

“If we move, it moves with us:”
Physical Distancing in Africa during COVID-19 *

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Abstract

Until a vaccine is widely available, physical distancing is central to curbing the spread of the novel coronavirus (SARS-CoV-2). In this paper, we use an online survey of respondents in Kenya, Nigeria, and Uganda conducted in April 2020 to understand knowledge, beliefs, and behavior related to physical distancing. We find that, while there is widespread knowledge that physical distancing reduces the spread of the virus, respondents underestimate their peers’ support for policies designed to enforce physical distancing, expect others *not* to practice physical distancing, and do not maintain physical distance themselves. However, more than half of respondents wrote a message to encourage others to practice physical distancing. Findings from survey experiments suggest that making salient the social and material costs for not keeping physical distance may be insufficient to encourage compliance. Given the large gap between own attitudes and expectations of others’ attitudes toward lockdown policies, we instead suggest that providing information on the extent of public support for physical distancing, perhaps in citizens’ own words, may be a fruitful way to encourage compliance in the future.

Keywords: COVID-19, Africa, Social Norms, Health Behavior, Physical Distancing

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1 Introduction

The global COVID-19 pandemic has led many countries to implement “lockdown” policies designed to keep people in their homes for all but essential activities in order to slow contagion. The ability to enforce such policies relies on state capacity and resources, which is often particularly limited in low-income countries. As governments loosen restrictions on movement, maintaining and enforcing physical distancing – a key health behavior that will be necessary until a vaccine is widely available – will increasingly require the voluntary cooperation of the public.

This situation has led behavioral social scientists to examine the circumstances under which individuals adopt behaviors that contribute to the public good; in this case, slowing community spread of the virus (Van Bavel et al., 2020; Lunn et al., 2020). Solving collective action problems – taking individually costly action to promote the public good – often relies on either top-down or peer-to-peer enforcement (Ostrom, 1998; Siegal, Siegal and Bonnie, 2009). As top-down enforcement of physical distancing eases, this important health behavior may benefit from social pressure from peers. However, social pressure is likely to emerge only if individuals believe others will practice physical distancing and think others believe that physical distancing *should* be practiced (Bicchieri and Dimant, 2019).

To what extent does the public hold these beliefs, and what is the current state of practicing physical distancing? We examine these questions in three African countries, where lockdown policies are likely to be particularly costly (Walker et al., 2020). Specifically, we examine the relationship between individuals’ knowledge, attitudes, and behaviors related to physical distancing and those of their peers. To do so, we analyze data collected from an online survey of 2,814 respondents from Kenya, Nigeria, and Uganda recruited through social media platforms April 13-15, 2020. This method allowed for quick but also “contact-less” data collection, and also allowed us to target relatively educated and urban respondents who are prime candidates for non-compliance based on volition rather than inability.

Our data reveal that there is widespread recognition among respondents that physical

distancing slows the spread of the virus, as well as high rates of knowledge about the virus and the current case load in these countries. While about half of respondents support lockdown policies, they tend to *underestimate* support for these policies among their peers, particularly in places where lockdown was being enforced by the government. Further, experimental evidence reveals that more than 40 percent of respondents did not follow physical distancing guidelines the day of the survey, and also do not expect other community members to practice physical distancing. Highlighting material and social costs to breaking physical distancing guidelines does not seem to have any effect on expectations of others' behavior. At the same time, more than half of all respondents engaged in a costly action, taking the time to write a note to fellow citizens encouraging them to practice social distancing.

Our findings suggest that information about the effectiveness of physical distancing is not the primary constraint to behavior change among more educated, urban citizens in these three countries. Existing work demonstrates that social norms play an important role in shaping health behavior (Perkins et al., 2019; Latkin et al., 2009). Our data suggest that, at the time of the survey, a social norm around physical distancing was absent among our respondents: they underestimated other's support for policies enforcing physical distancing and did not expect others' to comply. However, respondents were willing to participate in encouraging others. Together, these findings suggest that, going forward, it may be fruitful to correct beliefs about the extent of support for physical distancing and to actively include the public in this effort. Understanding what informs individual's attitudes and behaviors related to physical distancing during the COVID-19 pandemic can inform communication strategies designed to encourage voluntary compliance with these policies.

