Role Models and Theory of Mind: Teacher Vaccinations and Student Success

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Abstract:

We provide experimental evidence that role models can galvanize pro-social actions amid global crises, exemplified by the COVID-19 pandemic. In a randomized control trial comparing role models, cash incentives, and celebrity endorsements, only role models successfully mitigated vaccine reluctance and ameliorated pandemic-induced educational setbacks. Monthly tracking of vaccination status was achieved via QR-code verified certificates. Theory-of-mind behavioral data on the mentalizing of others shed light on the mechanism underlying the role model effect. This research, the first from the Global South, shows how role models and theory-of-mind have the potential to play a valuable role in tackling global challenges.

Keywords: COVID-19 Vaccination Certificates, Cash Transfers, Role Models, Theory of Mind.
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I. Introduction

Influence and authority exerted by role models can have profound implications for global challenges. Public skepticism can pose a substantial hurdle to resolving such crises, with a significant number of individuals choosing to disregard advice or expert guidelines, despite their efficacy (Machingaidze and Wiysonge, 2021). This problem escalates when public figures and celebrities, seen as role models, abstain from endorsing these recommendations or even actively discourage pro-social actions with positive externalities (Rajan, 2022; Higgins, 2022).

Despite advancements in global vaccination efforts, vaccine hesitancy remains a critical challenge, not just for COVID-19 but for various other vaccines as well. This paper provides experimental evidence that role models can be effectively leveraged to enhance vaccine uptake and mitigate hesitancy. Our study, conducted in the context of the COVID-19 pandemic, offers broader insights applicable to vaccine campaigns worldwide. We examine how role models, cash incentives, and celebrity endorsements impact vaccination behaviors, providing valuable lessons for public health strategies beyond the pandemic era.

In this paper, we provide experimental evidence that role models may be leveraged to reduce vaccine hesitancy and mitigate COVID-19 related learning losses. We implement a randomized control trial among teachers in Pakistan to test the efficacy of conditional cash transfers (Sridhar and Duffield, 2006; Fiszbein et al., 2009; Manley et al., 2013), role models (Bettinger and Long, 2005; Bénabou et al., 2020; Porter and Serra, 2020; Riley, 2022) and celebrity appeals (Alatas et al., 2019) to spur COVID-19 vaccinations. In our intervention, the three treatment arms involve varying intensities of monetary incentives amounting up to 30% increases in monthly wages of teachers. Two treatment arms involve a role model and celebrity delivering a targeted message to get the COVID-19 vaccine. Each of these treatment arms had strong ex ante reasons to work, in light of the large body evidence on conditional cash transfers, role models, and celebrity appeals. A final treatment arm involves the role model delivering a placebo lecture unrelated to vaccination. To ensure comprehensibility and reinforce the message of the treatment, each treatment is accompanied with an individual one-on-one structured discussion with our enumerator, building on recent studies advocating discussions as an effective medium of persuasion (see e.g., Schwardmann et al., 2022).

In our study, we employ a unique blend of behavioral and administrative data, specifically QR-validated COVID-19 vaccination certificates, alongside the Reading the Mind in the Eyes Test (RMET), to decipher the underlying mechanisms of our treatment effects. This approach builds on the

work of Weidmann and Deming (2021), who validated the RMET as a measure of social intelligence. The RMET, developed by Baron-Cohen et al. (2001), involves showing participants photographs of eyes, focusing exclusively on the eye region. Participants are then tasked with identifying one of four emotions that best corresponds to the expression in each image. This test not only assesses the participant's ability to recognize emotions in others but also evaluates their capacity to infer others' mental states. The RMET is particularly valuable due to its definitive right or wrong answers, its high test-retest reliability, and its efficiency and reliability in administration, as highlighted by Pinkham et al. (2014).

Our results indicate a substantial impact of role models on teachers' vaccination status as verified by their COVID-19 certificates. A year after the treatment, the teachers assigned to the role model delivering a targeted message about getting vaccinated were 18% more likely to get vaccinated. These effects are qualitatively significant and indicate a persuasion rate of about 20% (DellaVigna and Gentzkow, 2010). To put this magnitude into perspective, the effect sizes are roughly equivalent to exposure to Fox News on Republican vote share in Presidential elections (DellaVigna and Kaplan, 2007) or the impact of get-out-to-vote phone calls on voter turnout in the United States (Gerber and Green, 2001). The role model treated teachers are also 0.5 sigma less likely to be absent in the following academic year, and their students see a rise in test scores across all subjects in national assessments: a 0.11 sigma increase in mathematics, 0.15 sigma increase in English Language, 0.13 sigma increase in General Knowledge, and a 0.14 sigma increase in Urdu Language test scores. In contrast, cash incentives and celebrity treatments have no statistically discernible impact on teachers' vaccinations or students test scores. The ineffectiveness of cash incentives on actual vaccinations, as our findings demonstrate, contrast with a recent study documenting their effectiveness in a developed country (Campos-Mercade et al., 2021) and is more in line with recent meta-analysis on the impact of financial rewards on stated intentions for vaccination (Jacobson et al., 2021; Schwalbe et al., 2022) and hypotheses that incentives can fail or even backfire by crowding out prosocial behavior (Jilke et al., 2023; Benabou and Tirole 2006). The results are robust to multiple hypothesis testing, providing evidence that our findings are not driven by false positives, strengthening the reliability of our findings. Our study shows, therefore, that one way to ameliorate learning losses due to global disruptions such as the COVID-19 pandemic may be an effective teacher vaccination campaign.

We next leverage the information on the timing of vaccination through the certificates, detailed teachers' absenteeism data and student mathematics test scores available for up to 18 months

post-treatment to trace the dynamic impact of the treatment on monthly outcomes. The dynamics clarifies the mechanism explaining the rise in test scores. In the months after the treatment, we see the impact of role model gradually increasing the vaccination rates and student test scores, while it lowers teacher absenteeism. The dynamic pattern of teacher absenteeism being impacted after vaccination spikes is consistent with a recent study finding a lag of about 2 months between getting vaccinated and developing immunity for COVID-19 (Lin et al., 2022). Significantly, the effects on teacher absenteeism are exclusively seen in cases of lengthy absences (that is, consecutive absences lasting over 7 days), as opposed to shorter ones. This suggests that it is likely the contracting of COVID-19, which typically results in a more prolonged sickness, that is responsible for these findings. As vaccination becomes widespread, the effect of role model messaging diminishes for vaccination and absenteeism, but the impacts on student achievement persist, consistent with lasting impacts of teacher absenteeism on student learning.

To investigate if the ability to empathize with the gender identity of the role model enhances the role model effect, we prespecified *Reading the Mind in the Eyes Test* (RMET) by gender of eyes.[4] Previous research has documented that female role models play an especially important factor in explaining education outcomes and economic decisions (Bettinger and Long, 2005; Bénabou et al., 2020; Porter and Serra, 2020; Riley, 2022). We hypothesized that teachers who are better able to empathize with the female role model will be disproportionately impacted by the role model treatment. We contribute to the prior literature on role models by unpacking the mechanism. We show that the role model effect is mediated through the mentalizing of others (Weidmann, and Deming, 2021). The teachers who better identify the mental states in female eyes are more impacted by the role model treatment. In contrast, teachers' better identification of emotions in male eyes do not appear to mediate the impact of the role model treatment. In summary, the gathered evidence underscores the significance of mentalizing or understanding others' perspectives, which fosters attentive engagement with the information and actions of group members. This level of attention proves advantageous in group settings, thereby fostering collective benefits.

Our experiment randomly assigned the treatments among 607 teachers across 52 schools in Pakistan. The randomization at the teacher level provided advantages such as the ability to match an

[4] Reading the Mind in the Eyes Test (RMET) scores participants on their ability to recognize mental states of others as expressed by human eyes. This outcome is preregistered within the AEA RCT Registry ID AEARCTR-0008084.

individual teacher to the class and to collect rich granular data such as COVID-19 Vaccination Certificates and data on Reading the Mind in the Eyes tests (RMET). Because treatment and control group teachers may interact within a school, we leverage the design to measure spillover effects with some of the control teachers becoming partially treated. We use the random variation in treated teachers across schools in our sample and find that the treatment effect on vaccinations essentially identical as more teachers get treated within a school. Restricting to the sample of control teachers, the fraction of treated teachers in a school also does not yield significant estimated spillover effects. These patterns suggest that, to the extent there are information spillovers a key part of the success of the treatment, specifically, the role model treatment, in increasing vaccinations, decreasing absenteeism is the extended individual one-on-one structured discussions as an effective medium of self-persuasion (see e.g., Schwardmann et al., 2022).

Considering the nature of the setting, time frame and choice task, we examined natural measures such as actual vaccinations. In terms of scaling our intervention in other settings, the intervention was cheap to deliver. It may also be scaled to other decision-makers such as teachers in South Asia. The selection mechanisms and training are similar to many other developing countries, especially India and Bangladesh who, like Pakistan, have similar public school teachers based on a hiring system that was inherited from the British during Colonial rule. Pakistan, India and Bangladesh alone consist of more than a quarter of the world's population making this study particularly relevant for a large number of people. However, we view these results as a WAVE1 insight, in the nomenclature of List (2020), and replications need to be completed in future research to assess external validity of this research.

Our research contributes to four key literatures. First, it contributes to the literature on vaccine hesitancy that has emerged as a global phenomenon amid COVID-19 (Machingaidze and Wiysonge, 2021). Recent scholarship is mixed on optimal ways to reduce vaccine hesitancy. Dai et al., (2021) found that timely nudges to get vaccinated increase vaccine-uptake, while Rabb et al., (2022) document these very same messages do not stimulate vaccine demand and argued that the earlier result merely accelerated vaccination among those who were already intending to get vaccinated. In contrast, Campos-Mercade et al., (2021) finds that monetary incentives increase vaccine uptake, though Jacobson et al., (2021) and Jilke et al. (2023) in a randomized control trial of 42,000 individuals

conclude they do not.[5] Jilke et al. (2023), like Benabou and Tirole (2006), hypothesize that incentives can fail or even backfire by crowding out prosocial behavior. These studies are important but their lessons may be more relevant to countries in the Global North. In addition, different from past studies, our study focuses on primary school *teachers* who may act as role models for the students that they teach and are known to have substantial impact on student learning and future labor market outcomes (Chetty et al., 2014). We further are able to measure and observe student learning outcomes and link teachers-to-students at the classroom level. Our results suggest that targeted messaging by role models may be an effective tool for overcoming vaccine hesitancy in the Global South. This approach is particularly effective among teachers, who, as "motivated agents" (Dixit, 2002), are driven more by internal factors like beliefs, values, and duty, rather than external incentives. Teachers, influenced by respected role models, might internalize vaccination as a facet of their professional identity and commitment to student welfare. This internalization contrasts with monetary incentives, which could be perceived as undermining their intrinsic motivation. Moreover our study demonstrates the type of message a role model could deliver to successfully reduce vaccine hesitancy. First, the role model encourages teachers to get vaccinated, motivating this decision by emphasizing that vaccination is important for the safety of both teachers and their students, for which teachers supposedly should be concerned: "Right now, I am addressing all the teachers of Progressive Education Network. I request you all to please, please, please get Covid-19 Vaccination as this is really important for your safety as well as for all your students". To further persuade the teachers about the safety of the vaccine, the role model mentions that she and all of her family members are fully vaccinated: "I myself am fully vaccinated along with all my family members". Lastly, the role model explicitly assures teachers that the vaccine is not harmful and advises them not to trust sources that claim otherwise: "please do not fall for any misinformation or rumor, this vaccination is completely safe and is for our own protection".[6] In conclusion, our study stands out as the first randomized trial, to best of our knowledge, conducted in the Global South using administrative data on vaccination certificates to examine vaccine uptake—addressing a gap in existing literature, such as Alatas et al., (2019), which faced limitations in tracking actual vaccinations. This methodological advancement allows for more precise observations and interpretations, particularly regarding the role of educators as pivotal agents in vaccine advocacy.

[5] Interestingly, Jilke et al. (2023) note that policymakers believed that incentives would increase vaccination rates by 15%.

[6] The picture, transcript and video recording of the role model treatment can be found in Figure S2's Panel B

Second, we contribute to the important literature on teacher absenteeism, a widespread phenomenon in developing countries where nationwide surveys have documented up to 25% of teachers being found absent from classes during regular school hours (Chaudhury et al., 2006; Ullah et al., 2021). Randomizing teacher absences for estimating causal effects is challenging. In our experiment, we are able to ascertain the causal effects of teacher absenteeism on student achievement. Instrumental variables estimate would suggest that one standard deviation increase in teacher absenteeism reduces student achievement by 0.6 standard deviations. Put differently, we found that role model messaging reduced teacher absenteeism by 20% and raised student test scores by 0.15 standard deviations. Our reduced form results are larger than the effect of the only other randomized trial we are aware of (Duflo et al., 2012) where 50% reduction in teacher absenteeism achieved with monitoring technology and financial incentives led to student achievement increasing by 0.17 standard deviations. These estimates should be interpreted with caution as the role model treatment may have direct effects through teacher behavior or COVID-related student behaviors.

Third, we build on a burgeoning literature on trust in healthcare (Alsan and Wanamaker, 2018). Recent research has indicated that disparities in healthcare outcomes may be attributed to identity of the health-care deliverer with Alsan et al., (2019) documenting that racial identity of care-giver is a crucial determinant that explains the gap in mortality between black and white males. It is pertinent to note that the selection of the female role model was predicated on the anticipated perception of her as a role model by teachers rather than her celebrity status, the message was the same and we are limited by the number of messaging treatments and the fact that ex ante, the treatments we used were at equipoise as to their potential effectiveness, we find suggestive evidence that empathy towards the group identity of the role model, in this case, female identity, also matters. We use a behavioral measure of social-emotional recognition of the messenger, namely, RMET (Reading the Eyes in the Mind Test of Males and Females), a commonly used measure for Theory of Mind (Cohen et al., 2001). Emotional intelligence is deemed to play an important role in 21st century economy and RMET, as a measure of emotional intelligence, is found to be predictive of behavior in the lab (Weidmann and Deming, 2021). We show that gender-specific RMET is predictive of behavior in the field, namely, the behavioral response to a role model for getting the COVID-19 vaccine. The Theory of Mind (ToM) is crucial for cultural transmission and learning, as it enables individuals to understand and interpret the mental states of others, which is essential for acquiring and transmitting cultural knowledge (Wellman 2004). ToM also plays a role in children's learning and understanding of teaching, as it helps them

comprehend knowledge states and changes, and teaching and learning intentions (Wang 2015). Therefore, ToM is a necessary cognitive mechanism for cultural transmission and learning, as it enables individuals to understand and interpret the mental states of others, which is essential for acquiring and transmitting cultural knowledge (Leslie 2004). Our findings suggest that in low trust societies, the perceived legitimacy of an information source can alter behavior when large cash transfers that may even exceed 30% of wages do not. Instead, the influence of role models with whom individuals have theory of mind appears crucial. Further research is needed on economic studies that use ToM in high-stakes settings.

Finally, our study also builds on the rich literature of social influence, particularly focusing on the seminal work of Kelman (1961), who identified three processes of social influence: compliance, identification, and internalization. Compliance refers to the change in behavior due to direct social pressure, identification involves adopting behaviors to establish or maintain a relationship with a person or group, and internalization is when an individual accepts the influence because it is congruent with their own values and beliefs. In our intervention, the video featuring the role model leverages compliance through direct appeals and identification by presenting a relatable figure whom teachers aspire to emulate. Recent studies, such as Goette and Tripodi (2021), further explore these concepts within prosocial behavior settings. Their research highlights the importance of social frameworks in shaping behaviors, providing empirical evidence on how social influence mechanisms can effectively promote prosocial actions. Additionally, the work by Breza et al. (2021) demonstrates that messages from health professionals, who serve as role models, can reduce COVID-19 travel and infections, emphasizing the critical role of credible sources in health behavior interventions. Banerjee et al. (2021) found that messages from plausible role models, such as well-respected academics, improved various health behaviors, further supporting the relevance of role models in public health campaigns. There is also a vast literature on the effectiveness of nudges in shifting vaccination behavior and intentions. Brewer et al. (2017) provides a comprehensive review of this literature, highlighting which interventions are effective in increasing vaccine uptake. Much of this literature focuses on intentions to vaccinate rather than actual behavior. Our study contributes to this body of work by providing evidence on the impact of different interventions on actual vaccination behavior, verified through QR-validated COVID-19 vaccination certificates[7]. Taken together, these insights are directly relevant

[7] Several studies, including Wroe et al. 2005, Witteman et al. 2015, Gerend and Shepherd, 2012, have relied on self-reported vaccination data rather than vaccination certificates. While this approach serves as a useful initial step, the

to our study, as we investigate the impact of a female role model in encouraging COVID-19 vaccinations among teachers in Pakistan.

The rest of this paper is organized as follows. In Section II, we discuss the background, ethics and design of the experiment. Section III describes the data and empirical strategy. Sections IV report the results of impact on vaccinations of teachers and learning outcomes of students, while Section V reports evidence for the mechanism and dynamics of the treatment effects. Section VI reports a series of robustness checks. A final section provides some concluding remarks.

II. Background, Ethics, and Experiment Design

Background.—We collaborate with the Progressive Education Network (PEN), a network of schools, that aims to improve the quality of education via a public-private partnership similar to charter schools in the United States (Angrist and Pischke, 2014). These schools are privately managed using public funds, in a public-private partnership. We implement a randomized evaluation in all of PEN's charter schools in the State of Punjab, the largest province of Pakistan, where the network "adopts" 52 schools, employs 607 teachers and has roughly 15, 000 students. All treatments were rolled out in August 2021, with the baseline data collected 6 months before treatment (February 2021), midline 12 months (September 2022) post-treatment and endline 18 months post-treatment (March 2023), respectively. The students' test scores are from standardized exams held 12 months following the treatment. For mathematics, we have test scores for 6, 12 and 18 months after the treatment, and vaccinations and absenteeism data is available at the monthly level up to 18 months post-treatment. The evolution of vaccinations is ascertained by the dates on the vaccination certificates. A typical official COVID-19 certificate is presented as Figure S1 in the Online Appendix S1. This allows us to trace the dynamic effect of the treatments.

Research Ethics Approvals.— Our study protocols were reviewed and approved by two independent Institutional Review Boards. The first ethical approval was received from the New Economic School with IRB number 00059/21 and the second a local IRB from Lahore School of Economics with IRB Number RERC-062021-02. The Lahore School of Economics Ethical Review Board, in particular, made several random spot visits to our experimental site and ensured that all

interpretation of the resulting evidence remains uncertain due to potential discrepancies between reported and actual vaccination statuses.

ethical protocols—for instance, consent from teachers and PEN administration—were followed as per international standards. Earlier, we had also received separate administrative approvals from the PEN administration, and teacher representatives and consent from individual teachers and caregivers of students.[8]

Study Design.— Using a random number generator, we randomly assigned 607 teachers to one of the following treatment arms: (i) Cash 15% treatment (101 teachers); (ii) Cash 30% treatment (101 teachers); (iii) Cash Lottery treatment (101 teachers) (iv) Celebrity treatment (101 teachers), (v) Role Model treatment (101 teachers) and (vi) the control or placebo treatment on macroeconomics of equal length to celebrity and role model treatment and was delivered by the same person delivering the role model treatment (102 teachers).

Treatment Logistics.— The treatments were delivered to the teachers according to their treatment status via a pre-recorded videos live on Zoom. PEN administration organized classrooms for the teachers in their district, where they could access Zoom. Our team of field assistants shared their screen to show the recorded video to each individual teacher according to her treatment status. Specifically, according to each teachers' treatment status, first a video recording was shown live by a field assistant to the individual teacher on Zoom by sharing their screens. These videos are hyperlinked in Figures S1.1 to S2 of the Online Appendix. The video treatment was followed by a *20-minute individual structured discussion* between the teacher and the field assistant. Particularly, each video was followed by the field assistant asking the following questions: Q1. *What do you think was the main message of the video*? Q2. *Did you find the video useful*? Q3. *How can you apply the video lessons in your life*? The recording of the video on Zoom was also disabled and we gave explicit instructions not to communicate the contents with fellow teachers. We also gave explicit instructions for teachers to be alone in the room during the intervention and our team of field assistants were able to interact with teachers one-on-one on Zoom and finish the treatment roll out within two days.

