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Predictors of COVID-19 voluntary compliance behaviors: An international investigation

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ABSTRACT

With a large international sample (n = 8317), the present study examined which beliefs and attitudes about COVID-19 predict 1) following government recommendations, 2) taking health precautions (including mask wearing, social distancing, handwashing, and staying at home), and 3) encouraging others to take health precautions. The results demonstrate the importance of believing that taking health precautions will be effective for avoiding COVID-19 and generally prioritizing one's health. These beliefs continued to be important predictors of health behaviors after controlling for demographic and personality variables. In contrast, we found that perceiving oneself as vulnerable to COVID-19, the perceived severity of catching COVID-19, and trust in government were of relatively little importance. We also found that women were somewhat more likely to engage in these health behaviors than men, but that age was generally unrelated to voluntary compliance behaviors. These findings may suggest avenues and dead ends for behavioral interventions during COVID-19 and beyond.

1. Introduction

In late 2019, the World Health Organization (WHO) was alerted of a cluster of pneumonia cases in Wuhan, China [1]. This viral infection was attributed to a novel coronavirus named 2019-nCOV, which causes the disease COVID-19 (Coronavirus Disease 2019). In early March 2020, the WHO Director-General announced that the spread of COVID-19 must be assessed as a "pandemic" [2]. Preliminary data about fatality rates ranged from 0.5% to 3%, but these rates vary by different parameters such as age and coexisting conditions (diabetes or cardiovascular disease). COVID-19 was found to be highly transmissible, with the average infected person spreading the disease to up to three other individuals [1].

Communities around the world are facing extraordinary challenges to effectively slow the spread of COVID-19 and sustain their healthcare systems. Numerous countries have implemented measures, such as curfews, home quarantine, social distancing, and isolation of infected populations that severely hamper many day-to-day activities [3,4]. Additionally, governments have asked or required citizens to adopt behaviors (such as wearing masks and washing hands regularly) at high levels of compliance that they will need to maintain for an extended period of time, probably until treatments and vaccines are widely available [5]. These measures have the objective of decreasing the "R0", a measure of reproduction of new infections, to less than one, and thus suppressing the local spread of the virus [6].

This situation raises a unique challenge for scientists and practitioners in understanding how to ensure adequate public cooperation and compliance. Mobilizing an effective public response to a pandemic requires clear communication and trust [7]. Because risk reduction measures such as social distancing and self-quarantine can rarely be enforced entirely by coercion, particularly in democratic societies, the public must understand what is required of them and be persuaded of the importance of complying.

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report accurate estimates. Future work might seek converging support for the present findings by examining actual health compliance behaviors.

Last, the HBM, in contrast to our results, might have predicted that perceived vulnerability and disruptivity (and therefore, also age) would be related to more health compliance behavior. Future research should explore why these variables appeared to be of relatively little importance for predicting COVID-19 health compliance behaviors. For example, are older and more vulnerable populations less willing to sacrifice their quality of life to take ongoing health precautions, which might cancel out the influences of age and vulnerability in predicting health compliance behaviors? Scholars might also build upon and extend our exploratory research in more detail, for example, by examining the role of perceived tradeoffs and personal risk-taking on behavior at different points during the pandemic, potentially also by changing the context and regarding employees in companies instead of citizens only.

6. Conclusion

We hope that this work will be of interest to scholars across many disciplines, including psychologists but also social scientists across various other disciplines (including those in management, public health, and public policy). This work has relevance to both research (i.e., it shines some light on the effectiveness of the HBM in predicting health compliance behaviors) and practical applications (it suggests potential avenues for interventions).

Our findings highlight the importance of belief in the efficacy of health behaviors in promoting compliance with health behavior recommendations. Although they have significance for the current pandemic, they may also be useful as a starting point for other kinds of government-led health behavior interventions regarding other public health concerns (e.g., smoking, obesity, vaccines), and particularly those that require voluntary compliance from a populace. Building trust in the efficacy of health-promoting behavior could increase willingness to engage in such practices, thus reducing the need for more intrusive government interventions, which might impel protest and backlash, particularly in democratic societies. Finding ways to encourage citizens to practice such behaviors voluntarily can save healthcare resources and, more importantly, lives.

CRediT authorship contribution statement

Cory Clark: Formal analysis, Writing - original draft. **Andrés Davila:** Writing - original draft. **Maxime Regis:** Writing - original draft.

APPENDIX. : Scale Items

BELIEF PREDICTORS.

Government trust (adapted from *acceptance of physician authority*, [26]; p. 384)	Completely disagree				Completely agree
1. Everyone should follow official recommendations.	1	2	3	4	5
2. Government officials know best about what is good for citizens in managing COVID-19.	1	2	3	4	5
3. Managing COVID-19 is the government's job.	1	2	3	4	5
Disruptivity (adapted from *perceived severity*: [30]; p. 225)					
4. Having COVID 19 would be disruptive to my everyday life.	1	2	3	4	5
5. Having COVID 19 would be disruptive to my life overall.	1	2	3	4	5
6. Having COVID-19 would be disruptive to my physical health.	1	2	3	4	5
7. Having COVID-19 would be disruptive to my social life.	1	2	3	4	5
Health importance (adapted from *health involvement*, [26]; p. 384)					
8. I am concerned about my health and am taking action to prevent COVID-19.	1	2	3	4	5
9. My health is my top priority.	1	2	3	4	5
10. Taking care of my health means a lot to me.	1	2	3	4	5
Invulnerability (adapted from *perceived susceptibility*, [29]; p. 277)					
11. I am less likely than most people to get COVID-19	1	2	3	4	5
12. I am not at risk for getting infected with COVID-19.	1	2	3	4	5
13. My body could fight off COVID-19 infection.	1	2	3	4	5
14. People like me don't get COVID-19.	1	2	3	4	5
15. There is little chance that I could get or spread COVID-19 from what I do in my everyday life.	1	2	3	4	5
Effectiveness of health procedures (adapted from *response efficacy*: [27]; p. 296)					
16. Avoiding crowds is an effective method for fighting COVID-19.	1	2	3	4	5
17. Practicing social distancing is an effective method for avoiding COVID-19.	1	2	3	4	5
18. Staying at home is an effective method for avoiding COVID-19.	1	2	3	4	5
19. Washing your hands frequently is an effective method for avoiding COVID-19.	1	2	3	4	5
20. Wearing a surgical mask is an effective method for avoiding COVID-19.	1	2	3	4	5
BEHAVIORAL OUTCOMES					
Rule following (adapted from *therapy compliance*, [26]; p. 384)					
21. I follow the rules for sheltering in place.	1	2	3	4	5
22. I have chosen not to visit friends and family.	1	2	3	4	5
23. I only leave home for reasons sanctioned by the government.	1	2	3	4	5
Health precautions (adapted from *intention*, [27]; p. 297)					
24. I intend to practice social distancing to avoid COVID-19.	1	2	3	4	5
25. I intend to stay at home to avoid COVID-19.	1	2	3	4	5
26. I intend to wash my hands frequently to avoid COVID-19.	1	2	3	4	5
27. I intend to wear a surgical mask to avoid COVID-19.	1	2	3	4	5
Giving health advice (adapted from *safety citizen role,* [28]; p. 178)					
28. I explain to others how to behave to stay healthy and safe.	1	2	3	4	5
29. I express my opinions on health and safety matters even when others disagree.	1	2	3	4	5
30. I frequently speak up and encourage others to engage in safe and healthy behavior.	1	2	3	4	5
31. I help others take the correct actions to remain healthy and safe.	1	2	3	4	5
32. I often make health- and safety-related recommendations about various activities.	1	2	3	4	5