2 Research Design and Data

We conducted an online survey with 2,814 adults in three African countries, Kenya, Nigeria, and Uganda, between April 13 and 15, 2020.¹ We recruited the sample using Facebook ads

(Hoffmann Pham, Rampazzo and Rosenzweig, 2019) and through social media networks on Twitter. Respondents were directed to a Qualtrics survey and provided with an incentive of approximately US\$.50 cents. We selected these countries because they exhibited variation in COVID-19 case loads and policies at the time of the study.²

The survey was not designed to be representative, but rather captures a population of social media users that tends to be more urban, educated, wealthier, and more likely to be male than the general population. As shown in Table 1, the average age of respondents is 27 years, 27 percent are female, 97 percent have completed secondary school, about 19 percent are mid- or upper-level professionals and 34 percent are students. Almost 80 percent of the sample live in urban localities.³

Table 1: Summary Statistics of Covariates

	Kenya		Nigeria		Uganda	
	Mean	SD	Mean	SD	Mean	SD
Female	0.407	(0.492)	0.189	(0.392)	0.344	(0.476)
Age	26.946	(6.441)	26.971	(6.746)	26.727	(6.548)
Schooling level	7.764	(1.323)	8.144	(1.310)	8.267	(1.158)
Rural	0.286	(0.452)	0.204	(0.403)	0.188	(0.391)
Voted for incumbent past election	0.354	(0.479)	0.373	(0.484)	0.185	(0.389)
Copartisan	0.667	(0.482)	0.313	(0.467)	0.449	(0.501)
Religiosity	2.475	(1.136)	2.957	(1.108)	2.578	(1.148)
Religion - Catholic	0.298	(0.458)	0.186	(0.390)	0.262	(0.440)
Religion - Protestant	0.336	(0.473)	0.101	(0.302)	0.380	(0.486)
Religion - Evangelical	0.195	(0.397)	0.408	(0.492)	0.200	(0.400)
Religion - Muslim	0.041	(0.199)	0.255	(0.436)	0.076	(0.266)
Religion - Other	0.051	(0.220)	0.026	(0.160)	0.037	(0.189)
Occupation - Student	0.283	(0.451)	0.381	(0.486)	0.282	(0.450)
Occupation - Mid-level professional	0.120	(0.326)	0.102	(0.303)	0.089	(0.286)
Occupation - Upper-level professional	0.056	(0.230)	0.105	(0.306)	0.144	(0.351)
Occupation - Never employed	0.091	(0.287)	0.090	(0.287)	0.070	(0.255)
N	647		1602		565	

Our sample is of particular interest for understanding behavior and beliefs about COVID-19 for several reasons. First, urban populations in these countries experienced greater initial exposure to the virus. Second, higher population density in these areas means that physical distancing is both more important to prevent the spread of the virus, but also more difficult

and more costly for those living in urban as compared to rural areas. Finally, this sample is less likely to include individuals who are *unable* to comply with physical distancing, for example, due to living or working conditions. Consequently, it allows us to study behavioral responses among individuals for whom compliance with health directives is more likely to be feasible.⁴

The survey included questions about: factual knowledge about COVID-19; respondents' own attitudes toward lockdown policies and their beliefs about others' attitudes; and their own behavior and beliefs about others' behavior; and demographic characteristics. To measure respondents' own physical distancing behavior, which is likely subject to social desirability bias, we use a list experiment (Blair and Imai, 2012). We use a vignette experiment to measure beliefs about others' physical distancing behavior while varying the salience of social and material costs (fines) associated with failing to practice physical distancing. We examine the effect of making salient the costs of failing to practice social distancing on respondents' expectations about others' behavior as well as their own willingness to write a note to fellow citizens encouraging them to practice physical distancing.⁵

3 Results

3.1 Factual beliefs

Questions aimed at gauging factual knowledge about COVID-19 reveal relatively high rates of knowledge about current cases, as well as how COVID-19 is spread and which behaviors reduce the spread. Around 15.7 percent of respondents stated a number of confirmed cases of COVID-19 that matched the range of cases reported in their respective countries during the three-day survey period (SI, Section 2), and most indicated getting their information from social media (41%) or national television (18%) (SI, Figure 4). More than three-quarters of respondents across all three countries correctly answered a set of true/false questions about COVID-19, including: “coronavirus is only dangerous for older people,” “there are currently

no medicines or vaccines that prevent coronavirus,” and “if someone has been infected with coronavirus they can transmit the virus to someone else even if they do not feel sick or have symptoms” (see SI, Figure 2).