Cash 15%, Cash 30% and Lottery Treatments.— In the first two treatment arms, the teachers are randomly assigned to receive a cash incentive equivalent to 15% and 30% of their monthly salary if they got the COVID-19 vaccine. In the first treatment arm it was announced: "*We offer a one-time cash award of* ***15%*** *of teachers' monthly salary* (US$7.5) *for those teachers getting the COVID-19*

[8] The consent statement that we administered can be found in Appendix S2.1.

vaccine. For teachers getting vaccinated after this announcement, please present proof of your vaccination via the official COVID-19 certificate to the PEN administration". In the second treatment arm, we offer a one-time cash award of 30% of teachers' monthly salary (US$15) for those teachers getting the COVID-19 vaccine, we announce *"For teachers getting vaccinated after this announcement, please present proof of your vaccination via the official COVID-19 certificate to the PEN administration*". In the lottery treatment arm, the teachers are randomly assigned with an opportunity to win a cash award through a "lucky draw". Those who get vaccinated after our treatment are eligible for the lottery. In this treatment arm, it is announced: *"those getting vaccinated after this date, please share your certificates with us and become part of this lottery and get the opportunity of winning a 500 USD Cash prize"*. Figures S1.1 and S1.2 provide the complete video announcements made in this treatment arm with subtitles in English, while in Appendix S2.2, we provide a transcript of structured discussion questions that followed the video announcements of the treatments.

Celebrity Treatment.— In this treatment arm, a prominent Pakistani newscaster and journalist, Mr Iqrar-ul-Hassan makes a personalized appeal to the PEN teachers to get the COVID-19 vaccine. The message urged the teachers that the COVID-19 vaccine is safe and effective, that the celebrity himself, his siblings and parents are all vaccinated against COVID-19. The video message ends by Mr Iqrar making an appeal to all PEN teachers to get vaccinated as soon as possible. The picture, transcript and video recording of the celebrity treatment can be found in Figure S2's Panel A and its corresponding note in the Online Appendix S1.[9]

Role Model Treatment.— In the role model treatment group, the exact message of the celebrity is repeated but it is now delivered by a female role model. Specifically, the role model is someone the teachers look up to, a young professor at an elite private university in Lahore, Pakistan. This role model was chosen following three 30-minute auditions of three role models (2 females and one male) with a random sample of 17 PEN teachers where we assessed who the teachers are most likely to look up to. Specifically, we ask the 17 teachers to choose one of the three auditioners after a 15 minute presentation by each of them. The specific question was: *Who among the three presenters would you be most likely to consider as a role model*? We selected the auditioner that received the most votes.[10] Our chosen role model holds a Ph.D. in Economics from Rotterdam Erasmus University and has

[9] To get an idea about the celebrity's popularity, he for instance has 6.4 million Twitter followers, see e.g. his Twitter (hyperlinked).
[10] The chosen role model received 16 out of 17 votes, making her a clear winner.

enjoyed a highly successful career in academia. She served as a researcher at Oxford University. Importantly, the chosen role model was particularly fit to our study's target demographic—teachers. Many of these educators aspire to pursue higher studies, making our role model particularly apt and relatable to the sample under study. Her academic journey and accomplishments appeared to resonate with teachers in our interviews who aspire to advance their education and careers. The role model urged the teachers that the COVID-19 vaccine is safe and effective, that she, her siblings and parents all got the vaccine. Identical to the celebrity message, this treatment arm also ends by making an appeal to all PEN teachers to get vaccinated as soon as possible. The transcript and links to the video recording of actual role model treatment can be found in Figure S2 of Panel B of the Online Appendix.

Placebo.— The placebo group gets a lecture of equal length as the role model and celebrity treatment, on macroeconomics. The message is delivered by the *same female role model* but this time with no mention of COVID-19 vaccination. Specifically, the lecture provides brief explanations of macroeconomic concepts such as GDP, GNP, unemployment, savings, and investments.

III. Data and Empirical Strategy

A. *The Data*

Data Accessibility.— The datasets, as well as the associated code, protocols and materials used during the current study are available in the *Vaccination Replication* repository and are accessable via https://drive.google.com/drive/folders/1jnmpl4iuhGQD3hGD9zwi6Hu8df4Qr9ee?usp=sharing.

Sample.— The sample consists of all 607 teachers and their 13,911 students across all 52 schools chartered by the PEN network in the State of Punjab. Our pre-registration was brief following recent suggestions in (Banerjee et al., 2020) for moderation in pre-analysis plans. As is common in most primary schools in Pakistan, all teachers are *female* and teach every class from Kindergarten to Grade 6. The students, however, are of mixed-gender in public schools of Pakistan at the primary level. Our sample consists of 7107 boys and 6804 girls with age in the range of 5 to 12 years. The PEN network organizes several training workshops for teachers, and our experiment took place within one of the PEN teacher training drives in early 2021. As a result of having our experiment embedded within PEN's regular training programs, we essentially have no attrition. All 607 PEN teachers in the State of Punjab participated. Close collaboration and cooperation with the PEN leadership and teacher

training department, in particular, also allowed us access to detailed administrative data on teachers, including their monthly absenteeism and COVID-19 vaccination certificates.

Outcome Variables on Teachers and Students.— Our key pre-registered outcome variable is a COVID-19 vaccination dummy variable that switches on if the teacher gets 2 doses of vaccine. This happens only if we confirm via COVID-19 certification and embedded QR code within the certificate whether the COVID vaccination took place *after* our treatment rollout. In the case of vaccination taking place after the treatment, this variable takes the value of one. Vaccination status is measured 12 months after the treatment. We also measure teacher absenteeism by the attendance rate of the teacher post-treatment. PEN administrative data is used to construct this variable at the teacher level. We standardize the latter variable to mean zero and standard deviation one. The student outcome variables are test scores for English and Urdu Languages, Mathematics and General Knowledge measured on national examinations held about 12 months following the treatments. These standardized examinations are taken by all PEN school students. However, to make comparisons of effect sizes, we standardized these test scores to mean zero and standard deviation one. For evaluation of an alternate mechanism, we use as outcomes, gender indices which we construct using methodology outlined in Appendices S2.3 and S2.4. For more details on the experimental set-up, please refer to the flow chart presented in Appendix S2.5.

Main Explanatory Variables.— In addition to the explanatory variables corresponding to the five treatments, we investigate whether teachers that empathize more with the gender identity of the role model are more likely to be impacted by the role model treatment. To do this, we pre-register the Reading the Mind in the Eyes Test (RMET) and examine if the impact differs by gender of the RMET eyes. RMET assesses the ability to recognize mental states and emotions of others as expressed by human eyes. The participants pick one of four words which they think best describes what the person in each photograph is thinking or feeling (see Figure S3 in the Appendix for an example).[11] We also include a number of teacher and student level controls. The teacher level controls include pre-treatment COVID vaccination status, years of teaching experience, years of education, educational qualification, average teaching hours and class size. Student level controls include dummies for eligibility of students to the PEN network's free lunch program and if the student is raised by a single

[11] More specifically, the RMET calculates the number of correct answers to read the emotion based on a picture of a pair of 20 eyes, with half of the pictures being male and the other half females.

parent, number of siblings, dummy for whether mother is a 'housewife', mothers' and fathers' education level.

B. *Empirical Specification*

The impact of our five treatments can be evaluated by comparing outcomes across groups in a simple regression framework. For each outcome, the estimation equation is:

$$Y_i = \alpha + \beta\, Cash\ 15\%_i + \gamma\, Cash\ 30\%_i + \delta\, Lottery_i + \omega\, Celebrity_i + \theta\, Role\ Model_i + X_i\,\mu + \epsilon_i \quad (1)$$

where Y_i is the outcome for a teacher or student i, $Cash\ 15\%_i$ is a dummy variable equal to one if the teacher is assigned to the monetary incentive of 15% of monthly salary as a cash award treatment; $Cash\ 30\%_i$ is a dummy variable equal to one if the teacher is assigned the monetary incentive of 30% of monthly pay cash award treatment; $Lottery_i$ is a dummy variable equal to one if the teacher is in the group given the opportunity to participate in the lottery monetary incentive treatment, $Celebrity_i$ and $Role\ Model_i$ switch on if the teacher is assigned celebrity and role model treatments, respectively. X_i is a vector of individual-level controls. We cluster standard errors at the teacher level since that is our level of randomization. In equation (1), β measures the effect of the 15% cash treatment; γ the effect of the 30% cash treatment; δ the effect of the lottery treatment; ω measures the effect of the celebrity treatment, while θ measures the impact of the role model treatment.

C. *Attrition and Balance*

Collaboration with the PEN network not only gives us access to administrative data but also allows us to embed the treatment during one of PEN's regular training drives. This meant that attrition was zero for teachers, and student attrition amounted to only about 30 students.[12] Nevertheless, a lack of balance might still bring to question the causal interpretation of our results. We therefore examine whether our randomization was successful in creating balance among teachers and students. Table 1 shows individual characteristics, with Panel A reporting the treatments being balanced over individual teacher characteristics, and Panel B on student characteristics. Differences across treatment groups are

[12] This take-up was only possible due to gracious support and leadership of the Director of Training and Research, Miss Sumera Morris and her staff at PEN.

small in magnitude, and almost all estimated p-values exceed 0.10; however, we observed marginal significance for the role model treatment group. This consideration is important as it might influence the interpretation of our results. We include all available controls to ensure tighter treatment-control comparisons. The complete list of control variables includes pre-treatment COVID vaccination status, years of teaching experience, years of education, educational qualification, average teaching hours, and class size as teacher-level controls. Additionally, we account for student-level controls such as eligibility for the PEN network's free lunch program, whether the student is raised by a single parent, the number of siblings, a dummy for whether the mother identifies as a 'housewife', and the education levels of both mothers and fathers. A more detailed description of the variables is provided in the notes of Table 1. We also conducted several robustness checks to mitigate the likelihood that randomization imbalance is driving our results. These checks include robustness to alternative clustering, exclusion of teachers with the fewest and most students, and robustness to different sets of controls. The results of these checks can be found in Tables S16, S17, and S18, respectively.

IV. Main Results

Impact on Vaccinations.— Our results indicate that the role model treatment had a qualitatively and statistically significant impact on vaccinations as verified by the teachers' COVID-19 certificates. From Figure 1, we observe that one year after the treatment, about 50% of the teachers are fully vaccinated in the group assigned the role model treatment, relative to about 30% in the placebo group. This is particularly interesting since the same person delivered the role model and placebo treatment. Column (1) of Table 2 reports these results in regression-form with the addition of individual level controls. The coefficient estimate implies that role model treated teachers are 18% more likely to get vaccinated.[13] These results are also summarized in Figure S4 of the Appendix. In our discussion of mechanisms, we will delve into the dynamic effect of the treatment, specifically examining its impact on a month-to-month basis. Table S1 displays the means across treatment conditions. The fraction of individuals who received the first dose is comparable across all treatment conditions. This can be attributed to the random assignment of teachers within schools and the centralized organization of

[13] Using the formula for persuasion rate, in (DellaVigna and Gentzkow, 2010), we obtain persuasion rate (f) = 21.7%. We used data from Table S1 in Appendix and the pretreatment vaccinations from Table 1 to make this computation. The formula for persuasion rate is as follows: f = 100 * (Y_T - Y_C) / (e_T - e_C) * 1 / (1-Y_0). Specifically, Y_T (successful vaccinations in the Treatment group) = 52, Y_C (successful vaccinations in the Control group) = 32, e_T (size of role model treatment group) = 101, e_C (size of control group who got the treatment = 0, (1-Y_0) (the fraction of population left to be convinced, i.e., 1 - fraction of people already vaccinated at baseline = (1 - 0.088). This gives Persuasion rate (f) = 100* ((52-32)/ (101))(1/0.912) = 21.7 %

transportation for the first dose. Therefore, teachers had little discretion in the decision to receive the first dose. The effects observed in the study pertain to the decision of becoming fully vaccinated.

Heterogeneity by Gender of Eyes.— The effect of role models on vaccinations is more pronounced on teachers who better identify with the gender of the role model. We hypothesized that since all PEN teachers are female, the teachers that are better able to empathize with the gender identity of the female role model as opposed to the male celebrity treatment, would be disproportionately impacted by the role model treatment. We, therefore, pre-register outcome on the Reading the Mind in the Eyes Test. Estimates from Table 2 suggest that the results are largely driven by only those teachers that scored high in ascertaining mental states in female eyes in the Reading the Mind in the Eyes Test (RMET). Table 2's Column 2 shows that a teacher who scored 1 standard deviation higher in Female RMET is about 10% more likely to be vaccinated due to the role model treatment. Column 3 of Table 2 documents that the Male RMET score does not mediate the effect of the role model treatment on vaccination. In contrast, Column 4 suggests that Female and Male RMET capture different soft skills.[14] Teachers who better evaluate the emotion associated with men's eyes are no more likely to get vaccinated, while those who better evaluate female eyes are more likely to get vaccinated. This suggests a mechanism of these female teachers successfully mentalizing and empathizing more with the female role model –who matches with their gender identity– compounds the effect of the role model treatment on getting the COVID-19 vaccine.[15]

Impact on Student Test Scores.— We also observe that our treatment spilled over to students and raised their test scores. Figure 2 and Table S6 in Appendix presents these results with our full set of student test scores measured at month 12 post treatment. The role model treated teachers have students whose test scores are 0.10-0.15 standard deviations higher than the placebo treated group. To put this in perspective, the role model treatment moves a typical B+ student to A-. The teachers in the role model treated group have students who show improvements in test-scores across the board: in Mathematics, English Language, General Knowledge and Urdu Language standardized tests. The

[14] When the interaction of Female RMET with each treatment is included in the regression, the RMET score alone does not significantly affect vaccination uptake. This suggests there is no baseline relationship between Female RMET and vaccination status. These results are presented in Table S9 in Appendix S2. However, we do see Female RMET has a significant impact on vaccination for teachers treated with the Lottery and some of the cash treatments. The same role model delivered both the primary intervention and the lottery messages allowing for a clearer attribution of the observed interaction to the role model and the theory of mind mechanism. The observed difference in outcomes between the lottery and some of the direct cash incentives arms could be partly attributed to a crowding-out effect where monetary incentives may diminish intrinsic motivation. Broadly speaking the results reinforce the mechanism that a role model and empathy towards the gender of the role model is what can heighten compliance with norm change.

[15] Table S5 in Appendix S2 reports the results corresponding to Table 2 in standard deviations.

increase in test scores across all available subject domains is suggestive of a global improvement in academic achievement. Since the central aim of our study is to discern which interventions effectively enhance vaccination uptake and impact student test scores, we have adopted an instrumental variable (IV) specification. This approach uses the role model treatment as an instrument for vaccination status, confirmed by a first stage indicated by an F-Statistic of 13.076 which is above the threshold of 10. In the second stage, we examine the impact of teacher vaccination on student test scores. Across the full spectrum of student test scores, our analysis reveals a positive correlation between teacher vaccination and student performance. The findings, as detailed in Table S3, indicate that vaccination is associated with an increase in student test scores by more than half a standard deviation. In the next section, we will analyze the dynamics of the treatment effect for mathematics, for which we have more fine-grained data.

V. Mechanism and Dynamics of Treatment Effects

Impact on Teacher Absenteeism.— We find support for a mechanism explaining this rise in student test scores: teacher absenteeism. The evidence suggests that the role model treated teachers are about 0.5 standard deviations less likely to be absent relative to the placebo group, 12 months post-treatment (Column 1 of Table 3). These effects are particularly pronounced in those teachers who scored high in the RMET for female eyes (Column 2 of Table 3). In contrast, teachers who score high for male eyes in the RMET are no more likely to reduce their school absenteeism. This is precisely what we had found for the role model treatment impacting teacher COVID-19 vaccinations. The role model treatment teachers who score high in female RMET scores are more likely to be vaccinated and less likely to miss school. This further supports the idea that teachers who got vaccinated were less likely to miss school and hence had students who performed better academically.[16]

Dynamic Impact on Vaccinations, Absenteeism and Student Test Scores.— We next leverage the exact timings of vaccinations using the dates on vaccine certificates and teacher "attendance registers" that PEN network records to ascertain evolution of absences. This allows us to explore the mechanism underlying increase in student test scores and assess the overtime impact of the role model treatment on teacher vaccinations and absenteeism up to 18 months post-treatment. Figure 3 reports the evolution of coefficient estimates of the role model treatment on vaccinations (Panel A) and

[16] Table S7 of the Appendix reports corresponding results on absenteeism in levels i.e. in terms of days missed.

absenteeism (Panel B). We find that vaccination among teachers gradually rises following the role model message to get vaccinated and peaks at about 6 months post-treatment. Around the same time, we observe absenteeism falls with the minimum point at month 8, post-treatment. This is consistent with recent evidence that vaccine immunity peaks around 1 to 2 months post-vaccination (Lin et al., 2022). We interpret these results as vaccinated teachers building immunity against COVID-19 and who are then less likely to be absent. Similar pattern is observed for mathematics test scores for which we have data for 4 exams, 1 exam pre-treatment and 3 post-treatment, with each exam held about 6 months apart. Figure 4 reports the impact of role model treatment on math test scores. We find that the treatment effects on math scores gradually increase following the treatment.[17] However, unlike the results for vaccinations and absenteeism, the impact on student test scores appear persistent. This is consistent with recent concerns on the learning losses due to COVID-19 may lead to permanent disparities in learning that may not be easy to reverse with a single policy action (Azevedo et al., 2021).

Additional Evidence for the Mechanism.— The results on the dynamics of the treatment effects strongly suggest that the rise in student test scores may be explained by the rise of vaccinations and a fall in teacher absenteeism. Additional evidence supports this interpretation. First, we leverage administrative data on "attendance registers" of teachers at PEN that record teacher absences by reason of absence. We do this to investigate whether the role model treatment impacts teacher absences due to all reasons or only those sought due to catching COVID-19. Table 4 reports these results where we estimate the specification in Column 4 of Table 2 but where we distinguish absences by the reason of absence. We find that only when COVID-19 is explicitly stated as the reason for absence in PEN attendance registers, do we find an effect of the role model treatment. The absences due to other reasons for leaves appear to be unaffected by the role model treatment. These results are further reinforced when we assess the treatment effect by lumpy (more than a week) or short absences (less than a week). These results presented in Table 5 indicate that the role model treatment effect is almost exclusively driven by lumpy absences, what one would expect for the teacher catching COVID-19 and not being able to attend class. Shorter than a week absences are unaffected by the role model treatment.

[17] To ease comparisons, figures report the results in levels, however, results in standard deviations are reported in Figure S6 and Figure S7 of the Appendix.

Alternative Mechanism.— The rise of test scores following the role model treatment may also be explained by the role model, who is a female, influencing gender norms. For instance, just a message by a role model fosters progressive gender attitudes among teachers, which facilitates learning among boys and girls. The fact that the macroeconomics placebo video message was also delivered by the same role model undermines this hypothesis. Moreover, we draw on data collected on gender attitudes from our recent work (Mehmood, Naseer, and Chen, 2024) and test whether the treatment impacts gender norms. Table 6 reports these results. We find that the role model does not impact our overall composite index of gender attitudes (Column 1), nor do we find statistically significant impact of the role model treatment on the indices' subcomponents: women's economic, political and social rights indices are unaffected by the role model treatment.[18]

VI. Robustness and Discussion

Spillovers.—Our experiment allowed us to randomly allocate treatment at the teacher-level for 607 teachers across 52 schools, which together enroll about 15000 students. However, students and teachers in the treated and control groups may interact within a school. This can lead to potential spillover effects if individuals in the control group also end up being partially treated. First, to the extent there are spillovers within a school, the estimate may then be considered as a lower bound on the impact of the treatments. Second, spillovers between teachers across schools are likely to be small in our context because of the geographic dispersion of schools and the teachers' heavy responsibilities at work and home. Third, our experimental design allows us to ascertain the extent of these spillover effects. That is, we exploit the variation in treated teachers within schools across the 52 PEN schools in our sample to explore how it impacts vaccinations and student test scores. Table S8 (Column 1) of the Online Appendix shows that as more teachers get treated with the role model treatment within a school, the effect of role model treatment does not dissipate for vaccinations status. However, in Columns 2, 3, 4 and 5 of Table S8, we observe that there is a positive spillover effect on students' test scores for role model treated teachers of having more teachers treated within school. This could indicate that students in the school may benefit from each other within the school.[19] Last, we leverage

[18] For details on the construction of indices, including the survey instrument used see Appendix S2.3 and Appendix S2.4 in the online Appendix.
[19]For the distribution of fraction of treated teachers by the role model within a school, see Figure S8 in the Appendix.

the fact that our cash and celebrity treatments had no impact on vaccinations, absenteeism or test scores over the placebo group. This allows us to investigate whether the fraction of schools treated with the role model causes the placebo group to increase vaccinations. Under the assumption that a higher fraction of treated teachers leads to a greater likelihood for interactions between treated teachers and control teachers, we assess the impact of fraction of treated teachers on the control teacher's outcomes. However, we find little impact of fraction of treated teachers among control teachers on vaccinations or absenteeism (Table S10). The null effect of more intensely treated schools holds for Lottery, Cash, Celebrity and Placebo assigned teachers. Taken together, the evidence strongly suggests that spillover effects between treated and control teachers, even if they exist, are likely to be small in magnitude or more statistical power is needed to detect them.

