Forthcoming in ***Review of Economics and Statistics***

Raising Health Awareness in Rural Communities: A Randomized Experiment in Bangladesh and India*

Abu Siddique   Tabassum Rahman   Debayan Pakrashi

Asad Islam   Firoz Ahmed†

February 19, 2022

Abstract

Delivering validated information to rural areas is a major challenge in low-income countries. In this paper, we study information provision to rural communities in the context of a global outbreak of an infectious disease—COVID-19. Two weeks after the initial lockdown in March 2020, we conducted a randomized experiment in rural Bangladesh and India to disseminate health information over the phone. We find that relative to information provided via SMS, phone calls can significantly improve people's awareness and compliance with health guidelines. We also find compliance to be substantially higher among women, which also persists after three months of the campaign.

Keywords: Information provision, health communications, misinformation, health behavior, COVID-19, rural areas, randomized experiment.

JEL Classification: C93, D8, I12, I15, O12

*We would like to thank the Editor and two anonymous referees for their constructive comments and help in improving our paper. We thank seminar participants at Curtin, North South, Monash, TU Munich, and Tsukuba, and discussants at MWIEDC 2021, and COVID-19 workshops at Monash and FIU for their helpful comments and suggestions. We also thank Paul Brimble for his comments on the machine learning analysis. This project was supported by funding provided by a special COVID-19 research funding from Monash Business School. Ethical clearance for this project came from the Monash University Human Research Ethics Committee (ref no. 24746) and the Institutional Ethics Committee at the Indian Institute of Technology Kanpur (ref no. IITK/IEC/2019-20-II/June/I).

†Authors' names appear in reverse alphabetical order. Siddique: Department of Political Economy, King's College London. Rahman: School of Medicine and Public Health, University of Newcastle. Pakrashi: Department of Economic Sciences, Indian Institute of Technology Kanpur. Islam: Centre for Development Economics and Sustainability (CDES) and Department of Economics, Monash University, and J-PAL (Corresponding author, email: asadul.islam@monash.edu). Ahmed: Sustainable Economic Policy, Technical University of Munich, and Khulna University.

1 Introduction

Over two-thirds of the population in low-income countries live in rural areas. In the rural setting, lack of digital connectivity, poor infrastructure, and low literacy act as barriers for communication and information delivery, which often have harmful consequences affecting personal and public welfare. For instance, failure to deliver the latest information on flood warnings can risk millions of lives in flood-prone villages, or being unable to bust misconceptions about immunization in rural communities can put millions of children at risk of life-threatening diseases. Additionally, information overload at the influx of new information, such as at the onset of a new health crisis, can easily propagate misinformation in rural areas and mislead people into adapting health-impairing behavior (Menczer & Hills, 2020; Galvão, 2020). Thus, disseminating validated information to rural areas on time is crucial and remains a major challenge in most developing countries even today.

In this paper, we evaluate the effectiveness of rapid health information campaigns in rural areas using text messages and phone calls in two developing countries, Bangladesh and India, where about a billion people live in rural areas. We study this in the context of a global outbreak of an infectious disease—the onset of the 2019 coronavirus disease (COVID-19) pandemic—when information about the virus and treatments were fairly unknown or inconsistent and new public health information was arising with the unfolding of the crisis. To limit the spread of the virus, governments and development agencies worldwide started disseminating public health messages to encourage health-preserving behavior, such as social distancing and hand-washing.[1] However, an overabundance of information resulted in an 'infodemic'—an epidemic of misinformation—that often misled people to adapt health impair-

[1]Globally, about 364 million people have been infected by the virus and over 5.6 million have died following the outbreak (WHO, 2022). However, estimates from the World Health Organization (WHO) suggest that one in ten people worldwide might have been infected by COVID-19 since its outbreak in December 2019, which is roughly twentyfold larger than the number of confirmed infections in the first 10 months (WHO, 2020). Both India and Bangladesh were affected severely by the pandemic and together contributes to about 12% of the COVID-19 cases and 10% of deaths worldwide. With 40 million confirmed case and nearly half a million deaths (as of January 2022), India ranks second in terms of infections and third in terms of deaths worldwide. Bangladesh had over 1.7 million infections and 28 thousand deaths. In Appendix A, we provide a detailed overview of the COVID-19 crisis in Bangladesh and India.

ing behavior (Zarocostas, 2020; Galvão, 2020). Moreover, poor health literacy among people worldwide also made it challenging to effectively communicate simple and feasible solutions like frequent hand-washing (Paakkari & Okan, 2020). In addition, it has been very difficult to penetrate rural areas of developing countries with validated information about COVID-19 (United Nations, 2020b). People living in rural areas are generally 'disconnected' from the digital world of the internet, social media, television, radio, and smartphones (Ahmed & Diesner, 2012), which often deprive them of access to the latest, verified information (United Nations, 2020b). As a result, rumors, myths, and misconceptions about COVID-19 remain rampant there (United Nations, 2020a; Islam et al., 2021), which trivializes the risks of COVID-19 and worsens the public health crisis (Galvão, 2020). Poor health literacy also aggravates the problem of misinformation and makes infection control difficult in poor settings (Saleh, 2020; Paakkari & Okan, 2020). Besides, people living in rural areas—who are predominantly poor—often cannot protect themselves because of their poor socioeconomic and living conditions (Ravallion, 2020; Ahmed et al., 2021).

Therefore, to disseminate public health information, raise awareness about the coronavirus, and inform imminent policies on strengthening health security in rural areas in developing countries, we carried out over-the-phone campaigns in between early April and mid-May 2020 targeting rural communities of Bangladesh and India. While the internet is not readily accessible, mobile phone penetration in rural areas of both countries is very high and has also greatly increased in recent years (Bangladesh Demographic and Household Survey, 2019; McKinsey Global Institute Report, 2019), which made our campaigns feasible. Our campaign targeted 6,485 rural households (across 420 villages) in Khulna and Satkhira districts of Bangladesh and 1,680 rural households (across 40 villages) in Kanpur district of Uttar Pradesh, India. These households were randomly selected from a bigger pool of households previously surveyed by two local organizations—our regional collaborators for this study. These organizations (NGOs hereinafter) made direct phone calls to either the female/male household-head or their spouses to discuss the COVID-19 health crisis, preventative measures to be adopted to curb the virus spread, and also responded to any queries that they might have had. NGOs also sent text messages to participants with content on frequent hand-washing, social distancing, etc., to mimic the ongoing 'text-message campaign' by governments and other local agencies during COVID-19. We then divided these two campaign approaches into three treatment arms: (1) *text messages only*, (2) *phone calls only*, and (3) *both text messages and phone calls*. Given a large number of villages in Bangladesh, our treatments were randomized at the village level in Bangladesh; whereas, the randomization in India was at the household level.[2] Eventually, we assigned roughly one-thirds of study villages/households to each treatment arm. In the experiment, our *text messages only* treatment was given as status quo 'control' while *phone calls only* and *both text messages and phone calls* allowed us to examine the effectiveness of alternative communication methods in resource-poor settings.

A month after the campaign ended, we surveyed participating individuals in mid-June 2020. Through the survey, we measured the two outcomes of this study: (i) people's knowledge about COVID-19 precautions (i.e., awareness), and (ii) their compliance with health guidelines. As participating individuals were also surveyed by the two NGOs in 2019, we consider this 2019 survey data our baseline and use it to check our sample characteristics and balance between treatment arms.

We find that disseminating information through *both text messages and phone calls* (T3) is the most effective means of communication in improving rural people's knowledge about COVID-19 precautions, followed by communications only via *phone calls only* (T2). Specifically, relative to people who only received *text messages* (T1), knowledge about COVID-19 precautions improved by 45–85 percentage points when they received *both text messages and phone calls*, whereas awareness among those who only received *phone calls* improved by 28–53 percentage points in both countries, both statistically significant at the 1% significance

[2] India was in lockdown during our campaign period and, hence, information spillover within villages was expected to be low. Moreover, campaigns and surveys took place over the phone, so information could not spread to 'control' households through enumerators (or their presence) in the villages.

level. Furthermore, we also identify a significant improvement in people's compliance with health guidelines. Both treatments 2 and 3 had positive impacts on an index of people's compliance: between 1–1.5 standard deviations higher in Bangladesh and between 2.2–2.7 standard deviations higher in India (both statistically significant at the 1% level). The difference in compliance between treatments 2 and 3 is also statistically significant at the 1% level. In mid-August 2020, we conducted a second survey on roughly 1,600 randomly selected women participants from Bangladesh. We find that the impact of our campaign on compliance persists after three months. These results are in line with pre-coronavirus evidence from low-income countries that information campaigns can successfully promote good hygiene practices and improve people's health choices (Wilson & Chandler, 1993; De Walque, 2007; Cairncross et al., 2005; Dupas, 2011b; Dixon et al., 2015). Moreover, health communications and consultations through telephones can be effective in improving various health outcomes (Car & Sheikh, 2003; Wright et al., 2006; Härter et al., 2016).

Then, we use machine learning (ML) methods to systematically examine heterogeneity in compliance by baseline characteristics (Chernozhukov et al., 2020). We test whether there is heterogeneity in treatment effects with respect to the set of baseline characteristics and then compare the average characteristics of people that were most affected by a treatment to those that were least affected. We find that this ML method successfully detects heterogeneity under T2 and T3 treatments in Bangladesh. We observe higher compliance among participants that are female, relatively older, educated, and from low-income households. In fact, all respondents in the most affected category are females while all respondents in the least affected category are males. Also, respondents that are relatively more worried about the health of household members and less worried about household finances were more compliant in Bangladesh. In contrast, the ML method can only detect heterogeneity under *phone calls only* treatment in India, but not under *both text messages and phone calls* treatment. We find that respondents that are relatively food-secure, live in areas that are far from village markets, and Hindus are strongly affected by the *phone calls only* treatment.

However, we do not find any robust evidence for heterogeneous treatment effects by gender, age, income, or education of respondents in India.

To summarize, we carried out an over-the-phone health information campaign at the onset of the COVID-19 pandemic in two developing countries—India and Bangladesh—to raise awareness about COVID-19 precautions among people living in rural communities. Using a randomized controlled trial (RCT), we provide evidence that our campaign has a strong positive impact on rural people's awareness about COVID-19 and their preventive health behavior. Therefore, we contribute to the new line of literature on the causes and consequences of health-preserving behavior, such as social distancing and hand-washing, during the COVID-19 pandemic (Al-Dmour et al., 2020; Allcott et al., 2020; Banerjee et al., 2020; Barrios et al., 2021; Bahety et al., 2021; Briscese et al., 2020; Bursztyn et al., 2020; Fitzpatrick et al., 2021; Mheidly & Fares, 2020; Nivette et al., 2020; Simonov et al., 2020; Torres et al., 2021; Yousuf et al., 2020). Specifically, these studies show that political polarization (Allcott et al., 2020), media outlets (Bursztyn et al., 2020; Simonov et al., 2020; Yousuf et al., 2020), social media platforms (Al-Dmour et al., 2020), messaging campaign (Banerjee et al., 2020; Torres et al., 2021; Bahety et al., 2021), sense of civic duty (Al-Dmour et al., 2020), expectations about lockdown-policy duration (Briscese et al., 2020), and sociodemographic factors (Nivette et al., 2020) can influence people's compliance during the COVID-19 pandemic. Our study is most closely related to Banerjee et al. (2020) that evaluates the effectiveness of a messaging campaign in West Bengal, India, through an RCT. This campaign randomly sent YouTube links to informational video clips, delivered by Professor Abhijit Banerjee, via text messages to residents of West Bengal, India. Through a survey on 677 health workers and 1,883 former and current village council members, this paper shows that the campaign increased their reporting of COVID-19 symptoms, reduced travel, and increased their hand-washing and mask-wearing immediately after the campaign ended. Our paper complements Banerjee et al. (2020) but focuses on rural communities where validated information often does not penetrate via the internet, smartphones, social media, news channels, etc., and provides causal evidence that brief one-to-one phone calls can have a strong impact on stay-at-home, social distancing, and hand-washing behavior.

More generally, our work contributes to the growing literature on the causal impact of health information campaigns in developing countries on various health behavior and outcomes, such as STI and HIV infections (Dupas, 2011a; Banerjee et al., 2019; Islam et al., 2020), malaria infections and treatment (Dupas, 2009; Cohen et al., 2015), infant diarrhoeal disease (Levine & Kinder, 2004), and contraceptive use and fertility (Ashraf et al., 2010). We also contribute to the literature on the use of mobile phones to communicate important health information to the public—in particular, through text messages, calls, mobile apps, etc. (Platt et al., 1997; Fjeldsoe et al., 2009; Zurovac et al., 2011; Klasnja & Pratt, 2012; Free et al., 2013; Vlassopoulos et al., 2021). Therefore, our results corroborate findings from a large body of literature that identifies a positive impact of health information campaigns and nudges on various health-promoting behavior and outcomes.

The remainder of this paper proceeds as follows. Section 2 provides the design of our study. We then report our results in section 3 and, later, conclude with some policy implications in section 4.

2 Experimental design and empirical strategy

2.1 The Experiment

We collaborated with Global Development Research Initiative (GDRI), a non-profit research organization in Bangladesh, and the Development Policy Research Network (DPRN) at the Indian Institute of Technology Kanpur, India, to carry out the two information campaigns to promote social distancing and good hygiene among people in rural areas at the onset of the coronavirus lockdown. These local organizations are highly regarded and respected in the areas where we conducted our intervention and are trustworthy among the villagers.[3] Note also that these are research-focused organizations and do not offer direct cash support, employment, or microcredits to people in the villages.

We focus on rural areas in these two developing countries because the majority of households in rural areas are poor with very limited access to digital tools, such as television and internet connection, which often prevents them from receiving verified information about COVID-19. Moreover, rumors and myths about COVID-19 are more likely to pervade these communities, which further heightens the risk to health and spread of fear and stigma (United Nations, 2020a). In addition, mobile phone users often receive mass text messages on COVID-19 from the government, urging users to practice social distancing and good hygiene. However, many people struggle to understand text messages due to high illiteracy among adults in rural areas (Saleh, 2020), which often makes text messages an ineffective method of communication among rural people. Therefore, to disseminate accurate, reliable information to these people on how to stay healthy and keep safe during the pandemic and to determine the most effective way of informing rural people on the preventative measures against the spread of COVID-19, we carried out two over-the-phone campaigns in Bangladesh and India in between early-April and mid-May, 2020. Figure 1 lays out the timeline of our project.

Our information campaigns were possible due to the wider use of mobile phones in rural communities of both countries. For the campaign, important information on social distancing, hand washing, etc., were carefully crafted following the guidelines of the World Health Organization (WHO), UNICEF, and the Ministry of Health in India and Bangladesh. This information was disseminated among selected households in three ways: (i) text messages composed in the local language (*Bangla* in Bangladesh and *Hindi* in India), (ii) direct phone calls from a local NGO, or (iii) both. Calls and text messages were sent twice, with a month gap between the first and second text/call.[4] Translated contents of the text message are pro-

[3]Also, our high treatment delivery rates in treatments involving phone calls can be partly attributed to the familiarity with and trust towards local organizations by the villagers.

[4]If participants' phones were found switched off on the first try, callers tried calling again on the next day. This was practiced during both rounds to increase the delivery of treatments involving calls. In contract, we only made single attempts at text messages in each round.

vided in section D.1 and phone call script in section D.2 in Appendix D.[5] Individuals that received both phone calls and text messages got texts first, then phone calls (2-3 days after the text). We followed this order to allow participants to read the text and to allow callers to refer back to the text message to facilitate conversation. During the second round of phone calls, callers read out the script as well as gave information on the most recent number of infected people, deaths, and limited healthcare capacity in the country and reminded the recipients about how following the guidelines could keep them safe and healthy.[6] We did this to avoid repetition and make the discussions more engaging and natural. At the end of each call, participants were also requested to disseminate this information to other household members. Each phone call lasted for about 10-15 minutes. Also, all phone calls and text messages were addressed by the recipient's full name (according to NGO records). For this campaign, callers from NGOs were carefully trained by Tabassum Rahman and Debayan Pakrashi through video conferencing.

To randomly select households for the campaign, we obtained a list of households with mobile phone numbers that were previously surveyed by the two local organizations, GDRI and DPRN, in Bangladesh and India respectively. From this list, we randomly selected about 8,000 phone numbers (where phone numbers belong to either female/male household-heads or their spouses and each number represents a household) in Bangladesh and 1,870 in India.[7] Among the randomly selected households, 81% of households in Bangladesh and 90% of households in India had active phone numbers and were interested to take part in our endline survey. The remaining numbers were either invalid, repeatedly switched off, or respondents were unwilling to partake in the endline survey. Table B1 in Appendix

[5]The phone call script was carefully crafted by Tabassum Rahman—a public health expert and one of the co-authors of this study.

[6]This part was more like a conversation than simple information delivery because recipients often had various questions on the current COVID-19 situation in their regions. In addition, recipients could also ask other clarifying questions about hand-washing or social distancing. As a result, callers often had to deviate from the script (provided in Appendix D) to accommodate the latest information on COVID-19 and respond to queries made by respondents. This was expected because, relative to text messages, phone calls were two-way communications and expected to be more engaging and informative.

[7]This imbalance in the number of households is due to GDRI in Bangladesh having more household contact details than DPRN in India.

B summarizes our initial treatment assignment, successful treatment delivery, and endline survey completion of participants. Finally, 6,485 rural households (from 420 villages across 50 union councils) in Khulna and Satkhira districts in Bangladesh and 1,680 rural households (from 40 villages) in Kanpur, Uttar Pradesh, India, participated and took part in the endline survey.[8] In Tables B2 and B3 in Appendix B, we show that our sample characteristics are fairly similar to the rural population in Bangladesh (though our sample is relatively younger, have 1.5 years of more schooling, and consists of more Hindus) and that in the state of Uttar Pradesh in India.

We randomized 420 villages in Bangladesh to three different treatment arms: (i) *T1 or 'text messages only'* (131 villages with 2,925 households), (ii) *T2 or 'phone calls only'* (138 villages with 2,504 households), and (iii) *T3 or 'both text messages and phone calls'* (151 villages with 2,564 households). Eventually, 2,361 households in T1, 2,031 in T2, and 2,093 in T3 successfully received our treatment and participated in our endline survey. Given the small number of villages in India, our randomization in India was at the household level. In particular, 620 households were assigned to *T1*, 670 households to *T2*, and the remaining 580 households were assigned to *T3*. Eventually, 561 households in T1, 601 in T2, and 518 in T3 received the treatment and were surveyed at endline. See Table B1 in Appendix B for more details on initial treatment assignment, successful treatment delivery, and attrition.

We do not have a 'pure' control group because mobile phone users often receive text messages on COVID-19 precautions from the government and other organizations. Furthermore, on humanitarian grounds, we wanted to reach out to as many rural households as possible to spread awareness about the coronavirus. Therefore, we consider *text messages only (or T1)* as our control group and, hence, the reference category in our empirical analysis. We provide a map of Bangladeshi subdistricts in Figure B1 in Appendix B to show the

[8]As highlighted in Table B1, all individuals in India that participated in the endline survey were also treated. However, among the individuals that were successfully surveyed at endline in Bangladesh, only 3.5% could not be reached for treatment delivery. Therefore, to be consistent in our analysis across the two countries, we focus on the sample that was both treated and surveyed at endline. Later in section 3.3, we show that our conclusions are largely robust to including the 3.5% Bangladeshi sample (surveyed but did not get treated) in the analysis.

distribution of and distances between treatment villages in our study districts.[9]

2.2 Data

Data collection. Following the information campaign, between late June and early July 2020 (roughly a month after the campaign ended), we collected a rich set of survey data over the phone through trained enumerators (each lasting for 10-15 minutes).[10] We rely on self-reported measures of compliance in this study because other measures, such as coronavirus testing and infection rates, are often not available (also grossly underestimated) for rural areas because of lack of testing and limited access to test centers in rural areas. Also, location and mobility data through smartphones are not available due to a lack of smartphone use and internet access in rural areas. As self-reported outcomes raise the concerns of social desirability bias, we discuss and address this issue in section 3.3.

Since conducting an extensive baseline was not possible during the pandemic, we matched respondents to data that was collected in 2019 by the same local organizations. Table B4 in Appendix B lists all control variables that were collected in 2019 and at endline (also defined in Table 1). We consider the 2019 data our baseline and use it to show a balance in characteristics between our treatment groups later in this section. Appendix C.1 provides more information on the data collection.

Outcomes variables. Our outcome variables are COVID-19 awareness and compliance with COVID-19 health guidelines.

- *Awareness/complete awareness.* This measures a respondent's knowledge about COVID-19. Enumerators had a list of 5 most common COVID-19 health guidelines that they could 'tick' off. Enumerators asked respondents about the common COVID-19 health

[9]We do not provide a similar map for Kanpur, India, because randomization in India was done at the household level, and highlighting treatment/control households across only 40 villages clutters the map, making it illegible. Instead, we provide a map of India in Figure B2 in Appendix B to show the location of Kanpur district in Uttar Pradesh.

[10]Our enumerators and campaign callers were different people. Callers were lay health workers and school teachers who were temporarily hired by the NGOs and mobilized to deliver the treatments, while enumerators have been working for the local NGOs for several years. However, recipients knew that both callers and enumerators were from the same organization.

guidelines and then passively 'ticked' on the rules if mentioned by the respondents. Thus, responses were unprompted. Using these responses, we constructed two outcomes: *awareness*, which is the number of correct responses (on a scale between 0 and 5); and, *complete awareness*, which we code as 1 if the respondent mentioned all five guidelines correctly and 0 otherwise. The exact question asked and corresponding options are provided in Appendix C.2.

- *Compliance.* This measures if a respondent complied with general COVID-19 health guidelines. Enumerators asked 6 questions on respondents' stay-at-home, social distancing, and handwashing in the past week. Each question was converted to an indicator (=1 if complied) and then the 6 indicators were aggregated to construct a standardized index, such that the control group has a mean zero and a standard deviation one. For robustness checks, we also treat these indicators as individual outcomes in the regression analysis. The exact questions asked, the response scale, and details on variable constructions are provided in Appendix C.2.

In addition to the variables from 2019 (mostly demographic and socioeconomic characteristics), we collected other respondent characteristics at our endline survey: their worries about household health and finances, household food insecurity, and occupation of the main earning member of the household. We define these additional variables in detail in Appendix C.3. We use these variables to show the balance between our treatment groups below.

Sample characteristics, balance, and attrition. In Table 1, we show the descriptive statistics and balance on observables at baseline, and find our sample to be well balanced on individual and household characteristics. We observe a few imbalances in baseline characteristics but we run 60 different independent tests (20 variables with 3 comparisons in each) and a Bonferroni multiple comparison corrections requires a significance threshold of $\alpha = 0.0008$ for each difference to be significant at 5% level (or $\alpha = 0.002$ for significance at 10% level).

Table B1 in Appendix B highlights the numbers on our initial treatment assignments, successful treatment delivery, and participation in the endline survey across the three treatment arms. Following this table, we conduct some additional balance checks that we also report in Appendix B: (i) balance between those who got treated and those who did not in Tables B5 and B6; (ii) among the untreated in Bangladesh, we show the balance between those who were surveyed at endline and those who were not in Table B7 (note that in India, no untreated participants could be surveyed at endline); (iii) balance between those who were surveyed at endline and those who were not in Tables B8 and B9. We find groups to be well-balanced throughout.

Table B1 in Appendix B also defines what we consider 'attrition' in both countries. To allow our analyses to be consistent across the two countries, we consider participants that could not be reached for treatment delivery or the endline survey as 'attrited'. That is, participants that are not in the 'both treated and surveyed' category are considered 'attrited' in both India and Bangladesh. This is because, in India, no untreated participants could be surveyed at endline; thus, all surveyed individuals in India successfully received our treatments. Thus, in India, attrition in T1 is 9.52%, T2 is 10.30%, and T3 is 10.69% (all are statistically similar using Pearson's Chi-squared tests: $p > 0.10$), with the overall attrition being 10.16% in India.[11] Table B9 in Appendix B shows that there is no differential attrition by baseline characteristics in India (the joint p-values on the interactions are all $p > 0.10$).

In Bangladesh, to be consistent with India, we also consider individuals that are not in the 'both treated and surveyed' category (second row, Panel A, Table B1 in Appendix B) as 'attrited'. Thus, 'attrition' in T1 is 19.28%, T2 is 18.89%, and T3 is 18.37% (all are statistically similar using Pearson's Chi-squared tests: $p > 0.10$), with the overall attrition being 18.87% in Bangladesh.[12] In Table B10 in Appendix B, we check for differential attrition

[11] In India, if we consider participants that were 'treated but not surveyed' as 'attrited' (Panel B, Table B1 in Appendix B) then the overall attrition in India is only 1.12% or 21 participants. The reasons for non-participation in the survey by treated participants were phones being switched off and calls not answered, where only 2 participants did not give consent to take part in the survey.

[12] Note that roughly 9% of people in Bangladesh could not be reached for treatment delivery and the survey (i.e., phones switched off, numbers invalid, numbers not in service, etc). If we consider 'treated but not surveyed' as 'attrited' then the overall attrition in Bangladesh is 7.1%. The reasons for non-participation in the survey by treated participants were phones being switched off and calls

by baseline characteristics in treatment arms and find no such evidence (the joint p-values on the interactions are all $p > 0.10$).

2.3 Empirical strategy

Main specification. We are interested in estimating the effect of our awareness campaign on outcomes associated with COVID-19 awareness and compliance. To do so, we estimate treatment effects using the following OLS regression:

$$Outcome_{ij} = \alpha + \beta_1 T2_{ij} + \beta_2 T3_{ij} + \mathbf{\Gamma}'\mathbf{X}_{ij} + \tau_j + \epsilon_{ij} \quad (1)$$

where $Outcome_{ij}$ is the outcome (*awareness* or *compliance*) of household i in village/union council j; $T2$ is an indicator for *phone call only* treatment and $T3$ is an indicator for *both text and phone call* treatment (thus our reference category is the *text message only* treatment); and, $\mathbf{X}$ is a vector of controls that are listed in Table B4 in Appendix B and described in Appendix C.3. For the Indian sample, since each village has both treatment and control households, we use village fixed effects to control for community characteristics. However, randomization in Bangladesh was at the village level, so we use union council (the smallest rural administrative unit in Bangladesh) fixed effects instead.[13] Therefore, the comparisons in Bangladesh are within the same union councils (we have 50 union councils). Thus, τ corresponds to village and union council fixed effects in India and Bangladesh respectively. Using an ordered probit model for the ordered dependent variables (e.g., awareness on a scale between 0 and 5) and a probit model for binary outcomes (e.g., complete awareness indicator), our results presented in section 3 remain largely consistent and qualitatively similar.