Particularly important for our questions of interest, knowledge of the importance of physical distancing is high among respondents. As illustrated in Figure 1, a large majority of respondents—80 percent of Nigerian respondents and 86 percent of Kenyan and Ugandan respondents—report that “maintaining a distance of 1-2 meters from others” is a way to reduce the spread of the virus. Encouragingly, though perhaps unsurprisingly given our sample, there is low belief in rumors or misinformation that has spread in these countries about false ways to avoid transmission, including eating garlic and sleeping under a mosquito net.⁶

Figure 1: Knowledge of Ways to Reduce the Spread of Coronavirus

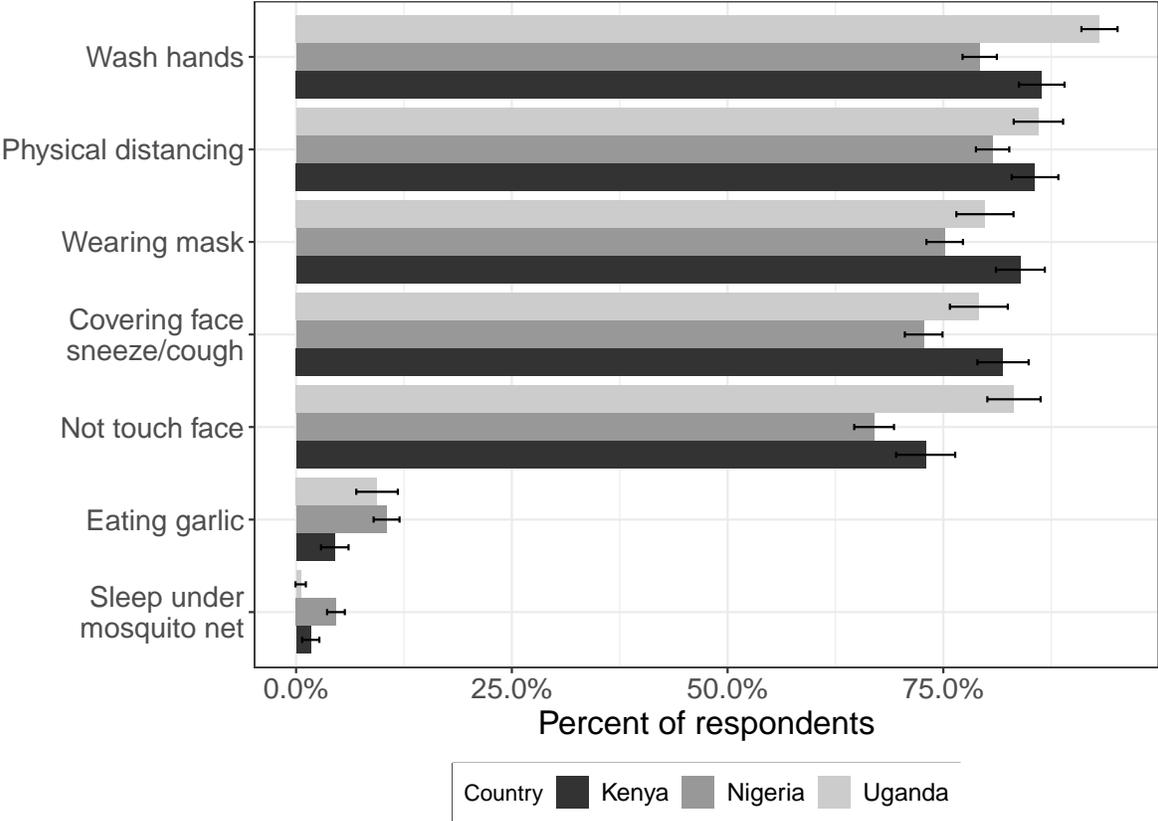
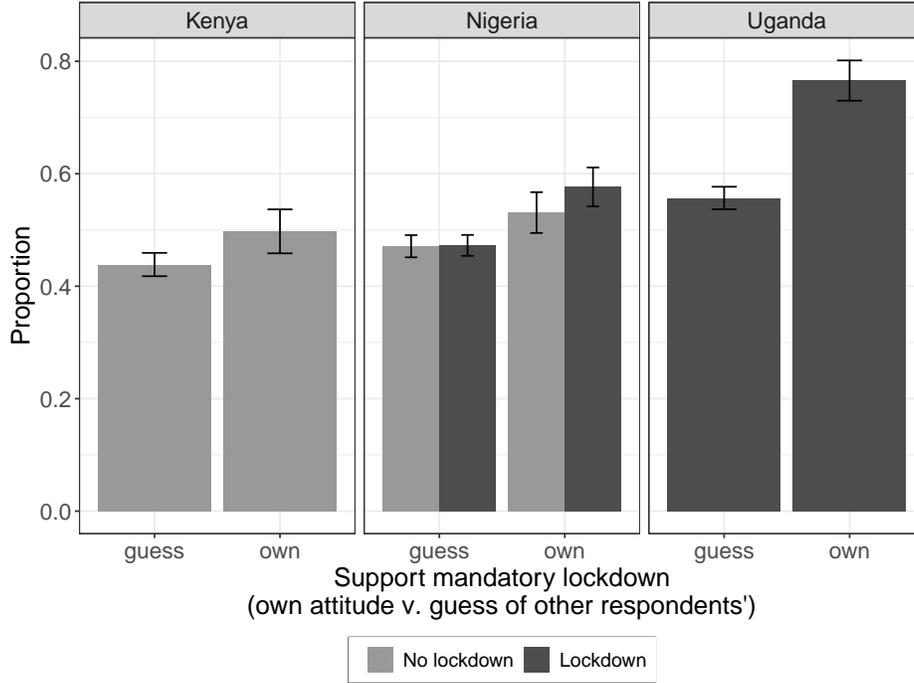