Experimental Demand.— Experimental demand is also unlikely to explain our results for at least three reasons. First, we observe a virtually zero effect on teachers and students of all but the role model treatment. Since all the treatments attempted to increase teacher vaccinations but only one of them succeeded in doing so, therefore, experimental demand alone is unlikely to explain our results. Second, COVID-19 vaccinations as confirmed by official QR verifiable certificates indicate that our treatment had real impacts with teachers getting vaccinated beyond just intention to get vaccinated. Last, the impact on student achievement is challenging to explain with experimental demand effects since we only treated teachers not students. All these factors together suggest experimental demand is unlikely to explain the results.

Multiple Hypothesis Testing. — Given that we are testing multiple hypotheses, we also examine whether our results might be explained by false positives. Under the assumption that the treatments have no effect on any of our outcomes (all our null hypotheses are true), then the probability of at least one false rejection when using a critical value of 0.05 is about 60%. Consequently, we adjust for the fact that we are testing for multiple hypotheses by using sharpened False Discovery Rate (FDR) q-values. The sharpened q-values are reported in square brackets in Table S11, S12, S13 and S14 of Supplementary Material, which also shows standard p-values from our baseline regressions in parentheses for comparison. Similar results are obtained when we deploy familywise error rate correction (FWER); this extends the False Discovery Rate (FDR) method by using a bootstrapping approach, incorporating point-dependence structure of different treatments and

controlling for the familywise error rate i.e., the probability of one or more false rejections.[20] The results, reported in Table S11, S12, S13 and S14 of Appendix suggest that false positives are unlikely to explain our results.

Sample Size and Randomization Inference.— Finally, we conduct a randomization inference check. Our collaboration with the PEN network enables us to randomly assign treatments to teachers within schools and hence include school fixed-effects, which makes within-school comparisons possible. Our sample size is about 600 teachers and 15000 students, and likely has more statistical power than several important experimental studies, for instance, the Abecedarian Program (n = 111), the Perry Preschool Program (n = 123), and the Jamaican Study (n = 129) (Muennig et al., 2011; Heckman and Karapakula, 2019; Walker and Himes, 1991). We should nevertheless, be cautious that our results may be driven by an idiosyncratic sample. To engage with this issue, we follow Imbens and Rubin (2015) suggestion to conduct a randomization inference test by scrambling the data, reassigning treatments, and comparing the distribution of control estimates with the estimates from the experiment. The resulting p-values for 10000 iterations of this process are reported in Table S15 of the Online Appendix. The treatment effects are still statistically significant at conventional levels, suggesting that an idiosyncratic draw is unlikely to explain our results.

Additional Sensitivity Checks. — We conduct a series of additional robustness checks and find our main results remain essentially unchanged. For instance, in Table S16 of Appendix S1, we show results are robust to alternative clustering of standard errors. In Table S17, we show that our results are similar when we drop teachers with the least and most number of students. We also show that in Table S18 that our results are essentially identical when we vary our choice of control variables. All these checks further reinforce the results as real and robust.

External Validity. — List (2020) notes that "all results are externally valid to some setting, and no result will be externally valid to all settings." These public teachers, their selection mechanisms and training are similar to many other developing countries, especially India and Bangladesh who, like Pakistan, have government hired students based on a system that was inherited from the British

[20] We apply the most strident test that pools p-values across both outcomes and treatments in a single family. MHT adjusted p-values can in fact be less conservative (their p-values can be smaller), as Anderson (2008) notes, MHT q-values can be less than unadjusted p-values when many hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections and still maintain a low false discovery rate. In the familywise error correction, the adjusted p-values can also be larger when the original resample based p-value is lower than the model p-value.

Colonial rule of the Indian subcontinent. Pakistan, India and Bangladesh alone consist of more than a quarter of world population making this study particularly relevant for a large number of people. We also follow List (2020)'s SANS (Selection-Attrition-Naturalness-Scaling) conditions in our discussion of generalizability of our results. First, in terms of selection, our sample consists of public school teachers that were scheduled to be trained at government's regular training drive. Considering the naturalness of the setting, time frame and choice task, we use many natural measures such as vaccinations as verified by their vaccination certificates. The teachers are not placed on an artificial margin and perform many of their natural tasks in the field. Finally, in terms of scaling our intervention to understand how conditional cash transfers and role model interventions be utilized in other settings, the intervention is cheap to deliver and may be particularly useful for developing countries facing strict resource constraints and we note this is the first evidence from the Global South using COVID-19 vaccination certificates.

However, it is important to exercise caution when interpreting the null effects of the incentive treatments in our study. In low-trust contexts, such as Pakistan, incentives for vaccinations might inadvertently signal that the vaccines are risky, which could undermine the direct positive effects of the incentives (Benabou and Tirole, 2006). In contrast, similar experiments in high-trust societies like Sweden demonstrated that cash awards of US 24$, which approximately amounts to 1% of average salary, increased vaccination by 4% (Campos-Mercade et al., 2021). Additionally, the effectiveness of the role model treatment over the celebrity treatment might be influenced by the gender difference, as our role model was female and the celebrity was male. This suggests that gender dynamics, in conjunction with the low-trust context, might affect the outcomes. Therefore, while our results are a WAVE1 insight, as per List's (2020) terminology, further replications in different contexts are necessary to fully understand the external validity of these findings.

VIII. Conclusions

This paper investigates how to increase vaccinations of teachers in a developing country in a setting that allows us to observe actual vaccination choice, measure important downstream outcomes from getting vaccinated, and explore underlying mechanisms of potential treatment effects. We deploy five treatments in our study: high and low conditional cash transfers, role models, celebrity endorsements, and lotteries. However, only the role model treatment significantly influenced

vaccination behavior. Higher vaccination rates in the role model treatment led to substantial downstream consequences, such as reduced teacher absenteeism and improved student test scores across subjects including mathematics, English, and general knowledge. These results highlight the broader educational and social benefits of increased vaccination rates, which extend beyond mere health outcomes. The effectiveness of the role model treatment appears to be mediated by teachers' ability to empathize with the role model, as measured by the Reading the Mind in the Eyes Test (RMET). This test evaluates social intelligence and empathy, which are crucial for understanding and internalizing the messages delivered by the role model. Our findings suggest that empathy and social intelligence play a key role in the influence of role models, providing insights into the psychological mechanisms that underpin persuasion and behavior change in public health contexts.

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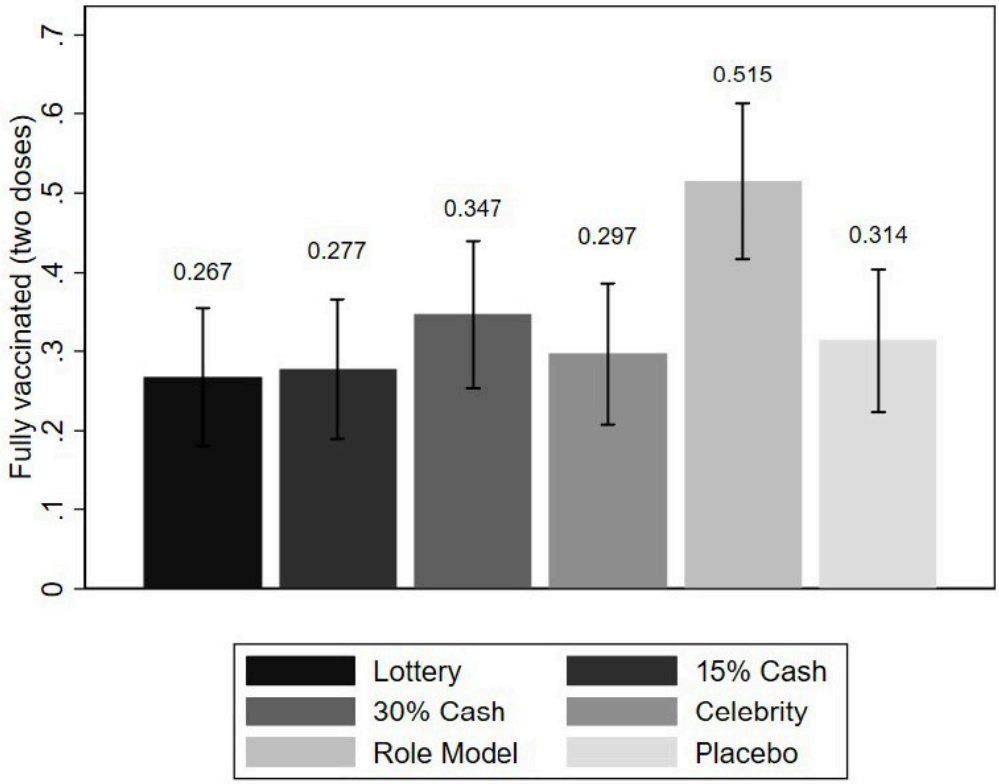
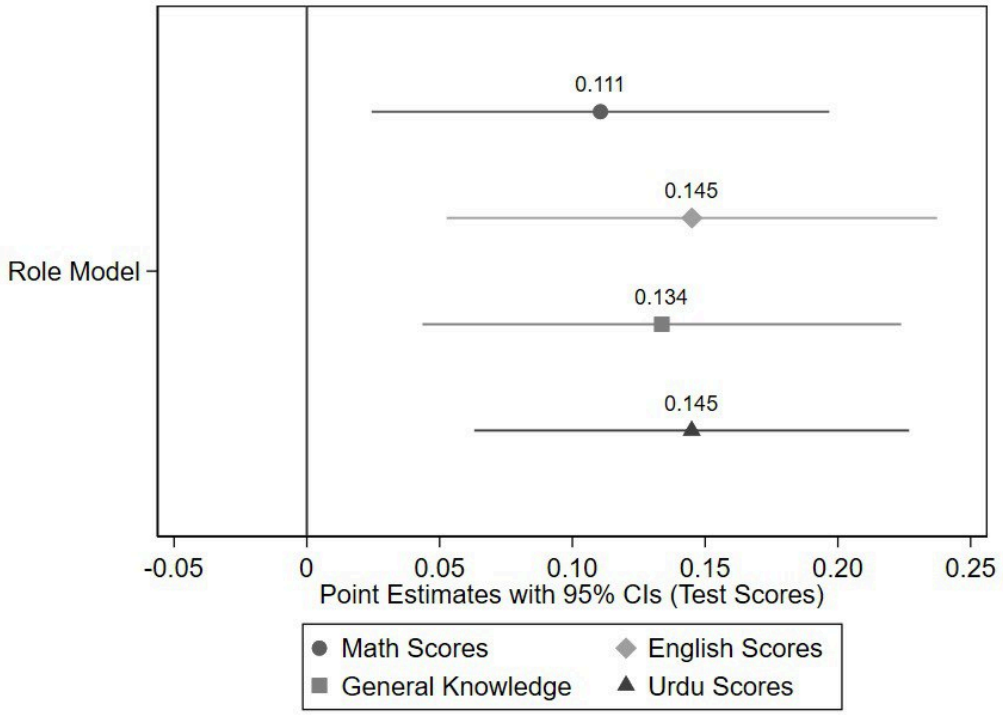
Figures and Tables

Figure 1: Impact on Full Vaccinations



Note: The figure above presents the fraction of teachers who got two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate, by their treatment status, 12 months post-treatment. Lottery is the average for the group of teachers given Lottery treatment i.e., opportunity to win a "lucky draw" of 10 times her monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for the randomly assigned group of teachers has given cash equivalent to about 30% of their monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model emphasizes the same message but via the medium of a female role model. Further details on the treatment can be found in Figure S2 of the Online Appendix. 95% Confidence intervals are also presented.

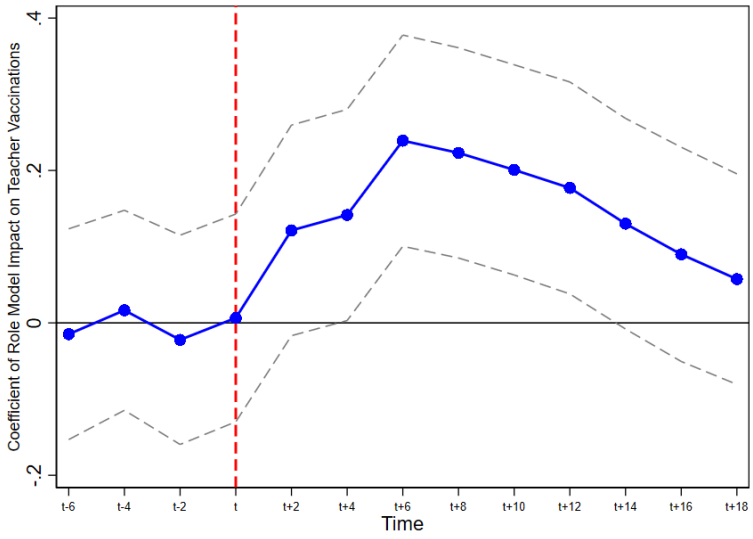
Figure 2: Impact on Student Test Scores - Standardized



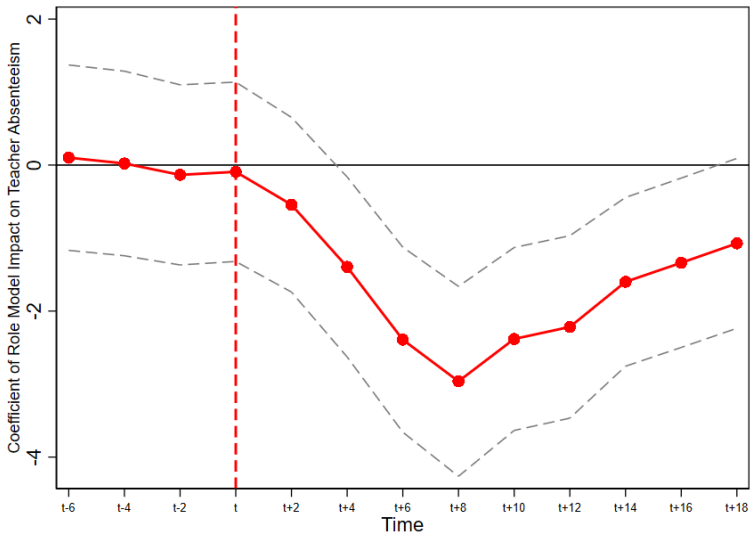
Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1) with all controls are reported. The dependent variables are standardized to mean zero and standard deviation for test scores in Math, English, General Knowledge, and Urdu scores from regular examinations held 12 months following the treatment. Controls include all individual characteristics. 95% confidence bands are also reported. Table-form representation of this figure with coefficient estimates on all other treatments are reported in Table S6 of the Online Appendix.

Figure 3: Treatment Effect on Teachers' Absenteeism and Vaccinations - Levels

Panel A: Impact of Role Model on Teachers' Vaccinations

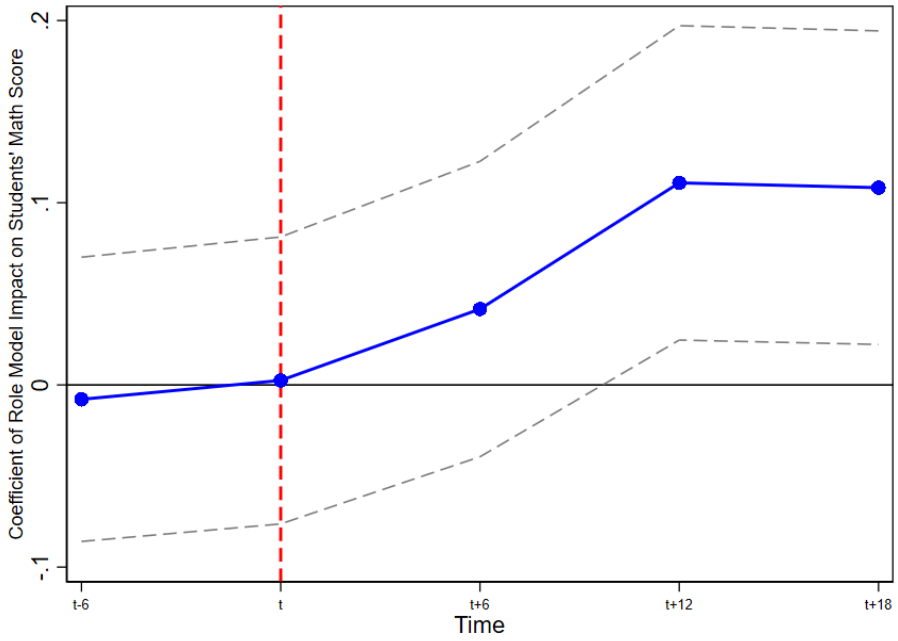


Panel B: Impact of Role Model on Teachers' Absenteeism



Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1) but at the month level. The dependent variable in Panel A and B, are teachers' full vaccinations and absences, respectively, recorded monthly. 95% confidence intervals are also reported. Table 2 and 3 illustrate results at month t+12 of this figure for all treatments. Both panels present results in levels.

Figure 4: Impact on Students' Mathematics Scores - Standardized



Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1). The dependent variable is students' Math score every 6 months, standardized to mean zero and standard deviation one. The record of Mathematics scores is available from six months prior to the treatment i.e., for (t-6) till (t + 18), for every semester, roughly lasting 6 months. Estimates in regression tables are for 12 months following the treatment. Controls include all individual characteristics. 95% confidence intervals are also reported.