Inference. We cluster standard errors at the village level (420 villages in Bangladesh and 40 villages in India). Although treatments in India vary at the household level, we

not answered, where only 37 participants did not give consent to take part in the survey.

[13] An union council consists of nine villages on average in Bangladesh.

allow the error term to be clustered at the village level. Results reported in section 3 using Indian data do not change if standard errors are not clustered. Since the number of villages (i.e., clusters) in India is relatively small (40 relative to 420 in Bangladesh), we also compute p-values using the wild bootstrap-t clustering method for the Indian sample (Cameron et al., 2008, CGM). We report these CGM p-values in our main results tables. We also compute and report p-values from a permutation test at the village-level (in Bangladesh) or at the household-level (in India) by randomly shuffling the treatment status 1,000 times (Young, 2019). This randomization inference (RI) p-value reports what proportion of the reshuffled data found effects that are larger than our estimated treatment effects. We report these RI p-values in our main results tables. Our results reported in section 3 are robust throughout and conclusions are largely consistent using these different methods.

Correction for multiple hypotheses testing. We also adjust our p-values for multiple hypothesis testing using Westfall & Young (1993, WY) adjustments. This method uses bootstrap resampling (1,000 replications, in our case) to account for correlation across different outcomes. Under the main regression tables, we report these Family Wise Error Rate (FWER) adjusted p-values. In addition, we also adjust p-values using the more conservative Bonferroni adjustments and find that Bonferroni adjusted p-values align closely with WY FWER adjusted p-values and, thus, the conclusions are largely consistent using these two methods.

3 Results

3.1 Awareness about COVID-19

Raw comparisons. Raw comparisons of *awareness* between treatment groups show that both T2 and T3 were significantly more effective than the *text messages only* treatment with regards to increasing COVID-19 awareness among participants in both countries. Figure 2 presents raw results on the averages of awareness in Bangladesh (column A) and India (column B) (and by indicators in Figure B3 in Appendix B). On an *awareness* scale of 0 to 5 (graphs A1 and B1), participants in T2 and T3 reported significantly more correct COVID-19 precautions than participants in T1 (t-test: both $p < 0.01$). Moreover, in terms of *complete awareness* (graphs A2 and B2), both T2 and T3 were more effective than T1 in both countries (Pearson's Chi-squared or CS-test: all $p < 0.01$). Finally, we find T3 being significantly more effective than T2 in raising awareness in both countries. Since awareness responses were unprompted (enumerators passively recorded answers), we believe this result is less subject to social desirability bias.

Treatment effects. To estimate the treatment effects, we regress respondents' reported *awareness* on the treatment indicators while also controlling for various individual and household-level characteristics as in equation 1. We report these OLS estimates in Table 2 in two panels, one for the Bangladeshi sample (Panel A) and the other for the India sample (Panel B). The first three columns (1-3) use the number of correctly reported awareness rules as the dependent variable (between 0-5, where a higher number corresponds to better awareness) and the last three columns (4-6) use the indicator for *complete awareness* (=1 if reported all awareness rules correctly) as the dependent variable. We report the results without any covariates in columns 1 and 4, then with covariates in subsequent columns. For instance, in Panel A (Bangladeshi sample), we add control variables in columns 2 and 5 that were collected during the endline, and then in columns 3 and 6, we add the additional controls that were collected through an old survey conducted in 2019 in Bangladesh (that is only available for 90% of the Bangladeshi sample). Likewise, in Panel B (Indian sample), we add demographic controls in columns 2 and 5, and the remaining controls in columns 3 and 6. We explain how these variables are constructed in sections C.2 and C.3 in Appendix C, and list these controls in Table B4 in Appendix B to show which variable is available for each country and at what points they were collected.

Our estimates with or without covariates show positive and statistically significant effects of both treatments (*phone calls only* and *both text messages and phone calls*) on raising awareness among participants in both countries (all $p < 0.01$ in Table 2). Moreover, the effect of T3 is significantly larger than the effect of T2 (F-test: $p < 0.01$), suggesting communication through both phone calls and text messages is the most effective approach. For instance, participants that received both phone calls and text messages were likely to report roughly 0.4-0.5 more correct COVID-19 precautions on average than participants that only received phone calls (T3 minus T2 in column 3, both panels). Similarly, participants that received T3 are also more likely to have complete awareness about COVID-19 precautions than participants that received T2 (column 6, both panels).[14] As a robustness check, we also estimate equation 1 using an ordered probit (for columns 1-3) and a probit (for columns 4-6) regression model and find that our results are robust and qualitatively similar to using these alternative models. We report these estimates in Table B11 in Appendix B. In addition, we also estimate the effect of our treatments on the precautions individually (rather than on an ordered scale between 0-5), where stating each precaution correctly is recorded as 1 and 0 otherwise. Thus, we have 5 dummy outcomes that we call *awareness indicators*. These estimates are provided in Table B12 in Appendix B. Our results remain robust and significant in all five columns for both countries, suggesting the effects of our treatments are present throughout the entire *awareness* distribution.[15]

3.2 Compliance with public health guidelines

Raw comparisons. Raw comparisons of *compliance* with COVID-19 rules show that participants in T2 and T3 groups in both countries reported complying more often with COVID-19 regulations than participants in T1. These summaries are presented in graphs

[14]Due to strict lockdown measures during the intervention and survey periods, we do not expect any large information spillovers across households or villages (although, some people could have stayed in touch with their neighbors via phones that we also could not measure during the crisis). However, in the presence of positive spillovers, we will be underestimating the true effects.

[15]In Table B12 in Appendix B, we report OLS estimates of the Bangladeshi sample in two separate panels (A and B), where panel A uses all control variables (that is available for 90% of Bangladeshi participants) and panel B uses the controls that were only collected at the endline (thus, available for all Bangladeshi participants). Although we do not report, results on awareness indicators are also robust to using probit estimates.

A3 and B3 in Figure 2 (and by indicators in Figure B4 in Appendix B). A two-sided t-test suggests these differences are statistically significant at the 1% level (t-test: both $p < 0.01$). We also find compliance in T3 to be statistically higher than compliance in T2 (t-test: $p < 0.01$ in both countries). Figure B5 in Appendix B shows the distribution of compliance by treatment groups, where both T2 and T3 distributions are to the right of T1 implying higher compliance in T2 and T3 (also statistically significant using a Kolmogorov-Smirnov test for the equality of distributions: $p < 0.01$).

Treatment effects. Next, we estimate equation 1 with the compliance index z-score as the dependent variable. We report these results in Table 3 as well as in Figure 3 to display treatment effects on the pooled sample and by gender of participants. These estimates show where the averages of our two treatment groups lie in the distribution of T1 (our control group) in terms of standard deviation units. Initially, we focus on results in columns 1, 2, and 5, and leave columns 3 and 4 for discussions on results from the second endline survey in Bangladesh (see section 3.4). Columns 1 and 2 report estimates without and with 'old' control variables respectively for the Bangladeshi sample, and column 5 reports estimates for the entire Indian sample.[16] Positive and statistically significant effects in columns 1, 2, and 5 suggest that both T2 and T3 were effective in increasing participants' compliance with COVID-19 regulations in both countries. In addition, analogous to the *awareness* results, the effects of T3 are much larger in magnitude than that of T2 across the three columns and these differences are also significant at 1% level (all F-test: $p < 0.01$). One plausible reason is that callers from the NGOs always referred to the text message during the phone call discussion to tag it as a continuous reminder for participants. Moreover, referring back to text messages during phone calls could have increased the value or legitimacy of its contents and vice versa. Participants could also go back to the text anytime after the phone call, which as a result might have made T3 more effective than T2. Another plausible interpretation

[16]Table B4 in Appendix B lists the Bangladeshi controls that were collected at the endline survey ('new' controls) and the 2019 survey ('old' controls). 'Old' controls are available for 5,840 participants.

is that participants could have shown/referred to text messages to other family members, which might have facilitated discussion on COVID-19 within the household and reinforced the value of the information provided among participants.[17] As we do not have the data on these possibilities, these interpretation are only speculative.

We also estimate equation 1 with *compliance indicators*—the six indicator variables on compliance that we use to construct the index—to complement results from Table 3. We report these estimates in Tables B13 and B14 in Appendix B. Coefficient on T2 and T3 in all columns, in both panels, are statistically significant, implying results are not driven by a few components of the compliance index. As a robustness check, we redo the regressions with *compliance indicators* using probit and find qualitatively similar results (Table B15 in Appendix B).

Since we mimicked text messages sent by public offices, some information, such as avoiding going to the market, could not be sent via text messages but was provided via phone calls. If we restrict our compliance components to 'hand washing' and 'avoiding contacts' only—as both were mentioned in text messages and phone calls—and estimate treatment effects on these two compliance indicators, we find that impacts on hand-washing and avoiding contacts remain large and statistically significant (columns 5-6, Tables B13 and B14 in Appendix B). Moreover, treatment effects on the parsimonious compliance index (by restricting components to hand washing and avoiding contact only) also show that our conclusions are largely robust to such adjustments (see Table B16 in Appendix B).

3.3 Other robustness checks

Social desirability bias. A reasonable concern with self-reported measures of outcomes is the possibility for experimenter demand effects (or social desirability bias) confounding with the true treatment effects, as treated participants might have a higher tendency to

[17]Another possibility is higher engagement in T3 than in T2. However, qualitative feedback from callers suggest that participants in T3 did not necessarily ask relatively more questions to callers about the health information provided. Therefore, we do not believe higher engagement in T3 than in T2 to be a possible mechanism.

give more socially desirable responses to survey questions than the untreated. The strong correlation between *compliance* and *awareness* measures in both countries (see Table B17 in Appendix B) provides some reassurance that improvement in awareness was an important channel for inducing compliance among the treated, as *awareness* questions were unprompted and, thus, were less subject to social desirability bias. Moreover, in our study, we do not have a 'pure' control group, because our control group (T1) also received COVID-19 information via text messages. This further mitigates the demand bias concern because experimenter demand effects in this context should be present in all three experimental groups (T1, T2, and T3). However, it is possible for phone calls to trigger more socially desirable responses among respondents than text messages. Thus, to address this issue more rigorously, we test for respondents' tendency to give socially desirable responses in India using the 13-item Marlowe-Crowne scale (Reynolds, 1982), where a higher score on the scale corresponds to a higher propensity to give biased responses.[18] We carry out a heterogeneity analysis using this scale but do not find any evidence for social desirability bias driving our results. This result based on the Marlowe-Crowne scale is reported in Table B18 in Appendix B. Note that this test ameliorates the concern of experimenter demand effects but it does not entirely rule it out. Thus, demand bias might explain some effects on *compliance* that we report. More details on this scale and the analysis are provided in Appendix C.5.

ITT versus TOT effects. Our analysis in Bangladesh focus only on the sample that received the treatment and also participated in the endline survey ('both treated and surveyed' row in Table B1 in Appendix B), so it is plausible that the estimates reported in Table 3 might be upward biased as we exclude the sample that did not receive the treatment yet were surveyed at endline (only 237 out of 6,722 individuals or 3.5%), as answering phone calls can be endogenous. We address this concern in Table 4. First, in columns 1-2, we

[18]The Marlowe-Crowne scale was collected in 2019 in India by our partner NGO for another project with one of the coauthors of this paper. It was collected as part of a survey that recorded people's opinions about caste minorities in Uttar Pradesh, India. This scale is not available for the Bangladeshi sample. Moreover, it was not feasible to measure social desirability bias at endline due to the pandemic as we conducted surveys over the phone, thus facing tight interview time constraints.

show that there are no statistically significant treatment effects among the individuals that were previously excluded. Second, we augment our sample by adding the 237 individuals to the original 6,485 individuals and then estimate the intent-to-treat (ITT) effects on the full sample (columns 3-4). We find the magnitude of the treatment effects reported in columns 3-4 to be very similar to those reported in Table 3. Finally using the full sample, we estimate treatment-on-treated (TOT) effects using a 2SLS model (columns 5-6), where we use the assignment to the phone call treatments as an instrument. Here, it is reasonable to assume that there was no average effect of being assigned to phone call treatments on individuals that could not be reached via phone calls. As expected, these TOT effects are very similar to the ITT effects. The reason is that we have a very high treatment delivery rate of 96.4% in the phone call treatments, and estimates from columns 5-6 (or columns 1-2 in Table 3) are very close to estimates from columns 3-4 divided by the phone call pick up rate during treatment delivery.

3.4 Compliance of women in Bangladesh: second endline

Second survey. 1.5 months after the first endline survey or 3 months after the intervention ended (see Figure 1 for the timeline), we approached a randomly selected number of women participants in Bangladesh and measured their compliance with COVID-19 rules for the second time. A second survey on compliance during the pandemic was possible because the NGO in Bangladesh, GDRI, decided to reach out to a subset of women who took part in the initial survey of this study (for simplicity, we call this our 'first endline') to provide them with over-the-phone health and well-being support during the pandemic. For this, GDRI randomly selected roughly 40% of our female sample (which is 1,600 out of 3,908 from the first endline). We leverage this opportunity to measure the compliance of 1,583 women through a very short survey.[19] For simplicity, we call this our 'second endline'. More

[19]These women are distributed across 393 villages in 50 union councils in Khulna and Satkhira districts. We could not reach the remaining 17 women because their phone numbers were repeatedly switched off during the second survey period.

details on the second endline data collection is provided in Appendix C.6. Our comparison of characteristics between women who only participated in the first endline survey with women who took part in both endlines, presented in Table B19 in Appendix B, suggests that women participants were fairly similar across the two endlines.

Treatment effects. Using the compliance questions, we construct seven compliance indicators and a standardized compliance index in the same manner as described in Appendix C.2. We then estimate equation 1 with the compliance index as the dependent variable and report these estimates in column 4 of Table 3. Analogous to our results from the first survey—reported in the same table in column 1 for the whole sample and column 3 for the female sample in Bangladesh—we find that compliance under both T2 (*phone calls only*) and T3 (*both text-messages and phone calls*) groups relative to the control group (*tex-messages only*) remain large and statistically significant at 1% level, suggesting the impacts of our treatments among women in Bangladesh persist after three months. Moreover, although different samples, effects are about 50% larger in column 4 than in column 3 (female participants from the first endline). To complement these results and also examine the effect on the distribution of compliance, we also estimate equation 1 with compliance indicators as dependent variables and report these estimates in Table B20 in Appendix B. All positive and statistically significant effects (all $p < 0.01$) suggest that effects occur throughout the entire distribution of compliance. Moreover, we observe significant effects on compliance components that were common across text messages and phone calls (columns 1, 4, 6, and 7; Table B20 in Appendix B).

3.5 Heterogeneous treatment effects using machine learning

Next, to systematically examine heterogeneity in treatment effects on compliance, we follow a recent machine learning approach developed by Chernozhukov et al. (2020). The Chernozhukov et al. (2020) method serves three main purposes: (i) it allows us to test for the presence of heterogeneous treatment effects with respect to the existing set of covariates; (ii) to identify the difference in treatment effects between the most and least affected groups (by quintiles); and, (iii) to lay out the characteristics of participants that were most versus least affected by the treatments, e.g., characteristics of participants in the most affected quintile versus the least affected quintile. This approach allows researchers to use any machine learning methods, such as Random Forest, Elastic Net, Boosting, or Neural Networks, which makes it rather "generic". Using notations from Chernozhukov et al. (2020), we briefly summarize the procedure for completeness.

Let Y be the compliance outcome, such that $Y(0)$ and $Y(1)$ are outcomes for individuals in the control (*Text only*) and treatment (either *Call Only* or *Both Text & Call*) groups respectively. Let Z be a vector of covariates (listed in Table B4 in Appendix B) and their interactions with the gender dummy. Therefore, the conditional average treatment effects (or CATE) is computed using the function:

$$s_0(Z) = E[Y(1)|Z] - E[Y(0)|Z] \tag{2}$$

which is the difference in expected potential outcomes between the treated and non-treated individuals, conditional on covariates.

First, we randomly split the sample into two equal parts, one auxiliary and another main. Second, using the auxiliary sample, a proxy predictor for CATE, $S(Z)$, is built using the chosen machine learning algorithm. In our case, we use Random Forest and then Elastic Net for robustness. Third, using the estimated function $S(Z)$, we obtain predictions for observations in the main sample using the same algorithms, which is then used to develop valid inference about key features of $s_0(Z)$, such as: (i) best linear predictor (BLP) of $s_0(Z)$ using $S(Z)$, which provides estimates for average treatment effects (ATE) and heterogeneity loading (HET) parameters;[20] (ii) averages of $s_0(Z)$ by heterogeneity groups induced by $S(Z)$, which are group average treatment effects (GATES) that sorts the observations into quintiles

[20]HET is a test for jointly identifying heterogeneity in treatment effects and that our machine learning method can detect it using Z.

(i.e., five equal groups) based on predicted effects from $S(Z)$; and, (iii) classification analysis (CLAN), which reports the average characteristics of the most and least affected quintiles.[21] BLP, GATES, and CLAN using Random Forest are reported in Table 5, and that using Elastic Net are reported in Table B21 in Appendix B. In Table B22 in Appendix B, we also report BLP, GATES, and CLAN using the second endline data in Bangladesh. Given that we do not find any evidence of heterogeneous treatment effects at the second endline (HET parameters are insignificant), we discuss results from only the first endline below.[22]

In Bangladesh, Panel A.1 of Table 5, we find that the estimated average treatment effects using Random Forest (columns 1 and 3) are fairly similar to our unconditional average treatment effects reported in Table 3. Moreover, $p-$values on HET (columns 2 and 4) suggest that there is heterogeneity in compliance under both treatments, and ML methods can detect it. As we detect heterogeneity in BLP, we proceed to analyze GATES and CLANs in subsequent panels. Next, in Panel B.1, we compare ATEs by subgroups and find that the differences between the most and least affected groups are large and statistically significant at 1% level. Finally, in Panel C.1, we compare the characteristics of respondents that are in the most affected group to those in the least affected group. In this table, we only report CLANs for covariates that are common across both countries. We detect heterogeneity by almost all baseline characteristics. That is, we detect higher compliance among respondents that are relatively older, more educated, female, poorer (low household income), and food secure. We also find that respondents who are relatively more worried about the health of household members, less worried about household finances, and Hindus were most affected by both treatments. We report CLANs for the remaining covariates in Table B23 in Appendix B. Here, we also find that respondents that have access to television or radio (a proxy for media exposure) were most affected by both treatments (columns 6 and 12). However, there

[21]Since we have two treatments (*Call Only* and *Both Text & Call*), we run the entire process twice, each time with a different treatment group. The original R-code is available at: original; and, the revised code is available at: revised. We use the revised code for our analysis.

[22]Note that the sample size at the second endline in Bangladesh was relatively smaller (1,583 out of 6,485 from the first endline) and consisted of only female respondents.

is no heterogeneity by household size. Among the demographics, the result on heterogeneity by gender is striking, where almost all respondents in the most affected group appear to be female whereas almost all respondents in the least affected group appear to be male (recall that female=0 and male=1). This result is fairly similar across both treatments and robust to using both Random Forest and Elastic Net methods. Since the most affected are all females and the least affected all males, it is evident that the observed heterogeneity by other covariates also differs by gender. For example, in this case, heterogeneity by age also suggests that older respondents who were most affected are all females, while younger respondents who were the least affected are all males.[23]

Results using the Indian sample are reported in Panels A.2-C.2 in Table 5. In Panel A.2, the ATE estimates using Random Forest are similar to the unconditional treatment effects from Table 3 and are statistically significant at the 1% level (columns 5 and 7). However, HET is only significant under T2 ($p < 0.01$), implying there is no heterogeneity under T3 with respect to the covariates. In fact, this can be observed in Panel B.2, where GATEs under T2 show a large difference in ATEs between the most and the least affected groups, whereas GATEs under T3 show the difference between most and least affected groups to be statistically insignificant at 10% level. Since ML methods detect heterogeneity under T2 only, below we only discuss CLANs for T2.[24] We find high compliance among respondents that are food secure, reside far from marketplaces, and Hindu. However, we do not observe heterogeneity in compliance by gender, age, education, income, etc., because either they are insignificant using Random Forest or Elastic Net, or insignificant using both ML methods.

4 Conclusion

Public health information campaigns to reduce the transmission of infectious diseases, such as COVID-19, require persuading people to significantly change their behavior. Despite

[23]Because all respondents are either female/male heads of households or their spouses and owner of mobile phones, we are unable to examine heterogeneity by these two additional characteristics.

[24]CLANs with the remaining covariates are presented in Table B24 in Appendix B.

the pandemic spread across the globe, in many developing countries, people living in rural communities often do not come by validated information about the health consequences of contracting the virus and simple precautions against it. This is largely due to their poor health literacy and generic health communications from public authorities (Paakkari & Okan, 2020), as penetrating rural areas with reliable health information is often challenging (United Nations, 2020a). In its absence, misinformation or lack of information might trivialize the risks of COVID-19 in rural communities and worsen the public health crisis (Galvão, 2020).

Taking this into consideration, we carried out an awareness campaign experiment using phone calls and text messages in two developing countries—Bangladesh and India—immediately after both countries went into lockdowns in March 2020. The results in this study show that directly calling people on their cellphone to discuss COVID-19 precautions and common *dos-and-don'ts* during the pandemic were significantly more effective in raising awareness and inducing compliance than only sending text messages. Moreover, sending both text messages and phone calls together turned out to be the most effective means of communication in raising awareness and compliance in rural areas. We believe, part of the intervention success, including the high treatment delivery rate, can be attributed to the familiarity with and trust towards local organizations in the villages.

Automated calls, such as interactive voice responses (IVR) or pre-recorded voice messages, are possible alternatives to phone calls. However, personal calls are often more intimate and friendly and are likely to be more effective than automated calls, even in settings where digital literacy is higher (Tsoli et al., 2018). We designed our experiment focusing on the local needs and social contexts, and experimentation with other plausible alternatives, such as the use of IVRs, was not possible at the beginning of the crisis. However, such low-tech needs-based design should be adapted for difficult-to-reach rural areas for further scale-up. Therefore, future research can look into its efficacy and comparability with phone calls. With respect to the cost-effectiveness of our intervention, phone calls within Bangladesh and India are very cheap, where the cost of phone calls can be between 0.08-0.7 cents (USD) per minute.[25] Taking all intervention-related costs into account, we have spent USD 1.92 per person in treatment groups involving phone calls.[26] In contrast, the average cost of the *text message* treatment (in T1) was only 8 cents per person. Thus, treatments involving phone calls cost USD 1.84 more per person. Therefore, for each additional dollar spent on phone calls, compliance in Bangladesh improved by 0.56-0.82 SD and in India by 1.19-1.45 SD.

A key lesson from our findings is the importance of targeted health communications during health crises in developing countries. While text and video messages, television and radio broadcasts, social media, newspapers, posters, and leaflets are often the most commonly used methods for disseminating health information among the urban, literate population, these approaches might not be as effective in hard-to-reach rural communities in developing countries. The reason being that illiteracy, poor health literacy, lack of internet and technology, etc., can be strong barriers in communicating important health information to improve health literacy and choices of the poor. Our paper highlights how low-cost brief phone calls can be very effective in breaking such barriers to penetrate rural communities to encourage health-preserving behavior of rural people. Furthermore, these communication methods also have wider applicability in other contexts, such as addressing misinformation about climate change or political candidates, encouraging voting in rural areas (particularly among female voters), addressing various social stigmas, encouraging vaccinations, sending flood warnings in flood-prone villages, or busting myths about child immunization.

Of course, such information campaigns have limits and they might not always overcome barriers from structural disadvantages in resource-poor settings (Ravallion, 2020). However, conveying the right information can certainly improve the choices of those that are capable but often misguided due to lack of verified information. Therefore, governments in collaboration with NGOs and organizations can easily reach out to the rural poor to help

[25] Jio and Grameenphone are two leading mobile phone operators in India and Bangladesh, respectively. The call rate for Jio users in India is 6 *paise* per minute and the call rate for Grameenphone users in Bangladesh is 60 *poisha* per minute. Note that USD 1 equals 70 Indian Rupees (1 Rupee equals 100 *paise*) or 80 Bangladeshi Taka (1 Taka equals 100 *poisha*).

[26] This includes cost of phone calls and text messages (sent in T3), the salary of callers, rent for offices used by callers during the intervention, and the hiring and training costs of callers.

improve their health choices. Policies aimed at building partnerships with local community-level organizations, such as NGOs, cooperative groups, clubs, etc., and providing low-cost telephone-health advice to the poor should therefore be considered.

References

Ahmed, F., Islam, A., Pakrashi, D., Rahman, T., & Siddique, A. (2021). Determinants and dynamics of food insecurity during COVID-19 in rural Bangladesh. *Food Policy*, *101*, 102066.

Ahmed, S. & Diesner, J. (2012). Information network analysis to understand the evolution of online social networking sites in the context of india, pakistan, and bangladesh. *WebSci*.

Al-Dmour, H., Salman, A., Abuhashesh, M., Al-Dmour, R., et al. (2020). Influence of social media platforms on public health protection against the covid-19 pandemic via the mediating effects of public health awareness and behavioral changes: integrated model. *Journal of Medical Internet Research*, *22*(8), e19996.

Allcott, H., Boxell, L., Conway, J., Gentzkow, M., Thaler, M., & Yang, D. Y. (2020). Polarization and public health: Partisan differences in social distancing during the coronavirus pandemic. *Journal of Public Economics*, *191*, 104254.

Ashraf, N., Berry, J., & Shapiro, J. M. (2010). Can higher prices stimulate product use? evidence from a field experiment in zambia. *American Economic Review*, *100*(5), 2383–2413.

Bahety, G., Bauhoff, S., Patel, D., & Potter, J. (2021). Texts Don't Nudge: An Adaptive Trial to Prevent the Spread of COVID-19 in India. *Journal of Development Economics*, *153*(102747).

Banerjee, A., Alsan, M., Breza, E., Chandrasekhar, A. G., Chowdhury, A., Duflo, E., Goldsmith-Pinkham, P., & Olken, B. A. (2020). Messages on covid-19 prevention in india increased symptoms reporting and adherence to preventive behaviors among 25 million recipients with similar effects on non-recipient members of their communities. *NBER Working Paper*.

Banerjee, A., La Ferrara, E., & Orozco-Olvera, V. H. (2019). The entertaining way to behavioral change: Fighting hiv with mtv. *World Bank Working Paper no. 8998*.

Bangladesh Demographic and Household Survey (2019). Bangladesh Demographic and Health Survey 2017–18: Key Indicators. Weblink. Online; Accessed May 11, 2020.

