

Hina Khalid, Uswa Firdous, Agha Ali Akram, Chad Stecher , Amira Jadoon and Ashley Fox

January 28, 2022

Hosted by the Evidence in Governance and Politics Research (EGAP) network





- Vaccine hesitancy has long been a major obstacle for mass immunization including COVID-19.
- Underlying reasons for COVID-19 vaccine hesitancy include:
  - Concerns about the side effects of the vaccine.
  - Trust in its safety and efficacy.
  - Widespread misinformation.
  - Increasing distrust in the government, relevant institutions, and healthcare systems.



## CASE STUDY: PAKISTAN

- Pakistan is a lower-middle income country in South Asia.
- Thirty-seven of Pakistani's did not intend to vaccinate once a COVID-19 vaccine became available. (2020 Gallup Pakistan poll)
- Pakistan is among 6 out of 149 countries where confidence in the importance, safety, and effectiveness of vaccines fell between 2015-2019.
- The COVID-19 vaccination drive in Pakistan began in February 2021, starting with health workers and senior citizens and gradually opening up to other citizens.





# ENDORSEMENTS

- High-profile endorsements can possibly accelerate COVID-19 vaccination.
- They involve prominent political, religious and social leaders, publicly expressing their intention to vaccinate or are shown getting vaccinated.
- However, there is mixed evidence on the success of this approach with limited research on its impact in the context of COVID-19 vaccination.





# **RESEARCH QUESTION**

Do endorsements from a political leader, religious cleric, or doctors affect an individual's commitment to register for the COVID-19 vaccine and their willingness to pay for it?





# METHODS

- Randomized evaluation
- Survey questionnaire administered in-person on tablets between June 1, 2021 and June 8, 2021
- The survey was conducted across 40 difference Akhuwat offices
  - Akhuwat, is a not-for-profit microfinance organization working with socially and economically marginalized segments of society in Pakistan
  - Participants were active clients of the organization
- We also conducted a follow up phone survey between June 22, 2021 and June 28, 2021 to ask the same respondents if they had registered or been administered a COVID-19 vaccine.





**T**1

Video of the Prime Minister of Pakistan getting vaccinated. Respondents were told that he had received his vaccination shots and was healthy.







T2

Video of a popular religious cleric, leading scholar and leader of a Pakistani political party, Dr. Tahir ul Qadri, recommending the COVID-19 vaccine to everyone.









#### **T**3

Enumerators read out messages from doctors, framing COVID-19 vaccination positively by highlighting a return to normality, minimal short-term side effects, and higher likelihood of not falling very sick if vaccinated. Treatment 3 (T3): According to **doctors** there are several benefits of getting vaccinated:

- If **enough** people get vaccinated, employment and social life will go back to pre COVID-19 times.
- If you get vaccinated, you are less likely to fall very sick if/when you contract the virus.
- If you get vaccinated, the possible short-term side effects are fever and a headache for a few days.

Control group

No messages were shown or read out to the participants in the control group.



#### T1

Video of the Prime Minister of Pakistan getting vaccinated. Respondents were told that he had received his vaccination shots and was healthy.

#### **T**2

Video of a popular religious cleric, leading scholar and leader of a Pakistani political party, Dr. Tahir ul Qadri, recommending the COVID-19 vaccine to everyone.

#### **T**3

Enumerators read out messages from doctors, framing COVID-19 vaccination positively by highlighting a return to normality, minimal short-term side effects, and higher likelihood of not falling very sick if vaccinated. Control group

No messages were shown or read out to the participants in the control group.