Table 1: Balance over Teacher and Student Characteristics

Panel A: Teacher Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Pre-Treatment COVID Vaccination	Av. Teaching Hours	Av. Class Size	Teaching Experience	Years of Education	Educational Specialization
Lottery	-0.038	-0.265	0.187	-0.055	-1.394	-0.583*
	(0.034)	(0.398)	(0.222)	(0.066)	(2.783)	(0.354)
Cash 15%	-0.020	-0.381	-0.001	0.022	-1.801	-0.450
	(0.034)	(0.427)	(0.221)	(0.067)	(2.898)	(0.275)
Cash 30%	-0.001	-0.549	0.212	-0.017	-0.495	-0.286
	(0.036)	(0.384)	(0.208)	(0.064)	(2.949)	(0.369)
Celebrity	-0.053	0.116	0.157	-0.049	1.503	0.132
	(0.035)	(0.417)	(0.213)	(0.064)	(2.950)	(0.425)
Role model	-0.027	-0.234	0.338*	0.007	-1.124	-0.314
	(0.041)	(0.433)	(0.195)	(0.066)	(2.938)	(0.440)
Individual Controls and School FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607	607
R-squared	0.094	0.155	0.128	0.101	0.122	0.083
F-Statistics (Joint Significance)	0.675 [0.643]	0.732 [0.600]	0.892 [0.486]	0.461 [0.805]	0.301 [0.912]	1.185 [0.315]
Mean of dependent var	0.088	4.706	12.549	0.255	25.275	30.490

Panel B: Students Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Free Lunch Eligible	Single Parent	Number of Siblings	Mother Housewife	Father's Education	Mother's Education	Student Gender
Lottery	-0.011	-0.011	0.067	0.005	-0.214	-0.237	0.037
	(0.015)	(0.012)	(0.074)	(0.014)	(0.157)	(0.148)	(0.029)
Cash 15%	-0.015	-0.001	0.031	-0.001	0.002	0.192	0.024
	(0.015)	(0.013)	(0.076)	(0.014)	(0.156)	(0.155)	(0.031)
Cash 30%	-0.0004	-0.013	0.057	0.003	-0.045	0.0002	-0.009
	(0.015)	(0.012)	(0.077)	(0.015)	(0.152)	(0.156)	(0.028)
Celebrity	-0.017	-0.012	0.061	0.005	-0.051	0.094	0.049
	(0.015)	(0.012)	(0.072)	(0.014)	(0.146)	(0.144)	(0.031)
Role model	-0.005	-0.003	0.075	0.013	-0.222	-0.136	0.008
	(0.015)	(0.012)	(0.078)	(0.014)	(0.167)	(0.157)	(0.032)
Individual Controls and School FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,933	13,933	13,933	13,933	13,933	13,933	13,933
R-squared	0.004	0.043	0.009	0.003	0.009	0.008	0.357
F Statistics (Joint Significance)	0.505 [0.773]	0.553 [0.736]	0.274 [0.927]	0.299 [0.914]	0.801 [0.549]	1.835 [0.104]	1.401 [0.222]
Mean of dependent var	0.524	0.143	3.926	0.496	9.051	8.889	0.434

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Panel A, teacher characteristics are presented, while in Panel B, student characteristics are reported. The dependent variables in Panel A are Pre-Treatment vaccination status dummy, teaching experience which is the years of experience in teaching. Years of Education which is the years of teachers' education. Educational Specialization is a dummy variable that switches on when a teacher has obtained pedagogical specialization. Av. Class Size is the average number of students a teacher teaches in each class. Av. Teaching Hours is the total number of teaching hours per week. Role Model delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. The student-level controls include dummies for whether the student is eligible for the free lunch program, dummy for single parent, number of siblings, dummy for mother being a housewife, fathers and mother's education, dummy for student's gender. The p-value for testing the joint significance of all treatments is reported in square brackets next to the value of the F-statistic. * $p<0.01$, $p<0.05$, * $p<0.1$.

Table 2: Impact on Vaccinations in Levels

	Fully Vaccinated				
	(1)	(2)	(3)	(4)	(5)
Lottery	-0.066	-0.070	-0.062	-0.070	-0.061
	(0.066)	(0.065)	(0.067)	(0.065)	(0.066)
Cash 15%	-0.037	-0.028	-0.037	-0.025	-0.033
	(0.065)	(0.065)	(0.065)	(0.066)	(0.065)
Cash 30%	0.026	0.029	0.029	0.030	0.033
	(0.066)	(0.065)	(0.066)	(0.065)	(0.065)
Celebrity	-0.002	-0.0002	-0.001	-0.001	0.0002
	(0.065)	(0.065)	(0.065)	(0.066)	(0.065)
Role model	0.177**	0.094	0.187***	0.101	0.155**
	(0.071)	(0.070)	(0.072)	(0.070)	(0.069)
Role model X Female RMET		0.105**		0.098*	
		(0.048)		(0.052)	
Role model X Male RMET			0.008	0.057	
			(0.052)	(0.050)	
Role model X Overall RMET					0.138**
					(0.056)
Female RMET		0.061***		0.070**	
		(0.022)		(0.028)	
Male RMET			0.022	-0.015	
			(0.021)	(0.027)	
Overall RMET					0.042**
					(0.020)
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.160	0.195	0.162	0.197	0.184
Mean Dependent var	0.314	0.314	0.314	0.314	0.314

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate, measured 12 months after the treatment. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. * $p<0.01$, $p<0.05$, * $p<0.1$.

Table 3: Mechanism - Impact on Teacher Absenteeism - Standardized

	Teachers' Absenteeism			
	(1)	(2)	(3)	(4)
Lottery	-0.180	-0.172	-0.187	-0.173
	(0.136)	(0.135)	(0.136)	(0.136)
Cash 15%	-0.122	-0.139	-0.119	-0.138
	(0.134)	(0.135)	(0.134)	(0.136)
Cash 30%	-0.128	-0.135	-0.132	-0.135
	(0.139)	(0.138)	(0.140)	(0.138)
Celebrity	-0.170	-0.175	-0.173	-0.175
	(0.135)	(0.135)	(0.135)	(0.135)
Role Model	-0.487***	-0.284**	-0.487***	-0.286**
	(0.140)	(0.130)	(0.141)	(0.132)
Role Model X Female RMET		-0.294***		-0.298***
		(0.102)		(0.109)
Role Model X Male RMET			0.088	0.001
			(0.108)	(0.110)
Female RMET		-0.113*		-0.110
		(0.060)		(0.070)
Male RMET			-0.065	-0.006
			(0.053)	(0.061)
Individual Teacher Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.116	0.157	0.119	0.158

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable is the total number of absences recorded after 12 months post treatment which is standardized to mean zero and standard deviation one and measured 12 months following the treatment. Lottery is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e., opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, Cash 15% stands a cash award upon getting vaccinated equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination delivered via the same female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Mechanism - Impact on Teacher's Reason for Absence - Standardized

	COVID is Reason for Absence		All Other Reasons for Absence	
	(1)	(2)	(3)	(4)
Lottery	-0.185	-0.182	0.018	0.015
	(0.137)	(0.138)	(0.149)	(0.149)
Cash 15%	-0.159	-0.153	0.069	0.042
	(0.136)	(0.137)	(0.155)	(0.155)
Cash 30%	-0.142	-0.138	-0.006	-0.006
	(0.136)	(0.137)	(0.151)	(0.150)
Celebrity	-0.184	-0.183	-0.012	0.009
	(0.133)	(0.134)	(0.150)	(0.149)
Role Model	-0.325**	-0.324**	0.115	0.118
	(0.133)	(0.134)	(0.161)	(0.159)
Role Model X Female RMET	-0.331***	-0.328***	0.093	0.087
	(0.109)	(0.111)	(0.108)	(0.108)
Role Model X Male RMET	-0.012	-0.016	0.066	0.067
	(0.108)	(0.109)	(0.105)	(0.103)
Female RMET	-0.104	-0.105	-0.033	-0.033
	(0.070)	(0.071)	(0.060)	(0.060)
Male RMET	-0.003	-0.003	-0.018	-0.011
	(0.059)	(0.060)	(0.056)	(0.056)
Individual Teacher Controls	No	Yes	No	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.166	0.168	0.061	0.083

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in columns (1) and (2) is the total number of absences due COVID illness and measured 12 months following the treatment. The dependent variable in columns (3) and (4) is the total number of absences due to other reasons (i.e., marriage, funeral) recorded after 12 months post treatment. The dependent variables are standardized to mean zero and standard deviation one. *Lottery* is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e., opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, *Cash 15%* stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the *Cash 30%* stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. *Celebrity* treatment requests for vaccination by a prominent celebrity. *Role Model* delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination delivered via the same female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Impact on Lumpy versus Short Leaves - Standardized

	Lumpy Absences > 7 Days		Short Absences < 7 Days	
	(1)	(2)	(3)	(4)
Lottery	-0.158	-0.144	-0.087	-0.100
	(0.131)	(0.132)	(0.143)	(0.143)
Cash 15%	-0.155	-0.138	-0.102	-0.116
	(0.141)	(0.141)	(0.150)	(0.150)
Cash 30%	-0.217	-0.209	-0.011	-0.022
	(0.139)	(0.139)	(0.149)	(0.149)
Celebrity	-0.172	-0.172	-0.069	-0.068
	(0.136)	(0.137)	(0.146)	(0.147)
Role Model	-0.356**	-0.345**	0.083	0.068
	(0.149)	(0.150)	(0.157)	(0.159)
Individual Teacher Controls	No	Yes	No	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.091	0.097	0.080	0.084

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Columns 1 and 2 is a dummy that switches on if the teacher has taken a consecutive leave for more than 7 days. The dependent variable in Columns 3 and 4 is a dummy that switches on if the teacher has taken a consecutive leave for 7 days or less. These variables are standardized to mean zero and standard deviation one and measured 12 months following the treatment. Lottery is a dummy variable that switches on when the teacher is assigned the Lottery treatment i.e., opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Alternate Mechanism - Impact on Gender Attitudes

	Women's Rights Overall	Women's Economic Rights	Women's Political Rights	Women's Social Rights	Women's Legal Rights
	(1)	(2)	(3)	(4)	(5)
Lottery	0.056	0.075	0.045	0.043	0.033
	(0.055)	(0.058)	(0.102)	(0.105)	(0.092)
Cash 15%	-0.023	0.065	-0.014	-0.145	-0.035
	(0.051)	(0.055)	(0.091)	(0.101)	(0.082)
Cash 30%	-0.072	-0.011	-0.091	-0.185*	0.015
	(0.049)	(0.051)	(0.083)	(0.101)	(0.077)
Celebrity	-0.042	0.022	-0.089	-0.109	-0.055
	(0.050)	(0.052)	(0.092)	(0.107)	(0.077)
Role Model	-0.034	0.058	-0.046	-0.159	-0.034
	(0.052)	(0.054)	(0.092)	(0.100)	(0.082)
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.134	0.100	0.111	0.123	0.117

Note: Robust standard errors appear in brackets (clustered at the teacher level). Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights. Women's Economic Rights is an index combining women's rights to education and work outside home, based on reactions to statements "Women should be allowed to work outside the home". "Women and men should have equal rights to jobs". "I have no problem with my sister or female cousin working outside the home". "Daughters should have the same right to inherit property as sons". "Women and men should have equal rights to get an education". "Wives should not be less educated than their husbands". "Boys should not have more opportunities and resources for education than girls.". Women's Political Rights is based on statements "It would be a good idea to elect a woman as the village Sarpanch (local politician)." "Women and men have equal rights to be President or Prime Minister.". Women's Social Rights is based on statements "Domestic violence by husbands cannot be justified" "Parents should seek their daughter's consent before fixing her marriage". "A woman should not necessarily get married before her 25th Birthday". "Women who give birth to a son need not be honored in the family". "A woman with five daughters should not be under social pressure to bear a son.". Finally, the Women's Legal Rights index is based on statements "Laws should be passed to ban dowry.". "Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own free will without the consent of Wali. To what extent do you approve of this legal right of women to enter marriage under their own free will". Lottery is a dummy variable that switches on when the teacher is assigned Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

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SUPPLEMENTARY MATERIALS FOR ONLINE APPENDIX

Additional Figures and Tables in Appendix S1: Figures S1 to S8 and Tables S1 to S18. Materials and Methods Supplementary Text in Appendix S2. Supplementary Text in Appendix S3. Additional Figures and Tables in Appendix T: Figure T1 to T5 and Tables T1 to T14.

Reference (34)

Supplementary Materials - Online Appendix

Role Models and Theory of Mind: Teacher Vaccinations and Student Success

By Sultan Mehmood[21*], Shaheen Naseer[22] and Daniel L. Chen[23]

Contents

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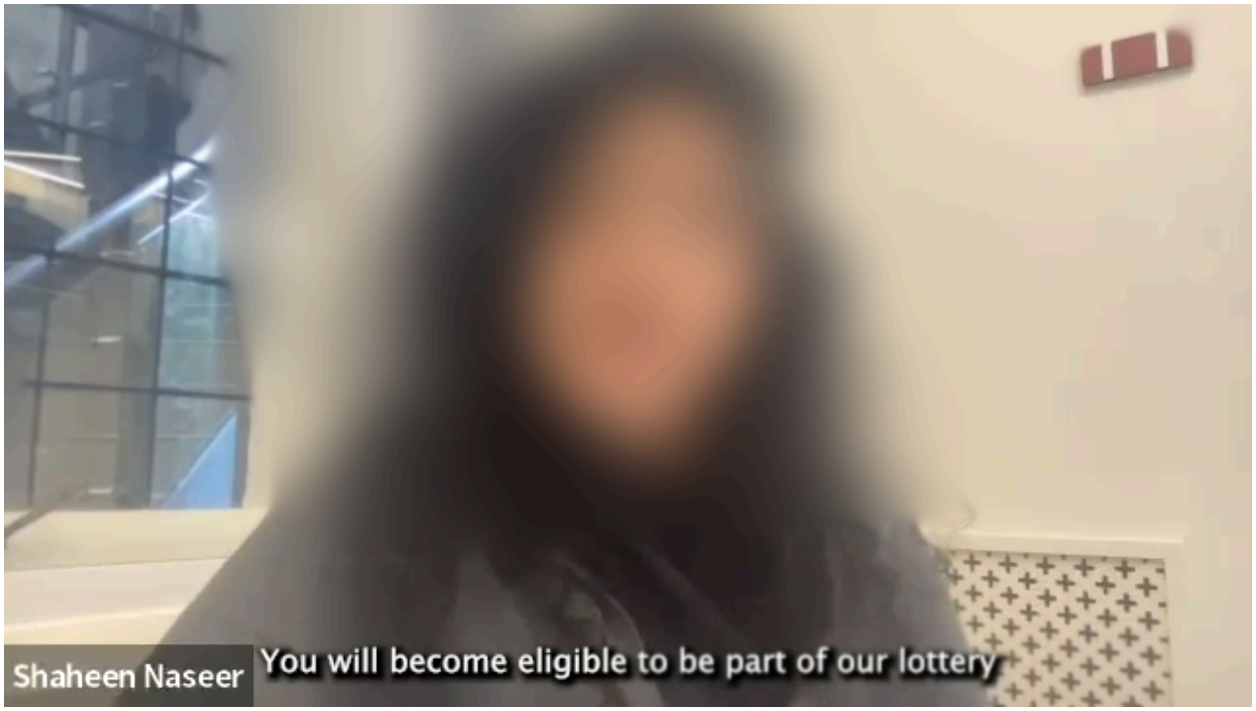
Appendix S1. Supplementary Figures and Tables

Figure S1: A Typical Official COVID-19 Certificate

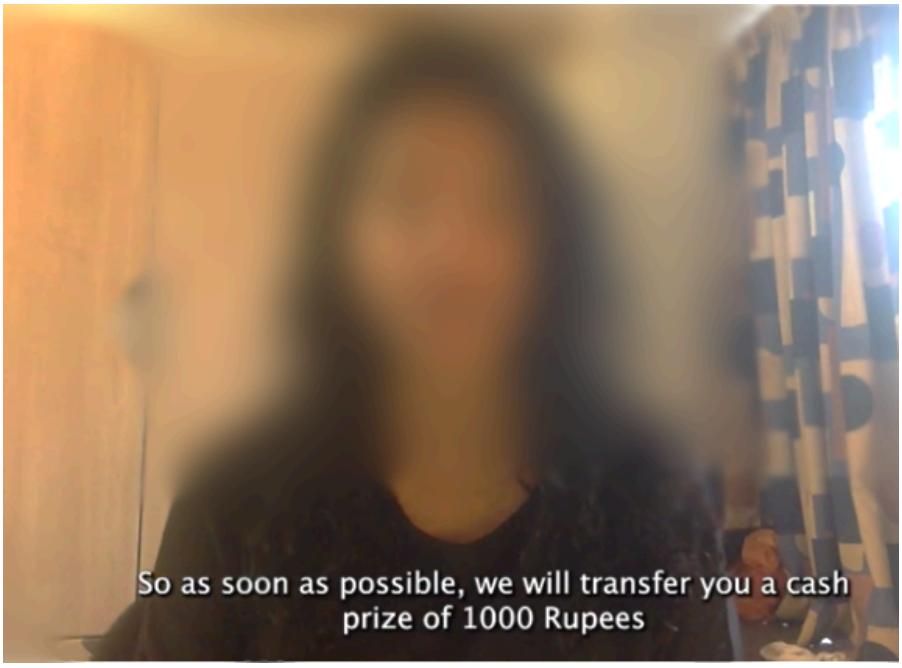
Note: The figure above shows a typical COVID-19 certificate that we used the verify the vaccination status. The QR code was used to ascertain authenticity with the official COVID-19 database. The QR code in this certificate is disabled to preserve the anonymity of the teacher.

Figure S1.1: Lottery Treatment

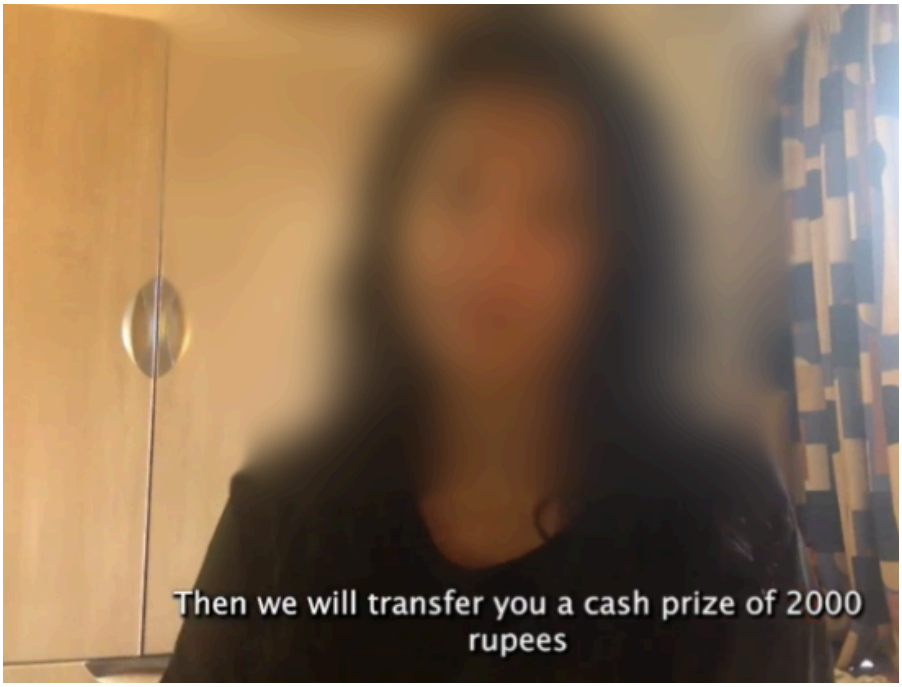


Note: The full treatment video can be found in the following embedded link: Lottery. The video message is shown live on Zoom to the randomly assigned lottery treatment group. The original announcement for the lottery could not be recorded, so we reenacted the announcement to be as close as possible to the original to the best of our knowledge. This was possible due to the availability of the exact transcript of the treatment. The original video is in Urdu, and we provide subtitles in English.

Figure S1.2: Cash 15% (PKR 1000) and Cash 30% (PKR 2000)



Panel A: 15% Cash Prize

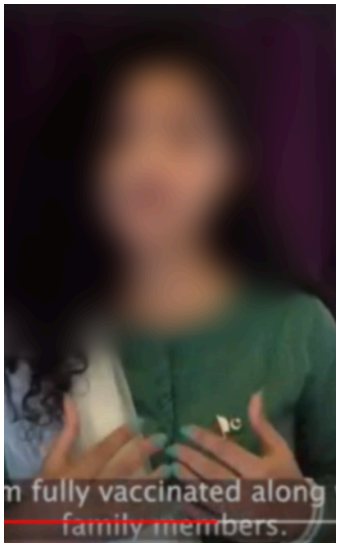


Panel B: 30% Cash Prize

Note: The original could not be recorded, so we reenacted the announcement to be as close as possible to the original to the best of our knowledge. This was possible due to the availability of the exact transcript of the treatment. The treatment announcement videos with subtitles in English can be found in the following embedded links: Cash 15% and Cash 30%.