Barrios, J. M., Benmelech, E., Hochberg, Y. V., Sapienza, P., & Zingales, L. (2021). Civic capital and social distancing during the covid-19 pandemic. *Journal of Public Economics*, *193*, 104310.

Briscese, G., Lacetera, N., Macis, M., & Tonin, M. (2020). Compliance with covid-19 social-distancing measures in italy: the role of expectations and duration. *NBER Working Paper*.

Bursztyn, L., Rao, A., Roth, C., & Yanagizawa-Drott, D. (2020). Misinformation during a pandemic. *Becker Friedman Institute for Economics Working Paper*.

Cairncross, S., Shordt, K., Zacharia, S., & Govindan, B. K. (2005). What causes sustainable changes in hygiene behaviour? A cross-sectional study from Kerala, India. *Social Science & Medicine*, *61*(10), 2212–2220.

Cameron, A. C., Gelbach, J. B., & Miller, D. L. (2008). Bootstrap-based improvements for inference with clustered errors. *Review of Economics and Statistics*, *90*(3), 414–427.

Car, J. & Sheikh, A. (2003). Telephone consultations. *BMJ*, *326*(7396), 966–969.

Chernozhukov, V., Demirer, M., Duflo, E., & Fernandez-Val, I. (2020). Generic machine learning inference on heterogenous treatment effects in randomized experiments, with an application to immunization in India. *NBER Working Paper no. 24678*.

Cohen, J., Dupas, P., & Schaner, S. (2015). Price subsidies, diagnostic tests, and targeting of malaria treatment: evidence from a randomized controlled trial. *American Economic Review*, *105*(2), 609–45.

De Walque, D. (2007). How does the Impact of an HIV/AIDS Information Campaign Vary with Educational Attainment? Evidence from Rural Uganda. *Journal of Development Economics*, *84*(2), 686–714.

Dixon, H. G., Pratt, I. S., Scully, M. L., Miller, J. R., Patterson, C., Hood, R., & Slevin, T. J. (2015). Using a mass media campaign to raise women's awareness of the link between alcohol and cancer: cross-sectional pre-intervention and post-intervention evaluation surveys. *BMJ Open*, *5*(3).

Dupas, P. (2009). What matters (and what does not) in households' decision to invest in malaria prevention? *American Economic Review*, *99*(2), 224–30.

Dupas, P. (2011a). Do teenagers respond to HIV risk information? Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics*, *3*(1), 1–34.

Dupas, P. (2011b). Health behavior in developing countries. *Annual Review of Economics*, *3*(1), 425–449.

Fitzpatrick, A. E., Beg, S. A., Derksen, L. C., Karing, A., Kerwin, J. T., Lucas, A., Reynoso, N. O., & Squires, M. (2021). Health knowledge and non-pharmaceutical interventions during the covid-19 pandemic in africa. *Journal of Economic Behavior & Organization*, *190*, 33–53.

Fjeldsoe, B. S., Marshall, A. L., & Miller, Y. D. (2009). Behavior change interventions delivered by mobile telephone short-message service. *American Journal of Preventive Medicine*, *36*(2), 165–173.

Free, C., Phillips, G., Galli, L., Watson, L., Felix, L., Edwards, P., Patel, V., & Haines, A. (2013). The effectiveness of mobile-health technology-based health behaviour change or disease management interventions for health care consumers: a systematic review. *PLoS Med*, *10*(1), e1001362.

Galvão, J. (2020). COVID-19: the deadly threat of misinformation. *The Lancet Infectious Diseases*.

Härter, M., Dirmaier, J., Dwinger, S., Kriston, L., Herbarth, L., Siegmund-Schultze, E., Bermejo, I., Matschinger, H., Heider, D., & König, H.-H. (2016). Effectiveness of telephone-based health coaching for patients with chronic conditions: a randomised controlled trial. *PloS One*, *11*(9), e0161269.

Islam, A., Pakrashi, D., Vlassopoulos, M., & Wang, L. C. (2021). Stigma and misconceptions in the time of the COVID-19 pandemic: A field experiment in India. *Social Science & Medicine*, *278*, 113966.

Islam, A., Tan, A. H., Bristow, M. C., Hasnain, G., & Smyth, R. (2020). Effects of STI testing on STI prevalence and safe sex behaviour of brothel sex workers in Bangladesh: non-randomised, and randomised components. *CDES Monash University Working Paper*.

Klasnja, P. & Pratt, W. (2012). Healthcare in the pocket: mapping the space of mobile-phone health interventions. *Journal of Biomedical Informatics*, *45*(1), 184–198.

Kling, J. R., Liebman, J. B., & Katz, L. F. (2007). Experimental analysis of neighborhood effects. *Econometrica*, *75*(1), 83–119.

Levine, R. & Kinder, M. (2004). *Millions saved: proven successes in global health*, volume 3. Peterson Institute.

McKinsey Global Institute Report (2019). MGI in 2019: Highlights of our research this year. Weblink. Online; Accessed August 20, 2020.

Menczer, F. & Hills, T. (2020). Information Overload Helps Fake News Spread, and Social Media Knows It. *Scientific American*. Online; Accessed May 10, 2021.

Mheidly, N. & Fares, J. (2020). Leveraging media and health communication strategies to overcome the covid-19 infodemic. *Journal of Public Health Policy*, 1–11.

Nivette, A., Ribeaud, D., Murray, A., Steinhoff, A., Bechtiger, L., Hepp, U., Shanahan, L., & Eisner, M. (2020). Non-compliance with covid-19-related public health measures among young adults in switzerland: Insights from a longitudinal cohort study. *Social Science & Medicine*, *268*, 113370.

Paakkari, L. & Okan, O. (2020). Covid-19: health literacy is an underestimated problem. *The Lancet Public Health*, *5*(5), e249–e250.

Platt, S., Tannahill, A., Watson, J., & Fraser, E. (1997). Effectiveness of antismoking telephone helpline: follow up survey. *BMJ*, *314*(7091), 1371.

Ravallion, M. (2020). Could pandemic lead to famine? *Project Syndicate*. Online; Published April 15, 2020; Accessed May 25, 2020: Weblink.

Reynolds, W. M. (1982). Development of reliable and valid short forms of the marlowe-crowne social desirability scale. *Journal of Clinical Psychology*, *38*(1), 119–125.

Saleh, A. (2020). In bangladesh, covid-19 threatens to cause a humanitarian crisis. Weblink. Online; Accessed April 10, 2020.

Simonov, A., Sacher, S. K., Dubé, J.-P. H., & Biswas, S. (2020). The persuasive effect of fox news: non-compliance with social distancing during the covid-19 pandemic. *NBER Working Paper*.

Torres, C., Ogbu-Nwobodo, L., Alsan, M., Stanford, F. C., Banerjee, A., Breza, E., Chandrasekhar, A. G., Eichmeyer, S., Karnani, M., Loisel, T., Goldsmith-Pinkham, P., Olken, B. A., Vautrey, P.-L., Warner, E., & Duflo, E. (2021). Effect of physician-delivered COVID-19 public health messages and messages acknowledging racial inequity on Black and White adults' knowledge, beliefs, and practices related to COVID-19: a randomized clinical trial. *JAMA Network Open*, *4*(7), e2117115–e2117115.

Tsoli, S., Sutton, S., & Kassavou, A. (2018). Interactive voice response interventions targeting behaviour change: a systematic literature review with meta-analysis and meta-regression. *BMJ Open*, *8*(2), e018974.

United Nations (2020a). Battling covid-19 misinformation hands-on. united nations covid-19 response. Weblink. Online; Accessed July 06, 2020.

United Nations (2020b). Town criers, troubadors raise COVID-19 awareness in rural Chad. Weblink. Online; Accessed October 1, 2020.

Vlassopoulos, M., Siddique, A., Rahman, T., Pakrashi, D., Islam, A., & Ahmed, F. (2021). Improving women's mental health during a pandemic. *IZA Working Paper*.

Westfall, P. H. & Young, S. S. (1993). *Resampling-Based Multiple Testing: Examples and Methods for P-value Adjustment*. John Wiley & Sons, Inc.

WHO (2020). Executive Board: Special session on the COVID-19 response. Weblink. Online; Accessed October 9, 2020.

WHO (2022). World Health Organization: Weekly epidemiological update on COVID-19 - 25 January 2022. Weblink. Online; Accessed January 28, 2022.

Wilson, J. M. & Chandler, G. N. (1993). Sustained improvements in hygiene behaviour amongst village women in lombok, indonesia. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, *87*(6), 615–616.

Wright, A., McGorry, P. D., Harris, M. G., Jorm, A. F., & Pennell, K. (2006). Development and evaluation of a youth mental health community awareness campaign–the compass strategy. *BMC Public Health*, *6*(1), 215.

Young, A. (2019). Channeling fisher: Randomization tests and the statistical insignificance of seemingly significant experimental results. *Quarterly Journal of Economics*, *134*(2), 557–598.

Yousuf, H., Corbin, J., Sweep, G., Hofstra, M., Scherder, E., van Gorp, E., Zwetsloot, P. P., Zhao, J., van Rossum, B., Jiang, T., et al. (2020). Association of a public health campaign about coronavirus disease 2019 promoted by news media and a social influencer with self-reported personal hygiene and physical distancing in the netherlands. *JAMA Network*, *3*(7), e2014323–e2014323.

Zarocostas, J. (2020). How to fight an infodemic. *The Lancet*, *395*(10225), 676.

Zurovac, D., Sudoi, R. K., Akhwale, W. S., Ndiritu, M., Hamer, D. H., Rowe, A. K., & Snow, R. W. (2011). The effect of mobile phone text-message reminders on kenyan health workers' adherence to malaria treatment guidelines: a cluster randomised trial. *The Lancet*, *378*(9793), 795–803.

5 Main Figures and Tables

Figure 1: Project timeline

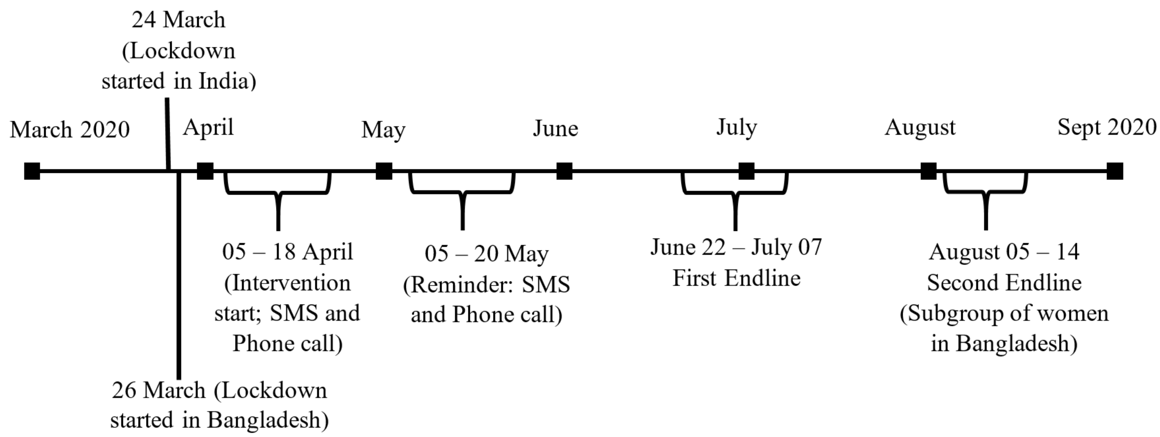
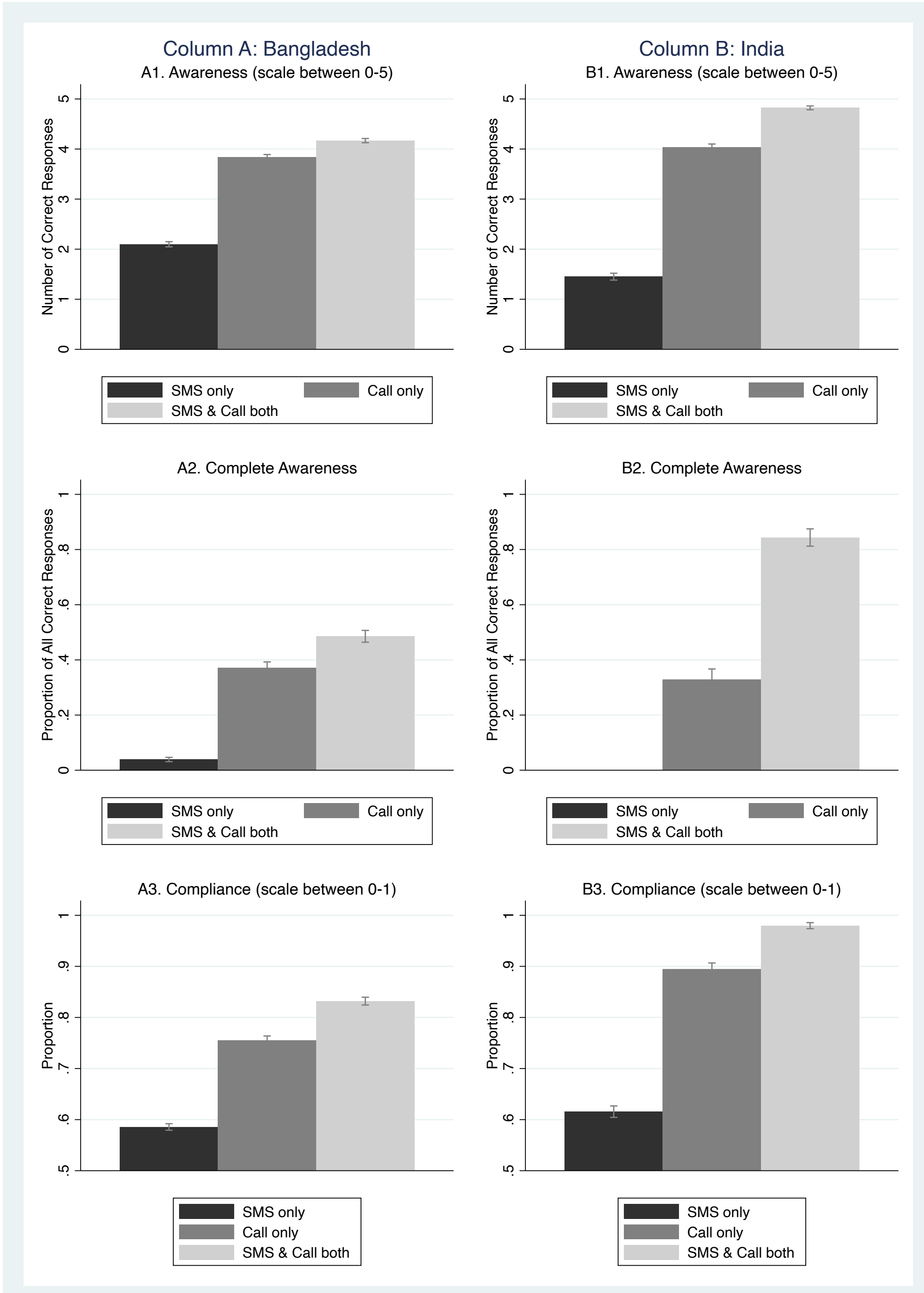
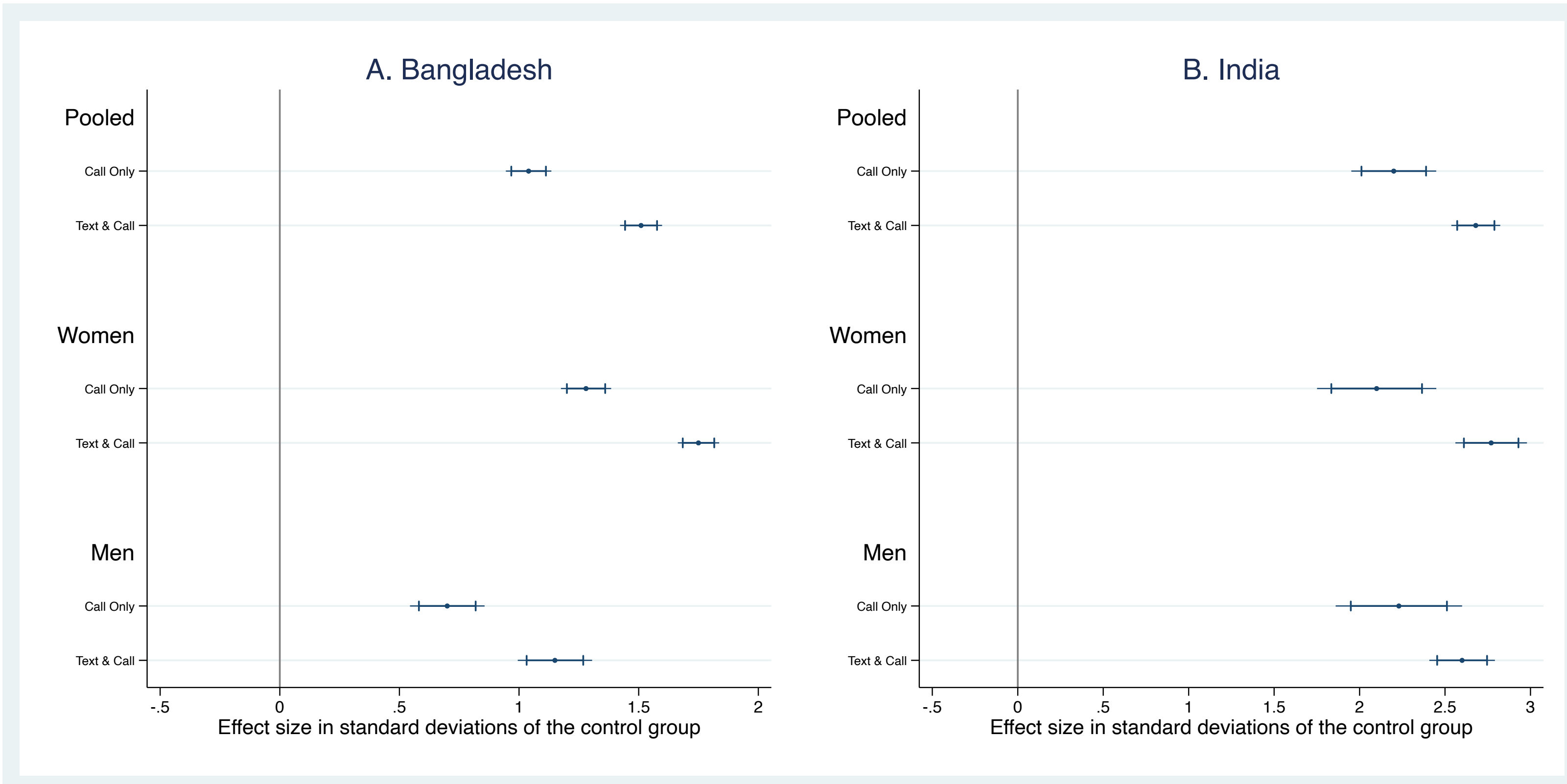


Figure 2: Summary of results



Note: Each bar in graphs A1 and B1 represents the average number of correct 'awareness' responses (score between 0 and 5) and that in graphs A2 and B2 represents the proportion of complete awareness (equals 1 if respondent could mention all 'awareness' indicators and 0 otherwise). Compliance was generated by aggregating six responses and then dividing the aggregated score by 6 (normalized score between 0 and 1). All bars are presented with 95% confidence intervals.

Figure 3: Effect on compliance, pooled and by gender



Note: Estimated treatment effects in standard deviations (same as in Table 3), pooled and by gender, are reported with 99% and 95% confidence intervals.

Table 1: Sample characteristics and balance checks

Variables	All	T1	T2	T3	T2-T1	T3-T1	T3-T2
	[SD]	[SD]	[SD]	[SD]	(SE)	(SE)	(SE)
				Panel A: Bangladesh			
Age$^{\perp}$(in years)	36.73	37.06	36.60	36.48	-0.45	-0.58	-0.13
	[9.08]	[8.93]	[9.26]	[9.09]	(0.69)	(0.67)	(0.71)
Education$^{\perp}$ (in years)	8.37	8.35	8.48	8.28	0.13	-0.07	-0.20
	[2.92]	[2.87]	[2.81]	[3.09]	(0.17)	(0.19)	(0.19)
Monthly income$^{\perp}$ (in BDT)	9,403	9,201	9,300	9,733	99.00	531.95	432.95
	[6,571]	[6,236]	[6,137]	[7,294]	(388)	(424)	(415)
Number of of household members$^{\perp}$	4.33	4.29	4.31	4.40	0.02	0.11	0.09
	[1.31]	[1.32]	[1.25]	[1.35]	(0.06)	(0.07)	(0.06)
Gender (=1 if male)	0.40	0.40	0.42	0.38	0.01	-0.03	-0.04*
	[0.49]	[0.49]	[0.49]	[0.48]	(0.01)	(0.01)	(0.02)
Religion (=1 if Muslim)	0.71	0.74	0.69	0.69	-0.06	-0.05	0.01
	[0.46]	[0.44]	[0.46]	[0.46]	(0.05)	(0.04)	(0.05)
Occupations:	-	-	-	-	-0.073**	-0.003	0.070**
					(0.04)	(0.02)	(0.03)
Govt. or private job (=1 if yes)	0.09	0.08	0.10	0.09	-	-	-
	[0.29]	[0.28]	[0.30]	[0.28]			
Farmer (=1 if yes)	0.17	0.17	0.18	0.17	-	-	-
	[0.38]	[0.37]	[0.38]	[0.38]			
Day laborer (=1 if yes)	0.41	0.42	0.42	0.40	-	-	-
	[0.49]	[0.49]	[0.49]	[0.49]			
Owns Business (=1 if yes)	0.32	0.33	0.30	0.34	-	-	-
	[0.47]	[0.47]	[0.46]	[0.47]			
% Non-attritors	0.811	0.807	0.811	0.816	0.00	0.01	0.01
	[0.39]	[0.39]	[0.39]	[0.39]	(0.02)	(0.02)	(0.01)
Sample Size	6,485	2,361	2,031	2,093	-	-	-
	[5,841$^{\perp}$]	[2,191$^{\perp}$]	[1,763$^{\perp}$]	[1,887$^{\perp}$]	-	-	-
				Panel B: India			
Age (in years)	37.43	38.31	36.76	37.27	-1.55*	-1.04	0.52
	[14.11]	[13.99]	[14.44]	[3.82]	(0.77)	(0.81)	(0.77)
Has college degree (=1 if yes)	0.13	0.13	0.14	0.13	0.01	0.00	-0.01
	[0.34]	[0.34]	[0.35]	[0.34]	(0.02)	(0.02)	(0.02)
Gender (=1 if male)	0.50	0.53	0.50	0.47	-0.03	-0.06*	-0.03
	[0.50]	[0.50]	[0.50]	[0.50]	(0.03)	(0.03)	(0.03)
Residence near marketplace (=1 if yes)	0.35	0.36	0.35	0.33	-0.00	-0.03	-0.02
	[0.48]	[0.48]	[0.48]	[0.47]	(0.02)	(0.03)	(0.03)

Monthly income (in INR)	10,951	11,107	10,974	10,756	-132.74	-351.2	-218.4
	[6,451]	[6,752]	[6,461]	[6,104]	(373)	(377)	(354)
Living in a joint family (=1 if yes)	0.53	0.57	0.49	0.54	-0.08**	-0.03	0.05
	[0.50]	[0.49]	[0.50]	[0.50]	(0.03)	(0.03)	(0.04)
Whether own their house (=1 if yes)	0.96	0.95	0.97	0.95	0.01*	0.00	-0.02*
	[0.20]	[0.21]	[0.18]	[0.22]	(0.01)	(0.01)	(0.01)
HH with a disability (=1 if yes)	0.08	0.08	0.07	0.07	-0.01	-0.01	0.00
	[0.27]	[0.28]	[0.26]	[0.26]	(0.01)	(0.02)	(0.02)
Married (=1 if yes)	0.83	0.84	0.81	0.85	-0.03*	0.00	0.04
	[0.37]	[0.36]	[0.39]	[0.36]	(0.02)	(0.02)	(0.02)
Employed (=1 if yes)	0.80	0.78	0.81	0.81	0.03	0.02	-0.01
	[0.40]	[0.41]	[0.39]	[0.40]	(0.02)	(0.02)	(0.02)
HH with long-term illness (=1 if yes)	0.36	0.33	0.36	0.39	0.03	0.06*	0.03
	[0.48]	[0.47]	[0.48]	[0.49	(0.02)	(0.03)	(0.03)
Religion (=1 if Hindu)	0.79	0.79	0.78	0.81	-0.01	0.01	0.03
	[0.41]	[0.41]	[0.42]	[0.40]	(0.02)	(0.03)	(0.02)
Caste categories:	-	-	-	-	-0.032	-0.123	-0.091
					(0.07)	(0.04)	(0.07)
General category (GC)	0.27	0.25	0.27	0.30	-	-	-
	[0.45]	[0.43]	[0.45]	[0.46]			
Scheduled caste (SC)	0.21	0.22	0.21	0.21	-	-	-
	[0.41]	[0.42]	[0.41]	[0.41]			
Schedules tribe (ST)	0.00	0.00	0.00	0.00	-	-	-
	[0.04]	[0.04]	[0.00]	[0.06]			
Other backward classes (OBC)	0.51	0.52	0.52	0.49	-	-	-
	[0.50]	[0.50]	[0.50]	[0.50]			
% Non-attritors	0.898	0.905	0.897	0.893	-0.01	-0.01	-0.00
	[0.30]	[0.29]	[0.30]	[0.31]	(0.01)	(0.02)	(0.02)
Sample Size	1,680	561	601	518	-	-	-

Note: First four columns report the mean of the corresponding variable with standard deviations in brackets. The last three columns report the difference between treatments with standard errors in parentheses clustered at the village level. T1, T2, and T3 correspond to *text message only*, *phone calls only*, and *both texts and calls* treatment groups. All variables with "=1" in parentheses are dummy variables and are self-explanatory. Variables in Panel A with $^{\perp}$ correspond to data collected earlier in 2019 and, thus, the corresponding sample sizes are smaller (reported in brackets). % Non-attritors is the proportion of participants that received the treatment and participated in the endline survey (same as "% Treated and surveyed (non-attritors)" in Table B1 in Appendix B). All variables in Panel B were collected in 2019. In Panel B, 'Caste Categories' has four categories: 'General' means upper castes, while SC, ST, and OBC mean the household belongs to either a scheduled caste, schedules tribe, or other backward classes. We explain variable constructions in detail in Appendix C.3 and balance check steps in Appendix C.4. *** p<0.01, ** p<0.05, * p<0.10.