# **OUTCOME VARIABLES**



Willingness to get vaccinated

Q: Would you like me to help you register for getting the COVID-19 vaccine? Yes/No



#### Willingness to pay (WTP)

Q: If you had to pay for the vaccine, would you be willing to pay Rs [amount]. Yes/No. (Amounts: 500, 100, 2000, 4000, 6000, 8000, 10000, 12000)











	Total	Control	<b>T1</b>	<b>T2</b>	Т3
	(n=2026)	(n=504)	(n=532)	(n=482)	(n=508)
Аде	38.60	38.25	38.56	38.48	39.10
	(10.79)	(10.63)	(10.84)	(11.21)	(10.51)
Gender					
Female	1,004	267	252	235	250
	(49.56%)	(52.98%)	(47.37%)	(48.76%)	(49.21%)
Male	1,022	237	280	247	258
	(50.44%)	(47.02%)	(52.63%)	(51.24%)	(50.79%)
Education					
No education	698	164	181	173	180
	(34.45%)	(32.54%)	(34.02%)	(35.89%)	(35.43%)
Primary education	767	199	195	177	196
	(37.86%)	(39.48%)	(36.65%)	(36.72%)	(38.58%)
Secondary education	408	109	115	86	98
	(20.14%)	(21.63%)	(21.62%)	(17.84%)	(19.29%)
Higher education and above	92	19	22	31	20
	(4.54%)	(3.77%)	(4.14%)	(6.43%)	(3.94%)

We find a balanced distribution in terms of observable characteristics.







### RESULTS

- Exposure to any of the three treatments, in comparison with the control group, was not linked with an increased likelihood of accepting help for immediate registration for the vaccine.
- However, there was a statistically significant relationship between willingness to pay for the vaccine and exposure to all treatments.

# **RESULTS (CONTD.)**

	Willingness to be assisted in immediate registration		Willingn	less to pay
	OLS	Logit	OLS	Logit
Treatments				
T1 (Endorsement from the Prime Minister)	0.0305	0.132	<mark>0.289***</mark>	<mark>1.912***</mark>
	(0.0299)	(0.129)	(0.0242)	(0.188)
95% Confidence Interval	[02819080891766]	[-0.1217275 -0.3851368]	[0.24 - 0.34]	[1.544021 -2.279996]
T2	0.00764	0.0335	<mark>0.0949***</mark>	<mark>0.895***</mark>
(Endorsement from a religious cleric)				
	(0.0305)	(0.133)	(0.0211)	(0.204)
95% Confidence Interval	[-0.0521313 -0.0674116]	[-0.2278868 -0.2947902]	[0.054 - 0.14]	[0.4956475 - 1.295092]
T3 (Positive framing using messages from	0.0209	0.0907	<mark>0.0407**</mark>	<mark>0.459**</mark>
doctors)				
	(0.0302)	(0.131)	(0.0188)	(0.214)
95% Confidence Interval	[0383401 -0.0800849]	[-0.166271 -0.347572]	[0.0040 - 0.078]	[0.042048 - 0.8810719]
Constant	0.349***	-0.623***	0.0794***	-2.451***
	(0.0213)	(0.0935)	(0.0121)	(0.165)
	.3075209 .3908918	80570924393499	.0557287 .1030015	-2.774064 -2.127946
Observations	2026	2026	2026	2026

Notes: Heteroscedasiticy-robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01



# **RESULTS (CONTD.)**





Notes: Heteroscedasiticy-robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01



		Registered		Vaccinated		
		OLS	Logit	OLS	Logit	
premere Ar	Treatments					
	<b>T1 (Endorsement from the Prime</b>					
	Minister)	-0.0119	-0.0478	-0.00348	-0.0167	
ULLUW UP		(0.0398)	(0.159)	(0.0363)	(0.174)	
DHUNE	95% Confidence Interval	[-0.0899915, 0.0661244]	[-0.3594934, 0.2639752]	[00746811, 0.0677282]	[-0.3584561, 0.3250174]	
	T2					
IIRVFV	(Endorsement from a religious cleric)	-0.0186	-0.0744	-0.0134	-0.0652	
DOUATT		(0.0406)	(0.162)	(0.0368)	(0.179)	
	95% Confidence Interval	[-0.0983358,	[-0.3928395,	[-0.0855623,	[-0.4152888,	
		0.0611631]	0.2440978]	0.0587237]	0.2849039]	
	T3 (Positive framing using messages					
Results	from doctors)	-0.0462	-0.185	-0.0405	-0.203	
remained		(0.0392)	(0.157)	(0.0351)	(0.176)	
insignificant.	95% Confidence Interval	[-0.1232199, 0.0307572]	[-0.4930761, 0.1229027]	[-0.1092724, 0.0283459]	[-0.5470044, 0.1418275]	
	Constant	0.517***	0.0673	0.297***	-0.863***	
		(0.0277)	(0.111)	(0.0253)	(0.121)	
		[0.4625164,	[-0.1496791,	[0.2469998,	[-1.10075	
	Observetions	0.5711228]	0.2842865	0.3462724]	0.6259869]	
	Observations	1,240	1,240	1,244	1,244/16	