Figure 2: Own attitudes and guesses as to other respondents’ attitudes



3.2 Attitudes toward lockdown policy

Next we examine respondents’ attitudes toward mandatory lockdown policies as well as their beliefs about others’ support for this policy. Given the variation in the presence of actual lockdown policies put in place by the government in Kenya, Nigeria, and Uganda these measures were hypothetical for some and concrete for others. At the time of the survey, Kenya was not experiencing a lockdown, Nigeria had a lockdown in some states,⁷ and Uganda had a national lockdown. Lockdown policies were among the policies being considered by all governments.

To measure individual’s preferences, respondents were asked to what extent they agree or disagreed with the statement, “I support a mandatory lockdown policy by government.” They were also asked about their beliefs about others’ preferences. Specifically, we asked: “Out of 10 other people from [respondent’s country] taking this survey, how many of them do you think support a mandatory lockdown policy? Please give us your best guess.”

Our results reveal that respondents tended to *underestimate others’ support for lockdown*

— the average level of individual self-reported support was significantly higher, on average, than the *perceived* support of others. The gap in beliefs was greatest among respondents currently living in a lockdown area, and was particularly pronounced in Uganda, as shown in Figure 2.⁸ Underestimating support for lockdown policies may translate into low expectations that others will practice physical distancing and affect respondents’ own behavior, both of which we explore next.

3.3 Physical distancing behavior

Here we examine the extent to which respondents practice vigilant physical distancing and the extent to which they expect others around them to do so. Since measuring behavior, especially behavior that is mandated by government, may be subject to social desirability bias, we employ a list experiment as an alternative to directly asking sensitive questions. Here respondents are randomized into two groups, the control group sees a list of four innocuous items and the treatment group also sees a fifth “sensitive” item, in this case the item was “came within 2 meters of someone from outside my household.” Respondents reported how many of the items in the list they did that day. The list experiment allows us to determine the proportion of the sample who failed to maintain physical distance.

Table 2: Physical Distancing List Experiment, by Country

Country	Control	Treatment	Diff	P-value
Kenya	1.97	2.43	0.46	0.00
Nigeria	2.30	2.67	0.37	0.00
Uganda	1.95	2.38	0.43	0.00

Table 2 reports means for the control and treatment groups in each country. The difference-in-mean estimates demonstrate that between 37 and 46 percent of our sample across the three countries came within two meters of someone outside their household, indicating that in practice, many respondents were not adhering to physical distancing. It is worth noting, however, that this measure does not allow us to determine whether failure to practice physical distancing was a result of respondents’ inability or unwillingness to do so.

We do find that within Nigeria, areas under lockdown at the time of the survey exhibited higher rates of physical distancing, suggesting that this top-down enforcement may have been effective in this regard (SI, Table 5).

In order to measure beliefs about other’s distancing behavior, we conduct a vignette experiment. In particular, we provide a vignette about a scenario in which respondents are asked to predict the behavior of a hypothetical man who may or may not practice social distancing in an everyday situation, and we vary whether we make salient either reputational costs (social pressure) or material costs (government fining) associated with not practicing social distancing.