Table 2: Treatment effects on COVID-19 awareness

	Awareness (scale 0-5)			**Complete Awareness**		
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
			Panel A: Bangladesh			
T2 (Call Only)	1.644***	1.637***	1.580***	0.315***	0.312***	0.281***
	(0.049)	(0.049)	(0.050)	(0.013)	(0.013)	(0.015)
T3 (Both Text & Call)	2.064***	2.061***	2.108***	0.446***	0.444***	0.448***
	(0.048)	(0.048)	(0.047)	(0.013)	(0.013)	(0.014)
T1 (Text Only) mean	2.098	2.098	2.098	0.039	0.039	0.039
	[1.284]	[1.284]	[1.284]	[0.194]	[0.194]	[0.194]
New Controls	No	Yes	Yes	No	Yes	Yes
Old Controls	No	No	Yes	No	No	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
F-test p-value (T2-T3)	0.000	0.000	0.000	0.000	0.000	0.000
WY FWER p-values (T2)	0.000	0.000	0.000	0.000	0.000	0.000
WY FWER p-values (T3)	0.000	0.000	0.000	0.000	0.000	0.000
RI p-values (T2)	0.000	0.000	0.000	0.000	0.001	0.001
RI p-values (T3)	0.001	0.001	0.001	0.001	0.001	0.000
Observations	6,485	6,485	5,840	6,485	6,485	5,840
R-squared	0.419	0.422	0.447	0.200	0.206	0.221
			Panel B: India			
T2 (Call Only)	2.587***	2.579***	2.920***	0.333***	0.329***	0.532***
	(0.077)	(0.076)	(0.085)	(0.027)	(0.027)	(0.037)
T3 (Both Text & Call)	3.387***	3.368***	3.394***	0.853***	0.841***	0.848***
	(0.065)	(0.066)	(0.062)	(0.037)	(0.037)	(0.037)
T1 (Text Only) mean	1.451	1.451	1.451	0.000	0.000	0.000
	[0.829]	[0.829]	[0.829]	[0.000]	[0.000]	[0.000]
Demographic Controls	No	Yes	Yes	No	Yes	Yes
Additional Controls	No	No	Yes	No	No	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes
F-test p-value (T2-T3)	0.000	0.000	0.000	0.000	0.000	0.000
WY FWER p-values (T2)	0.000	0.000	0.000	0.000	0.000	0.000

WY FWER p-values (T3)	0.000	0.000	0.000	0.000	0.000	0.000
RI p-values (T2)	0.001	0.000	0.000	0.000	0.001	0.001
RI p-values (T3)	0.000	0.001	0.000	0.000	0.001	0.001
CGM p-values (T2)	0.000	0.000	0.000	0.000	0.000	0.000
CGM p-values (T3)	0.000	0.000	0.000	0.000	0.000	0.000
Observations	1,680	1,680	1,680	1,680	1,680	1,680
R-squared	0.804	0.810	0.821	0.551	0.576	0.613

Robust standard errors clustered at the village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: OLS estimates are reported. 'T1 (Text Only) mean' report the mean of the dependent variable under T1 (with standard deviations in brackets). The dependent variable in columns (1)-(3) is the number of correct mentions of COVID-19 rules (on a scale between 0 and 5) and the dependent variable in columns (4)-(6) is a dummy that equals 1 if a respondent correctly mentioned all five COVID-19 rules and 0 if not. In **Panel A**, new and old controls are listed and categorized in Table B4 in Appendix B and defined in Table 1. In **Panel B**, the demographic controls include: age, gender, religion, caste categories, log of monthly household income, college education completion, residence near marketplace dummy, joint family dummy, owns own house dummy, disability dummy, and marital and employment status. In addition, additional controls include: willingness to take health-related risks (scale 0-10), worried about family's health and household finances dummies, whether the respondent has any long-term disease dummy, and household food insecurity dummy. All variable constructions are defined in Appendix C.3. p-value (T2-T3) compares T2 and T3 coefficients using an F-test. WY FWER p-values are the Westfall-Young stepdown adjusted p-values (with 1,000 replications) (Westfall & Young, 1993). RI p-value is the Alwyn Young randomization inference p-values (with 1,000 replications) (Young, 2019). CGM p-values on treatments are the p-values calculated using the wild bootstrap-t clustering method (Cameron et al., 2008). All standard errors are clustered at the village level.

Table 3: Treatment effects on COVID-19 compliance

	A: Bangladesh Endline 1			B: Bangladesh Endline 2	C: India
	All	**All**	**Female**	**Female**	**All**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
T2 (Call Only)	1.039***	1.015***	1.227***	1.811***	2.201***
	(0.037)	(0.040)	(0.044)	(0.076)	(0.096)
T3 (Both Text & Call)	1.509***	1.538***	1.765***	2.635***	2.677***
	(0.034)	(0.035)	(0.035)	(0.067)	(0.055)
New Controls (BD)	Yes	Yes	Yes	Yes	-
Old Controls (BD)	No	Yes	Yes	Yes	-
All Controls (India)	-	-	-	-	Yes
Union Council FE	Yes	Yes	Yes	Yes	-
Village FE	-	-	-	-	Yes
F-test p-values (T2-T3)	0.000	0.000	0.000	0.000	0.000
RI p-values (T2)	0.000	0.000	0.000	0.000	0.001
RI p-values (T3)	0.001	0.001	0.001	0.000	0.000
CGM p-values (T2)	-	-	-	-	0.000
CGM p-values (T3)	-	-	-	-	0.000
Observations	6,485	5,840	3,523	1,583	1,679
R-squared	0.415	0.426	0.462	0.573	0.642

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS estimates are reported; columns 1 and 2 report estimates using the total Bangladeshi sample in endline 1; columns 3 and 4 report estimates using the female Bangladeshi sample in endline 1 and endline 2 respectively; column 5 reports estimates using the entire Indian sample. All dependent variables are standardized compliance indices. Following Kling et al. (2007), the control group mean was subtracted from the compliance score of each individual and then divided this difference by the control group standard deviation. Thus, for the control group, the compliance index has a mean 0 and standard deviation 1. 'New Controls (BD)' refers to control variables collected during endline 1 in Bangladesh; 'Old controls (BD)' refers to control variables collected during the 2019 survey in Bangladesh and, thus, is available for 90% of the Bangladeshi sample; all control variables are defined in Table 1 and listed in Table B4 in Appendix B. Column 4 also includes "increase in household chores" as a control (defined in Table B4 in Appendix B). Table 2 defines the RI and CGM p-values.

Table 4: Compliance in Bangladesh: treatment-on-treated effects

	Not treated but surveyed		**Full sample**		**2SLS**	
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	0.113	0.248	0.990***	0.964***	1.032***	1.010***
	(0.224)	(0.244)	(0.038)	(0.040)	(0.038)	(0.041)
T3 (Both Text & Call)	-0.067	-0.008	1.434***	1.462***	1.490***	1.520***
	(0.182)	(0.214)	(0.035)	(0.035)	(0.035)	(0.035)
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	No	Yes	No	Yes	No	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
F-test p-values (T2-T3)	0.391	0.257	0.000	0.000	0.000	0.000
Observations	237	219	6,722	6,059	6,722	6,059
R-squared	0.343	0.404	0.382	0.392	0.409	0.418

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: All dependent variables are standardized compliance indices, where the control group has mean 0 and SD 1. Columns 1-2 report OLS estimates using the sample that could not be reached for treatment delivery but was surveyed at endline ('not treated but surveyed' in Table B1 in Appendix B). Columns 3-4 report OLS estimates using the full sample that was surveyed at endline ('not treated but surveyed' + 'both treated and surveyed' in Table B1 in Appendix B). Columns 5-6 report 2SLS estimates, where we use the assignment to the phone call treatments as an instrument.

Table 5: Heterogeneous treatment effects using Random Forest

Panel A. Best linear prediction (BLP)

	A.1. Bangladesh				***A.2. India***			
	T2: Call only		T3: Both		T2: Call only		T3: Both	
OUTCOME	ATE (1)	HET (2)	ATE (3)	HET (4)	ATE (5)	HET (6)	ATE (7)	HET (8)
Compliance	1.006 (0.908,1.108) [0.000]	0.890 (0.585,1.187) [0.000]	1.537 (1.451,1.627) [0.000]	0.885 (0.601,1.156) [0.000]	2.095 (1.901,2.263) [0.000]	0.795 (0.317,1.258) [0.003]	2.668 (2.523,2.809) [0.000]	0.505 (-1.226,2.155) [0.965]

Panel B. Group average treatment effects (GATES)

	B.1. Bangladesh						***B.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
OUTCOME	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Compliance	1.388 (1.188, 1.580) [0.000]	0.638 (0.408, 0.866) [0.000]	0.752 (0.448, 1.045) [0.000]	1.903 (1.741, 2.065) [0.000]	1.103 (0.875, 1.333) [0.000]	0.788 (0.505, 1.075) [0.000]	2.317 (1.964, 2.677) [0.000]	1.518 (1.149, 1.905) [0.000]	0.790 (0.257, 1.305) [0.005]	2.688 (2.386, 2.999) [0.000]	2.573 (2.263, 2.877) [0.000]	0.100 (-0.315, 0.537) [1.000]

Panel C. Classification analysis (CLAN)

	C.1. Bangladesh						***C.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Gender	0.000 (0.000, 0.000) -	1.000 (1.000, 1.000) -	-1.000 (-1.000, -1.000) [0.000]	0.007 (0.001, 0.013) -	1.000 (0.994, 1.006) -	-0.993 (-1.000, -0.984) [0.000]	0.691 (0.604, 0.776) -	0.654 (0.569, 0.741) -	0.049 (-0.075, 0.166) [0.882]	0.397 (0.316, 0.489) -	0.607 (0.523, 0.696) -	-0.266 (-0.391, -0.138) [0.000]
Age	39.65 (38.82, 40.48) -	36.12 (35.27, 36.96) -	3.770 (2.617, 4.922) [0.000]	39.51 (38.74, 40.29) -	35.92 (35.15, 36.71) -	3.498 (2.384, 4.609) [0.000]	35.69 (33.17, 38.03) -	35.08 (32.65, 37.49) -	0.710 (-2.902, 4.195) [1.000]	37.81 (35.17, 40.45) -	37.42 (34.70, 40.01) -	0.576 (-3.210, 4.244) [1.000]

(cont.)

Panel C. Classification analysis (CLAN) *(continued)*

	C.1. Bangladesh						***C.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Education	9.106	7.553	1.449	8.837	7.615	1.262	0.132	0.110	0.017	0.139	0.128	0.019
	(8.819,	(7.266,	(1.029,	(8.529,	(7.324,	(0.823,	(0.073,	(0.050,	(-0.066,	(0.073,	(0.063,	(-0.065,
	9.381)	7.845)	1.870)	9.146)	7.910)	1.678)	0.193)	0.168)	0.101)	0.206)	0.191)	0.110)
	-	-	[0.000]	-	-	[0.000]	-	-	[1.000]	-	-	[1.000]
Monthly income	8403	10219	-1811	9661	10362	-626.2	10982	10258	528.1	10733	11014	-451.5
	(7811,	(9592,	(-2728,	(8907,	(9673,	(-1675,	(9869,	(9282,	(-866.1,	(9555,	(9878,	(-2172,
	9062)	10864)	-888.0)	10362)	11075)	427.3)	12028)	11295)	1941)	11933)	12173)	1172)
	-	-	[0.000]	-	-	[0.515]	-	-	[0.935]	-	-	[1.000]
Food insecurity	0.766	0.881	-0.115	0.705	0.819	-0.116	0.958	0.965	-0.004	0.943	0.972	-0.028
	(0.729,	(0.847,	(-0.173,	(0.665,	(0.777,	(-0.173,	(0.924,	(0.929,	(-0.056,	(0.902,	(0.932,	(-0.081,
	0.803)	0.918)	-0.063)	0.745)	0.861)	-0.059)	0.994)	0.998)	0.047)	0.982)	1.011)	0.025)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]	-	-	[0.522]
Worried about health	0.975	0.943	0.035	0.987	0.905	0.080	0.628	0.522	0.113	0.981	0.954	0.023
	(0.956,	(0.924,	(0.009,	(0.964,	(0.883,	(0.050,	(0.538,	(0.434,	(-0.014,	(0.945,	(0.921,	(-0.025,
	0.995)	0.961)	0.061)	1.008)	0.927)	0.111)	0.717)	0.614)	0.239)	1.013)	0.990)	0.069)
	-	-	[0.015]	-	-	[0.000]	-	-	[0.139]	-	-	[0.630]
Worried about finances	0.698	0.849	-0.137	0.527	0.839	-0.324	0.940	0.965	-0.021	0.926	0.972	-0.046
	(0.656,	(0.807,	(-0.196,	(0.484,	(0.797,	(-0.385,	(0.900,	(0.922,	(-0.078,	(0.885,	(0.933,	(-0.097,
	0.740)	0.890)	-0.078)	0.567)	0.882)	-0.263)	0.980)	1.003)	0.030)	0.968)	1.014)	0.013)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.767]	-	-	[0.246]
Religion	0.345	0.836	-0.505	0.565	0.727	-0.180	1.000	0.237	0.757	0.907	0.757	0.157
	(0.304,	(0.793,	(-0.564,	(0.520,	(0.681,	(-0.245,	(0.943,	(0.182,	(0.678,	(0.836,	(0.683,	(0.069,
	0.389)	0.878)	-0.446)	0.609)	0.773)	-0.115)	1.051)	0.292)	0.837)	0.976)	0.832)	0.244)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]	-	-	[0.019]

Note: This table report results using ML method 'Random Forest'. 90% confidence intervals are in parenthesis; p-values for the hypothesis that the parameter is equal to zero are in brackets. 'Most' and 'Least' are the 20% most (top quintile) and 20% least (bottom quintile) affected groups; △ is the difference between 'Most' and 'Least' (i.e., 'Most' minus 'Least'). The outcome variable is the standardized compliance index, such that the control group has mean 0 and standard deviation 1. 'Call only' corresponds to the treatment where only phone calls were made, and 'Both' corresponds to the treatment where both text messages and phone calls were made. Covariates are defined in Appendix C.3.

Raising Health Awareness in Rural Communities: A Randomized Experiment in Bangladesh and India

Abu Siddique Tabassum Rahman Debayan Pakrashi

Asad Islam Firoz Ahmed*

February 19, 2022

Online Appendix

*Siddique: Department of Political Economy, King's College London, UK, and CDES (Email: abu.b.siddique@kcl.ac.uk). Rahman: School of Medicine and Public Health, University of Newcastle, Australia (Email: tabassum.rahman@uon.edu.au). Pakrashi: Department of Economic Sciences, Indian Institute of Technology Kanpur, India (Email: pakrashi@iitk.ac.in). Islam: Centre for Development Economics and Sustainability (CDES) and Department of Economics, Monash University, Australia, and J-PAL (Email: asadul.islam@monash.edu). Ahmed: Sustainable Economic Policy, Technical University of Munich, Germany, and Economics Discipline, Khulna University, Bangladesh (Email: firoz.ahmed@tum.de).

Table of Contents

List of Figures

List of Tables

A Appendix: COVID-19 in Bangladesh and India

A.1 Bangladesh

As of January 24, 2022, Bangladesh had over 1.68 million confirmed infections and 28 thousand confirmed deaths from COVID-19 (WHO Bangladesh, 2022). Bangladesh, the most densely populated country in the world, experienced a sudden rise in COVID-19 infections in late March-early April 2020. In response, a nationwide lockdown was implemented from March 26 until May 30, 2020, and again on April 07, 2021, until August 10, 2021. Parallel to the lockdown, the government, NGOs, and various organizations also reached out to people through different mediums to spread awareness about COVID-19. For instance, media—such as television, radio, and newspapers—and text messages from the government and mobile phone operators played (and continue to play) an important role in spreading verified information and creating awareness among people. Being freely available for smartphone users in Bangladesh, Facebook users also received an abundance of information through various sources. However, reaching out to people living in rural areas, which constitutes more than 60% of the 160 million Bangladeshi population, was a challenge. The reason being that only 1% of rural households own radios and 38% own televisions (Bangladesh Demographic and Household Survey, 2019). Also, roughly 18% of people use smartphones (LIRNE Asia, 2018) and 4% of rural people own computers (Antara, 2020); thus, information through the internet, online video clips, or social media could not reach the majority of people. In contrast, basic mobile phones (or feature-phones) are widely used in Bangladesh, where 94% of rural households own at least one mobile phone (Bangladesh Demographic and Household Survey, 2019).

The government took advantage of the wider mobile phone coverage in the country to inform people through voice and text messages about COVID-19 and steps taken by the government to tackle it. However, the importance of basic protective measures about COVID-19 is often ignored by Bangladeshi people, where poor and rural households often show non-compliance due to illiteracy and lack of awareness, thereby making them susceptible to the spread of COVID-19 (Mahmud, 2020). In particular, roughly 30% of the rural population in Bangladesh are illiterate (Bangladesh Household Income and Expenditure Survey, 2016), which hinders their reading and comprehending written information, such as, through text messages, public signs, posters, leaflets, etc. Although a few NGOs are currently working in Bangladesh to disseminate COVID-19 information, a survey by the Risk Communication and Community Engagement indicates that only 2 out 5 people are complying with protective measures in rural communities (WHO Bangladesh, 2020).

Our study in Bangladesh took place in rural areas in Khulna and Satkhira districts. In the rural areas of Khulna division (that consists of ten districts, including Khulna and Satkhira districts), 28% of people are illiterate, 34.4% of households own televisions and 5.4% own radios, and 87.5% of households own at least one mobile phone (Bangladesh Household Income and Expenditure Survey, 2016; Bangladesh Demographic and Health Survey, 2014). As of October 11, 2021, the Khulna division had over 112,000 confirmed infections—the third highest in the country (WHO Bangladesh, 2022). However, these numbers are grossly underestimated as only 40% of the COVID-19 test laboratories are located outside the capital city, Dhaka, and tests are often carried out in urban areas in few test centers (WHO Bangladesh, 2022).

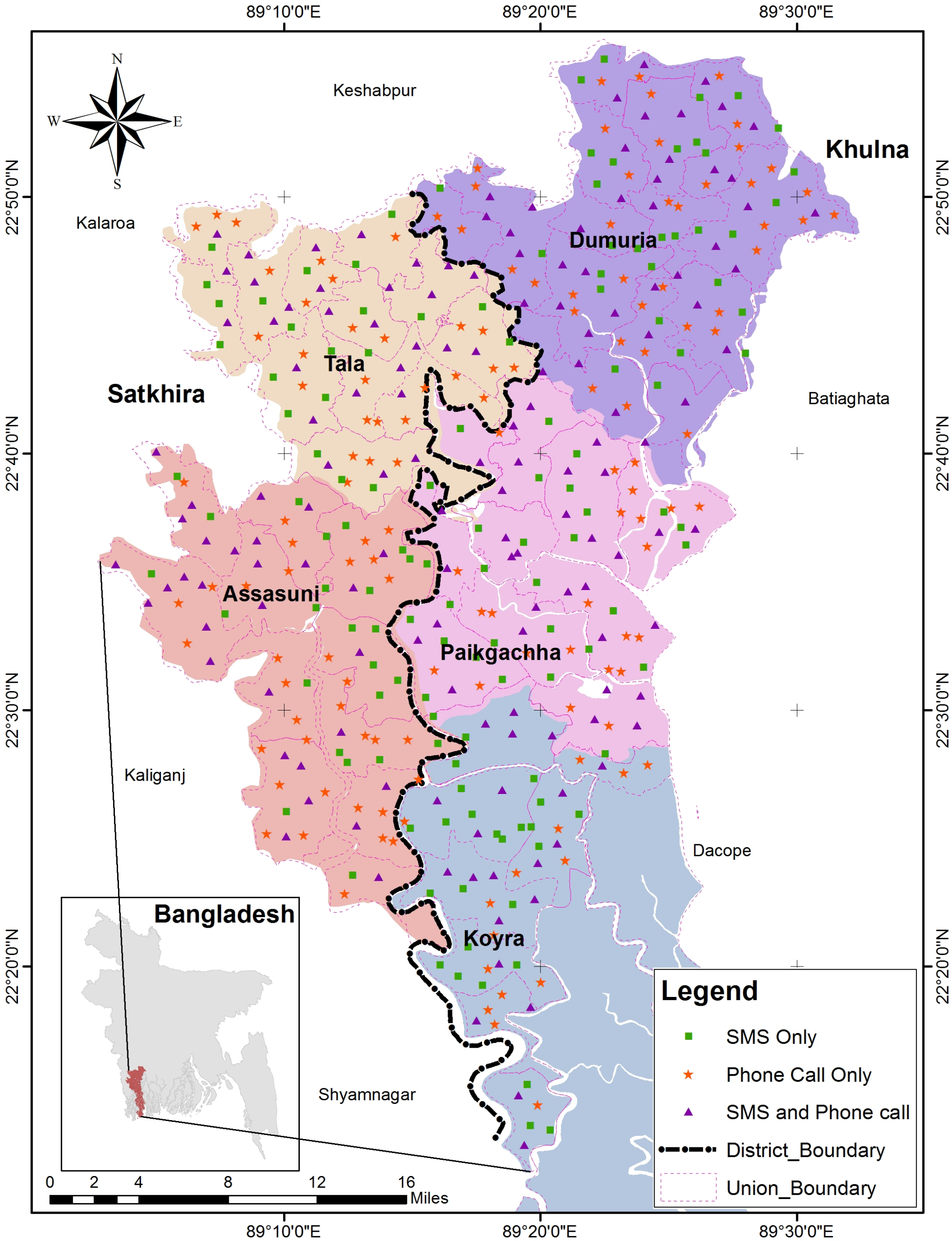
A.2 India

As of January 26, 2022, the number of confirmed infections and deaths is about 40 million and 490 thousand respectively in India (WHO India, 2022). This ranks India second in terms of total confirmed cases and third in terms of total confirmed deaths from COVID-19 globally. At the onset, the government imposed a national lockdown on March 24, 2020, and later started reopening the country in five consecutive 'country unlocking' phases, which began on June 8 and concluded on October 31, 2020 (Ministry of Home Affairs India, 2020). Later, in May 2021, statewide lockdowns were implemented. During the lockdown period, the government took various initiatives to inform the public about COVID-19. For instance, public announcements on COVID-19 precautions were made via television, radio, newspaper, text messages, social media, etc. Celebrity videos were also circulated on various social networking platforms. In addition, the police department had also played an active role in making the common people aware of COVID-19, primarily by announcements and distributing posters to individuals about social distancing, hand-washing, mask-wearing, etc. Campaigns through social media were possible because about 26.2% of people use smartphones and 24% of households have access to the internet (McKinsey Global Institute Report, 2019). However, text messages were able to reach out to the maximum audience because roughly 1.2 out of 1.38 billion Indians have mobile phone subscriptions (McKinsey Global Institute Report, 2019). The rural population in India is about 900 million (65% of the total population).

Our study in India takes place in the rural areas of Kanpur Nagar district of Uttar Pradesh. With a population of about 200 million, Uttar Pradesh is the most populous state in the country according to the 2011 census (Ministry of Home Affairs India, 2011). The literacy rate in Uttar Pradesh is about 70%, which is ranked 29 out of 36 states and union territories in the country (Ministry of Home Affairs India, 2011). Uttar Pradesh is also one of the BIMARU states, an acronym for four Indian states that are low performing, slow-growing, and underdeveloped relative to other Indian states. These make Uttar Pradesh one of the nine Indian states to have a very high overall vulnerability to COVID-19 (Acharya & Porwal, 2020).

B Appendix: Additional Figures and Tables

Figure B1: Distribution of treatment villages in Bangladesh

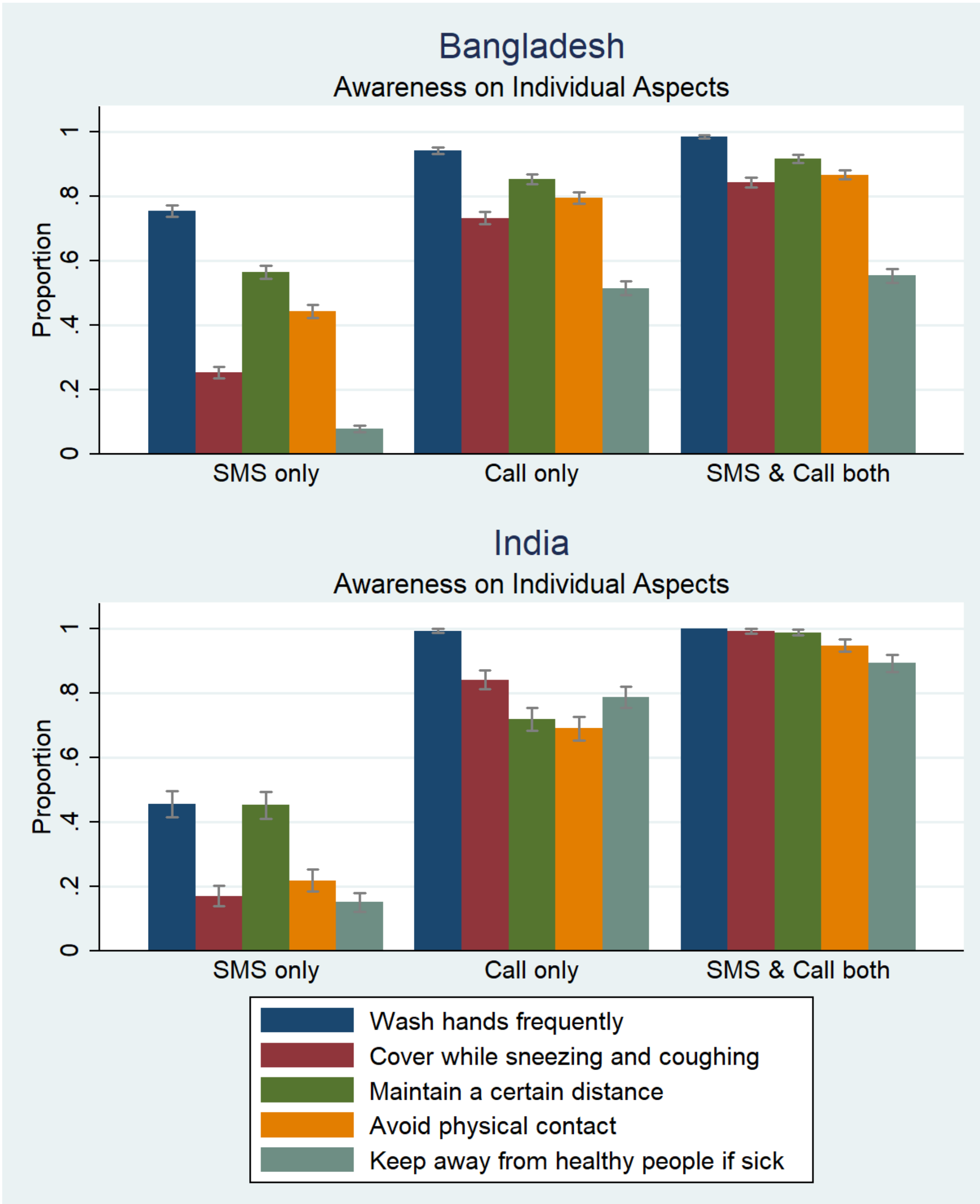


Note: White areas within subdistricts and union councils outside the subdistrict boarders are due to rivers. The rightmost empty area within the Koyra subdistrict is part of the Sundarbans mangrove forest.

