The effect of COVID-19 salience on demand for lockdown – An experimental investigation from India*

January 22, 2021

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Abstract

Lockdowns are a necessary evil while containing epidemics, but their success depends on the extent of popular support. What factors increase support for a lockdown? We conduct a randomized intervention in two rural districts of India. Subjects listen to a short audio clip about COVID-19 or Dengue or none at all. The audio clips contain commonly available information about the diseases. Hence, they only increase the disease salience but offer no new information. Our results show COVID salience causally increases the demand for lockdown, but Dengue salience does not. Relative to the no-audio-clip control, COVID salience increased the willingness to continue lockdown by 25 percent and the reported appropriate number of days by 33 percent.

Keywords: Lockdowns, Salience, Coronavirus, COVID-19

1. Introduction

Large-scale restrictions on movement and physical distancing measures, referred to as 'lockdowns,' have successfully managed the caseload from COVID-19 (Dave et al., 2020; Hsiang

* This research has been primarily funded by seed grants from IIM Bangalore, UC Davis and IIM Ahmedabad; IIMA IRB 2020-22. We thank Divyanshu Jain for his stellar research assistance.

et al., 2020). However, the high costs of bringing social and economic life to a near stop have often made lockdowns an unpopular policy intervention. As countries go through multiple waves of COVID-19 infections, how should governments boost public support for further lockdowns?

We conduct a randomized intervention in Telangana, India, that increases the salience of COVID-19 or Dengue by playing a 90-second audio-clip about the disease. COVID salience causally increases the demand for lockdown, but Dengue salience does not. Our short, low-cost salience intervention was effective: Relative to the no-audio-clip control, COVID salience increased the willingness to continue lockdown by 25 percent and the number of days that lockdown should continue by 33 percent.

The effect of salience has been studied in various contexts, e.g., taxes, finance, menu choices, etc. (DellaVigna, 2009). Recent studies have also investigated the effect of COVID-19 triggered mortality salience (Hu, He and Zhou, 2020) and the impact of disease salience on behavior (e.g., Millar, Fink-Armold and Lovitt, 2020). However, the effect of disease salience on policy-support has not been studied, especially in the context of COVID-19. We plug this gap.

2. Methods

As seen in Figure 1, Telangana, like India, was severely affected by COVID-19. We conducted two rounds of telephone surveys in Suryapet and Peddapalli, two districts of the state.

Round 1: The first-round data was collected in May 2020, while India was in a strict lockdown. We recruited subjects with the help of local government officials from randomly selected villages/ municipal-wards: our sample proportions across gender and caste were roughly the same as district-actual for each district. The sample size in Round 1 was 521 at Peddapalli and 514 at Suryapet. We collected information on demographic and economic variables, health status, and beliefs. The objective of Round 1 was to measure baseline perceptions about COVID-19.

Round 2: We contacted all Round 1 respondents for Round 2. 519/521 responded in Peddapalli, and 493/514 responded in Suryapet. We randomly assigned subjects to one of three treatments.[4] In the COVID treatment (COVID, henceforth), each participant received an audio message which made COVID-19 salient and subsequently answered a survey. The audio message was a 90-second

[4] The total sample across the three treatments is 864 since 148 data-points were unusable due to errors made by the enumerators. However, this did not affect the randomization, as is clear from Table 1.

clip containing information on COVID-19 already known to the participant. In the Control treatment (CONTROL, henceforth), participants got no audio message and directly proceeded to the survey.

We also implemented a DENGUE treatment, where Dengue, a widespread and contagious disease, was made salient. This treatment aimed to disentangle if the effect of COVID could be interpreted as that coming from the salience of a disease, more generally. The 90-second audio message contained information on Dengue that is widely publicized by the government every year.

