR, 0.74; 95% CI, 0.59–0.93; P = .009) and personal comprehension questions (OR, 0.73; 95% CI, 0.58–0.92; P = .008).

fIdentifying as an Independent was negatively associated with the number of correct responses to the scenario questions (OR, 0.75; 95% CI, 0.64–0.93; P = .007).

gLiving in a self-described urban area was negatively associated with the number of correct responses to the scenario comprehension questions (OR, 0.69; 95% CI, 0.53–0.90; P = .006).

hBeing unvaccinated for COVID-19 was negatively associated with the number of correct responses to the personal questions (OR, 0.63; 95% CI, 0.49–0.80; P < .001).

iNot having received a booster was negatively associated with the number of correct responses to the personal questions (OR, 0.75; 95% CI, 0.61–0.92; P = .005).

jNumber of participants who gave the indicated number of correct answers to these questions.

kNumber of participants who answered “Strongly agree” or “Agree” about each description on a 6-point Likert scale.
Figure 1 Self-reported attitude changes and estimated vaccine effectiveness against hospitalization or death from COVID-19. The graphs show (A) estimated effectiveness of a COVID-19 vaccine without a booster against hospitalization (orange bars) or death (gray bars), (B) estimated effectiveness of a COVID-19 vaccine with a booster against hospitalization (orange bars) or death (gray bars), and (C) the percentage of respondents who expressed changes in attitude before and after the release of the revised guidance in response to three counterfactual questions.
underestimated the protectiveness of COVID-19 vaccines against hospitalization and death; providing specific numbers might have reduced variability in risk perception. This omission is notable in light of evidence that highlighting protection against death may reduce COVID-19 vaccine hesitancy.

Limitations of the study include that it was conducted only online, such that individuals without internet access were not sampled, and the use of a nonprobability sample, which limits generalizability to the US population as a whole.

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Declarations:

Ethics Approval: Approval was obtained from Harvard University’s Committee on the Use of Human Subjects on January 22, 2021.

Conflict of Interest: The authors declare that they do not have a conflict of interest.

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