Figure B2: Kanpur in Uttar Pradesh, India

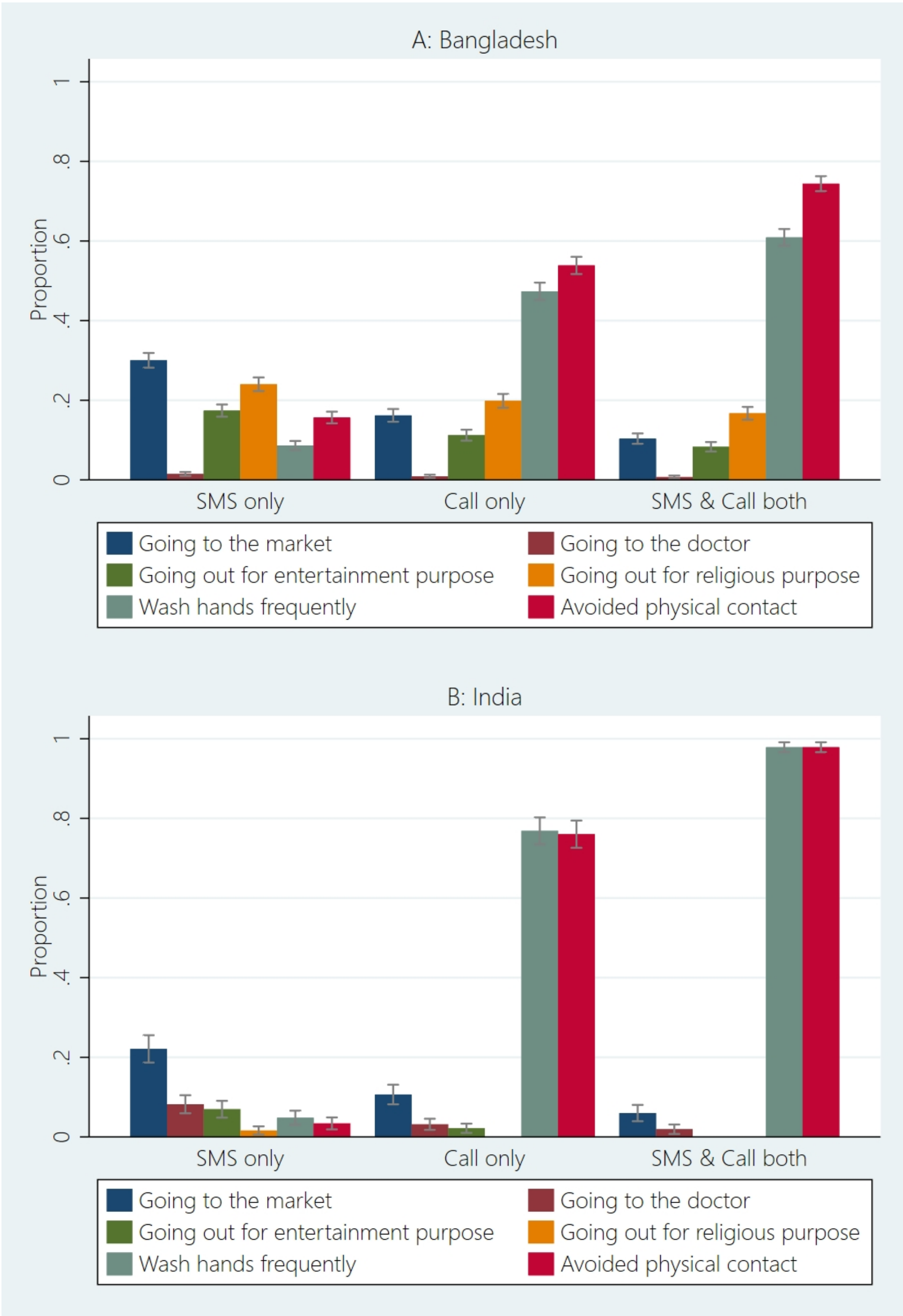
Note: The red area is Uttar Pradesh.

Figure B3: Summary of awareness, by indicators



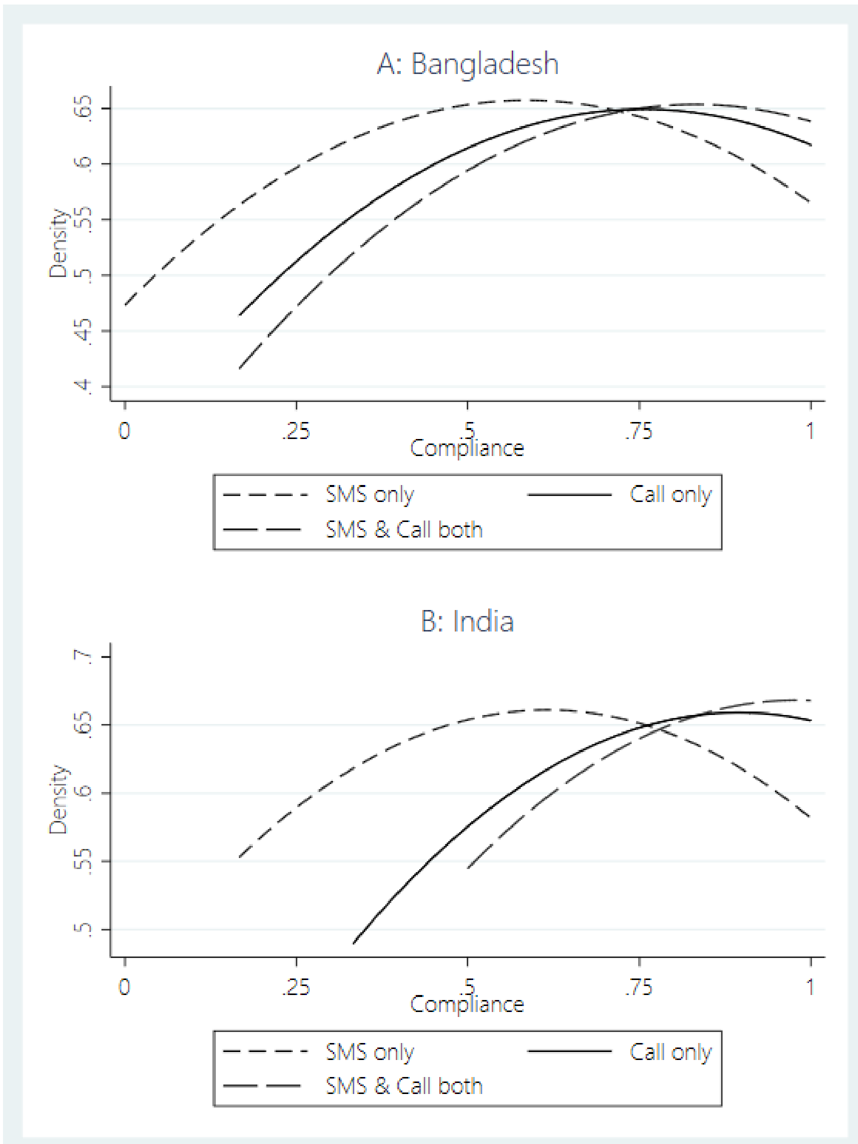
Note: Each bar represents the proportion of respondents who stated that particular COVID-19 rule (i.e., wash hands frequently, cover mouth while sneezing or coughing, etc.) with 95 percent confidence intervals.

Figure B4: Summary of compliance, by indicators



Note: Each bar represents the proportion of respondents who complied with a particular COVID-19 health guideline with 95 percent confidence intervals.

Figure B5: Compliance distribution showing treatment effects



Note: Compliance is measured by aggregating the six indicators (shown in Figure B4) and then dividing the aggregate by six, so that the compliance variable has a normalized score between 0 and 1 (higher value corresponds to higher compliance).

Table B1: Initial treatment assignment and endline survey

	A: Bangladesh							
	T1: Text only		T2: Call only		T3: Both		Total	
Treated and/or surveyed	N	%	N	%	N	%	N	%
Not treated but surveyed	84	2.87%	75	3.00%	78	3.04%	237	2.97%
Both treated and surveyed*	2,361	80.72%	2,031	81.11%	2,093	81.63%	6,485	81.13%
Not treated and not surveyed	222	7.59%	238	9.50%	245	9.56%	705	8.82%
Treated but not surveyed	258	8.82%	160	6.39%	148	5.77%	566	7.08%
% Treated and surveyed (non-attritors)*	2,361	80.72%	2,031	81.11%	2,093	81.63%	6,485	81.13%
% Attritors	564	19.28%	473	18.89%	471	18.37%	1,508	18.87%
Total	2,925		2,504		2,564		7,993	
	B: India							
Not treated but surveyed	0	-	0	-	0	-	0	-
Both treated and surveyed*	561	90.48%	601	89.70%	518	89.31%	1,680	89.84%
Not treated and not surveyed	52	8.39%	61	9.11%	56	9.66%	169	9.04%
Treated but not surveyed	7	1.13%	8	1.19%	6	1.03%	21	1.12%
% Treated and surveyed (non-attritors)*	561	90.48%	601	89.70%	518	89.31%	1,680	89.84%
% Attritors	59	9.52%	69	10.3%	62	10.69%	190	10.16%
Total	620		670		580		1,870	

Note: Columns "N" is the number of households and "%" is the proportion of the column total. The main analyses in the paper have been conducted on the households that received the treatment and were also surveyed at endline (indicated with a *). Households not under this category are considered to be 'attritors'. We consider treatment delivery in T3 to be successful when *either* phone calls were answered *or* texts were delivered to respondents. Since there were two rounds of information dissemination, we consider a participant as 'treated' if s/he received the treatment during one of the two rounds (or both rounds). We sent text messages in Bangladesh through the ADNsms enterprise messaging system (adnsms.com), which allowed us to confirm whether text messages were delivered to the designated mobile numbers, but we did not know whether text messages were read/opened by the recipients. In India, we recorded successful text message delivery to the designated mobile numbers through SMS delivery reports.

Table B2: Bangladesh: representativeness of our study sample

	A: Bangladeshi Rural		**B: Khulna Division**		**C: Our Study Sample**	
	Mean	**Obs.**	**Mean**	**Obs.**	**Mean**	**Obs.**
Age (in years)	40.80	31,888	40.24	7,162	36.73	5,841
Education (in years)	6.69	18,311	6.99	4,897	8.37	5,841
Number of of household members	4.07	31,890	3.75	7,162	4.33	5,841
Male (or Female)	0.38	31,890	0.35	7,162	0.40	6,485
Muslim (or Hindu)	0.86	31,890	0.88	7,162	0.71	6,485
Monthly income (in BDT)	10,256	28,647	10,293	5,933	9,403	5,841
Works in agriculture (or not)	0.46	45,975	0.39	10,443	0.17	6,485

Note: HIES or Bangladesh Household Income and Expenditure Survey was collected in 2016. The total HIES sample consists of 46,076 households, of which 32,096 households (70% of total) are in rural areas. Panel A reports summary statistics of respondents from rural households in HIES data; Panel B reports summary statistics of respondents from the Khulna Division; Panel C reports summary statistics of respondents in our sample. Age, education, gender, and religion in the HIES data are of the respondents.

Table B3: India: representativeness of our study sample

	A: Uttar Pradesh		B: Our Study Sample	
	Mean	**Obs.**	**Mean**	**Obs.**
Age (in years)	38.0	15,313	37.4	1,680
Male (or Female)	0.51	15,313	0.50	1,680
Hindu (or Muslim)	0.80	15,313	0.79	1,680
Urban resident (or not)	0.34	15,313	0.35	1,680
At least college educated (or not)	0.08	15,313	0.13	1,680
Below poverty line (or not)	0.29	-	0.34	1,680
High caste (or not)	0.27	15,313	0.27	1,680

Note: All statistics for Uttar Pradesh were sourced from NSS 68th Round (National Sample Survey, 2012), except the 'Below poverty line' figure that came from World Bank (2016). As UP is one of the BIMARU states (i.e., relatively poorer, less educated, and underdeveloped states) and likely to be different in terms of characteristics than the rest of India, we decided not to include the Indian rural sample characteristics in this table.

Table B4: List of control variables

VARIABLES	**Bangladesh (new)**	**Bangladesh (old)**	**India (new)**	**India (old)**
Gender	√	√	√	√
Religion	√	√	√	√
Occupation	√		√	
Food insecurity	√		√	
Worried about health	√		√	
Worried about finances	√		√	
Age		√		√
Education		√		√
Log of monthly income		√		√
No. of household members		√		
Whether household has TV or radio		√		
Willingness to take health related risks				√
Caste				√
Employment status				√
Residence near marketplace				√
Lives in a joint family				√
Lives in own house				√
Household member with disability				√
Household member with long-term illness				√
Marital status				√
Village Fixed Effects			√	√
Union Council Fixed Effects	√	√		
Sample size	6,485	5,840	1,680	1,680

Note: See Appendix C.3 for variable description and see Table 1 (in the paper) for the summary statistics. The columns with 'new' include control variables that were collected during the endline. The columns with 'old' include control variables that were collected previously, during the 2019 survey. This additional data from 2019 is available for all Indian sample but only for 90% of the Bangladeshi sample.

Table B5: Balance check: treated versus untreated (Bangladeshi sample)

	T1	**T2**	**T3**	**T2 vs T1**	**T2 vs T3**	**T3 vs T1**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	-	-	-	-0.309	-0.271	-
				(0.201)	(0.210)	
T3 (Both Text & Call)	-	-	-	-	-	-0.037
						(0.196)
Age	-0.000	-0.000	-0.001	-0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age×T2	-	-	-	0.000	0.000	-
				(0.001)	(0.001)	
Age×T3	-	-	-	-	-	-0.000
						(0.001)
Education	0.002	0.004*	0.001	0.002	0.001	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Education×T2	-	-	-	0.002	0.003	-
				(0.003)	(0.003)	
Education×T3	-	-	-	-	-	-0.001
						(0.003)
Income	-0.013	0.015	-0.010	-0.013	-0.010	-0.013
	(0.015)	(0.015)	(0.016)	(0.015)	(0.016)	(0.015)
Income×T2	-	-	-	0.028	0.024	-
				(0.021)	(0.022)	
Income×T3	-	-	-	-	-	0.003
						(0.021)
Household members	-0.002	-0.007	0.004	-0.002	0.004	-0.002
	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.004)
Household members×T2	-	-	-	-0.004	-0.011	-
				(0.007)	(0.007)	
Household members×T3	-	-	-	-	-	0.007
						(0.006)
Male	-0.000	0.010	-0.007	-0.000	-0.007	-0.000
	(0.012)	(0.014)	(0.014)	(0.012)	(0.014)	(0.012)
Male×T2	-	-	-	0.010	0.017	-
				(0.019)	(0.020)	
Male×T3	-	-	-	-	-	-0.006
						(0.018)
Islam	0.011	0.000	-0.016	0.011	-0.016	0.011
	(0.015)	(0.019)	(0.017)	(0.015)	(0.017)	(0.015)

Islam×T2	-	-	-	-0.010	0.016	-
				(0.024)	(0.025)	
Islam×T3	-	-	-	-	-	-0.026
						(0.023)
Farmer	-0.010	0.011	-0.019	-0.010	-0.019	-0.010
	(0.024)	(0.028)	(0.030)	(0.024)	(0.030)	(0.024)
Farmer×T2	-	-	-	0.021	0.030	-
				(0.037)	(0.041)	
Farmer×T3	-	-	-	-	-	-0.009
						(0.038)
Day laborer	-0.012	0.016	-0.005	-0.012	-0.005	-0.012
	(0.021)	(0.028)	(0.025)	(0.021)	(0.025)	(0.021)
Day laborer×T2	-	-	-	0.028	0.021	-
				(0.035)	(0.037)	
Day laborer×T3	-	-	-	-	-	0.007
						(0.032)
Self employed	-0.008	0.023	-0.029	-0.008	-0.029	-0.008
	(0.021)	(0.029)	(0.025)	(0.021)	(0.025)	(0.021)
Self employed×T2	-	-	-	0.031	0.052	-
				(0.036)	(0.038)	
Self employed×T3	-	-	-	-	-	-0.021
						(0.033)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	T3	T1	T2
Joint p-value on characteristics	0.973	0.641	0.687	0.974	0.685	0.973
Joint p-value on interactions	-	-	-	0.925	0.518	0.826
Observations	2,684	2,203	2,314	4,887	4,517	4,998
R-squared	0.001	0.002	0.002	0.005	0.002	0.004

Robust SE clustered at village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is an indicator for receiving the treatment (=1) or not (=0). In other words, if participants are in 'both treated and surveyed' and 'treated but not surveyed' categories (Panel A, Table B1) then the dependent variable is equal to 1 and 0 otherwise. All specifications include both 'old' and 'new' controls. p-values check the overall joint test of balance.

Table B6: Balance check: treated versus untreated (Indian sample)

	T1	**T2**	**T3**	**T2 vs T1**	**T2 vs T3**	**T3 vs T1**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	-	-	-	-0.042	-0.091	-
				(0.094)	(0.100)	
T3 (Both Text & Call)	-	-	-	-	-	0.048
						(0.092)
Age	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age×T2	-	-	-	0.000	0.000	-
				(0.001)	(0.001)	
Age×T3	-	-	-	-	-	0.000
						(0.001)
Has college degree	0.002	0.014	0.045*	0.002	0.045*	0.002
	(0.042)	(0.032)	(0.026)	(0.042)	(0.026)	(0.042)
Has college degree×T2	-	-	-	0.011	-0.031	-
				(0.055)	(0.042)	
Has college degree×T3	-	-	-	-	-	0.042
						(0.046)
Male	0.024	0.015	-0.024	0.024	-0.024	0.024
	(0.021)	(0.021)	(0.029)	(0.021)	(0.029)	(0.021)
Male×T2	-	-	-	-0.009	0.039	-
				(0.027)	(0.034)	
Male×T3	-	-	-	-	-	-0.047
						(0.040)
Residence near marketplace	0.020	0.001	0.001	0.020	0.001	0.020
	(0.022)	(0.021)	(0.018)	(0.022)	(0.018)	(0.022)
Residence near marketplace×T2	-	-	-	-0.018	0.000	-
				(0.031)	(0.029)	
Residence near marketplace×T3	-	-	-	-	-	-0.018
						(0.028)
Income	0.000	0.000	0.000*	0.000	0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income×T2	-	-	-	-0.000	-0.000	-
				(0.000)	(0.000)	
Income×T3	-	-	-	-	-	0.000
						(0.000)
Living in a joint family	0.012	-0.040	0.002	0.012	0.002	0.012
	(0.025)	(0.029)	(0.024)	(0.025)	(0.024)	(0.025)

Living in a joint family×T2	-	-	-	-0.052	-0.042	-
				(0.036)	(0.044)	
Living in a joint family×T3	-	-	-	-	-	-0.010
						(0.035)
Whether own their house	0.020	0.125	-0.022	0.020	-0.022	0.020
	(0.058)	(0.082)	(0.062)	(0.058)	(0.062)	(0.058)
Whether own their house×T2	-	-	-	0.105	0.147**	-
				(0.087)	(0.072)	
Whether own their house×T3	-	-	-	-	-	-0.042
						(0.071)
HH member with a disability	0.029	-0.005	-0.066	0.029	-0.066	0.029
	(0.036)	(0.040)	(0.070)	(0.036)	(0.070)	(0.036)
HH member with a disability×T2	-	-	-	-0.035	0.060	-
				(0.059)	(0.086)	
HH member with a disability×T3	-	-	-	-	-	-0.095
						(0.082)
Married	-0.020	-0.051*	0.013	-0.020	0.013	-0.020
	(0.029)	(0.028)	(0.035)	(0.029)	(0.035)	(0.029)
Married×T2	-	-	-	-0.031	-0.064	-
				(0.043)	(0.046)	
Married×T3	-	-	-	-	-	0.033
						(0.046)
Employed	-0.001	0.021	0.058**	-0.001	0.058**	-0.001
	(0.023)	(0.034)	(0.028)	(0.023)	(0.028)	(0.023)
Employed×T2	-	-	-	0.021	-0.037	-
				(0.036)	(0.042)	
Employed×T3	-	-	-	-	-	0.058
						(0.036)
HH member with long-term illness	0.018	-0.001	-0.007	0.018	-0.007	0.018
	(0.027)	(0.029)	(0.024)	(0.027)	(0.024)	(0.027)
HH member with long-term illness×T2	-	-	-	-0.019	0.007	-
				(0.034)	(0.040)	
HH member with long-term illness×T3	-	-	-	-	-	-0.026
						(0.036)
Hindu	-0.009	-0.006	-0.029	-0.009	-0.029	-0.009
	(0.030)	(0.025)	(0.027)	(0.030)	(0.027)	(0.030)
Hindu×T2	-	-	-	0.003	0.023	-
				(0.039)	(0.030)	
Hindu×T3	-	-	-	-	-	-0.020
						(0.043)
General category (GC)	0.016	0.005	-0.024	0.016	-0.024	0.016

	(0.027)	(0.025)	(0.026)	(0.027)	(0.026)	(0.027)
General category (GC)×T2	-	-	-	-0.010	0.029	-
				(0.036)	(0.038)	
General category (GC)×T3	-	-	-	-	-	-0.040
						(0.041)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	T3	T1	T2
Joint *p*-value on characteristics	0.448	0.331	0.147	0.446	0.147	0.450
Joint *p*-value on interactions	-	-	-	0.939	0.339	0.301
Observations	620	670	580	1,290	1,250	1,200
R-squared	0.009	0.017	0.017	0.013	0.017	0.014

Robust SE clustered at village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is an indicator for receiving the treatment (=1) or not (=0). In other words, if participants are in 'both treated and surveyed' and 'treated but not surveyed' categories (Panel B, Table B1) then the dependent variable is equal to 1 and 0 otherwise. *p*-values check the overall joint test of balance.

Table B7: Balance check *among the untreated*: surveyed versus not surveyed at endline (Bangladeshi sample)

	T1	**T2**	**T3**	**T2 vs T1**	**T2 vs T3**	**T3 vs T1**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	-	-	-	-0.294	0.264	-
				(0.845)	(0.802)	
T3 (Both Text & Call)	-	-	-	-	-	-0.558
						(0.899)
Age	-0.001	-0.000	0.002	-0.001	0.002	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age×T2	-	-	-	0.001	-0.002	-
				(0.004)	(0.004)	
Age×T3	-	-	-	-	-	0.003
						(0.005)
Education	-0.009	-0.015	-0.011	-0.009	-0.011	-0.009
	(0.009)	(0.011)	(0.009)	(0.009)	(0.009)	(0.009)
Education×T2	-	-	-	-0.006	-0.004	-
				(0.014)	(0.014)	
Education×T3	-	-	-	-	-	-0.002
						(0.013)
Income	0.052	0.049	0.069	0.052	0.069	0.052
	(0.066)	(0.055)	(0.062)	(0.066)	(0.062)	(0.066)
Income×T2	-	-	-	-0.003	-0.020	-
				(0.086)	(0.083)	
Income×T3	-	-	-	-	-	0.017
						(0.091)
Household members	-0.036	0.009	0.004	-0.036	0.004	-0.036
	(0.026)	(0.024)	(0.023)	(0.026)	(0.023)	(0.026)
Household members×T2	-	-	-	0.045	0.005	-
				(0.036)	(0.033)	
Household members×T3	-	-	-	-	-	0.040
						(0.035)
Male	-0.022	0.028	-0.023	-0.022	-0.023	-0.022
	(0.050)	(0.048)	(0.056)	(0.049)	(0.056)	(0.049)
Male×T2	-	-	-	0.050	0.051	-
				(0.069)	(0.073)	
Male×T3	-	-	-	-	-	-0.001
						(0.074)
Islam	0.026	-0.013	-0.026	0.026	-0.026	0.026

	(0.060)	(0.051)	(0.054)	(0.060)	(0.054)	(0.060)
Islam×T2	-	-	-	-0.040	0.013	-
				(0.079)	(0.074)	
Islam×T3	-	-	-	-	-	-0.052
						(0.081)
Farmer	-0.070	0.065	0.067	-0.070	0.067	-0.070
	(0.130)	(0.099)	(0.111)	(0.130)	(0.111)	(0.130)
Farmer×T2	-	-	-	0.135	-0.003	-
				(0.164)	(0.149)	
Farmer×T3	-	-	-	-	-	0.138
						(0.171)
Day laborer	-0.101	0.050	0.059	-0.101	0.059	-0.101
	(0.132)	(0.095)	(0.102)	(0.132)	(0.102)	(0.132)
Day laborer×T2	-	-	-	0.151	-0.009	-
				(0.162)	(0.139)	
Day laborer×T3	-	-	-	-	-	0.160
						(0.167)
Self employed	-0.077	-0.018	0.036	-0.077	0.036	-0.077
	(0.134)	(0.087)	(0.095)	(0.134)	(0.095)	(0.134)
Self employed×T2	-	-	-	0.060	-0.054	-
				(0.160)	(0.129)	
Self employed×T3	-	-	-	-	-	0.114
						(0.164)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	T3	T1	T2
Joint p-value on characteristics	0.769	0.865	0.930	0.768	0.931	0.767
Joint p-value on interactions	-	-	-	0.843	0.998	0.935
Observations	266	295	294	561	589	560
R-squared	0.017	0.019	0.012	0.021	0.015	0.017

Robust SE clustered at village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is an indicator for being surveyed at endline (=1) and 0 otherwise (but among the untreated participants). In other words, if participants are in 'not treated but surveyed' category then the dependent variable is equal to 1 and 0 if in the 'not treated and not surveyed' category (Panel A, Table B1). Thus, this analysis is restricted among the households that could not be reached for treatment delivery. All specifications include both 'old' and 'new' controls. p-values check the overall joint test of balance.