Figure S2: Celebrity and Role Model Treatments

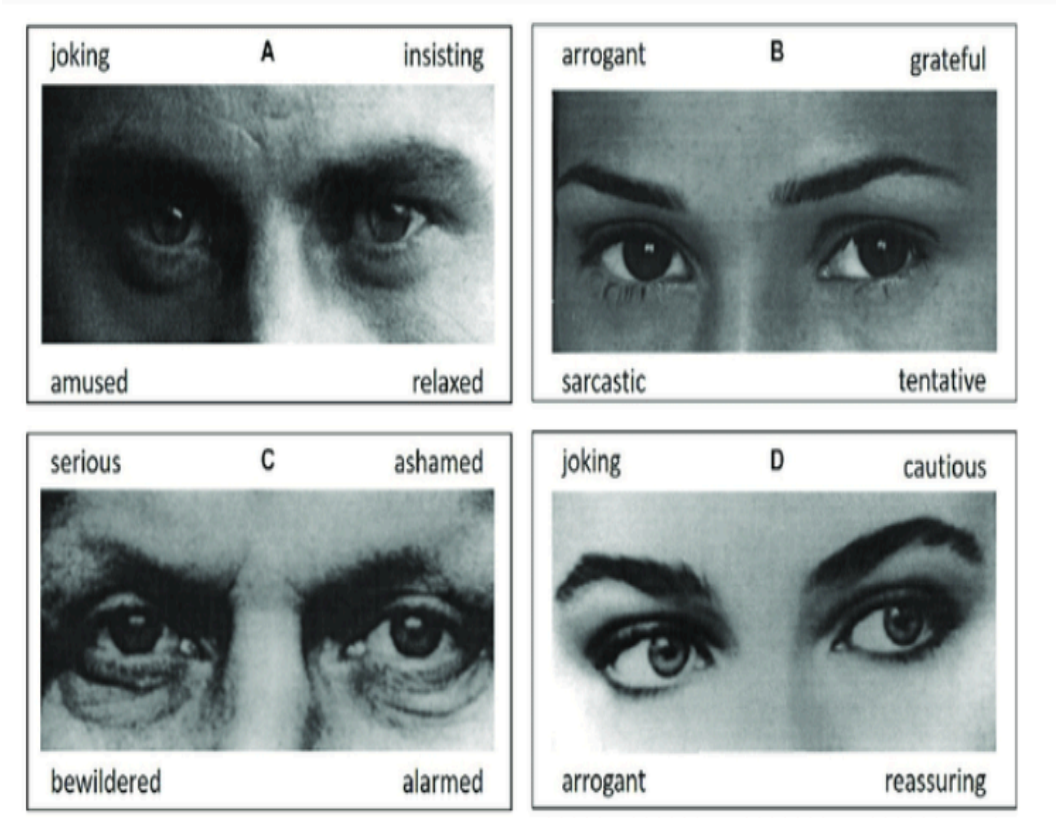
Panel A: Celebrity Snapshot



Panel B: Role Model Snapshot

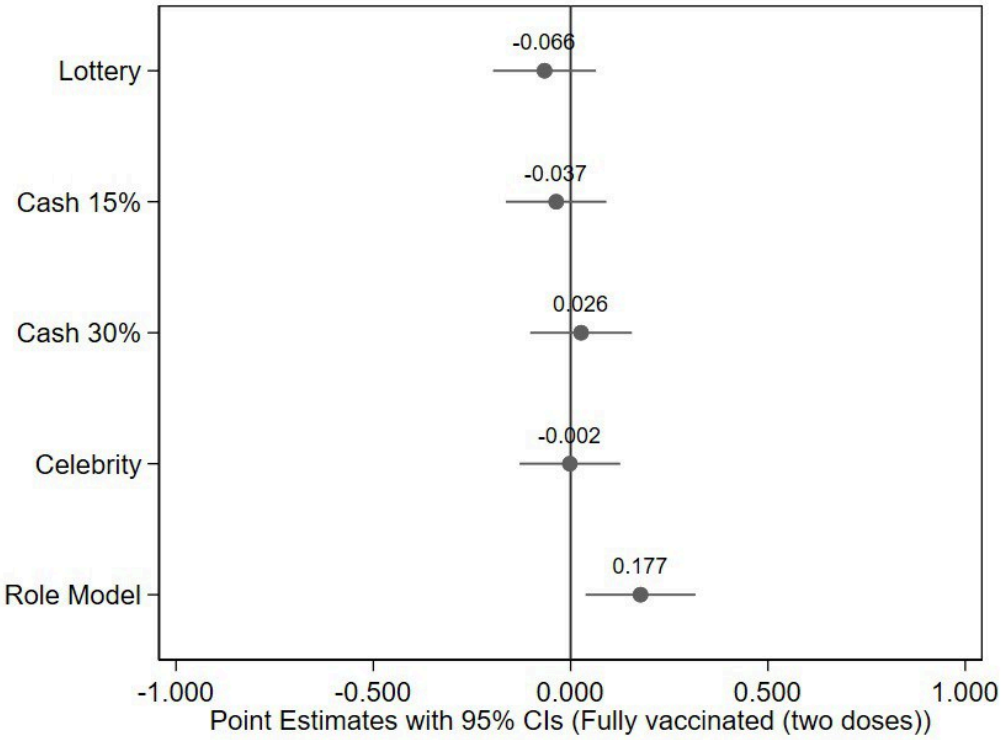
Note: The exact treatment videos can be found in the following embedded links: Celebrity and Role Model. Translation of transcript of both treatments is as follows: In the name of Allah, the Most Gracious, the Most Merciful. Assalam-o-Alaikum (Peace be upon you) Right now, I am addressing all the teachers of Progressive Education Network. I request you all to please, please, please get Covid-19 Vaccination as this is really important for your safety as well as for all your students. I myself am fully vaccinated along with all my family members. I request you all please do not fall for any misinformation or rumor, this vaccination is completely safe and is for our own protection. So I request you all to get fully vaccinated as soon as possible.

Figure S3: Reading the Mind in the Eyes Test Illustration



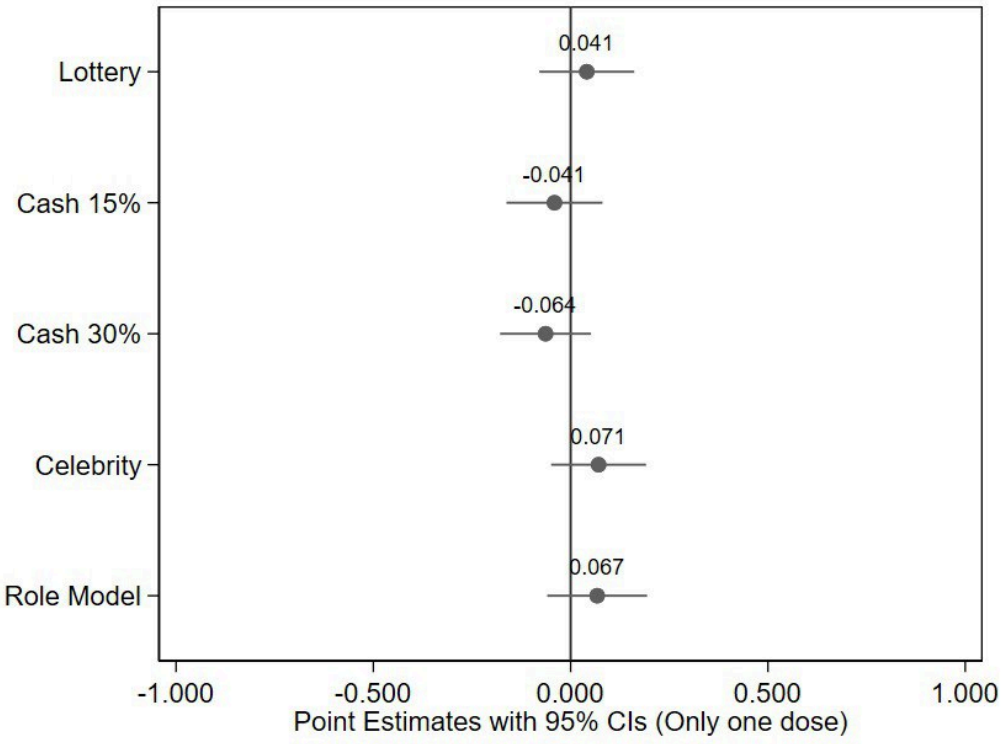
Note: The figure above summarizes the Reading the Mind in the Eyes Test (RMET) with the pictures on the left showing male eyes, while figures on the right showing female eyes. We implemented the revised RMET due to its higher accuracy in predicting mentals states and being a more robust measure of Theory of Mind (see Cohen et al., 2001 for more details).

Figure S4: Impact on Teacher Vaccinations in Levels



Note: The figure report estimates from equation (1) with all controls. The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. Controls include all individual characteristics. 95% confidence bands are also reported. *Lottery* is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, *Cash 15%* stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the *Cash 30%* stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. *Celebrity* treatment requests for vaccination by a prominent celebrity. *Role Model* delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. 95% Confidence Bands are also reported.

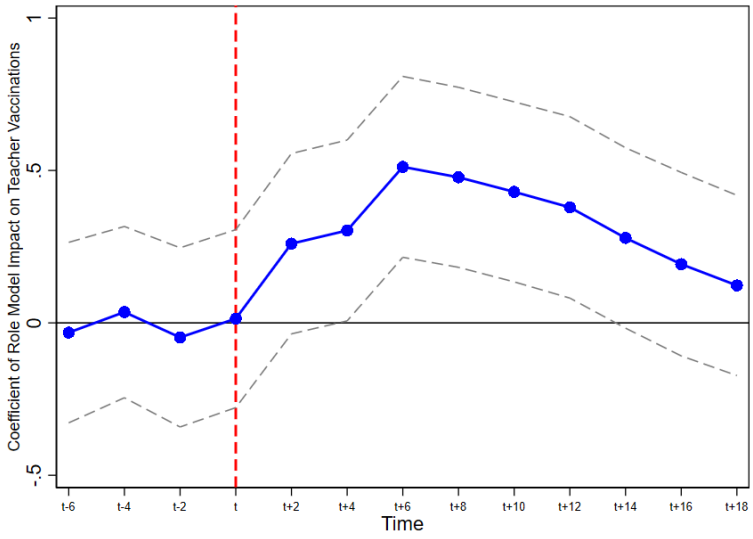
Figure S5: Impact on Vaccinations - Single Dose



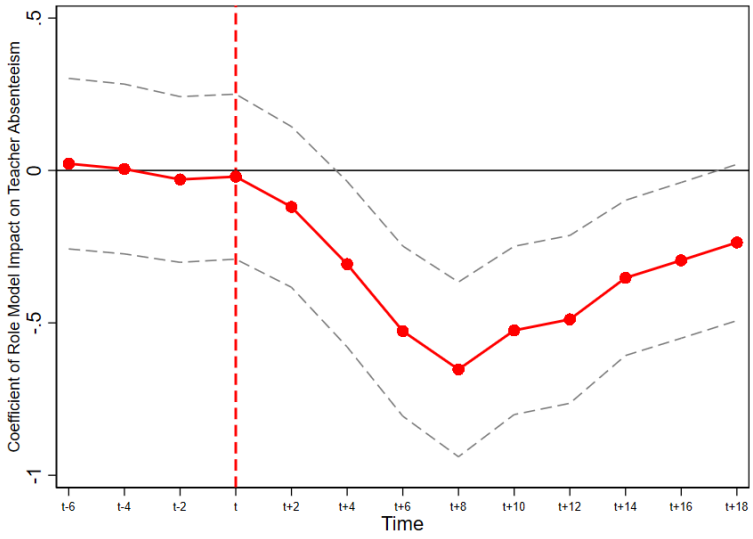
Note: The figure reports estimates from equation (1) with all controls. The dependent variable switches on if the teacher has taken only one dose of COVID-19 vaccination as ascertained by COVID-19 certificate. Controls include all individual characteristics. 95% confidence bands are also reported.

Figure S6: Treatment Effect on Teachers' Absenteeism and Vaccinations - Standardized

Panel A: Impact of Role Model on Teachers' Vaccinations

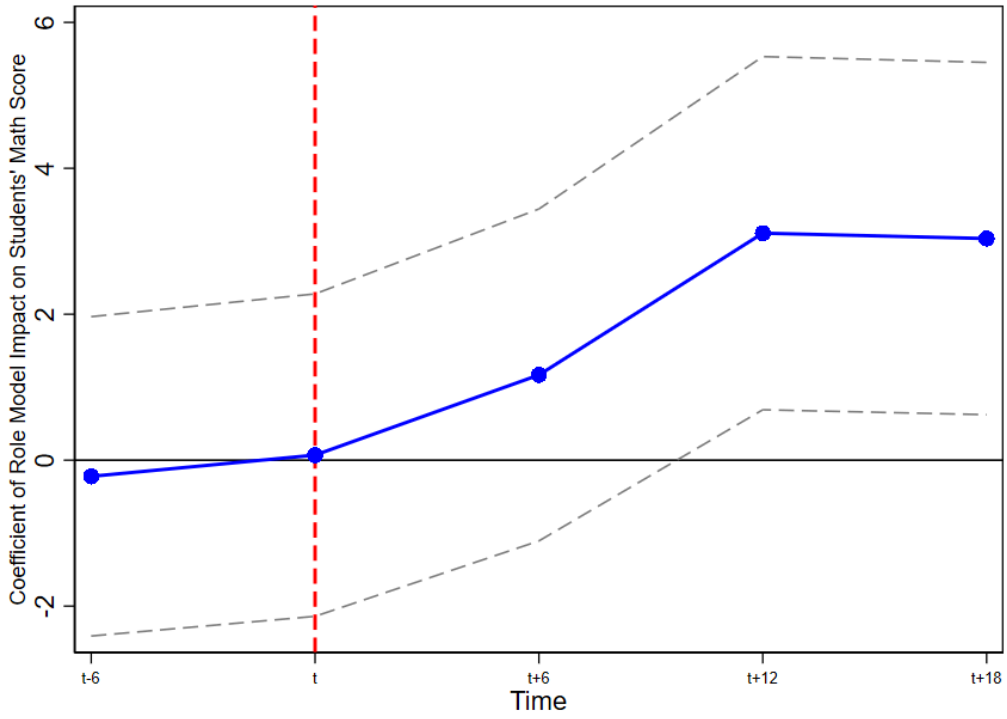


Panel B: Impact of Role Model on Teachers' Absenteeism



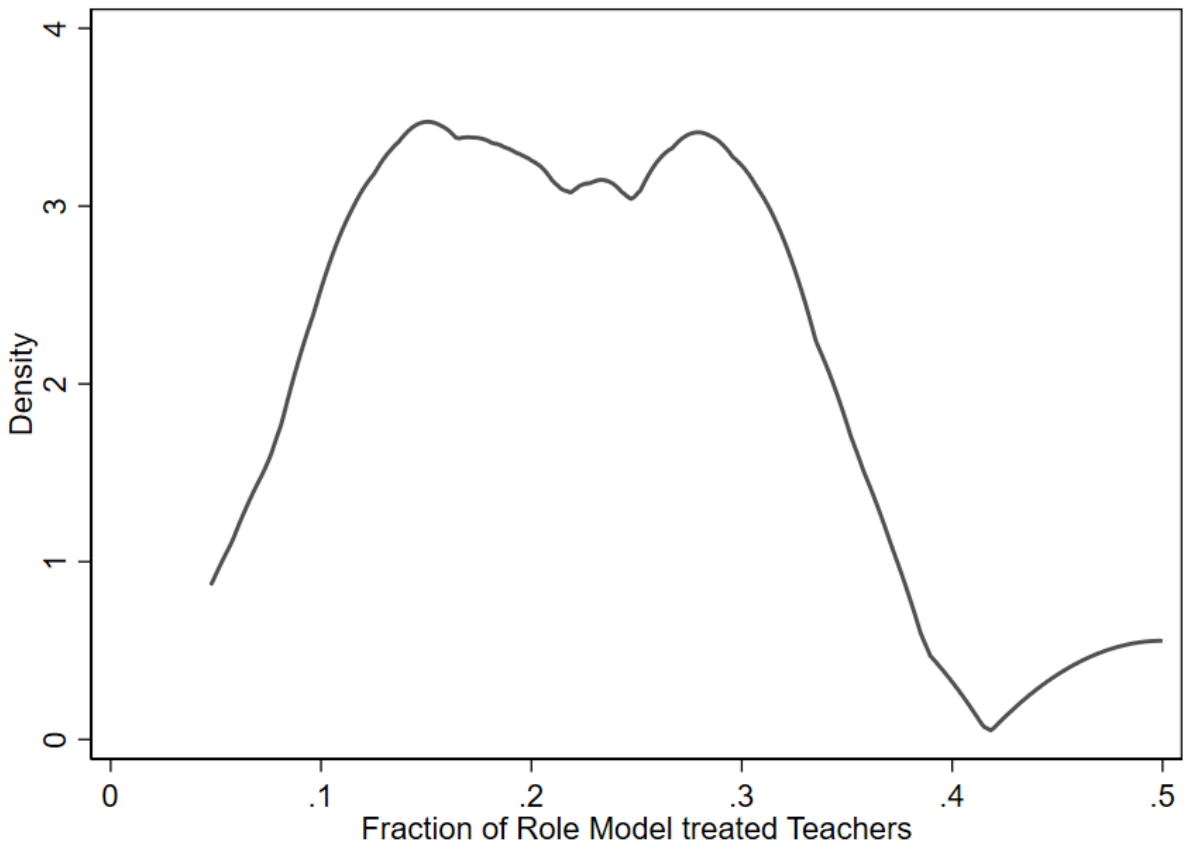
Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1) but at the month level. The dependent variable in Panel A and B, are teachers' full vaccinations and absences, respectively, recorded at the month level. The dependent variables are standardized to mean zero and standard deviation 1. Tables report results at month t+12. 95% confidence intervals are also reported.

Figure S7: Dynamic Impact on Students' Mathematics Scores - Raw Scores



Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1) but at the month level. The dependent variable is students' Math score every 6 months. The record of Math scores is available from six months prior to the treatment (t-6) and for midterms (t+6), end term (t+12) and next midterm (t + 18). Controls include all individual characteristics. Table report results at month (t+12). 95% confidence interval is reported.

Figure S8: Distribution of Fraction of Role Model Treated Teachers



Note: The figure above shows the distribution of fraction of teachers within a school that were treated by the role model.

Table S1: Summary Statistics by Treatment Arm

	Number of teachers Vaccinated According to QR Verified Certificates			
	At least One Dose Vaccinated	One Dose Vaccinated	Fully Vaccinated	**Total**
Lottery	53	26	27	106
15% Cash	48	20	28	96
30% Cash	54	19	35	108
Celebrity	58	28	30	116
Role Model	80	28	52	160
Placebo	58	26	32	116
Total	351	147	204	351

Note: The table above provides the total number of teachers who opted for one dose of COVID-19 vaccination, more than one dose of vaccination, and two doses of vaccination for all the treatment groups and placebo. *Lottery* is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, *Cash 15%* stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the *Cash 30%* stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. *Celebrity* treatment requests for vaccination by a prominent celebrity. *Role Model* delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. For balance over characteristics of teachers, see Table 1 in the main text.

