**Title**: The impact of cognitive risk appraisal, affect, and trust in science and healthcare on evaluations of the US COVID-19 guidelines and intended compliance

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**Purpose**: In response to the COVID-19 pandemic, local and federal governments in the US have implemented policies to reduce its spread and decrease mortality. This survey was conducted in the spring of 2020 to assess public response to the US guidelines and compliance intentions. We also sought to understand how psychological processes such as cognitive risk appraisal, affect, and trust in science and healthcare were related to guideline evaluation and intended compliance, with the purpose of informing risk communication and shaping health policy about COVID-19.

**Method**: Participants responded to a longitudinal, three-wave survey about the use of preventive health measures to curb the spread of COVID-19; data were collected in April, May, and June of 2020. At all three waves, participants evaluated the COVID-19 guidelines and indicated their intentions to follow these guidelines on 0-100 slider-bar scales. We also measured several additional psychological, social, and political measures of individual difference, including cognitive risk appraisal, affect, trust, health focus, information processing ability, social orientation, threat sensitivity, and political orientation, which served as predictors in our models. Cognitive risk appraisal was construed as likelihood and severity of covid infection, affect was COVID worry and uncertainty intolerance, and trust was the credibility of science, healthcare, and covid conspiracy theories. We estimated several hierarchical longitudinal models of guideline evaluation and intended compliance, testing models with both random and fixed intercepts and slopes; all predictors were included as fixed effects. The best fitting model was selected for each outcome using AIC and BIC criteria.

**Results**: Affect, trust, and cognitive risk appraisal were significant predictors of guideline evaluation and compliance intentions. Greater perceived risk of COVID and worry about contracting COVID were associated with more favorable evaluation of the guidelines and greater intentions to comply with the guidelines. However, decreased trust in science and the healthcare system was associated with more negative guideline evaluations and reduced compliance intentions.

**Conclusions**: In the US, responses to the behavioral guidelines implemented by local and federal governments were related to beliefs about the risk of contracting COVID-19, worry about its consequences, and trust in science and the healthcare system. Health policy aimed at increasing COVID vaccination uptake needs to address these cognitive and affective barriers to interventions designed to mitigate COVID-19 in the US.

**Word count**: 374 (375 MAX)

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|  | Guideline Evaluation | | | Intended Compliance | | |
| Parameter | β | SE | *P* | β | SE | *P* |
| Intercept | 35.27 | 1.94 | .00002 | 83.66 | 1.93 | .00002 |
| Time: Linear | 5.866 | 3.03 | 0.053 | -3.799 | 2.96 | .199 |
| Time: Quadradic | -6.035 | 2.91 | 0.038 | -11.54 | 2.84 | .00005 |
| Affect | -1.462 | .381 | .00013 | 4.116 | .377 | .00002 |
| Cognitive Risk Appraisal | .8037 | .462 | 0.082 | 1.717 | .476 | .00031 |
| Trust in Science and Healthcare | 5.423 | 0.405 | .00002 | -3.694 | .395 | .00002 |

Table 1. Parameter estimates for the adjusted hierarchical longitudinal models