# IMPLICATIONS

- Endorsement by a government actor, a prominent religious figure, or doctors, does not lead to an increased willingness to be assisted in immediate registration.
- Endorsement increases WTP for the vaccine
  - This result highlights a need to understand how the perceived value of vaccinations influences behavior.
  - Greater WTP suggests that for resource constrained countries such as Pakistan, there
    might be room for some cost shifting to ensure wider coverage
- Previous research has identified religion to be a key determinant in vaccine uptake. We find only 10% of the participants in our study identified religious objections as a reason to not get vaccinated for COVID-19.







# ADDITIONAL SLIDES



## RESULTS

	Willingness to be assisted in immediate registration		Willingr	less to pay	
	OLS	Logit	OLS	Logit	
Treatments					
T1 (Endorsement from the Prime Minister)	0.0305	0.132	0.289***	1.912***	
	(0.0299)	(0.129)	(0.0242)	(0.188)	
95% Confidence Interval	[02819080891766]	[-0.1217275 -0.3851368]	[0.24 - 0.34]	[1.544021 -2.279996]	
T2	0.00764	0.0335	0.0949***	0.895***	
(Endorsement from a religious cleric)					
	(0.0305)	(0.133)	(0.0211)	(0.204)	
95% Confidence Interval	[-0.0521313 -0.0674116]	[-0.2278868 -0.2947902]	[0.054 - 0.14]	[0.4956475 - 1.295092]	
T3 (Positive framing using messages from	0.0209	0.0907	0.0407**	0.459**	
doctors)					
	(0.0302)	(0.131)	(0.0188)	(0.214)	
95% Confidence Interval	[0383401 -0.0800849]	[-0.166271 -0.347572]	[0.0040 - 0.078]	[0.042048 - 0.8810719]	
Constant	0.349***	-0.623***	0.0794***	-2.451***	
	(0.0213)	(0.0935)	(0.0121)	(0.165)	
	.3075209 .3908918	80570924393499	.0557287 .1030015	-2.774064 -2.127946	
Observations	2026	2026	2026	2026	

Notes: Heteroscedasiticy-robust standard errors in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01











	Total	Control	T1	<b>T</b> 2	Т3
	(n=2026)	(n=504)	(n=532)	(n=482)	(n=508)
Age	38.60	38.25	38.56	38.48	39.10
	(10.79)	(10.63)	(10.84)	(11.21)	(10.51)
Gender					
Female	1,004	267	252	235	250
	(49.56%)	(52.98%)	(47.37%)	(48.76%)	(49.21%)
Male	1,022	237	280	247	258
	(50.44%)	(47.02%)	(52.63%)	(51.24%)	(50.79%)
Education					
No education	698	164	181	173	180
	(34.45%)	(32.54%)	(34.02%)	(35.89%)	(35.43%)
Primary education	767	199	195	177	196
	(37.86%)	(39.48%)	(36.65%)	(36.72%)	(38.58%)
Secondary education	408	109	115	86	98
	(20.14%)	(21.63%)	(21.62%)	(17.84%)	(19.29%)
Higher education and above	92	19	22	31	20
	(4.54%)	(3.77%)	(4.14%)	(6.43%)	(3.94%)
Other	61	13	19	15	14
	(3.01%)	(2.58%)	(3.57%)	(3.11%)	(2.76%)
Monthly income (household)					
PKR 0-20,000	888	205	232	213	238
	(43.85%)	(40.67%)	(43.61%)	(44.19%)	(46.94%)
PKR 20,001 - 30,000	514	136	122	122	134
	(25.38%)	(26.98%)	(22.93%)	(25.31%)	(26.43%)
PKR 30.001 - 40.000	238	65	67	57	49
	(11.75%)	(12.90%)	(12.59%)	(11.83%)	(9.66%)
PKR 40 001 - 50 000	119	25	4.3	2.4	27
	(5.88%)			<u></u> (4.98%)	(5.33%)
	(0.0070)	(3.0070)	17	16	11
ADOVE PKK 50,001	6U	11	11	() 110() ()	11 (0.170/)
	(2.96%)	(3.37%)	(3.20%)	(3.11%)	(2.17%)
	206	56	51	51	48
Refuse to Answer	(10.17%)	(11.11%)	(9.59%)	(10.58%)	(9.47%)