Table S2: Summary statistics for main outcomes

Panel A: Teachers

	Lottery (N=101)		Cash 15% (N=101)		Cash 30% (N=101)		Celebrity (N=101)		Role Model (N=101)		Placebo (N=102)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Full Vaccination	0.267	0.445	0.277	0.450	0.347	0.478	0.297	0.459	0.515	0.502	0.314	0.466
Teachers' Absenteeism	10.198	4.804	10.248	4.387	10.366	4.845	10.198	4.541	8.762	4.631	11.088	3.828
COVID is Reason for Absence	8.723	4.752	8.752	4.213	8.871	4.573	8.792	4.276	7.188	4.604	9.618	3.776
All Other Reasons for Absence	1.475	1.101	1.495	1.163	1.495	1.083	1.406	1.097	1.574	1.089	1.471	1.132
Lumpy Absences > 7 Days	0.792	0.408	0.772	0.421	0.762	0.428	0.782	0.415	0.703	0.459	0.853	0.356
Short Absences < 7 Days	0.208	0.408	0.228	0.421	0.238	0.428	0.218	0.415	0.287	0.455	0.245	0.432
Women's Rights Overall	1.630	0.439	1.537	0.360	1.470	0.322	1.511	0.364	1.510	0.342	1.562	0.328
Women's Economic Rights	1.405	0.446	1.380	0.395	1.263	0.344	1.311	0.364	1.361	0.365	1.301	0.338
Women's Political Rights	1.401	0.819	1.347	0.619	1.228	0.467	1.282	0.576	1.292	0.597	1.363	0.638
Women's Social Rights	2.143	0.716	1.929	0.677	1.937	0.629	1.980	0.782	1.895	0.581	2.106	0.735
Women's Legal Rights	1.366	0.751	1.297	0.562	1.272	0.550	1.262	0.477	1.287	0.549	1.314	0.531

Panel B: Teachers

	Lottery (N=2381)		Cash 15% (N=2302)		Cash 30% (N=2323)		Celebrity (N=2273)		Role Model (N=2369)		Placebo (N=2285)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Mathematics	49.908	28.757	50.197	28.443	50.613	29.390	52.092	28.736	54.939	24.686	51.320	28.321
English	50.473	28.584	50.163	29.048	51.256	28.985	49.698	28.972	54.293	25.346	49.912	28.126
General Knowledge	50.288	29.006	51.202	29.117	51.180	29.479	51.341	28.968	55.090	25.130	51.451	27.875
Urdu	49.638	28.482	50.505	29.206	50.654	28.659	50.031	28.913	54.333	25.045	50.083	28.131

Note: Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. Fully Vaccinated is a dummy that switches on if the teacher has taken 2 doses of COVID vaccination, measured 12 months after the treatment. COVID is Reason for Absence is the total number of absences due COVID illness and measured 12 months following the treatment. All Other Reasons for Absence is the total number of absences due to other reasons (i.e., marriage, funeral) recorded after 12 months post treatment. Lumpy Absences is a dummy that switches on if the teacher has taken a consecutive leave for more than 7 days, measured 12 months after the treatment. Short Absences is a dummy that switches on if the teacher has taken a consecutive leave for 7 days or less, measured 12 months after the treatment. Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights. Women's Economic Rights is an index combining women's rights to education and work outside home, based on reactions to statements "Women should be allowed to work outside the home". "Women and men should have equal rights to jobs". "I have no problem with my sister or female cousin working outside the home". "Daughters should have the same right to inherit property as sons". "Women and men should have equal rights to get an education". "Wives should not be less educated than their husbands". "Boys should not have more opportunities and resources for education than girls.". Women's Political Rights is based on statements "It would be a good idea to elect a woman as the village Sarpanch (local politician)." "Women and men have equal rights to be President or Prime Minister.". Women's Social Rights is based on statements "Domestic violence by husbands cannot be justified" "Parents should seek their daughter's consent before fixing her marriage". "A woman should not necessarily get married before her 25th Birthday". "Women who give birth to a son need not be honored in the family". "A woman with five daughters should not be under social pressure to bear a son.". Finally, the Women's Legal Rights index is based on statements "Laws should be passed to ban dowry.". "Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own free will without the consent of Wali. To what extent do you approve of this legal right of women to enter marriage under their own free will". Dependent variables in Panel B are standardized to mean zero and standard deviation one students' scores for Mathematics, English, General Knowledge, and Urdu, measured 12 months after the treatment.

Table S3: Impact of Role Model on Vaccination Status

Panel A. Second-stage least squares				
	(1)	(2)	(3)	(4)
	Mathematics	*English*	*General Knowledge*	*Urdu*
Full Vaccination	0.631**	0.635**	0.735**	0.703***
	(0.265)	(0.283)	(0.296)	(0.254)
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	13,933	13,933	13,933	13,933
Panel B. First-stage results				
			Full Vaccination	
Role model			0.198***	
			(0.055)	
Individual Controls			Yes	
School Fixed Effects			Yes	
Observations			13,933	
F-statistic			13.076	
Mean Dependent var			0.315	

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Columns (1) switches on if the teacher is fully vaccinated against COVID-19. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation one scores for Mathematics, English, General Knowledge, and Urdu. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. First-stage in Column 1 is the same for all second-stage regressions from Columns 2, 3, 4, and 5. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1 respectively. *** p<0.01, ** p<0.05, * p<0.1.

Table S4: Impact of Vaccination Status on Absenteeism

Panel A. Second-stage least squares results			
	(1)	(2)	(3)
	Teachers' Absenteeism	COVID is the Reason for the Absence	All Other Reasons for Absence
Full Vaccination	-1.869**	-2.077***	0.602
	(0.759)	(0.804)	(0.585)
Individual Controls	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes
Observations	607	607	607
Panel B. First-stage results			
		Full Vaccination	
Role model		0.195***	
		(0.057)	
Individual Controls		Yes	
School Fixed Effects		Yes	
Observations		601	
F-statistic		11.867	
Mean Dependent var		0.314	

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column 1 is the total number of absences recorded after 12 months post-treatment. The dependent variable in Column 2 is the total number of absences due to COVID illness measured 12 months following the treatment. The dependent variable in Column 3 is the total number of absences due to other reasons (i.e., marriage, funeral) recorded after 12 months post-treatment. The dependent variables are standardized to mean zero and standard deviation one. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. The first stage in Column 1 is the same for all second-stage regression from Columns 2, 3 and 4. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S5: Impact on Vaccinations - Standardized

	Fully Vaccinated				
	(1)	(2)	(3)	(4)	(5)
Lottery	-0.140	-0.147	-0.132	-0.149	-0.129
	(0.140)	(0.137)	(0.141)	(0.137)	(0.139)
Cash 15%	-0.078	-0.059	-0.079	-0.054	-0.070
	(0.137)	(0.138)	(0.137)	(0.139)	(0.138)
Cash 30%	0.056	0.062	0.061	0.063	0.071
	(0.139)	(0.137)	(0.139)	(0.138)	(0.138)
Celebrity	-0.004	-0.001	-0.003	-0.002	0.000
	(0.137)	(0.138)	(0.138)	(0.139)	(0.138)
Role Model	0.375**	0.198	0.395***	0.214	0.329**
	(0.150)	(0.147)	(0.152)	(0.148)	(0.146)
Role Model X Female RMET		0.222**		0.207*	
		(0.102)		(0.110)	
Role Model X Male RMET			0.016	0.120	
			(0.110)	(0.105)	
Role Model X Overall RMET					0.293**
					(0.118)
Female RMET		0.128***		0.147**	
		(0.047)		(0.059)	
Male RMET			0.046	-0.032	
			(0.045)	(0.056)	
Overall RMET					0.089**
					(0.042)
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.160	0.195	0.162	0.197	0.184

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. This variable is standardized to mean zero and standard deviation one and measured 12 months following the treatment. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S6: Impact on Students' Test Scores - Standardized

	(1)	(2)	(3)	(4)
	Mathematics	*English*	*General Knowledge*	*Urdu*
Lottery	-0.037	0.037	-0.021	-0.006
	(0.031)	(0.033)	(0.034)	(0.030)
Cash 15%	-0.047	-0.004	-0.011	0.006
	(0.033)	(0.032)	(0.034)	(0.032)
Cash 30%	-0.019	0.042	0.005	0.023
	(0.030)	(0.032)	(0.032)	(0.031)
Celebrity	0.033	-0.001	-0.008	-0.002
	(0.031)	(0.033)	(0.032)	(0.032)
Role Model	0.111**	0.145***	0.134***	0.145***
	(0.044)	(0.047)	(0.046)	(0.042)
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	13,933	13,933	13,933	13,933
R-squared	0.013	0.016	0.012	0.015

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variables are test scores that are standardized to mean zero and standard deviation for Math, English, General Knowledge and Urdu standardized test scores. *Lottery* is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, *Cash 15%* stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the *Cash 30%* stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. *Celebrity* treatment requests for vaccination by a prominent celebrity. *Role Model* delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. The student-level controls include all student characteristics reported in Panel B of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S7: Mechanism - Impact on Teacher Absenteeism in Levels - Days Missed

	Teachers' Absenteeism			
	(1)	(2)	(3)	(4)
Lottery	-0.819	-0.784	-0.853	-0.788
	(0.618)	(0.616)	(0.620)	(0.619)
Cash 15%	-0.556	-0.631	-0.540	-0.628
	(0.611)	(0.615)	(0.609)	(0.617)
Cash 30%	-0.583	-0.613	-0.600	-0.615
	(0.634)	(0.627)	(0.637)	(0.629)
Celebrity	-0.776	-0.796	-0.785	-0.797
	(0.614)	(0.615)	(0.616)	(0.616)
Role Model	-2.217***	-1.292**	-2.219***	-1.300**
	(0.638)	(0.592)	(0.644)	(0.600)
Role Model X Female RMET		-1.337***		-1.355***
		(0.465)		(0.496)
Role Model X Male RMET			0.402	0.004
			(0.490)	(0.499)
Female RMET		-0.515*		-0.499
		(0.272)		(0.318)
Male RMET			-0.294	-0.026
			(0.239)	(0.276)
Individual Teacher Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.116	0.157	0.119	0.158
Mean Dependent var	11.088	11.088	11.088	11.088

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable is the total number of absences recorded after 12 months post treatment. *Lottery* is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, *Cash 15%* stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the *Cash 30%* stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. *Celebrity* treatment requests for vaccination by a prominent celebrity. *Role Model* delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination delivered via the same female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S8: Impact on Vaccinations and Student Achievement – Assessing Spillovers

	(1)	(2)	(3)	(4)	(5)
	Full Vaccination	*Mathematics*	*English*	*General Knowledge*	*Urdu*
Fraction of Role Model Treated Teachers X Role Model	-0.550	0.715**	0.764**	0.903**	0.532*
	(0.826)	(0.297)	(0.356)	(0.342)	(0.303)
Role model	0.498**	-0.050	-0.026	-0.069	0.026
	(0.220)	(0.114)	(0.122)	(0.126)	(0.103)
Individual Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	13,933	13,933	13,933	13,933
R-squared	0.160	0.014	0.017	0.014	0.016

Note: Robust standard errors appear in brackets (clustered at the school level). The dependent variable in Column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificates. This variable is standardized to mean zero and standard deviation one. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation one scores for Mathematics, English, General Knowledge, and Urdu. The Fraction of Role Model Treated Teachers is the proportion of teachers treated with the Role Model treatment within a school. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1, respectively. *** p<0.01, ** p<0.05, * p<0.1.

Table S9: Impact of Treatment and RMET Score on Vaccination

	Fully Vaccinated			
	(1)	(2)	(3)	(4)
Lottery	-0.066	-0.061	-0.064	-0.057
	(0.066)	(0.063)	(0.067)	(0.063)
Cash 15%	-0.037	-0.044	-0.040	-0.050
	(0.065)	(0.065)	(0.066)	(0.067)
Cash 30%	0.026	0.038	0.027	0.048
	(0.066)	(0.065)	(0.066)	(0.066)
Celebrity	-0.002	0.002	-0.003	-0.001
	(0.065)	(0.065)	(0.066)	(0.065)
Role model	0.177**	0.102	0.185**	0.114
	(0.071)	(0.069)	(0.072)	(0.070)
Lottery X Female RMET		0.213***		0.234***
		(0.068)		(0.079)
Cash 15% X Female RMET		0.006		0.008
		(0.075)		(0.090)
Cash 30% X Female RMET		0.126*		0.181*
		(0.069)		(0.093)
Celebrity X Female RMET		0.023		-0.037
		(0.076)		(0.113)
Role model X Female RMET		0.197***		0.216***
		(0.071)		(0.083)
Lottery X Male RMET			-0.007	-0.065
			(0.077)	(0.080)
Cash 15% X Male RMET			0.016	0.016
			(0.085)	(0.100)
Cash 30% X Male RMET			0.045	-0.078
			(0.066)	(0.089)
Celebrity X Male RMET			0.013	0.042
			(0.067)	(0.094)
Role model X Male RMET			0.024	0.005
			(0.073)	(0.078)
Female RMET		-0.032		-0.048
		(0.056)		(0.069)
Male RMET			0.006	0.030
			(0.055)	(0.065)
Individual Teacher Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.160	0.217	0.163	0.222
Mean Dependent var	0.314	0.314	0.314	0.314

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S10: Impact of Schools More Intensely Treated by the Role Model

Panel A: *Lottery*				
	Fully Vaccinated		*Teacher's Absenteeism*	
	(1)	(2)	(3)	(4)
Fraction of Role Model Treated Teachers	1.035	0.950	-0.385	0.009
	(0.727)	(0.804)	(0.869)	(0.886)
Individual Teacher Controls	No	Yes	No	Yes
Observations	101	101	101	101
R-squared	0.017	0.032	0.002	0.059
Panel B: *Cash 15%*				
Fraction of Role Model Treated Teachers	1.070	0.653	0.692	1.093
	(0.760)	(0.628)	(1.160)	(0.950)
Individual Teacher Controls	No	Yes	No	Yes
Observations	101	101	101	101
R-squared	0.015	0.099	0.006	0.063
Panel B: *Cash 30%*				
Fraction of Role Model Treated Teachers	0.538	0.598	-0.110	0.080
	(1.149)	(1.193)	(0.996)	(0.978)
Individual Teacher Controls	No	Yes	No	Yes
Observations	101	101	101	101
R-squared	0.003	0.045	0.000	0.029
Panel D: *Celebrity*				
Fraction of Role Model Treated Teachers	-1.131	-0.927	-0.574	-0.450
	(0.810)	(0.823)	(0.918)	(0.921)
Individual Teacher Controls	No	Yes	No	Yes
Observations	101	101	101	101
R-squared	0.017	0.083	0.004	0.052
Panel E: *Placebo*				
Fraction of Role Model Treated Teachers	0.974	1.340	1.428*	1.689*
	(1.045)	(1.226)	(0.770)	(0.913)
Individual Teacher Controls	No	Yes	No	Yes
Observations	102	102	102	102
R-squared	0.010	0.042	0.029	0.065

Note: Robust standard errors appear in brackets (clustered at the school level). The dependent variable in Columns (1) and (2) switches on if the teacher is fully vaccinated against COVID-19. The dependent variable in Columns (3) and (4) is the total number of absences recorded 12 months post-treatment. The Fraction of Role Model Treated Teachers is the proportion of teachers treated with the Role Model treatment within a school. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1 respectively. School fixed effects in this specification cannot be included. *** p<0.01, ** p<0.05, * p<0.1.

Table S11: Impact on Vaccinations and Student Achievement – Multiple Hypothesis Test

	(1)	(2)	(3)	(4)	(5)
	Full Vaccination	*Math*	*English*	*General Knowledge*	*Urdu*
Role Model	0.375	0.111	0.145	0.134	0.145
p-value	(0.013) **	(0.012) **	(0.002) ***	(0.004) ***	(0.001) ***
Sharpened q-value	[0.069] *	[0.054] *	[0.021] **	[0.023] **	[0.012] **
FWER p-value	{0.009} ***	{0.009} ***	{0.001} ***	{0.002} ***	{<0.001} ***
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	13,933	13,933	13,933	13,933
R- squared	0.160	0.013	0.016	0.012	0.015

Note: p-values from our baseline regressions from specification (1) appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. The dependent variable in column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificate. This variable is standardized to mean zero and standard deviation one. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation for Mathematics, English, General Knowledge, and Urdu test scores. Role Model emphasizes the same message as the celebrity but via the medium of a female role model. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1 respectively. *** p<0.01, ** p<0.05, * p<0.1.

Table S12: Impact on Teacher Absenteeism – Multiple Hypothesis Test

	(1)	(2)	(3)	(4)	(5)
	Teachers' Absenteeism	*COVID is Reason for Absence*	*All Other Reasons for Absence*	*Short Absences*	*Lumpy Absences*
Role model	-0.487	-0.534	0.130	0.068	-0.345
p-value	(0.001) ***	(<0.001) ***	(0.390)	(0.669)	(0.022) **
Sharpened q-value	[0.007] ***	[0.006] ***	[0.999]	[0.999]	[0.204]
FWER p-value	{<0.001} ***	{<0.001} ***	{0.967}	{0.972}	{0.013} **
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.116	0.123	0.081	0.084	0.097

Note: p-values from our baseline regressions from specification (1) appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. The dependent variable in Column 1 is the total number of absences recorded after 12 months post treatment. The dependent variable in Column 2 is the total number of absences due COVID illness. The dependent variable in Column 3 is the total number of absences due to other reasons (i.e., marriage, funeral). The dependent variable in Columns 4 is a dummy that switches on if the teacher has taken a consecutive leave for 7 days or less. The dependent variable in Column 5 is a dummy that switches on if the teacher has taken a consecutive leave for more than 7 days. Dependent variables are standardized to mean zero and standard deviation one and measured 12 months following the treatment. Role Model emphasizes the same message as the celebrity but via the medium of a female role model. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1 respectively. *** p<0.01, ** p<0.05, * p<0.1.

Table S13: Role Model and RMET Score Impact on Vaccination– Multiple Hypothesis Test

	Fully Vaccinated			
	(1)	(2)	(3)	(4)
Role model	0.198	0.395	0.214	0.329
p-value	(0.178)	(0.009) ***	(0.149)	(0.025) **
Sharpened q-value	[0.424]	[0.071] *	[0.533]	[0.086] *
FWER p-value	{0.277}	{0.008} ***	{0.314}	{0.024} **
Role model X Female RMET	0.222		0.207	
p-value	(0.030) **		(0.059) *	
Sharpened q-value	[0.099] *		[0.311]	
FWER p-value	{0.032} **		{0.116}	
Role model X Male RMET		0.016	0.120	
p-value		(0.884)	(0.256)	
Sharpened q-value		[0.999]	[0.638]	
FWER p-value		{0.973}	{0.537}	
Role model X Overall RMET				0.293
p-value				(0.014) **
Sharpened q-value				[0.086] *
FWER p-value				{0.013} **
Female RMET	0.128		0.147	
p-value	(0.006) ***		(0.013) **	
Sharpened q-value	[0.047] **		[0.136]	
FWER p-value	{0.006} ***		{0.018} **	
Male RMET		0.046	-0.032	
p-value		(0.306)	(0.570)	
Sharpened q-value		[0.999]	[0.999]	
FWER p-value		{0.642}	{0.899}	
Overall RMET				0.089
p-value				(0.034) **
Sharpened q-value				[0.086] *
FWER p-value				{0.027} **
Individual Teacher Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.195	0.162	0.197	0.184

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. The dependent variable in column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificate. Role Model emphasizes the same message as the celebrity but via the medium of a female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S14: Impact on Gender Attitudes – Multiple Hypothesis Test

	(1)	(2)	(3)	(4)	(5)
	Women's Rights Overall	Women's Economic Rights	Women's Political Rights	Women's Social Rights	Women's Legal Rights
Role Model	-0.034	0.058	-0.046	-0.159	-0.034
p-value	(0.509)	(0.279)	(0.612)	(0.113)	(0.683)
Sharpened q-value	[0.999]	[0.999]	[0.999]	[0.999]	[0.999]
FWER p-value	{0.982}	{0.831}	{0.994}	{0.430}	{0.998}
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.134	0.100	0.111	0.123	0.117

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights. Women's Economic Rights is an index combining women's rights to education and work outside home, based on reactions to statements "Women should be allowed to work outside the home". "Women and men should have equal rights to jobs". "I have no problem with my sister or female cousin working outside the home". "Daughters should have the same right to inherit property as sons". "Women and men should have equal rights to get an education". "Wives should not be less educated than their husbands". "Boys should not have more opportunities and resources for education than girls.". Women's Political Rights is based on statements "It would be a good idea to elect a woman as the village Sarpanch (local politician)." "Women and men have equal rights to be President or Prime Minister.". Women's Social Rights is based on statements "Domestic violence by husbands cannot be justified" "Parents should seek their daughter's consent before fixing her marriage". "A woman should not necessarily get married before her 25th Birthday". "Women who give birth to a son need not be honored in the family". "A woman with five daughters should not be under social pressure to bear a son.". Finally, the Women's Legal Rights index is based on statements "Laws should be passed to ban dowry.". "Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own free will without the consent of Wali. To what extent do you approve of this legal right of women to enter marriage under their own free will". Role Model emphasizes the same message as the celebrity but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S15: Impact on Vaccinations and Student Achievement – Randomization Inference

	(1)	(2)	(3)	(4)	(5)
	Full Vaccination	*Math*	*English*	*General Knowledge*	*Urdu*
Role Model	0.375	0.111	0.145	0.134	0.145
	(0.013) **	(0.012) **	(0.002) ***	(0.004) ***	(0.001) ***
	{0.013} ***	{<0.001} ***	{<0.001} ***	{<0.001} ***	{<0.001} ***
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	607	13,933	13,933	13,933	13,933
R- squared	0.160	0.013	0.016	0.012	0.015

Note: p-values from our baseline regressions appear in parentheses for comparison, while p-values from randomization inference due to Heß (2017) are reported in curly brackets. The dependent variable in column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificate. This variable is standardized to mean zero and standard deviation one. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation for Math scores, English scores, General Knowledge scores, and Urdu scores about six months after the treatment. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" of 10 times her monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model emphasizes the same message but via the medium of a female role model. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1 respectively. *** p<0.01, ** p<0.05, * p<0.1.