Respondents are assigned to one of three message conditions:

Control: “Imagine a man who lives in a community like yours is invited for a meal at his cousin’s house down the street. Both he and his cousin feel healthy.”

T1 – Social pressure: “... He knows his friends and neighbors have been pressuring each other not to socialize outside of their household.”

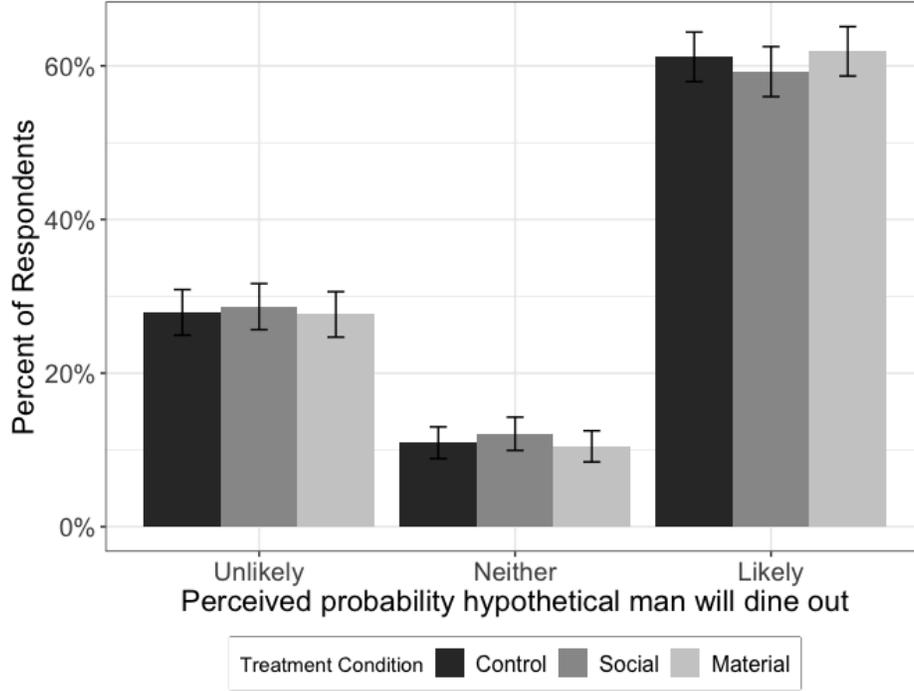
T2 – Material costs: “... He knows the government has been fining people for leaving their house to socialize.”

Following this information, respondents are asked how likely they think it is that the man will go eat at his cousin’s house — in other words, that he will not practice physical distancing. Then, respondents are asked whether they would like to write an anonymous note to fellow citizens that would be publicly posted online.

As shown in Figure 3, across all three groups, we find that the majority of respondents — about 60 percent — report that it is likely that the man in the vignette will go eat with his cousin, in other words, to not practice physical distancing. In the pooled sample, we do not find any treatment effects of highlighting either material or social costs on responses (SI, Section 3).

While our data suggest that a large proportion of respondents did not maintain physical

Figure 3: Beliefs' about others' physical distancing behavior



distance themselves and even more do not expect others to, we do find that respondents are willing to take action to *encourage* others to adhere to physical distancing. About half of respondents (54 percent) took the opportunity in the survey to write a message to their co-nationals encouraging them to practice physical distancing.⁹ Writing, though not financially costly, does require time and effort. On average, messages were 17 words long.

We code messages into three types: those that mention an appeal to the collective good, those that appeal to civic duty, and those that contain religious content. To do so, we use a

Table 3: Percentage of Messages by Coded Content

Sample	Collective	Civic	Religious	Share Wrote	Total Respondents
Pooled	0.32	0.201	0.038	0.54	2814
Kenya	0.374	0.024	0.027	0.54	647
Nigeria	0.328	0.039	0.025	0.51	1602
Uganda	0.534	0.052	0.046	0.63	565

Note: Messages containing terms from each library as a share of all messages written. Column 5 presents share who wrote a message from total number of respondents in Column 6.

