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Commentary

Applying social norms interventions to increase adherence to COVID-19 prevention and control guidelines

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A B S T R A C T

Despite widespread national, state, and local guidelines for COVID-19 prevention, including social distancing and mask orders, many people continue to not adhere to recommendations, including congregating in groups for non-essential activities, putting themselves and others at risk. A social psychological perspective can be used to understand reasons for lack of adherence to policies and methods for increasing adherence based on successes from other behavior change campaigns. This manuscript seeks to describe some of the social psychological research that may be relevant to COVID-19 prevention and behavior change, describe how these theories have been previously applied in various domains to change behavior, and provide examples of how these approaches might be similarly applied to control the pandemic. We provide concrete examples of actions that can be taken based on social psychological research that might help to increase adherence to COVID-19 recommendations and improve prevention and control of the virus.

Despite widespread national, state, and local guidelines for COVID-19 prevention, including social distancing and mask orders, many people continue to not adhere to recommendations, including congregating in groups for non-essential activities, putting themselves and others at risk. A social psychological perspective can be used to understand reasons for lack of adherence to policies and methods for increasing adherence based on successes from other behavior change campaigns. This manuscript seeks to describe some of the social psychological research that may be relevant to COVID-19 prevention and behavior change, describe how these theories have been previously applied in various domains to change behavior, and provide examples of how these approaches might be similarly applied to control the pandemic. Although this manuscript is focused on the United States due to the location and research involvement of the coauthors, who have been seeking to apply these approaches within the local health department, these same principles could more broadly be applied and tailored globally. This manuscript is designed to assist state, local and federal (e. g., CDC) health departments/clinics, researchers, and non-profits in their efforts to control the COVID-19 pandemic. We include an example list of potentially actionable ideas for implementation at the conclusion.

1. Social psychological reasons for low adherence

There are a number of social psychological reasons for lack of

adherence to COVID-19-related government recommendations, including lack of trust, lack of observable and consistent norms, confusion about messages, and low perceived risk. People have grown increasing distrustful of government and public health departments, reducing public willingness to trust information and adhere to recommendations from these sources.(Singh et al., 2020) For example, President Trump may have confused and scared many Americans by announcing that the U.S. had "shut down" risk of COVID-19 in early February of 2020,(Reuters, 2020) stated there was a "low risk" later in the month,(Remarks by President Trump, n.d.) then ultimately called it a national emergency.(*Proclamation on Declaring a National Emergency Concerning the Novel Coronavirus Disease (COVID-19) Outbreak [Internet]. The White House,* n.d.) His tweets on his COVID-19-related beliefs before, during, and after having contracted the virus also influenced Americans' changing views on the severity of the virus.(Ugarte et al., n.d.) Similarly, the Surgeon General advised Americans to stop buying masks, explaining that they don't stop the public from contracting Coronavirus, but are necessary for health providers to use, confusing many people as to why health providers needed masks if masks didn't prevent the virus.((1) U. S. Surgeon General on Twitter, n.d.) Many of these statements were made on Twitter, where there is often little elaboration (i.e., a detailed explanation on how and why the public should stop buying masks) due to text limits and social norms of it being acceptable to write short, informal, tweets without elaborating on the tweet content. These

government-issued statements were often inconsistent between federal/ state/local governments, lacking necessary elaboration, and changing dramatically over time, which may have left the public confused, distrustful, and panicked from government-issued COVID-19 information.(Gollust et al., 2020)

Lack of an observable and consistent social norm is another potential reason for lack of policy adherence. People will be more likely to adhere to a recommendation if they see others are doing it, and less likely if they see others are not doing it.(Cialdini and Goldstein, 2004) For example, staying at home (whether during governor-issued stay-at-home orders or for self-quarantine due to a positive test result/symptoms) is a private behavior because people cannot visibly see whether and when others are staying home, while being outside at the park or beach is a public behavior. People can therefore see when others are *not* adhering to stay-at-home recommendations and can't see when people *are* adhering. This encourages people to perceive a social norm that others are not staying at home when they're supposed to do so, and therefore creates the belief that they then don't need to, either. This psychology may help to partly explain the lack of adherence to governor-issued stay-at-home orders across many states beginning in March and April, and continuing throughout 2020 relating to mask adherence, social/physical distancing, and other prevention and control policies. Relatedly, many mask orders state that masks must be worn outside at all times when social distancing is not possible, except for when there is a legitimate medical reason to not wear a mask. However, when people see others *not* wearing masks, they're unlikely to know whether those individuals are not wearing masks because they are already able to social distance at all times, have a medical condition that would prohibit wearing a mask, or are violating public health orders. Because of the ambiguity in reasons behind why people do or don't wear masks, if the majority of people are not wearing masks, even if this is due to legitimate reasons that were documented in the health order, it creates a social norm that people should not wear masks. Finally, news organizations may be more likely to cover examples of people not following guidelines than those following them, both because it's more sensational to show people violating guidelines, and because, as stated above, it is not practical to show pictures of people in their homes safely following the guidelines.