Table S16: Robustness to different Clustering

	Fully Vaccinated			
	Clustered at Teacher level	Clustered at School level	Clustered at City level	Clustered at State Capital level
	(1)	(2)	(3)	(4)
Lottery	-0.140	-0.140	-0.140	-0.140
	(0.140)	(0.157)	(0.108)	(0.064)
Cash 15%	-0.078	-0.078	-0.078	-0.078
	(0.137)	(0.119)	(0.175)	(0.040)
Cash 30%	0.056	0.056	0.056	0.056
	(0.139)	(0.143)	(0.182)	(0.093)
Celebrity	-0.004	-0.004	-0.004	-0.004
	(0.137)	(0.173)	(0.120)	(0.016)
Role Model	0.375**	0.375**	0.375**	0.375*
	(0.150)	(0.142)	(0.164)	(0.036)
Individual Teacher Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.160	0.160	0.160	0.160

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. This variable is standardized to mean zero and standard deviation one. In Column (1) Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, *p<0.1.

Table S17: Robustness to Dropping Largest and Smallest Percentile Schools

	Fully Vaccinated			
	Dropped Schools with top 5% Teachers	Dropped Schools with top 10% Teachers	Dropped Schools with Bottom 5% Teachers	Dropped Schools with Bottom 10% Teachers
	(1)	(2)	(3)	(4)
Lottery	-0.193	-0.199	-0.164	-0.157
	(0.146)	(0.164)	(0.145)	(0.149)
Cash 15%	-0.084	-0.137	-0.128	-0.125
	(0.143)	(0.159)	(0.141)	(0.142)
Cash 30%	0.014	-0.015	0.025	0.017
	(0.144)	(0.155)	(0.144)	(0.147)
Celebrity	-0.047	-0.161	-0.002	0.024
	(0.143)	(0.153)	(0.139)	(0.143)
Role Model	0.327**	0.318*	0.362**	0.369**
	(0.156)	(0.169)	(0.154)	(0.156)
Individual Teacher Controls	Yes	Yes	No	No
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	576	502	565	544
R-squared	0.162	0.152	0.154	0.156

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. This variable is standardized to mean zero and standard deviation one. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Table S18: Robustness to different sets of Controls

	Fully Vaccinated			
	(1)	(2)	(3)	(4)
Lottery	-0.140	-0.159	-0.137	-0.156
	(0.140)	(0.139)	(0.140)	(0.139)
Cash 15%	-0.078	-0.087	-0.065	-0.076
	(0.137)	(0.138)	(0.137)	(0.138)
Cash 30%	0.056	0.055	0.060	0.059
	(0.139)	(0.139)	(0.140)	(0.139)
Celebrity	-0.004	-0.030	-0.015	-0.038
	(0.137)	(0.137)	(0.137)	(0.137)
Role Model	0.375**	0.361**	0.379**	0.366**
	(0.150)	(0.150)	(0.149)	(0.149)
Individual Teacher Controls	Yes	Yes	No	No
Pre-Treatment Outcomes	Yes	No	Yes	No
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.160	0.147	0.153	0.141

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. This variable is standardized to mean zero and standard deviation one. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. *** p<0.01, ** p<0.05, * p<0.1.

Appendix S2. Consent, Survey Instrument and Flow Chart

Appendix S2.1. Consent

For teachers:

I agreed to participate in the research study. I understand the purpose and nature of this study and I am participating voluntarily. I understand that I can withdraw from the study at any time, without any penalty or consequences.

Yes 🔘 No 🔘

I grant permission for the data generated from this survey to be used in the researcher's publications on this topic.

Yes 🔘 No 🔘

I grant permission to researchers to use my anonymized information for research purposes and this includes my personal data with PEN.

Yes 🔘 No 🔘

For parents/caregivers:

I grant permission to researchers to use my son or daughter’s anonymized information for research purposes and this includes the personal data with PEN.

Yes 🔘 No 🔘

Appendix S2.2. Transcript of Structured Discussion Questions

Following teach treatment video, teachers are prompted the following three questions:

Q1. What do you think was the main message of the video?

Q2. Did you find the video useful?

Q3. How can you apply the video lessons in your life?

Appendix S2.3. Survey Instrument: Gender Rights Index Statements

Likert Scale:

1. Totally Disagree
2. Disagree
3. Neutral
4. Agree
5. Totally Agree

S1. Women should be allowed to work outside the home.

S2. Women and men should have equal rights to jobs.

S3. I have no problem with my sister or female cousin from working outside the home.

S4. Daughters should have a similar right to inherited property as sons.

S5. Women and men should have equal rights to get an education as men.

S6. Wives should not be less educated than their husbands.

S7. Boys should not get more opportunities and resources for education than girls

S8. It would be a good idea to elect a woman as the village Sarpanch (local politician).

S9. Women and men have equal rights to be President or Prime Minister.

S10. Domestic violence by husbands cannot be justified.

S12. Women should not necessarily get married before her 25th Birthday.

S13. Women who give birth to a son need not be honored in the family.

S14. A woman with five daughters should not be under social pressure to bear a son.

S15. Laws should be passed to ban dowry.

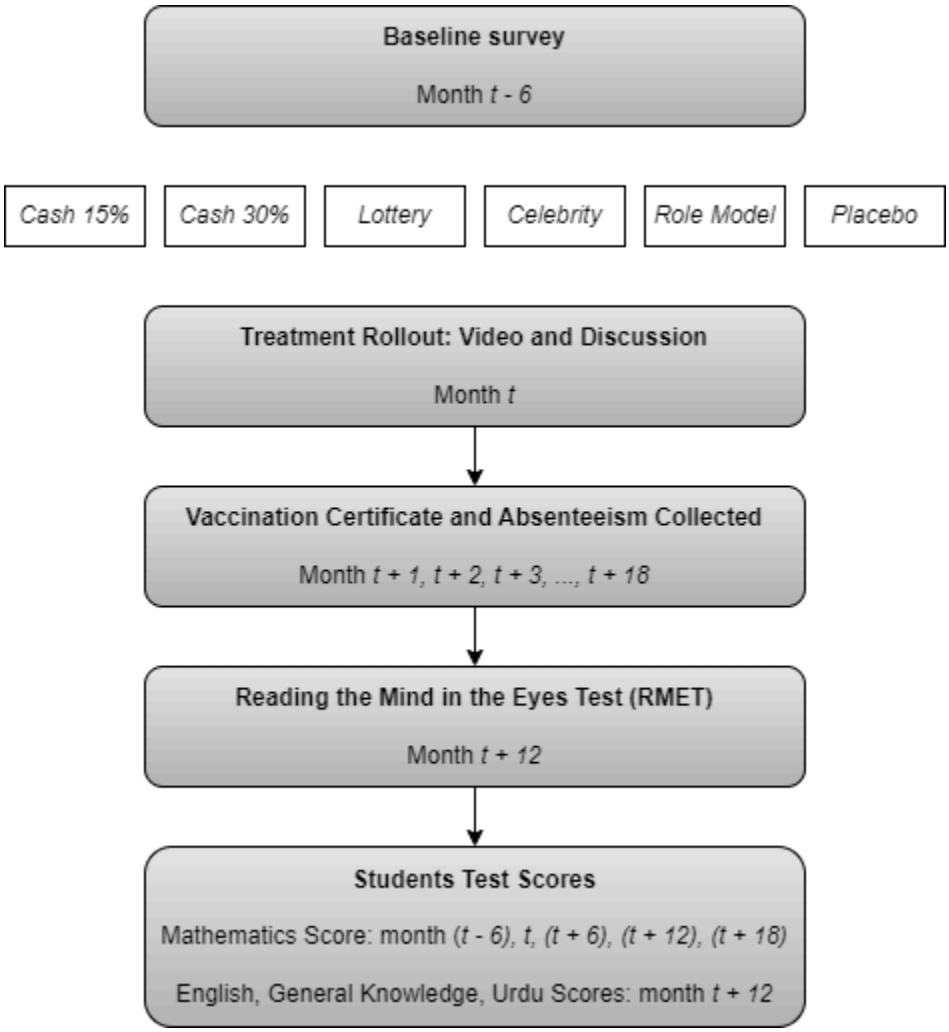
S16. Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own freewill without the consent of Wali. How much do you approve of this legal right of women to enter marriage under their own freewill.

Appendix S2.4. Procedure for Index Construction

Average effect size (AES) approach of Kling et al., 2004 and Kremer et al., 2009, is used to construct gender rights indices. The AES averages the normalized effects obtained from a seemingly unrelated regression in which each dependent variable is an index of several variables. Normalization is relative to the control group. Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights i.e. all the 16 statements in section C2. Women's Economic Rights is an index combining women rights relevant to education and work outside home i.e. statements 1 to 7. Women's Political rights is an index of statements 8 and 9, while women's social rights is based on statements 10 to 14. Finally, the legal rights index combines statements 15 and 16. Specifically, Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights. Women's Economic Rights is an index combining women rights relevant to education and work outside home i.e. statements "Women should be allowed to work outside the home". "Women and men should have equal rights to jobs". "I have no problem with my sister or female cousin from working outside the home". "Daughters should have a similar right to inherited property as sons". "Women and men should have equal rights to get an

education as men". "Wives should not be less educated than their husbands". "Boys should not get more opportunities and resources for education than girls.". Women's Political rights is an index of statements "It would be a good idea to elect a woman as the village Sarpanch (local politician)." "Women and men have equal rights to be President or Prime Minister.", while women's social rights index is based on statements "Domestic violence by husbands cannot be justified" "Parents should seek their daughter's consent before fixing her marriage". "Women should not necessarily get married before her 25th Birthday". "Women who give birth to a son need not be honored in the family". "A woman with five daughters should not be under social pressure to bear a son.". Finally, the legal rights index combines statements "Laws should be passed to ban dowry. Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own freewill without the consent of Wali. How much do you approve of this legal right of women to enter marriage under their own freewill."

Appendix S2.5. Flow Chart



Note:All treatments were rolled out in August 2021, with the baseline data collected 6 months before treatment (February 2021), midline 12 months (September 2022) post-treatment and endline 18 months post-treatment (March 2023), respectively. For mathematics, we have test scores for 6, 12 and 18 months after the treatment, and vaccinations and absenteeism data is available at the monthly level up to 18 months post-treatment.

Appendix S3. Deviation from Pre-Registration

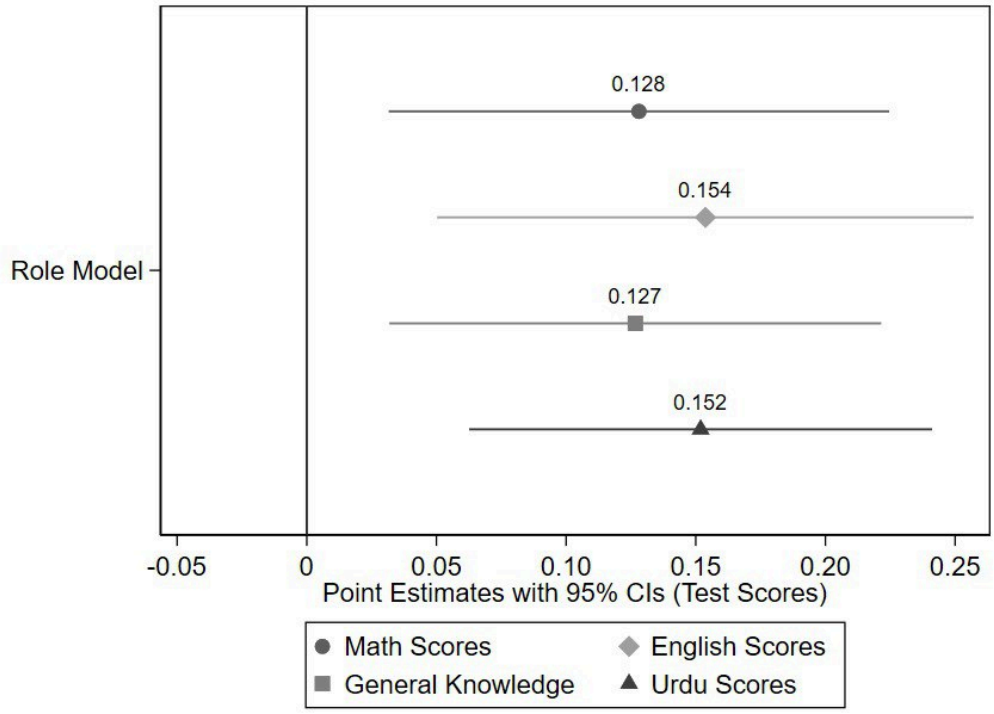
Pre-registration for the main experiment was registered in the American Economic Association registry for randomized controlled trials (AEARCTR-0008084). This appendix reports and discusses the deviations from the pre-registration.

The discrepancy between the pre-registration and the discussion of the study presented in the paper primarily concerns the primary outcomes. In the pre-registration, primary outcomes included self-reported vaccination status (collected via survey responses), outcomes on trust games, and whether teachers decided to open a bank account following the treatment. However, these endpoints were not mentioned in the paper. Several reasons account for this deviation. The project was conducted in partnership with the Progressive Education Network (PEN), which ultimately decided against the collection of self-reported vaccination status and outcomes from trust games and perspective-taking, except for the Reading the Mind in the Eyes Test (RMET) scores, following the acquisition of vaccination certificates. PEN's primary concern was to avoid overburdening the teachers. This constraint was largely due to time limitations. Furthermore, the data on the prevalence of bank accounts among teachers was gathered before the intervention. However, this variable exhibited minimal variation—with 606 out of 607 teachers already possessing a bank account prior to the experiment—rendering it unsuitable for assessing the treatment's influence on the propensity to open new accounts. Consequently, this particular variable is also not utilized in our analysis. Concurrent with the fieldwork, the research team expanded the scope of inquiry to encompass ancillary outcomes potentially influenced by teacher vaccination. Specifically, we collected data on teacher absences and student test scores to ascertain the downstream effects of treatment and vaccination on these pivotal educational metrics. Moreover, the study also was able to include a variable not delineated in the pre-registration—teachers' gender attitudes. This variable was fortuitously captured during a concurrent experiment involving the same cohort of teachers in Mehmood et al., 2024. The temporal alignment of data collection, both antecedent and subsequent to the treatment allocation in the vaccination and role model experiment, furnished an opportunity to integrate this variable into the current analysis, allowing us to examine a potential alternate mechanism explaining the female role model effect.

We also gathered data on perspective-taking, operationalized through the RMET scores, disaggregated by gender to discern cognitive responses that may vary by teacher gender. RMET score was collected prior to treatment assignment and was used to explain the mechanism of role model effect on vaccination uptake.

Appendix T. Robustness to the exclusion of school fixed effects

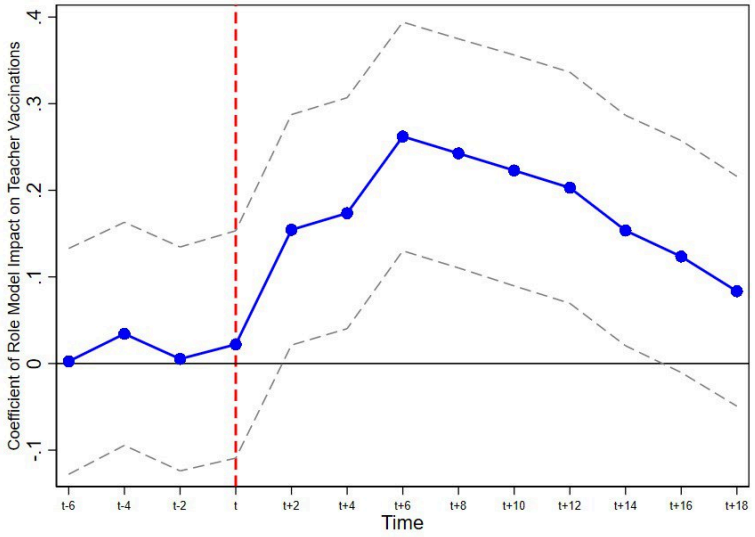
Figure T1: Impact on Student test Scores - Standardized, no fixed effects



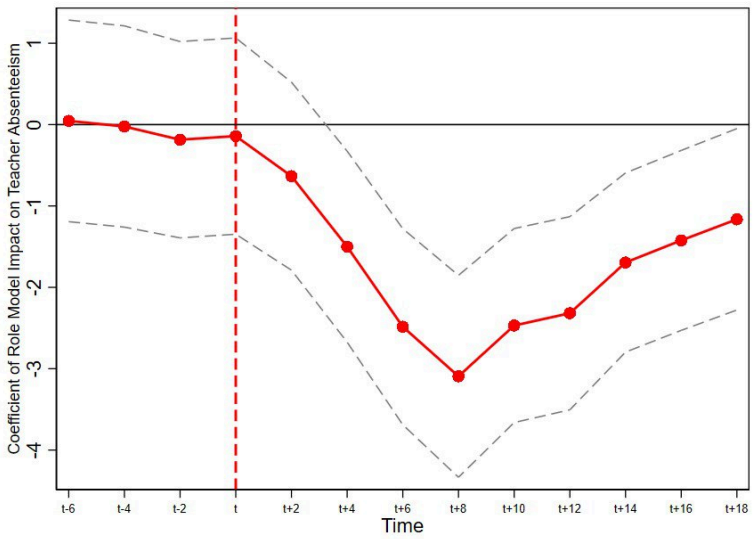
Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1) with all controls and no fixed effects are reported. The dependent variables are standardized to mean zero and standard deviation for test scores in Math, English, General Knowledge, and Urdu scores from regular examinations held 12 months following the treatment. Controls include all individual characteristics. School fixed effects are not included. 95% confidence bands are also reported. Table-form representation of this figure with coefficient estimates on all other treatments are reported in Table T7 of the Online Appendix.