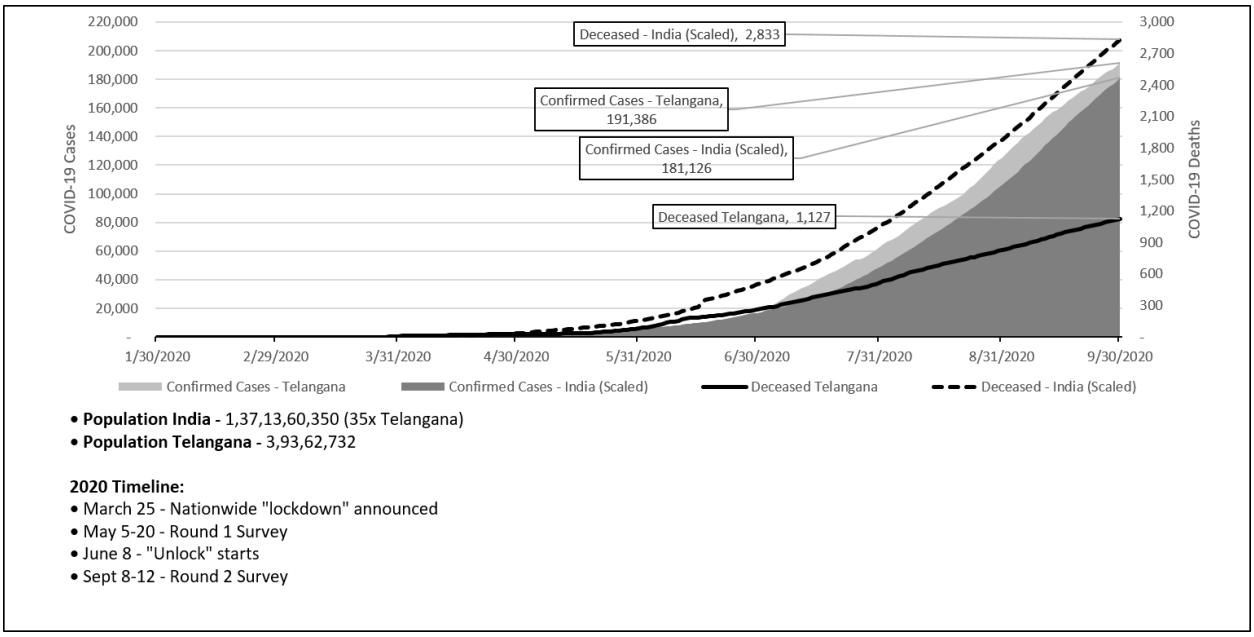

Figure 1: Timeline of COVID-19 Cases and Deaths - Telangana and India

After the clips were played, the survey, common for all three groups, asked the following in order:

1) Beliefs related to the diseases' mortality rates
2) "How many days longer should the lockdown continue? If you think it should end immediately, say 0."
3) Past behavior/ attitudes related to COVID-precautions.

COVID-Information or COVID-Salience? - The COVID-19 audio clip mentioned how the disease spreads, its symptoms, and standard preventive measures. Our Round 1 data confirms that subjects already knew this information in May, and the COVID treatment only increased the salience of the disease:

- 96% of all respondents knew about COVID-19.
- 95% were able to recall three symptoms of the disease. For example, 81% mentioned fever, 88% mentioned cough/ sore throat, and 26% mentioned breathing problems as symptoms.
- 97% were able to list preventive measures. For example, 75% mentioned social distancing, and 84% mentioned using masks.

The DENGUE clip also provides no new information. Dengue is a well-known disease in these parts, and the government runs yearly awareness campaigns.

Incentives: We paid respondents INR100 for participation in Round 1. For Round 2, respondents were told that some questions had objectively known answers (for example, COVID-19 mortality rate). For 20 randomly selected respondents, the correct answer on such randomly chosen Round 2 questions would guarantee INR 500.

Our experimental data allows us to test the following research hypotheses:

Hypotheses 1: Making COVID-19 salient increases (a) the demand for lockdowns and (b) the reported appropriate number of days for which the lockdown should continue.

Hypotheses 2: Making Dengue salient does not have any effect on the demand for lockdown.

Hypotheses 3: Making COVID-19 salient increases the perception about mortality rates for COVID but making Dengue salient has no such effect.

3. Results

Table 1 reports the mean values of the demographic and behavioral variables. We find that the treatments and the control are mostly balanced, and the differences are statistically insignificant, except for age and risk-preference across the Control and COVID treatments. We control for demographic and behavioral variables in our regressions.

Table 2 reports our main findings. Columns (1) and (2) test Hypothesis 1(a). The coefficient of COVID is positive and significant at the 5% level. Making COVID-19 salient increases the demand for lockdown by about ten percentage points. The effect size is about 25% of the support for lockdown in the control treatment.

In Columns (3) and (4), we test Hypothesis 1(b). The effect is also positive and significant at the 5% level – COVID increases the number of days lockdown is demanded by about eight days. This is about 33% of the lockdown days demanded in the control treatment. Hypothesis 2 cannot be rejected since DENGUE has no significant effect on lockdown demand or its duration.

Finally, testing Hypothesis 3, we ask if COVID salience is affecting respondents' lockdown-related opinions by changing their beliefs about COVID mortality. We regress reported COVID morality beliefs on treatments. As Columns (5) and (6) show, contrary to the COVID-mortality-belief mechanism, the treatments do not have a statistically significant effect on mortality beliefs.