One other implication of the work on social norms is that people are most influenced by norms of others most similar and local to them. They might be less likely to adhere to recommendations if they perceive the recommendations to be most relevant to others, but not to them. For example, hotel guests were more likely to follow the towel reuse norms of others when the norms described the prior occupants of their room compared to the norms of the hotel in general.(Goldstein et al., 2008) Similarly, individuals are most influenced by the proximate norms in their environment. Thus, someone in Los Angeles who sees that their peers in Los Angeles are mostly heeding the government's directives should be more likely to follow those norms than the norms they've read about in a Florida beach town. However, not only does this provide a mixed normative message, thereby somewhat blunting the normative effects of the local group, but of course Floridians will indeed see the beach town's norms as their own proximate group. What this argues for is not only a set of national guidelines, but ones that are enforced so that the local norms are the same everywhere, at least for a period of time.

Confusion about message content is another potential reason for lack of adherence. For example, although the Centers for Disease Control and Prevention (CDC) website reports that people who are sick should stay at home,(CDC, 2020) during the initial pandemic, many state governors had issued orders that *everyone* within their states should remain at home, creating possible confusion over messaging recommendations. Similarly, the CDC has informed people to wear a facemask if they are sick, while as mentioned, the Surgeon General's office advised people to stop buying facemasks and save them for health providers. These messages don't provide clear, consistent information as people might wish to buy facemasks to stock up in case they are sick and need to adhere to CDC recommendations. Similarly, stay-at-home orders have had the

potential for multiple interpretations. For example, although only essential activities have been and are still allowed in many areas, people and businesses have not been unified on the definition of "essential."(-*Bosses Stretch the Definition of Who Is 'Essential' — and Workers Take the Risk [Internet]. Bloomberg.com, 2020*)

Low perception of risk is another potential reason affecting adherence. People are psychologically biased to deny risk for health issues, (Ditto and Lopez, 1992; Riet and Ruiter, 2011) which can lead people to potentially perceive their risk for the virus to be lower than it is. This bias is exacerbated with stigmatized diseases,(Young et al., 2007; Young et al., 2011) making people potentially more susceptible to this psychological bias for COVID-19 due to the stigma associated with it. People might also perceive themselves at low risk because of early government statements that a vaccine would soon be available and from initially seeing a low number of positive cases (even though this was due to lack of tests). Addressing low risk perception is especially important among individuals who are actually at low risk (e.g., younger individuals), but need to be convinced to physically distance to protect others at higher risk.

Finally, people may not be adhering to recommendations in order to demonstrate their independence from authority figures. Whether it is spring breakers partying on the beach, or a COVID-themed party in Kentucky to demonstrate defiance (in which one of the participants later tested positive for the virus), many Americans desire to demonstrate independence.(Kitayama et al., 2010) One example is the recently popular Instagram hashtag, #F*^kSocialDistancing, used by people showing pictures of themselves and others in groups outside.

2. Applying social norms interventions to increase adherence to COVID recommendations

Research in social psychology has demonstrated that there is a large and powerful toolbox to increase adherence—and potentially overcome some of these barriers to COVID-19 prevention(Duan and Zhu, 2020; Bavel et al., 2020; Bonell et al., 2020; Young and Schneider, 2020)— through interventions that communicate social norms. One of the advantages of this approach, as opposed to mandates, is that they have potential to leverage psychological tendencies and biases while preserving individuals' sense of freedom, which is particularly important in cases in which individuals' independence may be threatened.(Thaler and Sunstein, 2009)

In the case of applying social norms interventions to increase adherence to COVID-19 policies, it is important to first recognize that there are two significant types of social norms—descriptive and injunctive norms—and the two types of norms must be both clear and aligned for maximum impact.(Cialdini et al., 1991) Descriptive norms are the norms of how people are behaving, whereas injunctive norms are the norms of what behaviors are approved and disapproved of. The different guidelines from various authority figures suggest that the injunctive norms would be more powerful if they were clarified so people have a better understanding of what behaviors will and will not garner approval. Meanwhile, even if injunctive norms are clarified, they must be aligned (i.e. consistent) with descriptive norms. The approach of aligned descriptive and injunctive norms has been found to change a number of societally important behaviors, ranging from energy conservation to crime to recycling behavior.(Schultz et al., 2007; Cialdini et al., 2006; Keizer et al., 2008) For example, Cialdini and colleagues created a set of three public service announcements (PSAs) designed to boost recycling activity in Arizona.(Cialdini, 2003) Each PSA depicted a scene in which the majority of individuals featured in the ad engaged in recycling (descriptive norm), spoke approvingly of it, and spoke negatively about a single person in the scene who did not recycle (injunctive norm). Thus, the act of recycling material was linked to images indicating that recycling activity is both widely performed and widely approved. These PSAs were played on local TV and radio stations in four Arizona communities. Whereas most PSAs traditionally show a 1–2%