Table B8: Balance check: surveyed versus not surveyed at endline (Bangladeshi sample)

	T1	**T2**	**T3**	**T2 vs T1**	**T2 vs T3**	**T3 vs T1**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	-	-	-	-0.144	-0.108	-
				(0.281)	(0.250)	
T3 (Both Text & Call)	-	-	-	-	-	-0.036
						(0.258)
Age	0.000	-0.000	-0.000	0.000	-0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age×T2	-	-	-	-0.001	-0.000	-
				(0.001)	(0.001)	
Age×T3	-	-	-	-	-	-0.001
						(0.001)
Education	-0.001	-0.000	-0.004	-0.001	-0.004	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Education×T2	-	-	-	0.001	0.003	-
				(0.004)	(0.004)	
Education×T3	-	-	-	-	-	-0.003
						(0.004)
Income	-0.013	0.006	-0.004	-0.013	-0.004	-0.013
	(0.022)	(0.020)	(0.017)	(0.022)	(0.017)	(0.022)
Income×T2	-	-	-	0.019	0.010	-
				(0.029)	(0.026)	
Income×T3	-	-	-	-	-	0.009
						(0.028)
Household members	0.000	0.000	0.007	0.000	0.007	0.000
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Household members×T2	-	-	-	-0.000	-0.007	-
				(0.008)	(0.007)	
Household members×T3	-	-	-	-	-	0.007
						(0.007)
Male	-0.011	0.005	-0.011	-0.011	-0.011	-0.011
	(0.013)	(0.014)	(0.016)	(0.013)	(0.016)	(0.013)
Male×T2	-	-	-	0.016	0.016	-
				(0.019)	(0.021)	
Male×T3	-	-	-	-	-	0.000
						(0.020)
Islam	0.027	-0.013	-0.016	0.027	-0.016	0.027
	(0.023)	(0.021)	(0.017)	(0.023)	(0.017)	(0.023)

Islam×T2	-	-	-	-0.039	0.003	-
				(0.031)	(0.027)	
Islam×T3	-	-	-	-	-	-0.043
						(0.029)
Farmer	-0.004	0.005	-0.003	-0.004	-0.003	-0.004
	(0.030)	(0.029)	(0.035)	(0.030)	(0.035)	(0.030)
Farmer×T2	-	-	-	0.009	0.008	-
				(0.041)	(0.045)	
Farmer×T3	-	-	-	-	-	0.001
						(0.046)
Day laborer	-0.004	0.002	0.008	-0.004	0.008	-0.004
	(0.030)	(0.031)	(0.030)	(0.030)	(0.030)	(0.030)
Day laborer×T2	-	-	-	0.007	-0.005	-
				(0.042)	(0.043)	
Day laborer×T3	-	-	-	-	-	0.012
						(0.042)
Self employed	0.004	-0.000	0.002	0.004	0.002	0.004
	(0.028)	(0.030)	(0.028)	(0.028)	(0.028)	(0.028)
Self employed×T2	-	-	-	-0.004	-0.002	-
				(0.041)	(0.041)	
Self employed×T3	-	-	-	-	-	-0.002
						(0.039)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	T3	T1	T2
Joint p-value on characteristics	0.941	0.999	0.673	0.941	0.672	0.941
Joint p-value on interactions	-	-	-	0.969	0.986	0.893
Observations	2,684	2,203	2,314	4,887	4,517	4,998
R-squared	0.002	0.000	0.003	0.001	0.002	0.002

Robust SE clustered at village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is an indicator for being surveyed at endline (=1) or not (=0). In other words, if participants are in 'not treated but surveyed' and 'both treated and surveyed' categories (Panel A, Table B1) then the dependent variable is equal to 1 and 0 otherwise. All specifications include both 'old' and 'new' controls. p-values check the overall joint test of balance.

Table B9: Balance check: surveyed versus not surveyed at endline (Indian sample)

	T1	**T2**	**T3**	**T2 vs T1**	**T2 vs T3**	**T3 vs T1**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	-	-	-	-0.023	-0.101	-
				(0.099)	(0.101)	
T3 (Both Text & Call)	-	-	-	-	-	0.078
						(0.100)
Age	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age×T2	-	-	-	-0.000	0.001	-
				(0.001)	(0.001)	
Age×T3	-	-	-	-	-	-0.001
						(0.001)
Has college degree	0.022	0.030	0.043	0.022	0.043	0.022
	(0.044)	(0.031)	(0.029)	(0.044)	(0.029)	(0.044)
Has college degree×T2	-	-	-	0.008	-0.013	-
				(0.057)	(0.044)	
Has college degree×T3	-	-	-	-	-	0.021
						(0.050)
Male	0.024	0.012	-0.020	0.024	-0.020	0.024
	(0.023)	(0.023)	(0.032)	(0.023)	(0.032)	(0.023)
Male×T2	-	-	-	-0.012	0.032	-
				(0.030)	(0.036)	
Male×T3	-	-	-	-	-	-0.044
						(0.045)
Residence near marketplace	0.010	0.002	-0.008	0.010	-0.008	0.010
	(0.027)	(0.021)	(0.024)	(0.027)	(0.024)	(0.027)
Residence near marketplace×T2	-	-	-	-0.008	0.010	-
				(0.035)	(0.032)	
Residence near marketplace×T3	-	-	-	-	-	-0.017
						(0.035)
Income	0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income×T2	-	-	-	-0.000	-0.000	-
				(0.000)	(0.000)	
Income×T3	-	-	-	-	-	-0.000
						(0.000)
Living in a joint family	0.023	-0.038	-0.010	0.023	-0.010	0.023
	(0.024)	(0.032)	(0.026)	(0.024)	(0.026)	(0.025)

Living in a joint family×T2	-	-	-	-0.061	-0.028	-
				(0.039)	(0.047)	
Living in a joint family×T3	-	-	-	-	-	-0.032
						(0.036)
Whether own their house	0.005	0.114	-0.034	0.005	-0.034	0.005
	(0.059)	(0.084)	(0.063)	(0.059)	(0.063)	(0.059)
Whether own their house×T2	-	-	-	0.108	0.148*	-
				(0.090)	(0.075)	
Whether own their house×T3	-	-	-	-	-	-0.039
						(0.075)
HH member with a disability	-0.001	-0.013	-0.053	-0.001	-0.053	-0.001
	(0.043)	(0.045)	(0.070)	(0.043)	(0.070)	(0.043)
HH member with a disability×T2	-	-	-	-0.012	0.040	-
				(0.068)	(0.089)	
HH member with a disability×T3	-	-	-	-	-	-0.052
						(0.086)
Married	-0.029	-0.052*	0.016	-0.029	0.016	-0.029
	(0.029)	(0.029)	(0.037)	(0.029)	(0.037)	(0.029)
Married×T2	-	-	-	-0.023	-0.069	-
				(0.044)	(0.046)	
Married×T3	-	-	-	-	-	0.046
						(0.049)
Employed	-0.016	0.028	0.045	-0.016	0.045	-0.016
	(0.028)	(0.034)	(0.033)	(0.028)	(0.033)	(0.028)
Employed×T2	-	-	-	0.044	-0.017	-
				(0.041)	(0.041)	
Employed×T3	-	-	-	-	-	0.061
						(0.038)
HH member with long-term illness	0.025	-0.012	-0.012	0.025	-0.012	0.025
	(0.028)	(0.028)	(0.025)	(0.028)	(0.025)	(0.028)
HH member with long-term illness×T2	-	-	-	-0.036	-0.000	-
				(0.037)	(0.042)	
HH member with long-term illness×T3	-	-	-	-	-	-0.036
						(0.038)
Hindu	-0.024	-0.011	-0.031	-0.024	-0.031	-0.024
	(0.031)	(0.029)	(0.031)	(0.031)	(0.031)	(0.031)
Hindu×T2	-	-	-	0.013	0.020	-
				(0.039)	(0.033)	
Hindu×T3	-	-	-	-	-	-0.007
						(0.045)
General category (GC)	0.001	-0.007	-0.023	0.001	-0.023	0.001

	(0.027)	(0.027)	(0.029)	(0.027)	(0.029)	(0.027)
General category (GC)×T2	-	-	-	-0.009	0.016	-
				(0.038)	(0.041)	
General category (GC)×T3	-	-	-	-	-	-0.024
						(0.046)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	T3	T1	T2
Joint p-value on characteristics	0.198	0.323	0.641	0.198	0.640	0.199
Joint p-value on interactions	-	-	-	0.760	0.537	0.445
Observations	620	670	580	1,290	1,250	1,200
R-squared	0.013	0.017	0.013	0.015	0.015	0.013

Robust SE clustered at village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is an indicator for being surveyed at endline (=1) or not (=0). In other words, if participants are in 'not treated but surveyed' and 'both treated and surveyed' categories (Panel B, Table B1) then the dependent variable is equal to 1 and 0 otherwise. p-values check the overall joint test of balance.

Table B10: Balance check: attrited versus not attrited (Bangladeshi sample)

	T1	T2	T3	T2 vs T1	T2 vs T3	T3 vs T1
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
T2 (Call Only)	-	-	-	0.174	0.174	-
				(0.295)	(0.262)	
T3 (Both Text & Call)	-	-	-	-	-	0.001
						(0.283)
Age	-0.000	0.000	0.001	-0.000	0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age×T2	-	-	-	0.001	-0.000	-
				(0.002)	(0.001)	
Age×T3	-	-	-	-	-	0.001
						(0.002)
Education	-0.000	-0.002	0.002	-0.000	0.002	-0.000
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Education×T2	-	-	-	-0.002	-0.004	-
				(0.004)	(0.004)	
Education×T3	-	-	-	-	-	0.003
						(0.004)
Income	0.021	-0.003	0.013	0.021	0.013	0.021
	(0.024)	(0.020)	(0.019)	(0.024)	(0.019)	(0.024)
Income×T2	-	-	-	-0.024	-0.015	-
				(0.031)	(0.028)	
Income×T3	-	-	-	-	-	-0.008
						(0.031)
Household member	-0.003	0.003	-0.008	-0.003	-0.008	-0.003
	(0.006)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
Household member×T2	-	-	-	0.005	0.010	-
				(0.008)	(0.008)	
Household member×T3	-	-	-	-	-	-0.005
						(0.008)
Male	0.009	-0.004	0.010	0.009	0.010	0.009
	(0.015)	(0.016)	(0.016)	(0.015)	(0.016)	(0.015)
Male×T2	-	-	-	-0.013	-0.013	-
				(0.022)	(0.022)	
Male×T3	-	-	-	-	-	0.001
						(0.022)
Islam	-0.028	0.012	0.017	-0.028	0.017	-0.028
	(0.024)	(0.024)	(0.018)	(0.024)	(0.018)	(0.024)

Islam×T2	-	-	-	0.040	-0.005	-
				(0.034)	(0.030)	
Islam×T3	-	-	-	-	-	0.045
						(0.030)
Farmer	0.001	0.000	0.013	0.001	0.013	0.001
	(0.034)	(0.031)	(0.039)	(0.034)	(0.039)	(0.034)
Farmer×T2	-	-	-	-0.001	-0.013	-
				(0.045)	(0.049)	
Farmer×T3	-	-	-	-	-	0.012
						(0.051)
Day laborer	-0.002	-0.001	-0.003	-0.002	-0.003	-0.002
	(0.032)	(0.031)	(0.033)	(0.032)	(0.033)	(0.032)
Day laborer×T2	-	-	-	0.000	0.002	-
				(0.044)	(0.045)	
Day laborer×T3	-	-	-	-	-	-0.002
						(0.046)
Self employed	-0.008	-0.010	0.007	-0.008	0.007	-0.008
	(0.030)	(0.032)	(0.032)	(0.030)	(0.032)	(0.030)
Self employed×T2	-	-	-	-0.002	-0.017	-
				(0.043)	(0.045)	
Self employed×T3	-	-	-	-	-	0.015
						(0.044)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	T3	T1	T2
Joint p-value on characteristics	0.954	0.0.996	0.752	0.954	0.752	0.954
Joint p-value on interactions	-	-	-	0.972	0.916	0.913
Observations	2,684	2,203	2,314	4,887	4,517	4,998
R-squared	0.002	0.001	0.002	0.002	0.002	0.002

Robust SE clustered at village level are in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The dependent variable is an indicator for attrition (=1) or not (=0). In other words, if participants are not in the 'both treated and surveyed' category then the dependent variable is equal to 1 and 0 if they are in the 'both treated and surveyed' category (Panel A, Table B1). All specifications include both 'old' and 'new' controls. p-values check the overall joint test of balance.

Table B11: Effects on health awareness: alternative models

	Awareness (scale 0-5) *(Ordered Probit)*			Completely Aware *(Probit)*		
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
			Panel A: Bangladesh			
T2 (Call Only)	1.400***	1.398***	1.374***	1.401***	1.395***	1.337***
	(0.048)	(0.048)	(0.049)	(0.056)	(0.057)	(0.063)
T3 (Both Text & Call)	1.825***	1.829***	1.917***	1.755***	1.756***	1.809***
	(0.049)	(0.049)	(0.050)	(0.056)	(0.056)	(0.061)
New Controls	No	Yes	Yes	No	Yes	Yes
Old Controls	No	No	Yes	No	No	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,485	6,485	5,840	6,485	6,485	5,840
			Panel B: India			
T2 (Call Only)	2.881***	2.918***	3.659***	10.358***	10.566***	10.987***
	(0.125)	(0.130)	(0.159)	(0.391)	(0.405)	(0.459)
T3 (Both Text & Call)	4.495***	4.575***	4.858***	12.184***	12.550***	12.469***
	(0.182)	(0.187)	(0.173)	(0.413)	(0.450)	(0.479)
Demographic Controls	No	Yes	Yes	No	Yes	Yes
Additional Controls	No	No	Yes	No	No	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,680	1,680	1,680	1,680	1,680	1,680

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Columns (1)-(3) reports ordered probit regression estimates and columns (4)-(6) reports probit regression estimates; the dependent variable in columns (1)-(3) is the number of correct mentions of COVID-19 rules (on a scale between 0 and 5) and the dependent variable in columns (4)-(6) is a dummy that equals 1 if a respondent correctly mentioned all five COVID-19 rules and 0 if not. See the note under Table 2 (in the paper) for the list of controls. All WY FWER, RI, and CGM p-values < 0.01.

Table B12: Effect on health awareness using indicators

VARIABLES	Wash Hands (1)	Cover Mouth (2)	Keep Distance (3)	No Contact (4)	Away from Healthy (5)
	Panel A: Bangladesh (with all controls)				
T2 (Call Only)	0.175***	0.462***	0.244***	0.298***	0.400***
	(0.010)	(0.016)	(0.018)	(0.021)	(0.015)
T3 (Both Text & Call)	0.231***	0.602***	0.356***	0.433***	0.485***
	(0.008)	(0.013)	(0.015)	(0.019)	(0.015)
T1 (Text Only) mean	0.755	0.239	0.558	0.431	0.072
	[0.430]	[0.426]	[0.497]	[0.495]	[0.259]
New Controls	Yes	Yes	Yes	Yes	Yes
Old Controls	Yes	Yes	Yes	Yes	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes
p-value (T2-T3)	0.000	0.000	0.000	0.000	0.000
Observations	5,840	5,840	5,840	5,840	5,840
R-squared	0.143	0.309	0.180	0.233	0.244
	Panel B: Bangladesh (without 'old' controls)				
T2 (Call Only)	0.180***	0.468***	0.260***	0.317***	0.412***
	(0.010)	(0.016)	(0.017)	(0.020)	(0.014)
T3 (Both Text & Call)	0.229***	0.585***	0.353***	0.420***	0.475***
	(0.009)	(0.013)	(0.015)	(0.019)	(0.014)
T1 (Text Only) mean	0.755	0.255	0.566	0.443	0.079
	[0.430]	[0.436]	[0.496]	[0.497]	[0.270]
New Controls	Yes	Yes	Yes	Yes	Yes
Old Controls	No	No	No	No	No
Union Council FE	Yes	Yes	Yes	Yes	Yes
p-value (T2-T3)	0.000	0.000	0.000	0.000	0.000
Observations	6,485	6,485	6,485	6,485	6,485
R-squared	0.115	0.295	0.173	0.215	0.228
	Panel C: India				
T2 (Call Only)	0.550***	0.730***	0.419***	0.597***	0.624***
	(0.028)	(0.029)	(0.043)	(0.039)	(0.036)
T3 (Both Text & Call)	0.556***	0.817***	0.546***	0.729***	0.745***
	(0.028)	(0.022)	(0.027)	(0.028)	(0.033)
T1 (Text Only) mean	0.456	0.171	0.453	0.219	0.152
	[0.499]	[0.377]	[0.498]	[0.414]	[0.359]
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes	Yes
p-value (T2-T3)	0.555	0.000	0.000	0.001	0.002
Observations	1,680	1,680	1,680	1,680	1,680
R-squared	0.467	0.585	0.278	0.440	0.483

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported. Dependent variable means in T1 group (with standard deviations in brackets) are also reported. All dependent variables are dummies: in column (1) it equals to 1 if the respondent mentioned hand washing for at least 20 seconds as one of the rules of COVID-19 and 0 if not; in column (2) it equals to 1 if the respondent mentioned covering mouth during coughing and sneezing as one of the rules of COVID-19 and 0 if not; in column (3) it equals to 1 if the respondent mentioned keeping at least 2 arms distance from outsiders as one of the rules of COVID-19 and 0 if not; in column (4) it equals to 1 if the respondent mentioned not hugging or shaking hands with outsiders as one of the rules of COVID-19 and 0 if not; in column (5) it equals to 1 if the respondent mentioned staying away from healthy people and indoors if they feel ill as one of the rules of COVID-19 and

Table B13: Effects on compliance indicators

VARIABLES	Going to the market (1)	Going to the doctor (2)	Going out for entertainment (3)	Going out for religious reasons (4)	Wash hands (5)	Avoid contact (6)
	Panel A: Bangladesh					
T2 (Call Only)	0.131***	0.008**	0.066***	0.050***	0.367***	0.366***
	(0.014)	(0.004)	(0.011)	(0.014)	(0.013)	(0.014)
T3 (Both Text & Call)	0.187***	0.008**	0.083***	0.061***	0.513***	0.581***
	(0.014)	(0.004)	(0.011)	(0.015)	(0.013)	(0.012)
T1 (Text Only) mean	0.700	0.985	0.826	0.760	0.086	0.157
	[0.458]	[0.121]	[0.379]	[0.427]	[0.281]	[0.364]
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	No	No	No	No	No	No
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
WY FWER p-values (T2)	0.000	0.068	0.000	0.003	0.000	0.000
WY FWER p-values (T3)	0.000	0.068	0.000	0.000	0.000	0.000
RI p-values (T2)	0.000	0.019	0.000	0.000	0.001	0.001
RI p-values (T3)	0.001	0.032	0.001	0.001	0.001	0.000
Observations	6,485	6,485	6,485	6,485	6,485	6,485
R-squared	0.133	0.012	0.098	0.142	0.252	0.296
	Panel B: India					
T2 (Call Only)	0.005	0.042**	0.059***	0.021**	0.802***	0.853***
	(0.041)	(0.018)	(0.010)	(0.009)	(0.035)	(0.026)
T3 (Both Text & Call)	0.153***	0.058***	0.066***	0.018**	0.926***	0.948***
	(0.021)	(0.013)	(0.011)	(0.007)	(0.015)	(0.012)
T1 (Text Only) mean	0.779	0.918	0.930	0.984	0.048	0.034
	[0.415]	[0.275]	[0.255]	[0.126]	[0.214]	[0.181]
All controls	Yes	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes
WY FWER p-values (T2)	0.015	0.002	0.021	0.051	0.000	0.000
WY FWER p-values (T3)	0.004	0.033	0.010	0.087	0.000	0.000
RI p-values (T2)	0.001	0.000	0.000	0.001	0.001	0.001
RI p-values (T3)	0.000	0.002	0.000	0.018	0.001	0.001
CGM p-values (T2)	0.000	0.000	0.000	0.004	0.000	0.000
CGM p-values (T3)	0.000	0.000	0.000	0.005	0.000	0.000
Observations	1,680	1,680	1,680	1,680	1,680	1,680
R-squared	0.095	0.050	0.069	0.058	0.681	0.707

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported. Dependent variable means in T1 group (with standard deviations in brackets) are also reported. All dependent variables are compliance dummies (=1 if followed rules more often): in column (1) it equals to 1 if the respondent went to the market at most on 2 separate days in the past week and 0 if visited on 3 separate days or more; in column (2) it equals to 1 if the respondent went to the doctor at most on 2 separate days in the past week and 0 if visited on 3 separate days or more; in column (3) it equals to 1 if the respondent went out for entertainment purpose at most on 2 separate days in the past week and 0 if visited on 3 separate days or more; in column (4) it equals to 1 if the respondent went out for religious purpose at most on 2 separate days in the past week and 0 if visited on 3 separate days or more; in column (5) it equals to 1 if the respondent washed hands five times in a day at least on 3 separate days in the past week and 0 otherwise; in column (6) it equals to 1 if the respondent did not have any close contact with outsiders at least on 3 separate days in the past week and 0 otherwise. See the note under Table 2 (in the paper) for the list of controls. See Table B14 for Panel A results with all control variables.

Table B14: Effects on compliance indicators in Bangladesh (with all controls)

VARIABLES	Going to the market (1)	Going to the doctor (2)	Going out for entertainment (3)	Going out for religious reasons (4)	Wash hands (5)	Avoid contact (6)
T2 (Call Only)	0.126***	0.011***	0.076***	0.049***	0.352***	0.350***
	(0.014)	(0.004)	(0.011)	(0.016)	(0.014)	(0.016)
T3 (Both Text & Call)	0.196***	0.010**	0.091***	0.058***	0.521***	0.585***
	(0.014)	(0.004)	(0.011)	(0.015)	(0.014)	(0.013)
T1 (Text Only) mean	0.697	0.984	0.819	0.762	0.077	0.151
	[0.459]	[0.125]	[0.384]	[0.426]	[0.266]	[0.358]
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	Yes	Yes	Yes	Yes	Yes	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
WY FWER p-values (T2)	0.000	0.015	0.000	0.015	0.000	0.000
WY FWER p-values (T3)	0.000	0.021	0.000	0.002	0.000	0.000
RI p-values (T2)	0.000	0.001	0.000	0.001	0.001	0.001
RI p-values (T3)	0.001	0.014	0.001	0.001	0.001	0.000
Observations	5,840	5,840	5,840	5,840	5,840	5,840
R-squared	0.133	0.015	0.106	0.146	0.268	0.304

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported. Dependent variable means in T1 group (with standard deviations in brackets) are also reported. All dependent variables are compliance dummies. See the note under Table B13 for details on the outcomes, controls, and the p-values.

Table B15: Effects on compliance indicators: probit estimates

VARIABLES	Going to the market (1)	Going to the doctor (2)	Going out for entertainment (3)	Going out for religious reasons (4)	Wash hands (5)	Avoid contact (6)
	Panel A: Bangladesh (with all controls)					
T2 (Call Only)	0.495***	0.405***	0.403***	0.210***	1.275***	1.095***
	(0.052)	(0.135)	(0.057)	(0.063)	(0.055)	(0.052)
T3 (Both Text & Call)	0.853***	0.403**	0.512***	0.258***	1.735***	1.776***
	(0.057)	(0.157)	(0.065)	(0.063)	(0.057)	(0.049)
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	Yes	Yes	Yes	Yes	Yes	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,840	5,840	5,840	5,840	5,840	5,840
	Panel B: Bangladesh (without 'old' controls)					
T2 (Call Only)	0.520***	0.275**	0.356***	0.208***	1.266***	1.122***
	(0.052)	(0.121)	(0.053)	(0.057)	(0.052)	(0.046)
T3 (Both Text & Call)	0.818***	0.317**	0.483***	0.266***	1.663***	1.751***
	(0.056)	(0.141)	(0.061)	(0.061)	(0.054)	(0.046)
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	No	No	No	No	No	No
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,485	6,485	6,485	6,485	6,485	6,485
	Panel C: India					
T2 (Call Only)	-0.004	0.371	1.643***	15.621***	3.262***	3.777***
	(0.163)	(0.226)	(0.307)	(1.922)	(0.239)	(0.243)
T3 (Both Text & Call)	0.795***	0.721***	5.810***	17.315***	4.491***	4.939***
	(0.111)	(0.154)	(0.435)	(2.277)	(0.246)	(0.293)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	No	Yes	Yes
Observations	1,680	1,680	1,680	1,680	1,680	1,680

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: Probit regression estimates reported; all dependent variables are compliance dummies. See the note under Table B13 for details on the outcomes and controls. Please note that we could not estimate column 4 in Panel C with village fixed effects. Thus, probit estimates in column 4, Panel C, are without village FE.

Table B16: Effects on compliance: robustness check with revised index

	A: Bangladesh Endline 1			B: Bangladesh Endline 2	C: India
	All	**All**	**Female**	**Female**	**All**
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
T2 (Call Only)	1.434***	1.374***	1.593***	1.745***	5.132***
	(0.044)	(0.049)	(0.061)	(0.081)	(0.171)
T3 (Both Text & Call)	2.141***	2.163***	2.496***	2.580***	5.809***
	(0.041)	(0.042)	(0.048)	(0.070)	(0.078)
New Controls (BD)	Yes	Yes	Yes	Yes	-
Old Controls (BD)	No	Yes	Yes	Yes	-
All Controls (India)	-	-	-	-	Yes
Union Council FE	Yes	Yes	Yes	Yes	-
Village FE	-	-	-	-	Yes
F-test p-values (T2-T3)	0.000	0.000	0.000	0.000	0.000
RI p-values (T2)	0.000	0.000	0.000	0.000	0.001
RI p-values (T3)	0.001	0.001	0.001	0.000	0.000
CGM p-values (T2)	-	-	-	-	0.000
CGM p-values (T3)	-	-	-	-	0.000
Observations	6,485	5,840	3,523	1,583	1,679
R-squared	0.362	0.379	0.459	0.537	0.748

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS estimates are reported. All dependent variables are standardized compliance indices, where the control group has mean 0 and SD 1. Index components of endline 1 compliance index (Bangladesh and India) are only 'hand washing' and 'avoiding contact', while index components of endline 2 compliance index (Bangladesh) are 'hand washing', 'avoiding contact', 'coughing in elbow', and 'keeping 2 arms distance outside'. Columns 1 and 2 report estimates using the total Bangladeshi sample in endline 1; columns 3 and 4 report estimates using the female Bangladeshi sample in endline 1 and endline 2 respectively; column 5 reports estimates using the entire Indian sample.