Table 1: Summary Statistics

Variable	Definition	Mean			T-Test (Equality of means) - P value		
		Baseline	COVID	Dengue	Baseline vs COVID	Baseline vs Dengue	COVID vs Dengue
Outcomes							
Covid Mortality	COVID Mortality Rate (%)	31.25	30.14	32.08	0.613	0.708	0.346
Lockdown Continue (Yes/No)	Should the lockdown continue or not (1 = Continue, 0 = End)	0.45	0.56	0.45	0.018	0.981	0.012
Lockdown Continue Days	How many days the lockdown should continue for?	22.61	30.56	24.60	0.027	0.543	0.097
Demographic Variables							
Age	Age (in years)	33.27	31.73	32.57	0.079	0.472	0.352
Gender	Gender (1 = Female, 0 = Male)	0.46	0.45	0.45	0.714	0.831	0.874
Education	Highest level of education completed (1 = No Schooling, 2 = Primary School, 3 = Middle School, 4 = High School, 5 = Intermediate, 6 = Bachelors, 7 = Post Graduate or above)	4.52	4.43	4.37	0.592	0.355	0.701
Monthly Income	Monthly Income (1 = Below 5,000, 2 = Between 5,000-20,000, 3 = Between 20,000-50,000, 4 = Above 50,000)	1.78	1.78	1.80	0.964	0.761	0.799
Risk Taking Level	Risk taking level of the respondents, on a scale of 0-10	2.95	3.83	3.18	0.011	0.501	0.046
Districtname	Respondent's District (1 = Peddapalli, 0 = Suryapet)	0.49	0.58	0.48	0.040	0.773	0.014
Caste					**Chi Square Test of Independence (Caste Proportions) - P value**		
General	Proportion of General category	0.11	0.08	0.12			
OBC	Proportion of OBC category	0.54	0.53	0.47			
SC	Proportion of SC category	0.23	0.22	0.25	0.328	0.372	0.367
ST	Proportion of ST category	0.05	0.09	0.08			
Others	Proportion of Others	0.07	0.07	0.09			
Observations		**253**	**310**	**301**			

Table 2: Treatment Effects from Regressions Results

	Lockdown Continue (Yes/No)		**Lockdown Continue Days**		**Covid Mortality**	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
COVID Audio Clip	0.106**	0.105**	7.957**	8.311**	-1.104	-3.167
	(0.0447)	(0.0487)	(3.557)	(3.997)	(2.182)	(2.338)
Dengue Audio Clip	-0.00106	0.0278	1.998	3.428	0.829	-0.0359
	(0.0451)	(0.0487)	(3.589)	(3.993)	(2.189)	(2.325)
Lockdown Mobility		-0.0123		-1.390**		-0.743**
		(0.00759)		(0.622)		(0.370)
Age		0.000533		0.163		-0.128
		(0.00197)		(0.162)		(0.0946)
Gender (1=Female, 0=Male)		-0.0269		-1.385		2.081
		(0.0401)		(3.291)		(1.912)
Education		0.00523		-0.462		0.227
		(0.0114)		(0.937)		(0.545)
Monthly Income		-0.0384		-0.382		-2.449*
		(0.0281)		(2.308)		(1.349)
Risk Taking Level		0.00423		0.393		0.116
		(0.00496)		(0.406)		(0.237)
Districtname (1=Peddapalli, 0=Suryapet)		0.0452		0.879		1.585
		(0.0395)		(3.237)		(1.888)
Constant	0.453***	0.455***	22.61***	20.13**	31.25***	38.00***
	(0.0334)	(0.119)	(2.656)	(9.798)	(1.622)	(5.698)
R-squared	0.010	0.022	0.007	0.020	0.001	0.020
Observations	774	660	774	660	825	698
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1						

Lockdowns have differential impacts on the mobility of different individuals. We find that subjects who suffer greater mobility-loss under lockdowns, as captured by our normalized measure,[5] are indeed less likely to agree to lockdowns, and they report lockdown-durations should be shorter. However, unlike the literature on heterogeneous compliance with social distancing directives (Chiou and Tucker, 2020), we find no significant demographic variable in any regression.

[5] We have data on how often people left home in a week, (i) before the pandemic, (ii) during the lockdowns (during Survey 1), and (iii) after restrictions were lifted (during Survey 2). We measure the relative loss of mobility of individual k due to a lockdown as=$(\text{iii})_k$-$(\text{ii})_k$, and we normalize it as $Lockdown\_mobility_k = \frac{(\text{iii})_k - (\text{ii})_k}{(\text{i})_k}$.

Finally, we rule out the possibility that the observed COVID treatment effect on lockdown demand is driven by response manipulation under experimenter demand. If experimenter-demand effects were active, then one would also expect COVID treatment effects in reported behavior and attitudes related to COVID precautions. However, as shown in Table 3, we find no such differences in Baseline vs COVID.

Our results show that making an infectious disease (COVID-19) salient can significantly increase immediate support for harsh containment policies like lockdowns. While it is unclear whether such a salience intervention can provide durable long-term support, obtaining short-term support can be crucial in itself. It seems worth studying whether the repeated use of such short, easy, and cheap interventions can yield long-term support.

Table 3: COVID Treatment Effect on Behavior and Attitudes related to COVID-19

Variable		**Mean**		**P value**
		Baseline	**COVID**	**Baseline vs COVID**
Impoliteness of practicing social distancing while… (1 = not impolite at all; 10 = extremely impolite)	Meeting colleagues in office	3.39	3.33	0.762
	Meeting people who don't have any symptoms of COVID	3.88	3.74	0.506
	Meeting close family members	3.10	3.02	0.666
	Meeting first cousin relatives	2.91	2.99	0.663
	Meeting friends	3.21	3.22	0.992
On average, how many times in a day did you **leave the house**, during last 7 days		4.91	4.24	0.165
On average, how long do you **wash your hands** for? (1 = Less than 5 seconds; 2 = 5-10 seconds; 3 = 11-15 seconds; 4 = More than 15 seconds)		3.02	3.03	0.947

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