difference in the target behavior, the results of this study revealed that communities exposed to the PSAs had a 25.35% net advantage in recycling over two control communities not exposed to the PSAs. Applying these insights to the context of the current pandemic, targeted messages and PSAs could be designed to clearly show that the majority of people are engaging in the approved behavior, and that the minority of people engaging in the wrong behavior—whether that is not socially distancing, not wearing a masks when needed, going into work sick, or not washing their hands—are disapproved of by the majority. In this way, an act against the injunctive norm that individuals typically would see as a sign of independence would now be understood to be a sign of selfishness that puts them in the minority.

Another potential way to provide clarity and motivation in injunctive and descriptive norms is through direct feedback. One potential way of doing this could be through entertaining online "quiz games," which might be particularly popular among adolescents and young adults. Games/quizzes that ask people about their social distancing behavior, hand hygiene, vaccine acceptance, or other important behaviors can be asked to then provide feedback about how they compare relative to the top performing individuals. For example, much like quizzes that ask people to list how they behave in a romantic relationship, entertaining quizzes could be designed to ask people how comfortable they are wearing a mask in front of romantic partners/on a date, or how long they typically wash their hands. This information could be collected from broad public samples with results provided back to them to illustrate how people compare to public health recommendations on these behaviors. When similar feedback was provided to practitioners about their level of inappropriate antibiotic prescriptions, inappropriate prescribing reduced sharply (Meeker et al., 2016). In the current context, such a quiz game not only provides an opportunity to utilize both descriptive and injunctive norms, but it also is an opportunity to provide clarity on what exactly the injunctive norms and guidelines are.

Recent evidence suggests that, when delivering personalized feedback along with the social norm of a reference group, that reference group should be strategically chosen depending on the recipient of the message and that recipient's own performance in the distribution. (Bogard et al., 2021) For example, individuals who perform particularly poorly in online quiz games of their behavior might not conform to the behavior of the top-most performing group of individuals because their own behavior is so far from that the norm set by those top performers that they are likely to become demotivated, potentially causing a backfire effect. In such cases, it may be more useful to provide those poor performers with the descriptive norm of their average peer as opposed to top performers, in part because achieving the goal set by their average peer will be seen as more attainable than the average set by the top-performing peer. Thus, thus performing at an above-average level could be provided with the behavior of top-performers, whereas those performing way below average could be provided with the behavior of average performers.

Recent work has shown that even when the appropriate behavior is not engaged in by the majority, the public can still be powerfully influenced by a norm that is trending the in the appropriate direction. (Mortensen et al., 2019; Sparkman and Walton, 2017) If both American politicians and the public can be shown to increasingly adopt behaviors like mask wearing or vaccine uptake, this can be an extremely powerful tool to combat the perceptions that many people still do not engage in the appropriate behaviors. Communicating that the majority of people of all political identities wear masks and support mask mandates and that these norms have changed rapidly over the past few months,(Republicans are coming around on coronavirus mask mandates, n.d.) norm-based solutions can have a very powerful impact, especially when combined with the publicization of the fact that even some of the most heretofore resistant leaders in government have started wearing masks.

Earlier we discussed that the media is more likely to cover cases and images of non-adherence than adherence. One way to combat this is to try to convince media organizations to couple their coverage on non-adherence with stories and images of adherence. Public health officials might also publicize the results of polling showing that most people in each of the three most common political categories—Republican, Democrats, and independents—do in fact report adhering to most guidelines.(Balz and Clement, n.d.) Showing these statistics/social norms could be very effective at combatting the perception that most people—or even most people of a particular political persuasion—do not support guidelines or adhere to them. These data could be helpful at convincing the public that those who do not adhere are the vocal minority.