23

Once the COVID-19 vaccine becomes available to you, when would you get the vaccine?	Total	Control	T1	T2	T3
	(n=2026)	(n=504)	(n=532)	(n=482)	(n=508)
Immediately	765	185	210	182	188
	(38.44%)	(36.93%)	(40.54%)	(38.48%)	(37.75%)
Less than one month	239	59	61	54	65
	(12.01%)	(11.78%)	(11.78%)	(11.42%)	(13.05%)
Between 3-6 months	169	47	34	44	44
	(8.49%)	(9.38%)	(6.56%)	(9.30%)	(8.84%)
Over 6 months	112	32	29	20	31
	(5.63%)	(6.39%)	(5.60%)	(4.23%)	(6.22%)
I will not get vaccinated	705	178	184	173	170
	(35.43%)	(35.53%)	(35.52%)	(36.58%)	(34.14%)

Reasons for not getting vaccinated	Total	Control	T1	T2	Т3
	(n=202	(n=504)	(n=532)	(n=482)	(n=508)
	6)				
Concern about side effects	1,144	291	292	261	300
	(57.52%)	(58.08%)	(56.37%)	(55.18%)	(60.36%)
Do not think I need it because the disease is not	724	180	180	172	192
fatal	(36.40%)	(35.93%)	(34.75%)	(36.36%)	(38.63%)
Want to know more about how well it works	1,076	284	291	237	264
	(54.10%)	(56.69%)	(56.18%)	(50.11%)	(53.12%)
Religious objection	189	51	53	34	51
	(9.50%)	(10.18%)	(10.23%)	(7.19%)	(10.26%)
Concerned about the cost of the vaccine	860	207	223	205	225
	(43.24%)	(41.32%)	(43.05%)	(43.34%)	(45.27%)
Not many people in my community are in favour	863	218	224	198	223
of the vaccine	(42.62%)	(43.25%)	(42.11%)	(41.08%)	(43.98%)
Distance from and wait time in the health facility	824	215	224	181	204
	(40.69%)	(42.66%)	(42.11%)	(37.55%)	(40.24%)
Reputation of the health facility provider	714	169	188	167	190
	(35.26%)	(33.53%)	(35.34%)	(34.65%)	(37.48%)
Hard to take time off from work	867	215	216	214	222
	(42.81%)	(42.66%)	(40.60%)	(44.40%)	(43.79%)

There are many different places where you or your	Total	Control	T1	T2	Т3
family members can get vaccinated. Please select	(n=202	(n=504)	(n=532)	(n=482)	(n=508)
your two most preferred option from the list below	6)				
Receive a vaccine at a government operated health	1,706	429	442	403	432
facility	(84.25%)	(85.12%)	(83.08%)	(83.61%)	(85.21%)
Receive a vaccine at an army operated health	1,074	273	281	251	269
facility	(53.04%)	(54.17%)	(52.82%)	(52.07%)	(53.06%)
Receive a vaccine at a private health facility	398	102	95	88	113
	(19.65%)	(20.24%)	(17.86%)	(18.26%)	(22.29%)
Receive a vaccine from a traditional /spiritual	85	18	21	25	21
/faith healer	(4.20%)	(3.57%)	(3.95%)	(5.19%)	(4.14%)
Door-to-door vaccinators during mass vaccination	436	108	130	103	95
campaigns	(21.53%)	(21.43%)	(24.44%)	(21.37%)	(18.74%)