Table 4: Examples of Messages by Type

Message Type	Message examples
Collective	<p><i>“Please my fellow ugandans let’s fight this covid 19 together by practicing social distancing and following the guidelines of the ministry of health. Together as one”</i></p> <p><i>“If all the eggs are in the same basket, they break together. So, please lets keep the distance, it will save more than one life. Thanks.”</i></p>
Civic duty	<p><i>“Fellow Nigerian COVID-19 is a serious threat to humanity, and our health workers are trying their best to keep us safe, we must play our part as a citizen, ensure social distancing if you must meet people, wash ur hand regularly and please stay indoor to be safe, better days will return.”</i></p>
Religious	<p><i>“Am a Muslim by religion. I ask fellow muslims to practice social distancing and ask Allah to protect other people with out covid en cure those with insha Allah. And reduce its strength.”</i></p> <p><i>“Be strong about this disease and trust God.”</i></p>

random sample of 10 percent of the messages written and manually create the library of terms for coding the messages. We then code the full set of messages using these terms.¹⁰ Table 3 shows the distribution of messages across these three types. The first column displays the share of messages that mention collective terms, such as “us”, “we” and “ourselves” demonstrating respondents’ focus on the importance of maintaining physical distancing for the common good. The majority of messages in all countries fall into this category, with a minority invoking civic duty or religious sentiments. Table 4 shows examples of some of the messages coded into each type. The fact that many respondents made appeals to the collective good, and working together, suggests that this may be a type of message that is particularly likely to resonate with the public.

4 Discussion and Conclusion

Physical distancing is a crucial behavior that citizens around the world will need to adopt to slow the spread of COVID-19. In this paper we have examined knowledge about this behavior as a means to reduce transmission and attitudes toward lockdown policies intended

to enforce physical distancing in the early months of the pandemic in three African countries. Respondents in Kenya, Nigeria, and Uganda reported high levels of factual knowledge about COVID-19, indicating that, at least among relatively urban populations, accurate information about the pandemic was quickly disseminated and absorbed. Respondents were also mostly favorable toward lockdown policies at this stage in the pandemic, when there were few but quickly rising numbers of cases in the region.

Despite the recognition that physical distancing reduces the spread of COVID-19, nearly 40 percent of respondents recruited through social media in Kenya, Nigeria, and Uganda indirectly reported that they had come within 2 meters of someone outside their household that day, underestimate others' support for lockdown policies, and generally did not expect others to practice physical distancing. Together, these beliefs suggest that a social norm around physical distancing did not exist among respondents in our sample at the time of the survey.

From a policy perspective, these findings suggest that providing information about the benefits of physical distancing may have limited impact on behavior going forward since publics are already well-informed about the benefits of the behaviors being encouraged by health experts. However, providing credible information about others' *beliefs* — in particular, creating common knowledge that there is widespread support for physical distancing — may be a more fruitful path to induce compliance with this public health policy. We also show that respondents can be relatively easily mobilized to encourage fellow citizens to practice physical distancing. Peer-to-peer communication has been used to promote health behaviors to prevent the spread of HIV/AIDS in sub-Saharan Africa (Green et al., 2006; Medley et al., 2009), and our findings suggest a similar strategy is worth exploring in the case of COVID-19. We thus suggest that the public can play an active role in maintaining compliance with health policies, and that this strategy may be increasingly useful as publics tire of extended lockdowns and top-down enforcement of their behavior.

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Notes

¹Of our full sample 2,609 completed the survey and 2,633 were part of the vignette experiment.

²At the time of the survey, Uganda had 55 registered cases of COVID-19 and was under nationwide lockdown, Nigeria had 343 to 407 cases with lockdown in some states, and Kenya had between 208 and 225 cases.

³Additional information about sampling and respondent characteristics can be found in the SI, Section 1.

⁴13% of respondents report being able to continue their usual work from home.

⁵The survey instrument can be found in SI, Section 7, and description of experiments in SI, Section X.

⁶These pieces of misinformation were taken from the World Health Organization (WHO) Myth Busters. Correct information was provided to respondents at the end of the survey.

⁷Nigerian states under lockdown at the time of the survey include Abuja FCT, Lagos, Ogun, Akwa Ibom, Kwara, Anambra, Niger, Ekiti, Delta, and Osun.

⁸We randomized the order of these questions such that half of the sample was first asked about their own attitudes and half of the sample was first asked to guess others' attitudes. The order of the questions did not influence responses. In other words, there is no difference in own attitudes toward lockdown policy between respondents who were first asked about their own attitudes and respondents first asked about others' attitudes.

⁹We did not observe treatment effects of social or material costs to failing to physical distance on message writing behavior.

¹⁰We pre-registered analyzing whether messages focus on an appeal to the collective.