Finally, norms-based interventions can also help to change people's health behaviors, even if they don't feel at risk. For example, men who didn't consider themselves at high-risk for HIV participated in an HIV prevention digital social norms intervention. Intervention group participants were consistently 2–3 times as likely to test for HIV compared with control group participants. These interventions have been successful by leveraging peer role models who establish the social norm by demonstrating that they are engaging in the recommended behavior. (Recommended guidelines on using social networking technologies for HIV prevention researchYoung, 2012; Young et al., 2015) Similarly, conducting interventions that make a behavior default, or "opt-out" can increase adherence and reduce stigma.(Young et al., 2009)

3. Lessons from social norms interventions; limitations of using social norms

Social norms-based interventions will not always be appropriate and/or effective in addressing low adherence to government public health orders. It is therefore also important to know when to not use social norms and to be aware of alternative approaches. For example, as mentioned above, the salience and public versus private nature of the behavior (e.g., the norm for wearing/not wearing a mask in public settings is more salient than wearing/not wearing a mask in private places, as people do not have access to private places) can affect the success of a norms-based intervention. Immediately after governments issued public health orders, it was unknown whether people would adhere to these recommendations (e.g., the norm had not been established). As people saw others not adhering to this norm, a norm became established to not adhere, which then requires an intervention to attempt to counter this newly established norm. In this case, if a norm has already been established to not adhere, it becomes increasingly difficult to use social norms intervention to get people to adhere. Thankfully, because in many areas the norms have so rapidly changed in favor of mask usage, social distancing, and the like, in the current environment this is much less a concern but should be noted for regions with continued lack of adherence, as well as for future public health crises.

Similarly, as social norms interventions often provide information on the (large) number of individuals engaging in the desired behavior (e.g., wearing masks), it would be dishonest to convey to the public that the norm is actually to wear masks if people can see that is false in their neighborhood (and an attempt to do this could further erode the trust and support of the public). As the COVID-19 pandemic is constantly evolving, it is therefore essential to be aware of the current COVID-19 policy adherence-related social norms within each region, and to use regionally-specific messaging to ensure that public health messages incorporate knowledge of the current social norms within that region.

4. Actionable next steps

A social psychological approach can be used to help understand people's reasons for lack of adherence to COVID-19 health recommendations and to guide future interventions to increase adherence. This manuscript specifically focuses on health recommendations, rather than more specifically focusing on one behavior such as mask-wearing, vaccine uptake, or staying at home, as many people have legitimate reasons for not adhering that fall within these health recommendations.

Although this manuscript has focused on social psychological reasons for lack of adherence, along with social psychological interventions that can be used to increase adherence (primarily social norms-based interventions), there are also a number of other approaches that can be incorporated that are beyond the scope of this manuscript, including structural-level interventions, individual-level interventions, and educational interventions. For example, increased adherence to seatbelt wearing resulted from policy requirements/fines imposed.(Wagenaar and Wiviott, 1986) Lessons from that campaign can be applied to COVID-19 by attempting to gain the support of grassroots campaigns (e. g., general population activists) to lobby government officials to mandate and enforce COVID-19 control policies. Importantly, addressing people's reasons for lack of adherence to COVID-19 policies may not only help to control the growing pandemic, but might also provide insights on how to address other concurrent societal problems related to social norms, such as the growing levels of violence and civil unrest in the US and other parts of the world. Health departments/clinics, researchers, and non-profits can leverage all of these tools to better inform and motivate the public on behavior change to help prevent the growing COVID-19 pandemic. Below, we have bulleted examples of potential applications of social norms that can be applied to prevent and control of COVID-19:

- Enlist support from peer role models, including national- and local-level respected individuals, to demonstrate their adherence to recommendations and establish this social norm (for public health departments/clinics, non-profits, general population activists, as well intervention researchers).
- Ensure a unified, clear, federal message on normative behaviors (e. g., physical/social distancing required throughout the country) with local jurisdictions showing support for these messages and providing more region-specific information (for public health departments/clinics to deliver this type of messaging, as well as for non-profits, general population activists, and researchers to request that health departments use this method of communication).
- For health recommendations issued with little explanation (e.g., posts made on Twitter), direct readers to a link with the more extensive details about the recommendations to help address confusion and misinterpretation (for public health departments/clinics and researchers to deliver messages, as well as for developing grassroots support from non-profits, general population activists, and researchers to request the health departments and researchers to apply this in their health messaging).
- Develop and deploy entertaining online quiz games to provide direct feedback to people on how their COVID-19 prevention compares to public health recommendations and "top performers" (for non-profits, general population activists, and intervention researchers).
- If changing (or especially, if needing to reverse) a health recommendation, thoroughly inform the public on the reason for the change in recommendation. Prior to changing the recommendation, gain feedback from local health departments and community members to ensure the message and reasoning for change is clear, acceptable and meets ethical standards, then seek to gain support from community leaders to help promote the new message (for public health departments/clinics and researchers to deliver messages, as well as for developing grassroots support from non-profits, general population activists, and researchers to request the health departments and researchers to apply this in their health messaging). knowledgements.

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Declaration of Competing Interest

Sean Young wrote a book (Stick With It) on the psychology of behavior change and receives royalties from HarperCollins in the United States as well as from the foreign publishers.

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