Table B17: Correlation between awareness (scale 0-5) and compliance indicators

VARIABLES	Going to the market (1)	Going to the doctor (2)	Going out for entertainment (3)	Going out for religious reasons (4)	Wash hands (5)	Avoid contact (6)
	Panel A: Bangladesh (with all controls)					
Awareness (scale 0-5)	0.077***	0.001	0.020***	0.014***	0.179***	0.189***
	(0.004)	(0.001)	(0.003)	(0.004)	(0.004)	(0.004)
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	Yes	Yes	Yes	Yes	Yes	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,840	5,840	5,840	5,840	5,840	5,840
R-squared	0.167	0.013	0.100	0.145	0.349	0.371
	Panel B: Bangladesh (without 'old' controls)					
Awareness (scale 0-5)	0.075***	0.001	0.018***	0.014***	0.182***	0.190***
	(0.004)	(0.001)	(0.003)	(0.004)	(0.003)	(0.004)
New Controls	Yes	Yes	Yes	Yes	Yes	Yes
Old Controls	No	No	No	No	No	No
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,485	6,485	6,485	6,485	6,485	6,485
R-squared	0.168	0.011	0.093	0.140	0.350	0.370
	Panel C: India					
Awareness (scale 0-5)	0.041***	0.018***	0.020***	0.006***	0.244***	0.255***
	(0.006)	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,680	1,680	1,680	1,680	1,680	1,680
R-squared	0.093	0.056	0.076	0.062	0.687	0.731

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS regression estimates reported; all dependent variables are compliance dummies: in column (1) it equals to 1 if the respondent went to the market at most on 2 separate days in the past week and 0 otherwise; in column (2) it equals to 1 if the respondent went to the doctor at most on 2 separate days in the past week and 0 otherwise; in column (3) it equals to 1 if the respondent went out for entertainment purpose at most on 2 separate days in the past week and 0 otherwise; in column (4) it equals to 1 if the respondent went out for religious purpose at most on 2 separate days in the past week and 0 otherwise; in column (5) it equals to 1 if the respondent washed hands five times in a day at least on 3 separate days in the past week and 0 otherwise; in column (6) it equals to 1 if the respondent did not have any close contact with outsiders at least on 3 separate days in the past week and 0 otherwise; Awareness (scale 0-5) is a count measure of awareness, where 0 means not aware and 5 means completely aware of COVID-19 health guidelines. See the note under Table 2 (in the paper) for the list of controls. All standard errors are clustered at the village level.

Table B18: Effects on compliance in India: social desirability bias checks

	Low SDB	High SDB	Pooled SDB dummy	Pooled SDB score
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**
T2 (Call only)	2.342***	2.224***	2.358***	2.502***
	(0.182)	(0.323)	(0.177)	(0.272)
T3 (Both Text & Call)	2.883***	2.639***	2.879***	2.911***
	(0.118)	(0.203)	(0.108)	(0.223)
High SDB (=1 if high)	-	-	0.214	-
			(0.183)	
T2×High SDB	-	-	-0.161	-
			(0.239)	
T3×High SDB	-	-	-0.296	-
			(0.197)	
SDB Score ($0 \leq Score \leq 13$)	-	-	-	0.031
				(0.042)
T2×SDB Score	-	-	-	-0.044
				(0.051)
T3×SDB Score	-	-	-	-0.032
				(0.047)
Other controls	Yes	Yes	Yes	Yes
Observations	364	251	615	615
R-squared	0.733	0.657	0.672	0.670

Robust standard errors clustered at the village level are in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: OLS estimates reported. Dependent variable is the standardized compliance index, such that the control group has mean 0 and standard derivation 1. ‘SDB Score’ is the social desirability bias score, on a scale of 0 to 13. ‘High SDB’ is a dummy that equals 1 if the SDB score is above the median value (=5) and 0 if below the median value. Columns 1 and 2 report estimates within the low and high SDB subsamples respectively. Columns 3 and 4 report estimates on the pooled sample.

Table B19: Comparison between women from the first and second endline in Bangladesh

	Endline 1		**Both Endlines**		**Difference**	
Variables	**Mean (1)**	***Std. Dev.***	**Mean (2)**	***Std. Dev.***	**(2) minus (1)**	***SE***
Age$^{\perp}$ (in years)	35.73	*9.50*	35.45	*9.55*	-0.28	*0.42*
Education$^{\perp}$ (in years)	8.43	*2.62*	8.38	*2.65*	-0.06	*0.10*
Monthly household income$^{\perp}$	9,449	*6,202*	9,271	*6,813*	-178	*275*
Number of household members$^{\perp}$	4.32	*1.24*	4.35	*1.33*	0.03	*0.05*
Muslim dummy	0.72	*0.45*	0.67	*0.47*	-0.04**	*0.02*
Professions						
Farmer	0.18	*0.39*	0.17	*0.38*	-0.01	*0.01*
Labourer	0.40	*0.49*	0.44	*0.50*	0.04**	*0.02*
Self-employed	0.32	*0.47*	0.31	*0.46*	-0.01	*0.02*
Professional	0.09	*0.29*	0.08	*0.27*	-0.02	*0.01*
Sample size	2,325 (2,102$^{\perp}$)	-	1,583	-	-	-

Note: Comparisons in characteristics (collected during the first endline) between women that only participated in endline 1 (*Endline 1* column) and women that participated in both endlines (*Both Endlines* column). Difference column reports the difference between *Both Endlines* and *Endline 1* (*Both Endlines* minus *Endline 1*). The rightmost column, SE, corresponds to standard errors (clustered at the village level). Variables with $^{\perp}$ corresponds to data collected earlier in 2019 and, thus, the corresponding sample sizes are smaller (reported in parentheses in *Endline 1* column). However, we have the 2019 survey data for all respondents from the second endline. See the note for Panel A under Table 1 (in the paper) for all variable descriptions. *** p<0.01, ** p<0.05, * p<0.1.

Table B20: Effects on compliance indicators in Bangladesh: second endline

VARIABLES	Wash hands (1)	Not going outside (2)	Not going for prayers (3)	Keep 1.5m distance (4)	Use masks (5)	Sneeze/cough with care (6)	Avoid contact (7)
T2 (Call Only)	0.474***	0.267***	0.107***	0.203***	0.345***	0.326***	0.413***
	(0.028)	(0.026)	(0.025)	(0.027)	(0.029)	(0.028)	(0.029)
T3 (Both Text & Call)	0.601***	0.359***	0.187***	0.436***	0.472***	0.463***	0.587***
	(0.024)	(0.026)	(0.023)	(0.028)	(0.025)	(0.024)	(0.025)
T1 (Text Only) mean	0.119	0.156	0.740	0.171	0.244	0.135	0.230
	[0.325]	[0.363]	[0.439]	[0.377]	[0.430]	[0.342]	[0.421]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Union Council FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WY FWER p-values (T2)	0.000	0.000	0.001	0.000	0.000	0.000	0.000
WY FWER p-values (T3)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RI p-values (T2)	0.000	0.000	0.000	0.000	0.000	0.001	0.001
RI p-values (T3)	0.000	0.000	0.001	0.000	0.001	0.000	0.000
Observations	1,583	1,583	1,583	1,583	1,583	1,583	1,583
R-squared	0.341	0.146	0.097	0.202	0.214	0.203	0.304

Robust standard errors clustered at the village level are in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: OLS regression estimates reported. Dependent variable means in T1 group (with standard deviations in brackets) are also reported. All dependent variables are compliance dummies: in column (1) it equals to 1 if the respondent washed hands five times in a day at least on 3 separate days in the past week and 0 otherwise; in column (2) it equals to 1 if the respondent did not leave home at least on 3 separate days in the past week and 0 otherwise; in column (3) it equals to 1 if the respondent did not go out for religious purpose at least on 3 separate days in the past week and 0 otherwise; in column (4) it equals to 1 if the respondent maintained a 2 arms distance from others when they were outside at least on 3 separate days in the past week and 0 otherwise; in column (5) it equals to 1 if the respondent used a mask/face covering when they were outside at least on 3 separate days in the past week and 0 otherwise; in column (6) it equals to 1 if the respondent always sneezed/coughed in a handkerchief or in elbows at least on 3 separate days in the past week and 0 otherwise; in column (7) it equals to 1 if the respondent did not have any close contact with outsiders at least on 3 separate days in the past week and 0 otherwise. Controls correspond to all control variables (both new and old controls) listed under Table 2 (in the paper).

Table B21: Heterogeneous treatment effects using Elastic Net

Panel A. Best linear prediction (BLP)

	A.1. Bangladesh				***A.2. India***			
	T2: Call only		T3: Both		T2: Call only		T3: Both	
OUTCOME	ATE (1)	HET (2)	ATE (3)	HET (4)	ATE (5)	HET (6)	ATE (7)	HET (8)
Compliance	1.012 (0.917,1.113) [0.000]	0.808 (0.519,1.107) [0.000]	1.538 (1.449,1.624) [0.000]	0.906 (0.637,1.177) [0.000]	2.080 (1.894,2.257) [0.000]	1.235 (0.758,1.731) [0.000]	2.672 (2.520,2.811) [0.000]	0.394 (-0.342,1.136) [0.579]

Panel B. Group average treatment effects (GATES)

	B.1. Bangladesh						***B.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
OUTCOME	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Compliance	1.339 (1.139, 1.542) [0.000]	0.584 (0.357, 0.816) [0.000]	0.761 (0.466, 1.054) [0.000]	1.911 (1.756, 2.068) [0.000]	1.113 (0.889, 1.338) [0.000]	0.803 (0.525, 1.071) [0.000]	2.390 (2.036, 2.730) [0.000]	1.230 (0.884, 1.591) [0.000]	1.127 (0.638, 1.611) [0.000]	2.717 (2.412, 3.041) [0.000]	2.533 (2.239, 2.832) [0.000]	0.200 (-0.229, 0.627) [0.786]

Panel C. Classification analysis (CLAN)

	C.1. Bangladesh						***C.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Gender	0.023 (0.012, 0.033) -	1.000 (0.989, 1.010) -	-0.977 (-0.992, -0.962) [0.000]	0.000 (0.000, 0.000) -	1.000 (1.000, 1.000) -	-1.000 (-1.000, -1.000) [0.000]	0.957 (0.887, 1.027) -	0.562 (0.484, 0.642) -	0.371 (0.276, 0.469) [0.000]	0.338 (0.268, 0.405) -	0.945 (0.882, 1.008) -	-0.605 (-0.704, -0.505) [0.000]

(cont.)

Panel C. Classification analysis (CLAN) *(continued)*

	C.1. Bangladesh						***C.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
COVARIATES	Most	Least	△	Most	Least	△	Most	Least	△	Most	Least	△
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age	39.43	36.19	3.256	41.11	34.82	6.311	37.35	32.11	5.219	40.33	39.59	0.599
	(38.66,	(35.40,	(2.125,	(40.36,	(34.07,	(5.248,	(34.95,	(29.88,	(1.944,	(37.48,	(36.58,	(-3.650,
	40.22)	37.01)	4.379)	41.86)	35.58)	7.375)	39.70)	34.24)	8.251)	43.32)	42.61)	4.859)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.003]	-	-	[1.000]
Education	8.837	7.863	0.924	9.502	7.123	2.399	0.162	0.085	0.081	0.111	0.142	-0.028
	(8.547,	(7.573,	(0.515,	(9.211,	(6.829,	(1.996,	(0.103,	(0.024,	(-0.002,	(0.047,	(0.079,	(-0.109,
	9.129)	8.154)	1.344)	9.793)	7.419)	2.806)	0.223)	0.144)	0.164)	0.171)	0.205)	0.058)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.113]	-	-	[0.907]
Monthly income	8081	10234	-2245	10218	10190	-108.7	11280	9991	1237.0	11206	11530	-397.2
	(7521,	(9701,	(-2972,	(9457,	(9378,	(-1125,	(10277,	(8968,	(-183.2,	(9833,	(10211,	(-2139,
	8656)	10788)	-1516)	10962)	11051)	1087)	12242)	11010)	2690)	12438)	12840)	1555)
	-	-	[0.000]	-	-	[1.000]	-	-	[0.181]	-	-	[1.000]
Food insecurity	0.757	0.826	-0.082	0.746	0.874	-0.132	0.965	0.950	0.017	0.870	0.991	-0.120
	(0.718,	(0.786,	(-0.134,	(0.708,	(0.836,	(-0.183,	(0.925,	(0.917,	(-0.040,	(0.824,	(0.944,	(-0.187,
	0.797)	0.866)	-0.026)	0.781)	0.911)	-0.080)	0.999)	0.989)	0.064)	0.917)	1.036)	-0.053)
	-	-	[0.007]	-	-	[0.000]	-	-	[1.000]	-	-	[0.001]
Worried about health	0.970	0.947	0.023	1.000	0.872	0.127	0.677	0.565	0.128	0.982	0.943	0.046
	(0.950,	(0.926,	(-0.004,	(0.976,	(0.849,	(0.095,	(0.588,	(0.488,	(0.001,	(0.950,	(0.905,	(-0.006,
	0.990)	0.966)	0.049)	1.023)	0.895)	0.160)	0.765)	0.650)	0.255)	1.021)	0.977)	0.094)
	-	-	[0.196]	-	-	[0.000]	-	-	[0.096]	-	-	[0.160]
Worried about finances	0.642	0.773	-0.126	0.591	0.945	-0.343	0.949	0.956	-0.009	0.848	0.991	-0.150
	(0.598,	(0.729,	(-0.189,	(0.553,	(0.909,	(-0.396,	(0.909,	(0.914,	(-0.067,	(0.798,	(0.944,	(-0.220,
	0.687)	0.818)	-0.062)	0.628)	0.982)	-0.293)	0.986)	0.993)	0.051)	0.898)	1.042)	-0.079)
	-	-	[0.000]	-	-	[0.000]	-	-	[1.000]	-	-	[0.000]
Religion	0.414	0.761	-0.362	0.488	0.789	-0.284	1.000	0.000	1.000	0.869	0.693	0.173
	(0.369,	(0.717,	(-0.425,	(0.445,	(0.744,	(-0.346,	(1.000,	(0.000,	(1.000,	(0.792,	(0.620,	(0.066,
	0.460)	0.805)	-0.298)	0.533)	0.833)	-0.223)	1.000)	0.000)	1.000)	0.945)	0.769)	0.287)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]	-	-	[0.003]

Note: This table reports results using ML method 'Elastic Net'. 90% confidence intervals are in parenthesis; p-values for the hypothesis that the parameter is equal to zero are in brackets. 'Most' and 'Least' are the 20% most (top quintile) and 20% least (bottom quintile) affected groups; △ is the difference between 'Most' and 'Least' (i.e., 'Most' minus 'Least'). Outcome variable is the standardized compliance index, such that the control group has mean 0 and standard deviation 1. 'Call only' corresponds to the treatment where only phone calls were made, and 'Both' corresponds to the treatment where both text messages and phone calls were made. Covariates are defined in Appendix C.

Table B22: Heterogeneous treatment effects using ML: Bangladesh (second endline)

Panel A. Best linear prediction (BLP)

	A.1. Call only				**A.2. Both call & text**			
	Elastic Net		Random Forest		Elastic Net		Random Forest	
OUTCOME	ATE (1)	HET (2)	ATE (3)	HET (4)	ATE (5)	HET (6)	ATE (7)	HET (8)
Compliance	1.779	-0.307	1.773	-0.333	2.666	0.282	2.661	0.569
	(1.568,2.000)	(-1.452,0.818)	(1.552,2.005)	(-1.627,0.922)	(2.475,2.858)	(-0.632,1.214)	(2.463,2.855)	(-0.241,1.476)
	[0.000]	[1.000]	[0.000]	[1.000]	[0.000]	[1.000]	[0.000]	[0.342]

Panel B. Group average treatment effects (GATES)

	B.1. Call only						**B.2. Both call & text**					
	Elastic Net			Random Forest			Elastic Net			Random Forest		
OUTCOME	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Compliance	1.750	1.836	-0.128	1.789	1.938	-0.124	2.678	2.578	0.107	2.810	2.460	0.386
	(1.278, 2.212)	(1.382, 2.309)	(-0.793, 0.544)	(1.324, 2.262)	(1.467, 2.426)	(-0.775, 0.547)	(2.279, 3.076)	(2.179, 2.997)	(-0.471, 0.691)	(2.421, 3.198)	(2.042, 2.882)	(-0.182, 0.978)
	[0.000]	[0.000]	[1.000]	[0.000]	[0.000]	[1.000]	[0.000]	[0.000]	[1.000]	[0.000]	[0.000]	[0.364]

Panel C. Classification analysis (CLAN)

	C.1. Call only						**C.2. Both call & text**					
	Elastic Net			Random Forest			Elastic Net			Random Forest		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Age	34.91	36.55	-1.657	35.80	35.10	0.933	43.08	28.76	14.80	41.29	28.10	13.60
	(33.14, 36.71)	(34.68, 38.42)	(-4.262, 1.043)	(33.96, 37.62)	(33.19, 36.96)	(-1.653, 3.460)	(41.57, 44.62)	(27.15, 30.25)	(12.69, 16.92)	(40.01, 42.67)	(26.69, 29.54)	(11.70, 15.49)
	-	-	[0.458]	-	-	[0.935]	-	-	[0.000]	-	-	[0.000]
Education	8.365	8.614	-0.253	8.492	8.472	-0.016	9.571	6.871	2.707	8.623	7.491	1.150
	(7.899, 8.830)	(8.131, 9.125)	(-1.012, 0.457)	(8.028, 8.987)	(7.972, 8.945)	(-0.694, 0.683)	(9.054, 10.10)	(6.341, 7.381)	(1.977, 3.445)	(8.138, 9.132)	(6.977, 7.964)	(0.478, 1.797)
	-	-	[1.000]	-	-	[1.000]	-	-	[0.000]	-	-	[0.002]

(cont.)

Panel C. Classification analysis (CLAN) *(continued)*

	C.1. Bangladesh						***C.2. India***					
	T2: Call only			T3: Both			T2: Call only			T3: Both		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Religion	0.723	0.659	0.068	0.794	0.589	0.179	0.673	0.720	-0.048	0.726	0.712	-0.018
	(0.637,	(0.566,	(-0.056,	(0.707,	(0.500,	(0.064,	(0.587,	(0.635,	(-0.170,	(0.639,	(0.628,	(-0.131,
	0.804)	0.750)	0.193)	0.881)	0.679)	0.299)	0.758)	0.805)	0.077)	0.805)	0.796)	0.101)
	-	-	[0.541]	-	-	[0.005]	-	-	[0.901]	-	-	[1.000]
Monthly income	8772	9812	-1074	8871	10009	-1276	8903	9851	-998.1	8012	10772	-2626.0
	(7689,	(8727,	(-2587,	(7819,	(8952,	(-2886,	(7680,	(8617,	(-2643,	(6632,	(9355,	(-4703,
	9824)	10889)	318.0)	10032)	11105)	227.8)	10248)	11182)	574.3)	9359)	12134)	-786.8)
	-	-	[0.239]	-	-	[0.181]	-	-	[0.444]	-	-	[0.012]
Household members	4.186	4.529	-0.396	4.204	4.517	-0.279	4.276	4.429	-0.123	4.162	4.478	-0.365
	(3.917,	(4.270,	(-0.768,	(3.964,	(4.250,	(-0.653,	(4.018,	(4.177,	(-0.477,	(3.911,	(4.230,	(-0.728,
	4.479)	4.799)	-0.015)	4.457)	4.775)	0.110)	4.515)	4.681)	0.231)	4.418)	4.725)	0.004)
	-	-	[0.083]	-	-	[0.307]	-	-	[0.985]	-	-	[0.107]
Worried: health	0.922	0.943	-0.029	0.924	0.944	-0.019	0.987	0.815	0.176	0.991	0.874	0.118
	(0.871,	(0.894,	(-0.090,	(0.878,	(0.900,	(-0.087,	(0.936,	(0.760,	(0.100,	(0.942,	(0.825,	(0.056,
	0.969)	0.994)	0.040)	0.973)	0.993)	0.046)	1.043)	0.868)	0.249)	1.035)	0.921)	0.179)
	-	-	[0.705]	-	-	[1.000]	-	-	[0.000]	-	-	[0.001]
Worried: finances	0.723	0.870	-0.130	0.779	0.848	-0.058	0.683	0.833	-0.150	0.786	0.848	-0.062
	(0.643,	(0.795,	(-0.235,	(0.702,	(0.775,	(-0.168,	(0.605,	(0.755,	(-0.261,	(0.715,	(0.776,	(-0.162,
	0.803)	0.947)	-0.025)	0.855)	0.920)	0.048)	0.764)	0.913)	-0.043)	0.856)	0.919)	0.038)
	-	-	[0.032]	-	-	[0.566]	-	-	[0.013]	-	-	[0.448]
Has TV or radio	0.563	0.702	-0.138	0.439	0.823	-0.415	0.695	0.529	0.161	0.638	0.625	0.009
	(0.469,	(0.610,	(-0.268,	(0.354,	(0.739,	(-0.537,	(0.605,	(0.439,	(0.031,	(0.550,	(0.535,	(-0.114,
	0.657)	0.793)	-0.011)	0.523)	0.902)	-0.295)	0.785)	0.618)	0.290)	0.726)	0.714)	0.140)
	-	-	[0.068]	-	-	[0.000]	-	-	[0.031]	-	-	[1.000]
Food insecure	0.796	0.972	-0.177	0.749	0.990	-0.243	0.801	0.987	-0.176	0.894	0.952	-0.062
	(0.737,	(0.913,	(-0.264,	(0.686,	(0.925,	(-0.329,	(0.744,	(0.930,	(-0.256,	(0.846,	(0.900,	(-0.130,
	0.854)	1.034)	-0.091)	0.811)	1.049)	-0.155)	0.858)	1.040)	-0.101)	0.943)	1.001)	0.010)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]	-	-	[0.184]
Household chores	0.135	0.423	-0.276	0.062	0.498	-0.442	0.120	0.399	-0.277	0.120	0.383	-0.265
	(0.054,	(0.343,	(-0.396,	(-0.008,	(0.424,	(-0.546,	(0.044,	(0.322,	(-0.388,	(0.045,	(0.311,	(-0.373,
	0.215)	0.506)	-0.155)	0.133)	0.569)	-0.340)	0.197)	0.474)	-0.169)	0.196)	0.459)	-0.158)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]

Note: 90% confidence intervals are in parenthesis; *p*-values for the hypothesis that the parameter is equal to zero are in brackets. All covariates are listed in Table B4 in Appendix B and defined in Appendix C.

Table B23: Classification analysis with remaining covariates: Bangladesh (first endline)

	T2: Call only						**T3: Both**					
	Elastic Net			Random Forest			Elastic Net			Random Forest		
COVARIATES	Most	Least	△	Most	Least	△	Most	Least	△	Most	Least	△
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
No of household members	4.339	4.353	0.000	4.378	4.445	-0.057	4.545	4.402	0.171	4.533	4.344	0.229
	(4.212, 4.477)	(4.220, 4.483)	(-0.178, 0.179)	(4.242, 4.510)	(4.315, 4.587)	(-0.247, 0.130)	(4.409, 4.684)	(4.261, 4.546)	(-0.030, 0.368)	(4.406, 4.663)	(4.214, 4.462)	(0.057, 0.401)
	-	-	[1.000]	-	-	[1.000]	-	-	[0.188]	-	-	[0.018]
Has TV or radio	0.858	0.489	0.369	0.939	0.377	0.554	0.899	0.552	0.313	0.850	0.641	0.210
	(0.816, 0.900)	(0.447, 0.532)	(0.310, 0.427)	(0.902, 0.977)	(0.342, 0.412)	(0.500, 0.607)	(0.859, 0.939)	(0.513, 0.592)	(0.256, 0.371)	(0.808, 0.891)	(0.599, 0.683)	(0.152, 0.269)
	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]	-	-	[0.000]

Note: This table is a continuation of Panel C in Tables 5 (in the paper) and B21 (Bangladeshi sample only). Outcome variable is the standardized compliance index, such that the control group has mean 0 and standard deviation 1. Covariates are defined in Appendix C.

Table B24: Classification analysis with remaining covariates: India

	T2: Call only						**T3: Both**					
	Elastic Net			Random Forest			Elastic Net			Random Forest		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Employed	2.103	2.398	-0.295	2.391	2.299	0.087	2.768	1.772	1.005	2.564	2.335	0.279
	(1.953,	(2.264,	(-0.510,	(2.245,	(2.157,	(-0.120,	(2.637,	(1.641,	(0.814,	(2.418,	(2.178,	(0.076,
	2.252)	2.545)	-0.081)	2.537)	2.443)	0.302)	2.894)	1.906)	1.188)	2.711)	2.487)	0.482)
	-	-	[0.015]	-	-	[0.812]	-	-	[0.000]	-	-	[0.034]
Caste	2.230	2.506	-0.268	2.358	2.385	-0.026	2.299	2.278	0.037	2.208	2.282	-0.076
	(2.079,	(2.355,	(-0.483,	(2.213,	(2.236,	(-0.231,	(2.137,	(2.118,	(-0.192,	(2.047,	(2.123,	(-0.302,
	2.383)	2.660)	-0.056)	2.507)	2.538)	0.183)	2.460)	2.441)	0.252)	2.369)	2.441)	0.148)
	-	-	[0.027]	-	-	[1.000]	-	-	[1.000]	-	-	[1.000]
HH near marketplace	0.266	0.530	-0.273	0.249	0.483	-0.222	0.440	0.303	0.123	0.344	0.369	-0.028
	(0.180,	(0.445,	(-0.394,	(0.165,	(0.400,	(-0.347,	(0.349,	(0.214,	(-0.005,	(0.253,	(0.279,	(-0.153,
	0.352)	0.614)	-0.151)	0.333)	0.568)	-0.098)	0.531)	0.393)	0.253)	0.435)	0.458)	0.097)
	-	-	[0.000]	-	-	[0.001]	-	-	[0.108]	-	-	[1.000]
Joint family	0.588	0.451	0.140	0.526	0.489	0.035	0.644	0.498	0.145	0.583	0.528	0.047
	(0.497,	(0.362,	(0.011,	(0.434,	(0.399,	(-0.095,	(0.550,	(0.406,	(0.013,	(0.488,	(0.433,	(-0.087,
	0.678)	0.540)	0.268)	0.618)	0.581)	0.165)	0.737)	0.591)	0.274)	0.677)	0.621)	0.183)
	-	-	[0.066]	-	-	[1.000]	-	-	[0.064]	-	-	[0.905]
Own house	0.965	0.974	-0.009	0.983	0.965	0.018	0.907	0.991	-0.074	0.943	0.964	-0.019
	(0.933,	(0.939,	(-0.054,	(0.952,	(0.931,	(-0.019,	(0.866,	(0.947,	(-0.136,	(0.900,	(0.928,	(-0.081,
	0.997)	1.004)	0.036)	1.012)	0.992)	0.063)	0.950)	1.029)	-0.017)	0.980)	1.007)	0.032)
	-	-	[1.000]	-	-	[0.503]	-	-	[0.019]	-	-	[0.916]
HH with disability	0.095	0.068	0.026	0.087	0.076	0.018	0.093	0.081	0.009	0.075	0.082	0.000
	(0.043,	(0.019,	(-0.040,	(0.039,	(0.025,	(-0.054,	(0.037,	(0.025,	(-0.063,	(0.026,	(0.027,	(-0.074,
	0.145)	0.117)	0.100)	0.136)	0.127)	0.090)	0.146)	0.134)	0.084)	0.127)	0.131)	0.069)
	-	-	[0.850]	-	-	[1.000]	-	-	[1.000]	-	-	[1.000]
Married	0.782	0.862	-0.085	0.730	0.878	-0.144	0.677	0.944	-0.273	0.800	0.889	-0.098
	(0.709,	(0.791,	(-0.183,	(0.656,	(0.807,	(-0.245,	(0.608,	(0.874,	(-0.368,	(0.732,	(0.817,	(-0.188,
	0.853)	0.934)	0.014)	0.804)	0.948)	-0.044)	0.748)	1.014)	-0.179)	0.867)	0.961)	0.001)
	-	-	[0.180]	-	-	[0.009]	-	-	[0.000]	-	-	[0.107]

(cont.)