#### Table 3: Predictors of primary outcomes

	Willingness to be assiste	d in immediate registration Willingness to pay		
	Linear Regression	Logit Regression	Linear Regression	Logit Regression
Treatment T1	0.00694	0.0364	0.279***	2.376***
	(0.0277)	(0.153)	(0.0354)	(0.260)
95% Confidence Interval	[-0.0490793, 0.0629691]	[-0.2641348, 0.3369773]	[0.2070531, 0.3500611]	[1.865768, 2.88525]
Treatment T2	-0.00965	-0.0465	0.0945***	1.096***
	(0.0285)	(0.164)	(0.0224)	(0.223)
95% Confidence Interval	[-0.0672044, 0.0479059]	[-0.3672734, 0.2741892]	[0.0490904, 0.1398626]	[0.660003, 1.532228]
Treatment T3	-0.00534	-0.0350	0.0497***	0.670***
	(0.0282)	(0.159)	(0.0179)	(0.222)
95% Confidence Interval	[-0.0624666, 0.0517823]	[-0.3471257, 0.2771506]	[0.0134327, 0.0859913]	[0.2353376, 1.104612]
Age	-0.000311	-0.00238	-0.00251***	-0.0234***
	(0.00107)	(0.00608)	(0.000786)	(0.00674)
95% Confidence Interval	[-0.0024739, 0.001852]	[-0.0142907, 0.0095364]	[-0.0041, -0.00092]	[-0.036583, 0.0101772]
Gender	0.109**	0.620**	0.0480**	0.512***
	(0.0416)	(0.247)	(0.0221)	(0.195)
95% Confidence Interval	[0.0245201, 0.1929707]	[0.1362379, 1.10406]	[0.0031961, 0.0927415]	[0.1295595, 0.8953137]
Education	0.00359	0.0165	0.00337	0.0210
	(0.00327)	(0.0157)	(0.00216)	(0.0162)
95% Confidence Interval	[-0.0030241, 0.0101954]	[-0.0142926, 0.04729]	[-0.0010056, 0.007747]	[-0.0106713, 0.0526686]
Income	0.0227**	0.115**	0.0398***	0.263***
	(0.0102)	(0.0566)	(0.00802)	(0.0535)
95% Confidence Interval	[0.002, 0.043]	[0.0038435, 0.2257527]	[0.024, 0.056]	[0.1584088, 0.3682448]
Wealth Score	0.0136**	0.0626*	0.0162***	0.161***
	(0.00671)	(0.0375)	(0.00517)	(0.0487)
95% Confidence Interval	[0.000064, 0.027]	[-0.0108857, 0.1361276]	[0.0057, 0.027]	[0.065081, 0.2560314]
Perception of government performance	-0.0277	-0.145	0.0441***	0.416***
	(0.0181)	(0.0992)	(0.0152)	(0.116)
95% Confidence Interval	[-0.0642624, 0.0088627]	[-0.33956, 0.0492317]	[0.0133934, 0.0748782]	[0.1882218, 0.6433002]
Trust in government welfare provision	0.0344**	0.210***	-0.00501	-0.00772
	(0.0160)	(0.0795)	(0.00825)	(0.0711)
95% Confidence Interval	[0.002011, 0.0667964]	[0.0540401, 0.3655696]	[-0.0216991, 0.0116786]	[-0.14713, 0.1316903]
Vaccine hesitance due to disease perceptions	-0.0482***	-0.285***	-0.0125	-0.133*
	(0.0123)	(0.0695)	(0.00790)	(0.0694)
95% Confidence Interval	[-0.0729791, - 0.0233434]	[-0.4207241, -0.1483622]	[-0.0284501, 0.0034948]	[-0.269421, 0.0027886]
Vaccine hesitance due to vaccine	0.0317**	0.167**	-0.0151	-0.160**
logistics				
	(0.0142)	(0.0775)	(0.00902)	(0.0782)
95% Confidence Interval	[0.0030384, 0.060417]	[0.0147146, 0.3186694]	[-0.0333605, 0.0031428]	[-0.313068, -0.006644]
Constant	0 105***	1 416***	0 270***	1 22/***