(continued)

	T2: Call only						**T3: Both**					
	Elastic Net			Random Forest			Elastic Net			Random Forest		
COVARIATES	Most (1)	Least (2)	△ (3)	Most (4)	Least (5)	△ (6)	Most (7)	Least (8)	△ (9)	Most (10)	Least (11)	△ (12)
Health risk	5.785 (5.390, 6.186) -	5.751 (5.345, 6.153) -	0.051 (-0.522, 0.619) [1.000]	5.965 (5.561, 6.386) -	5.401 (4.985, 5.791) -	0.667 (0.083, 1.223) [0.052]	5.362 (4.919, 5.804) -	5.509 (5.054, 5.975) -	-0.124 (-0.762, 0.517) [1.000]	5.464 (5.039, 5.892) -	5.608 (5.186, 6.034) -	-0.191 (-0.808, 0.412) [1.000]
HH with long-term illness	0.250 (0.169, 0.331) -	0.289 (0.207, 0.366) -	-0.043 (-0.161, 0.075) [0.947]	0.212 (0.129, 0.295) -	0.372 (0.288, 0.454) -	-0.174 (-0.291, -0.058) [0.006]	0.302 (0.212, 0.392) -	0.561 (0.469, 0.650) -	-0.230 (-0.361, -0.105) [0.001]	0.327 (0.240, 0.417) -	0.399 (0.307, 0.490) -	-0.081 (-0.213, 0.050) [0.217]

Note: This table is a continuation of Panel C in Tables 5 (in the paper) and B21 (Indian sample only). Outcome variable is the standardized compliance index, such that the control group has mean 0 and standard deviation 1. Covariates are defined in Appendix C.

C Appendix: Data Appendix

C.1 The data collection

Trained enumerators from GDRI and DPRN contacted respondents to conduct short surveys over the phone, each lasting for 10-15 minutes. These enumerators—locals from the intervention areas—are highly trained with many years of interviewing experience. Our survey consisted of questions related to respondents' knowledge about COVID-19, degree of compliance with health guidelines (social distancing, mobility, and hygiene), household head's primary occupation, worries about household health and finances, and food insecurity due to COVID-19.

We also asked questions on how worried respondents are in terms of their household finances and health. Since conducting extensive surveys was not possible during the pandemic, we matched respondents to data that was collected in 2019 by the same local organizations. This 'old' data in Bangladesh includes information on the respondent's age (in years), gender, years of education, monthly household income, number of household members, and whether the household owns a TV or radio. The 'old' data in India includes information on the respondent's age (in years), gender, college completion, monthly household income, number of household members, willingness to take health-related risks (a scale between 0-10, where a higher number corresponds to higher willingness), caste, whether they live in a joint family, whether they live in relatively urban areas, whether they own their house, any household member with a disability, and whether anyone in the family has long-term illnesses. This additional data from 2019 was available for all participating households in India (1,680 households) but only for 90% of participating households in Bangladesh (5,840 out of 6,485 households). For the remaining 10% in Bangladesh, we inferred the gender and religion of the respondents from their full names. Thus, gender and religion are available for the entire Bangladeshi sample. See Table B4 in Appendix B for a list of all additional variables and at what point were they collected. We use these characteristics as control variables in our regression analysis. Due to the urgency of the campaign, we were unable to conduct a proper baseline survey. However, we use the data from 2019 to show a balance in characteristics between our treatment groups (see Appendix C.4).

C.2 Outcome variables

Awareness/complete awareness. To measure respondents' knowledge about COVID-19 (a measure of their awareness, one of the two outcomes of this study), enumerators asked respondents *"To the best of your knowledge, what rules should we maintain to protect us from the coronavirus?"*. Enumerators had a list of 5 most common rules that they could tick/check: (i) handwashing with soap and water for at least 20 seconds, (ii) coughing or sneezing in the elbow, (iii) maintaining 2 arms distance from outsiders, (iv) restraining from hugging or shaking hands, and (v) self-isolate if having fever, cough, or difficulty in breathing.[1] Thus, this question was unprompted by enumerators, as they only passively recorded the responses. Reporting these rules (i.e., the number of correct mentions) revealed the extent of the respondent's knowledge about COVID-19, where providing all five correct answers means the respondent is *completely aware* of COVID-19 precautions. Using these responses, we use the number of correct responses (on a scale between 0 and 5) as the *awareness* outcome variable, where a higher score corresponds to better awareness. We also create an indicator variable for *complete awareness* that we code as 1 if the respondent mentioned all five rules correctly and 0 otherwise. We use both *awareness* and *complete awareness* as outcome variables in the regression analysis.

Compliance. Compliance with COVID-19 public health guidelines (the second outcome of this study) was measured by asking respondents how often they left home in the past week to *(i) go to the market, (ii) visit doctors, (iii) for entertainment purposes (e.g., to*

[1] We did not have 'mask wearing' as one of the measures because masks were not readily available in rural areas when we started our campaign (roughly 10 days after the pandemic lockdown). Besides, WHO only advised mask wearing in public on June 05, 2020 (WHO, 2020), roughly two weeks after our campaign ended. We added 'mask wearing' as one of the precautions in the second endline survey (conducted on women in Bangladesh).

attend weddings), (iv) for religious purposes (i.e., to offer prayers), and (v) how often they washed their hands, (vi) how often they did not hug or shake hands with outsiders in the past week. These questions were answered on a 6-point scale: 0=never, 1=one day, 2=two days, 3=three days, 4=five days, 5=Everyday. Each question was then converted into an indicator variable. For (i) through (iv), we code the activity as 1 if the respondent answered either 0, 1, or 2, and 0 otherwise. For (v) and (vi), which require reverse scoring, we code the activity as 1 if the respondent answered either 3, 4, or 5, and 0 otherwise (i.e., if answered either 0, 1, or 2). Therefore, 1 corresponds to higher compliance. Using these 6 indicators, we create a standardized compliance index following Kling et al. (2007). That is, we take the mean of the six indicators and then subtract the control group (i.e., *Treatment 1*) mean, and then divide this difference by the control group standard deviation. Eventually, we get a z-score that has a mean zero and standard deviation one for the control group. For robustness check, we also use these indicator variables as our *compliance* indicator outcomes in the regression analysis.

C.3 Control variables

In addition to controlling for variables that were collected during the 2019 survey (see Table B4 in Appendix B), we also use how worried respondents are about their household finances and family's health, household-level food insecurity during COVID-19, and occupation as controls in the empirical analysis. We define these additional variables (only collected during the endline survey) below.

Worried about health and finances. We measured respondents' worries regarding family's health and household finances by asking how worried respondents are about *"their family's health and medical treatment"* and *"finding a way to earn money/ensure income for your family"*. These questions were answered on a 3-point scale: 1=not worried, 2=somewhat worried, 3=very worried. We create two indicators, *worried: family health* and *worried: finances*, that are coded as 1 if the respondent answered 2 or 3 (implying worry), and 0 otherwise.

Household food insecurity. We measured household food insecurity differently in Bangladesh and India. To measure the current food insecurity of the participating households in Bangladesh, we used the Food Insecurity Experience Scale (FIES) (Ballard et al., 2013). The FIES consists of eight questions that measure a household's lack of access to sufficient nutritious food to meet their dietary needs. Each question is answered as either *yes* or *no*, where *yes* corresponds to being food insecure. The FIES questions are: *Was there a time when, because of lack of money or other resources: (1) You were worried you would not have enough food to eat?; (2) You were unable to eat healthy and nutritious food?; (3) You ate only a few kinds of foods?; (4) You had to skip a meal?; (5) You ate less than you thought you should?; (6) Your household ran out of food?; (7) You were hungry but did not eat? and (8) You went without eating for a whole day?.* Using these questions, we created a dummy variable that equals 1 if the household is food insecure (answering at least one *yes* to the eight FIES questions) and 0 if answered all *no.* In India, analogous to *Worried about health and finances* questions, we asked *"how worried respondents are in terms of arranging food for every family member"*.[2] These questions were answered on a 3-point scale: 1=not worried, 2=somewhat worried, 3=very worried. We create an indicator for household food insecurity that is coded as 1 if the respondent answered 2 or 3 (implying insecurity), and 0 otherwise.

Occupation. We ask, *"What is the primary occupation of the main earning member of your family?* 1=farmer, 2=farm laborer, 3=day laborer, 4=business, 5=public sector work, 6=private sector work, 7=others. We reduce the categories to four: agriculture (=1), laborer (combining 2 and 3), business (combining 4 and 7), and government/private job (combining 5 and 6).

[2]Instead of using the FIES scale, we use this short question on food insecurity in India because we were advised by the NGO in India to compress the questionnaire.

C.4 Sample characteristics and balance check

We show the descriptive statistics and compare whether our treatment groups are similar in terms of demographic and socioeconomic characteristics, such as respondent's age, education, religion, income, etc., in Table 1 (in the paper). Roughly 60% of Bangladeshi and 50% of Indian participants are female and the typical participant was roughly 37 years old in both countries. Households in Bangladesh earned roughly 120 USD and that in India earned roughly 150 USD per month.[3] Moreover, the majority of participants in Bangladesh are Muslims whereas the majority of participants in India are Hindus. In addition, study participants in both countries appear fairly educated.

To check the balance, we regress these characteristics on a treatment dummy while always omitting the sample from the third treatment, so that we are able to compare characteristics between two treatments at a time. We run the following OLS regression:

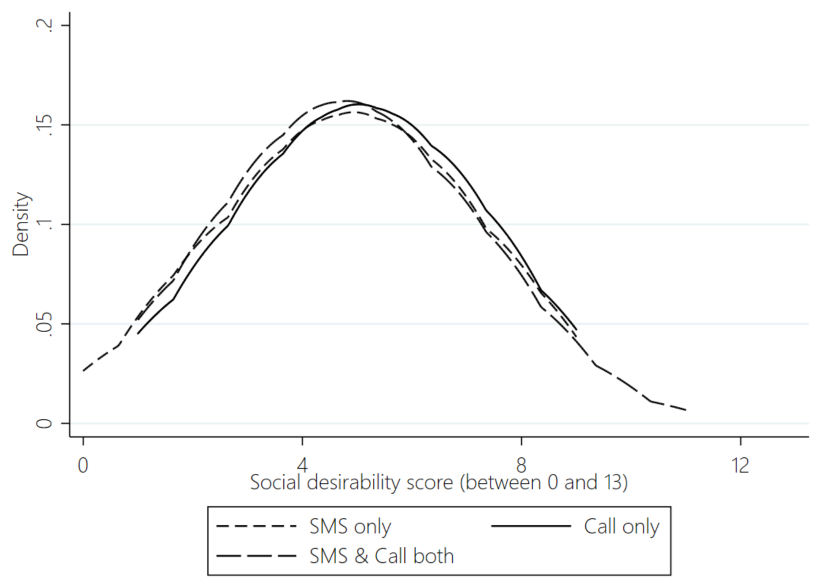
$$y_i = \beta T_i + \upsilon_i \tag{C.1}$$

where y_i is the characteristics of household i; T is a treatment dummy, which alternatively equals to (i) one if *Treatment 2* or zero if *Treatment 1* (to compare characteristics between *Treatment 1* and *Treatment 2*), (ii) one if *Treatment 3* or zero if *Treatment 1* (to compare characteristics between *Treatment 1* and *Treatment 3*), or (iii) one if *Treatment 3* or zero if *Treatment 2* (to compare characteristics between *Treatment 2* and *Treatment 3*). We cluster standard errors at the village level.

Table 1 (in the paper) also reports the differences in individual and household characteristics between treatments for both Bangladeshi (Panel A) and Indian (Panel B) samples. We mostly find no statistically significant differences (at conventional levels) between the treatment groups. One of the few exceptions are the proportion of male respondents between *Treatment 2* and *Treatment 3* in Bangladesh (Panel A) and that between *Treatment*

[3]USD 1 equals 70 Indian Rupees and 80 Bangladeshi Taka.

Figure C1: Distributions of SDB score across treatments (Indian sample)



Note: Distributions of social desirability bias (SDB, on a scale of 0 to 13) scores across treatments showing no statistical differences across the three distributions (all Kolmogorov-Smirnov equality-of-distributions test $p > 0.10$).

1 and *Treatment 3* in India (Panel B), which are both statistically significant at 10% level. Besides, in the Bangladeshi sample (Panel A), occupation between *Treatment 1* and *Treatment 2*, and that between *Treatment 2* and *Treatment 3* are statistically significant at 5% level. Another statistically significant difference (at 5% level) can be observed in terms of whether respondents live in a joint family (between *Treatment 1* and *Treatment 2*; Panel B, India). However, as we run many tests, it is possible the significant differences reported in Table 1 (in the paper) are a product of chance. This is because we run 60 independent tests (20 variables with 3 comparisons in each) and a Bonferroni multiple comparison corrections requires a significance threshold of $\alpha = 0.0008$ for each difference to be significant at 5% level (or $\alpha = 0.002$ for significance at 10% level). Moreover, the differences reported (in the last three columns) are not always in the same direction, suggesting treatment groups might be fairly similar in terms of characteristics.

C.5 Social desirability bias using the Marlowe-Crowne scale

We could not administer Marlowe-Crowne type social desirability bias scales (Reynolds, 1982) or bound the demand effects (De Quidt et al., 2018) at neither baseline nor endline due to survey length constraints. However, we have measures of social desirability bias (SDB) following the 13-item Marlowe-Crowne scale for a subset of the Indian sample (615 out of 1,680 respondents), but not for the Bangladeshi sample. This survey module is useful for measuring a respondent's tendency to give socially desirable responses, where a higher score corresponds to a higher propensity to give biased answers. This information was collected in 2019 along with the individual and household-level characteristics that we already use in the paper. Figure C1 shows that SDB scores are balanced across treatment groups (all Kolmogorov-Smirnov equality-of-distributions test $p > 0.10$), and Table C1 shows that the characteristics of respondents who were surveyed for SDB are very similar to the characteristics of respondents that were not surveyed (joint test of balance yields $p > 0.10$ in all columns).

To formally test whether the tendency to give socially desirable responses has biased our estimated treatment effects reported in Table 3 in the paper (Panel C, Indian sample), we examine heterogeneity in treatment effects by the SDB score ($0 \leq SDB \leq 13$). First, we generate a dummy variable (called 'High SDB') that equals 1 if the SDB score is above the median value (which is 5) and 0 otherwise. In Table B18 (Appendix B), we estimate the treatment effects on compliance within the 'low' (column 1) and 'high' (column 2) SDB groups, and then, in column 3, we check whether the estimates in columns 1 and 2 are statistically different by interacting the 'High SDB' dummy with the treatment dummies. Estimated treatment effects in columns 1 and 2 are statistically similar, as confirmed by the statistically insignificant interaction terms in column 3. Then, in column 4, we re-estimate column 3 while replacing the 'High SDB' dummy with the continuous 'SDB Score'. Statistically insignificant coefficients on the interaction terms suggest that our estimated treatment effects in Table 3, Panel C, were unlikely to be driven by biased responses.

Table C1: Balance check: social desirability bias (Indian sample)

	T1: Text Only	T2: Call only	T3: Both	All+interactions
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**
Age (in years)	0.002	0.000	0.001	0.002
	(0.002)	(0.002)	(0.001)	(0.002)
Has college degree (or not)	0.054	-0.021	-0.001	0.054
	(0.074)	(0.064)	(0.056)	(0.074)
Male (or Female)	0.031	-0.012	0.010	0.031
	(0.046)	(0.050)	(0.037)	(0.046)
Residence near marketplace (or not)	-0.071	0.014	-0.014	-0.071
	(0.046)	(0.040)	(0.042)	(0.046)
Monthly income (in INR)	0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Living in a joint family (or not)	0.018	0.033	-0.030	0.018
	(0.038)	(0.039)	(0.049)	(0.038)
Whether own their house (or not)	-0.051	0.046	0.045	-0.051
	(0.095)	(0.092)	(0.075)	(0.095)
Any HH member with a disability (or not)	-0.063	-0.004	-0.029	-0.063
	(0.064)	(0.070)	(0.077)	(0.064)
Married (or not)	-0.047	-0.029	0.033	-0.047
	(0.068)	(0.056)	(0.068)	(0.068)
Employed (or not)	-0.043	0.104	-0.073	-0.043
	(0.066)	(0.064)	(0.069)	(0.066)
Any HH member with long-term illness (or not)	-0.019	-0.020	0.051	-0.019
	(0.044)	(0.047)	(0.045)	(0.044)
Hindu (or not)	0.003	-0.011	-0.048	0.003
	(0.044)	(0.040)	(0.048)	(0.044)
General category (GC)	-0.008	0.031	-0.015	-0.008
	(0.053)	(0.044)	(0.045)	(0.053)
Omitted treatment groups	T2 & T3	T1 & T3	T1 & T2	-
Interactions with treatments	No	No	No	Yes
Joint p-value on individual/household controls	0.658	0.676	0.584	0.659
Joint p-value on interactions	-	-	-	0.223
Observations	561	601	518	1,680
R-squared	0.015	0.010	0.012	0.012

Robust SE clustered at village level are in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Note: The dependent variable is a dummy for participation in the social desirability bias (SDB) survey, where it equals 1 if SDB was measured in 2019 and 0 otherwise. Thus, all columns present estimates using a linear probability model. Columns 1-3 checks balance within treatment groups and column 4 checks balance on the entire sample. p-values check the overall joint test of balance.

C.6 The second endline data collection

During this endline, we implemented a few changes to our compliance questions. First, we combined three compliance questions on *"going outside to the market"*, *"going outside to see doctors"*, and *"going outside for entertainment purpose"* from the first endline and asked a single question instead: *"How often they do not go outside unless absolutely necessary?"*. Second, we asked three additional compliance questions on *"keeping at least 2 arms distance from outsiders"*, *"use handkerchief or elbow while coughing/sneezing"*, and *"wear masks/have face-coverings when they leave home"*. Third, we reversed the negative question on *"how often respondents go outside for prayers"* to a positive question *"how often they do not go outside for prayers"*. Finally, we also randomized the order of these questions. In total, we asked seven compliance questions, one more than in the first endline. We implemented these changes to ensure the second compliance survey does not appear identical to the first one, mainly to avoid biased responses. We also asked food insecurity questions (FIES scale) and asked whether their household chores have increased recently to get up-to-date information on these two aspects and how that might be affecting their compliance three months after the campaign. All questions were asked using the same Likert scale as in the first endline.

D Appendix: Campaign Materials

D.1 Text message for treatments with 'text messages'

"Dear (*name of recipient*), to protect yourself from the coronavirus:

- Wash your hands frequently with soap and water for at least 20 seconds.
- Cough/sneeze into your elbow or use tissue paper/ handkerchief.
- Maintain a minimum distance of 2 arms while talking to another person.
- Do not hug or shake your hands with others.
- Keep yourself away from other healthy persons if you are having fever, cough, or breathing difficulty.

Global Development Research Initiative or *Development Policy Research Network*."

D.2 Guidelines for 'phone call' treatments

(Direction to callers: The following messages should be properly conveyed keeping in mind that you are talking over the phone and 'receiver' should understand every word you say. You should not be in a hurry while talking to ensure that they listen to you and understand everything. Please spend at least 5 minutes talking to each person. Emphasize on the <u>BOLD</u> parts.)

Hello (*name of recipient*), Assalamu alaykum (in Bangladesh)/Namaste (in India),

I am _____, calling from GDRI/DPRN. How are you?

Today we have called to inform you about some important guidelines which, if followed, will keep you and your family healthy.

(Direction to callers: Request the person to listen to these guidelines carefully. If the person is busy when you call, ask for a convenient time and call him/her later. Still, if the person is unwilling to talk, do not force and underline his/her name in the list of households that you have. Those who are

willing to talk, put a tick mark after their names in the list)

You may know that globally thousands of people have been infected by Coronavirus. Many of them are losing their lives too.

Coronavirus is a virus that is causing disease among humans. The primary symptoms of this disease are similar to normal cough and fever. However, many people are dying because of this deadly disease.

If you keep yourself clean and tidy and **follow certain guidelines, it is possible to protect you and your family from Coronavirus and stay healthy.** You should...

- Wash your hands frequently with soap and water for at least 20 seconds.
- Cough or sneeze into your elbow or use tissue paper or handkerchief.
- Maintain a minimum distance of 2 arms while talking to another person.
- Not hug or shake your hands with others.
- Keep yourself away from other healthy persons if you are having a fever, cough, or difficulty breathing.

Aged people are the most vulnerable to Coronavirus and they are the ones dying in numbers. Is there any aged person in your family? If yes, e.g., father, mother, grandfather, grandmother etc., please keep a close eye on them. **For the wellbeing of their health, everyone in the family including the aged people should follow the guidelines**.

Please take care of the children in the family and keep a close eye on them too.

In this crucial time, please stay indoors unless it is extremely important or there is an emergency. We know that all of us need to go out for our work and job. The lesser you go out, the better it is for you and your family. **So, if you have to go out, please cover you face.** Suppose no one in your family currently has Coronavirus. By going out, you increase your chance of getting infected. Always remember, the virus can easily transmit to others in the family even if only one of the family members is affected. **That is why it is necessary to follow these guidelines.**

Please also avoid social gatherings. Places like markets, tea stalls, etc. should be avoided as generally there are large numbers of people in these places which increase the chance of transmission. **Please remember, even a healthy looking person can be a carrier of Coronavirus which can be further transmitted to another person.**

We all touch our face, eyes, and nose with our hands. We should particularly stop this as the virus may spread into your body from your hand if you touch your face, eyes, or nose. So, we should be very careful about this and **wash our hands with soap and water frequently.**

Please consult a doctor if anyone in the family is having fever, cough, or difficulty breathing.

These guidelines look straightforward and adhering to them may seem to be unnecessarily going too far. But please remember, you can protect yourself and your family only by following these guidelines.

You and all your family members can stay healthy and protect yourselves from Coronavirus only by abiding by these pieces of advice. Whatever has been said so far, **you should share with your family members so that they consider these advice as important and follow them accordingly.** In spite of you following the advice, all your family members are still not safe. Therefore, it is extremely important to abide by these guidelines to save the lives of you and your near ones. **Please be aware and follow the advices so that no one from your family becomes infected.**

Did you understand whatever I have said so far? ***(Direction to caller: If 'No', ask which portion he/she did not understand. Repeat that and explain again.)***

Your awareness will be beneficial for you and your family to stay safe and protected from this disease. I hope everyone in your family will follow these advice. Stay safe. We will get back to you again.

Thank you.

End of call

References

Acharya, R. & Porwal, A. (2020). A vulnerability index for the management of and response to the covid-19 epidemic in india: an ecological study. *The Lancet Global Health*, *8*(9), e1142–e1151.

Antara, N. F. (2020). Only 10% of young women in rural areas have access to the internet. Weblink. Online; Accessed October 29, 2020.

Ballard, T., Kepple, A. W., & Cafiero, C. (2013). The food insecurity experience scale: development of a global standard for monitoring hunger worldwide. *Technical Paper. Rome, Italy: FAO.*

Bangladesh Demographic and Health Survey (2014). Bangladesh Demographic and Health Survey (BDHS) 2014 Dataset. Weblink. Online; Accessed May 11, 2020.

Bangladesh Demographic and Household Survey (2019). Bangladesh Demographic and Health Survey 2017–18: Key Indicators. Weblink. Online; Accessed May 11, 2020.

Bangladesh Household Income and Expenditure Survey (2016). Bangladesh Household Income and Expenditure Survey (HIES) 2016 by Bangladesh Bureau of Statistics. Weblink. Online; Accessed May 11, 2020.

De Quidt, J., Haushofer, J., & Roth, C. (2018). Measuring and bounding experimenter demand. *American Economic Review*, *108*(11), 3266–3302.

Kling, J. R., Liebman, J. B., & Katz, L. F. (2007). Experimental analysis of neighborhood effects. *Econometrica*, *75*(1), 83–119.

LIRNE Asia (2018). AfterAccess: ICT access and use in Asia and the Global South. Weblink. Online; Accessed March 15, 2020.

Mahmud, W. (2020). Why do people resist COVID-19 hygiene? Weblink. Online; Accessed August 20, 2020.

McKinsey Global Institute Report (2019). MGI in 2019: Highlights of our research this year. Weblink. Online; Accessed August 20, 2020.

Ministry of Home Affairs India (2011). Census data 2011. Weblink. Online; Accessed October 02, 2020.

Ministry of Home Affairs India (2020). Monthly major achievement of the ministry of home affairs. Weblink. Online; Accessed October 13, 2020.

National Sample Survey (2012). NSS 68^{th} Round. Weblink. Online; Accessed November 01, 2020.

Reynolds, W. M. (1982). Development of reliable and valid short forms of the marlowe-crowne social desirability scale. *Journal of Clinical Psychology*, *38*(1), 119–125.

WHO (2020). Advice on the use of masks in the context of COVID-19. Weblink. Online; Accessed July 18, 2020.

WHO Bangladesh (2020). Who bangladesh covid-19 situation report no. 32. Weblink. Online; Accessed October 7, 2020.

WHO Bangladesh (2022). Who bangladesh covid-19 situation report no. 100. Weblink. Online; Accessed January 28, 2022.

WHO India (2022). Who india covid-19 situation update report no. 104. Weblink. Online; Accessed January 28, 2022.

World Bank (2016). Uttar Pradesh: Poverty, Growth & Inequality. Weblink. Online; Accessed November 01, 2020.