Figure T2: Treatment Effect on Teachers' Absenteeism and Vaccinations in Levels, no fixed effects

Panel A: Impact of Role Model on Teachers' Vaccinations

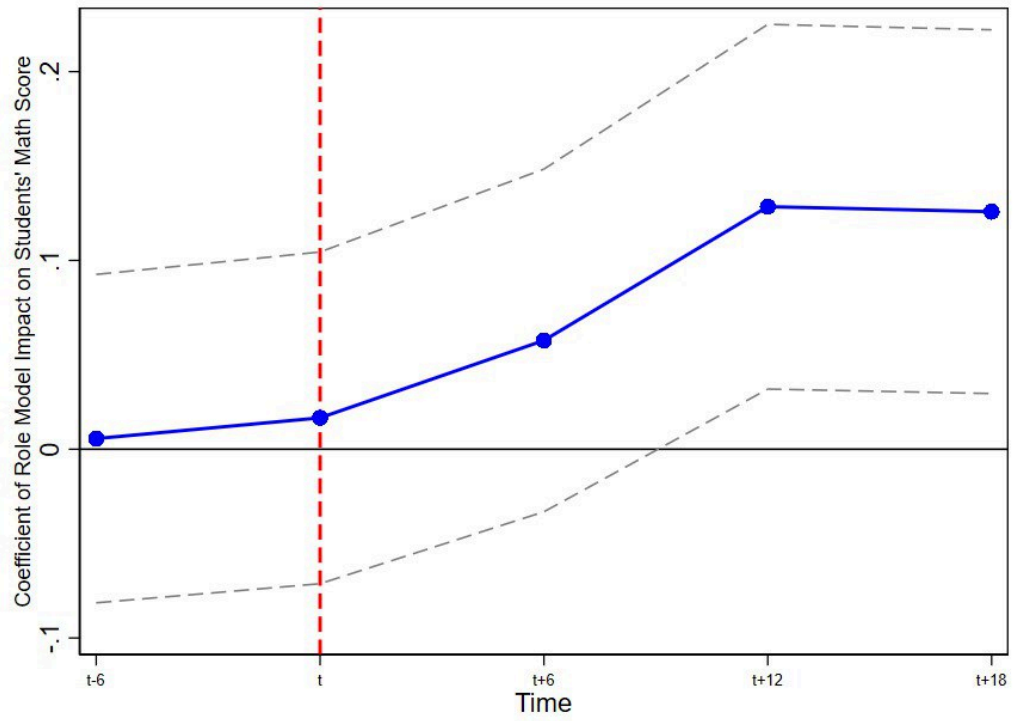


Panel B: Impact of Role Model on Teachers' Absenteeism



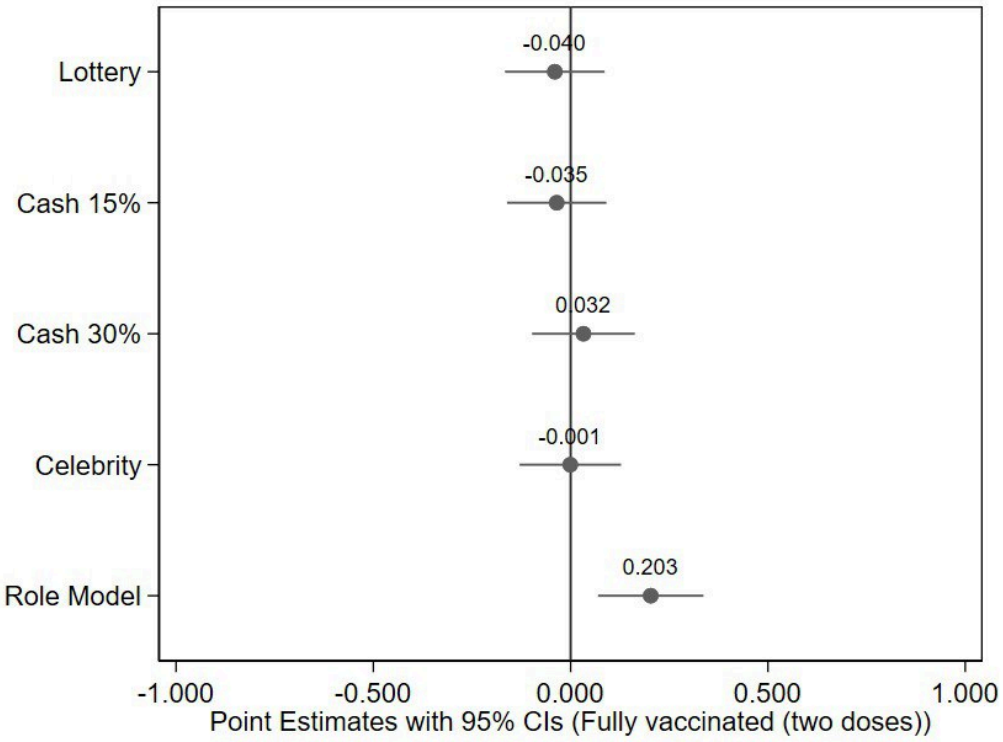
Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1) but without fixed effects and at the month level. The dependent variable in Panel A and B, are teachers' full vaccinations and absences, respectively, recorded monthly. School fixed effects are not included. 1. 95% confidence intervals are also reported. Table T2 and T3 illustrate results at month t+12 of this figure for all treatments. Both panels present results in levels.

Figure T3: Impact on Students' Mathematics Scores - Standardized, no fixed effects



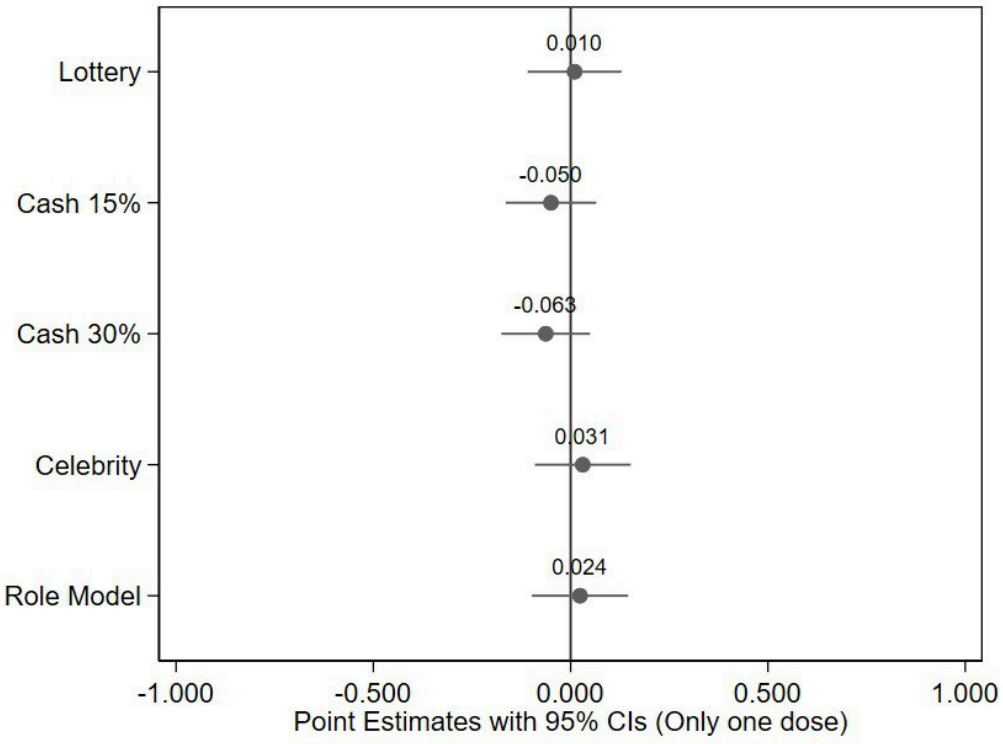
Note: The figure reports coefficient estimates corresponding to the Role Model Treatment based on specification (1), but without fixed effects. The dependent variable is students' Math score every 6 months, standardized to mean zero and standard deviation one. The record of Mathematics scores is available from six months prior to the treatment i.e., for (t-6) till (t + 18), for every semester, roughly lasting 6 months. Estimates in regression tables are for 12 months following the treatment. Controls include all individual characteristics. School fixed effects are not included. 95% confidence intervals are also reported.

Figure T4: Impact on Teacher Vaccinations in Levels, no fixed effects



Note: The figure report estimates from equation (1) with all controls. The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate. Controls include all individual characteristics. 95% confidence bands are also reported. *Lottery* is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, *Cash 15%* stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the *Cash 30%* stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. *Celebrity* treatment requests for vaccination by a prominent celebrity. *Role Model* delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. 95% Confidence Bands are also reported.

Figure T5: Impact on Vaccinations - Single Dose, no fixed effects



Note: The figure reports estimates from equation (1) with all controls. The dependent variable switches on if the teacher has taken only one dose of COVID-19 vaccination as ascertained by COVID-19 certificate. Controls include all individual characteristics. School fixed effects are not included. 95% confidence bands are also reported.

Table T1: Balance over Teacher and Student characteristics, no fixed effects

Panel A: Teacher Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Pre-Treatment COVID Vaccination	Teaching experience	Years of education	Educational Specialization	Av. Class Size	Av. Teaching Hours
Lottery	-0.037	-0.192	0.198	-0.045	-1.083	-0.473
	(0.036)	(0.374)	(0.207)	(0.061)	(2.612)	(0.315)
Cash 15%	-0.035	-0.339	0.040	0.051	-1.779	-0.452*
	(0.035)	(0.403)	(0.209)	(0.064)	(2.822)	(0.251)
Cash 30%	-0.009	-0.446	0.169	-0.001	0.329	-0.193
	(0.039)	(0.352)	(0.201)	(0.060)	(2.756)	(0.386)
Celebrity	-0.051	0.224	0.124	-0.036	0.860	0.219
	(0.034)	(0.401)	(0.203)	(0.060)	(2.854)	(0.456)
Role Model	-0.018	-0.218	0.344*	0.021	-1.267	-0.269
	(0.038)	(0.384)	(0.185)	(0.062)	(2.816)	(0.350)
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607	607
R-squared	0.014	0.095	0.080	0.026	0.045	0.021
F Statistics (Joint Significance)	0.639 [0.670]	0.735 [0.597]	0.854 [0.512]	0.647 [0.664]	0.257 [0.936]	1.408 [0.219]
Mean of dependent var	0.088	4.706	12.549	0.255	25.275	30.490

Panel B: Students Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Free Lunch Eligible	Single Parent	Number of Siblings	Mother Housewife	Father's Education	Mother's Education	Student Gender
Lottery	-0.016	-0.007	0.061	0.007	-0.120	-0.193	0.061
	(0.015)	(0.014)	(0.070)	(0.014)	(0.158)	(0.147)	(0.050)
Cash 15%	-0.018	-0.0003	0.019	-0.004	0.007	0.246	0.046
	(0.015)	(0.014)	(0.074)	(0.014)	(0.157)	(0.150)	(0.051)
Cash 30%	0.001	-0.002	0.039	0.002	-0.058	0.047	0.090*
	(0.016)	(0.014)	(0.076)	(0.014)	(0.156)	(0.156)	(0.050)
Celebrity	-0.021	-0.009	0.086	0.006	-0.089	0.131	0.070
	(0.015)	(0.015)	(0.071)	(0.014)	(0.151)	(0.147)	(0.050)
Role model	-0.006	0.009	0.045	0.016	-0.137	-0.098	0.066
	(0.015)	(0.014)	(0.074)	(0.013)	(0.170)	(0.156)	(0.050)
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,933	13,933	13,933	13,933	13,933	13,933	13,933
R-squared	0.001	0.016	0.006	0.0004	0.005	0.005	0.006
F Statistics (Joint Significance)	0.855 [0.511]	0.457 [0.808]	0.358 [0.877]	0.506 [0.772]	0.279 [0.924]	2.087 [0.065]	0.751 [0.586]
Mean of dependent var	0.524	0.143	3.926	0.496	9.051	8.889	0.434

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Panel A, teacher characteristics are presented, while in Panel B, student characteristics are reported. The dependent variables in Panel A are Pre-Treatment vaccination status dummy, teaching experience which is the years of experience in teaching. Years of Education which is the years of teachers' education. Educational Specialization is a dummy variable that switches on when a teacher has obtained pedagogical specialization. Av. Class Size is the average number of students a teacher teaches in each class. Av. Teaching Hours is the total number of teaching hours per week. Role Model delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. The student-level controls include dummies for whether the student is eligible for the free lunch program, dummy for single parent, number of siblings, dummy for mother being a housewife, fathers and mother's education, dummy for student's gender. The p-value for testing the joint significance of all treatments is reported in square brackets next to the value of the F-statistic. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T2: Impact on Vaccination in Levels, no fixed effects

	Fully Vaccinated				
	(1)	(2)	(3)	(4)	(5)
Lottery	-0.040	-0.042	-0.038	-0.045	-0.038
	(0.064)	(0.064)	(0.064)	(0.063)	(0.064)
Cash 15%	-0.035	-0.026	-0.036	-0.025	-0.033
	(0.064)	(0.065)	(0.064)	(0.065)	(0.064)
Cash 30%	0.032	0.034	0.034	0.033	0.035
	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)
Celebrity	-0.001	-0.001	0.0004	-0.002	0.0004
	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)
Role model	0.203***	0.112*	0.213***	0.120*	0.175***
	(0.068)	(0.068)	(0.069)	(0.068)	(0.067)
Role model X Female RMET		0.116***		0.111**	
		(0.045)		(0.048)	
Role model X Male RMET			0.018	0.064	
			(0.051)	(0.049)	
Role model X Overall RMET					0.151***
					(0.054)
Female RMET		0.054**		0.063**	
		(0.022)		(0.027)	
Male RMET			0.018	-0.015	
			(0.021)	(0.025)	
Overall RMET					0.037*
					(0.020)
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.050	0.087	0.052	0.090	0.077
Mean Dependent var	0.314	0.314	0.314	0.314	0.314

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by their COVID-19 certificate, measured 12 months after the treatment. Lottery is a dummy variable that switches on when the teacher has given Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. * $p<0.01$, $p<0.05$, * $p<0.1$.

Table T3: Mechanism - Impact on Teacher Absenteeism - Standardized, no fixed effects

	Teachers' Absenteeism			
	(1)	(2)	(3)	(4)
Lottery	-0.192	-0.187	-0.201	-0.188
	(0.135)	(0.134)	(0.135)	(0.136)
Cash 15%	-0.186	-0.205	-0.185	-0.205
	(0.129)	(0.130)	(0.129)	(0.130)
Cash 30%	-0.159	-0.162	-0.166	-0.162
	(0.136)	(0.135)	(0.136)	(0.135)
Celebrity	-0.190	-0.189	-0.195	-0.189
	(0.131)	(0.131)	(0.132)	(0.132)
Role Model	-0.509***	-0.301**	-0.511***	-0.302**
	(0.133)	(0.126)	(0.134)	(0.128)
Role Model X Female RMET		-0.282***		-0.283***
		(0.094)		(0.099)
Role Model X Male RMET			0.086	-0.001
			(0.101)	(0.101)
Female RMET		-0.113**		-0.111*
		(0.057)		(0.065)
Male RMET			-0.062	-0.003
			(0.052)	(0.058)
Individual Teacher Controls	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.024	0.067	0.027	0.067

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable is the total number of absences recorded after 12 months post treatment which is standardized to mean zero and standard deviation one and measured 12 months following the treatment. Lottery is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e., opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, Cash 15% stands a cash award upon getting vaccinated equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination delivered via the same female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T4: Mechanism - Impact on Teacher's Reason for Absence - Standardized, no fixed effects

	COVID is Reason for Absence		All Other Reasons for Absence	
	(1)	(2)	(3)	(4)
Lottery	-0.197	-0.194	0.000	0.002
	(0.137)	(0.138)	(0.142)	(0.142)
Cash 15%	-0.215*	-0.209	0.021	-0.008
	(0.128)	(0.129)	(0.146)	(0.146)
Cash 30%	-0.173	-0.171	0.018	0.015
	(0.133)	(0.134)	(0.141)	(0.141)
Celebrity	-0.186	-0.185	-0.061	-0.039
	(0.128)	(0.130)	(0.142)	(0.142)
Role Model	-0.334***	-0.329**	0.074	0.071
	(0.128)	(0.130)	(0.149)	(0.147)
Role Model X Female RMET	-0.306***	-0.310***	0.068	0.071
	(0.099)	(0.100)	(0.103)	(0.104)
Role Model X Male RMET	-0.018	-0.022	0.082	0.084
	(0.100)	(0.101)	(0.099)	(0.097)
Female RMET	-0.113*	-0.111*	-0.011	-0.014
	(0.064)	(0.065)	(0.055)	(0.056)
Male RMET	0.005	0.003	-0.033	-0.024
	(0.058)	(0.059)	(0.053)	(0.053)
Individual Teacher Controls	No	Yes	No	Yes
Observations	607	607	607	607
R-squared	0.073	0.074	0.004	0.025

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in columns (1) and (2) is the total number of absences due COVID illness and measured 12 months following the treatment. The dependent variable in columns (3) and (4) is the total number of absences due to other reasons (i.e., marriage, funeral) recorded after 12 months post treatment. The dependent variables are standardized to mean zero and standard deviation one. Lottery is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e., opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, Cash 15% stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the Cash 30% stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination delivered via the same female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T5: Impact on Lumpy versus Short Leaves - Standardized, no fixed effects

	Lumpy Absences > 7 Days		Short Absences < 7 Days	
	(1)	(2)	(3)	(4)
Lottery	-0.146	-0.134	-0.087	-0.101
	(0.129)	(0.130)	(0.139)	(0.139)
Cash 15%	-0.194	-0.176	-0.041	-0.056
	(0.132)	(0.133)	(0.141)	(0.142)
Cash 30%	-0.218	-0.215	-0.018	-0.024
	(0.133)	(0.133)	(0.142)	(0.142)
Celebrity	-0.170	-0.168	-0.064	-0.064
	(0.130)	(0.132)	(0.140)	(0.141)
Role Model	-0.360***	-0.350**	0.099	0.084
	(0.139)	(0.141)	(0.146)	(0.148)
Individual Teacher Controls	No	Yes	No	Yes
Observations	607	607	607	607
R-squared	0.011	0.017	0.004	0.008

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Columns 1 and 2 is a dummy that switches on if the teacher has taken a consecutive leave for more than 7 days. The dependent variable in Columns 3 and 4 is a dummy that switches on if the teacher has taken a consecutive leave for 7 days or less. These variables are standardized to mean zero and standard deviation one and measured 12 months following the treatment. Lottery is a dummy variable that switches on when the teacher is assigned the Lottery treatment i.e., opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T6: Alternate Mechanism - Impact on Gender Attitudes, no fixed effects

	Women's Rights Overall	Women's Economic Rights	Women's Political Rights	Women's Social Rights	Women's Legal Rights
	(1)	(2)	(3)	(4)	(5)
Lottery	0.067	0.103*	0.032	0.041	0.047
	(0.054)	(0.055)	(0.103)	(0.102)	(0.091)
Cash 15%	-0.028	0.076	-0.020	-0.177*	-0.027
	(0.049)	(0.052)	(0.089)	(0.100)	(0.077)
Cash 30%	-0.096**	-0.041	-0.142*	-0.172*	-0.049
	(0.046)	(0.048)	(0.079)	(0.096)	(0.075)
Celebrity	-0.049	0.013	-0.081	-0.124	-0.048
	(0.049)	(0.049)	(0.087)	(0.107)	(0.073)
Role Model	-0.055	0.057	-0.079	-0.210**	-0.038
	(0.047)	(0.049)	(0.087)	(0.094)	(0.076)
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.024	0.022	0.013	0.021	0.012

Note: Robust standard errors appear in brackets (clustered at the teacher level). Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights. Women's Economic Rights is an index combining women's rights to education and work outside home, based on reactions to statements "Women should be allowed to work outside the home". "Women and men should have equal rights to jobs". "I have no problem with my sister or female cousin working outside the home". "Daughters should have the same right to inherit property as sons". "Women and men should have equal rights to get an education". "Wives should not be less educated than their husbands". "Boys should not have more opportunities and resources for education than girls.". Women's Political Rights is based on statements "It would be a good idea to elect a woman as the village Sarpanch (local politician)." "Women and men have equal rights to be President or Prime Minister.". Women's Social Rights is based on statements "Domestic violence by husbands cannot be justified" "Parents should seek their daughter's consent before fixing her marriage". "A woman should not necessarily get married before her 25th Birthday". "Women who give birth to a son need not be honored in the family". "A woman with five daughters should not be under social pressure to bear a son.". Finally, the Women's Legal Rights index is based on statements "Laws should be passed to ban dowry.". "Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own free will without the consent of Wali. To what extent do you approve of this legal right of women to enter marriage under their own free will". Lottery is a dummy variable that switches on when the teacher is assigned Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to about 10 times teachers' monthly salary, Cash 15% stands a cash award equivalent to 15% of teachers' monthly salary, while the Cash 30% stands for dummy switches on when the teacher has given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T7: Impact on Students' Test Scores - Standardized, no fixed effects

	(1)	(2)	(3)	(4)
	Mathematics	*English*	*General Knowledge*	*Urdu*
Lottery	-0.051*	0.018	-0.043	-0.015
	(0.029)	(0.029)	(0.031)	(0.029)
Cash 15%	-0.041	0.008	-0.010	0.015
	(0.031)	(0.029)	(0.032)	(0.030)
Cash 30%	-0.026	0.045	-0.012	0.021
	(0.029)	(0.032)	(0.030)	(0.029)
Celebrity	0.026	-0.009	-0.007	-0.001
	(0.030)	(0.031)	(0.030)	(0.030)
Role Model	0.128***	0.154***	0.127***	0.152***
	(0.049)	(0.053)	(0.048)	(0.045)
Individual Controls	Yes	Yes	Yes	Yes
Observations	13,933	13,933	13,933	13,933
R-squared	0.004	0.004	0.004	0.004

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variables are test scores that are standardized to mean zero and standard deviation for Math, English, General Knowledge and Urdu standardized test scores. Lottery is a dummy variable that switches on when the teacher was assigned the Lottery treatment i.e. opportunity to win a "lucky draw" equivalent to 10 times her monthly salary, Cash 15% stands a cash award upon getting vaccinated equivalent to 15% of teachers monthly salary, while the Cash 30% stands for dummy switches on when the teacher has been given cash equivalent to about 30% of her monthly salary. Celebrity treatment requests for vaccination by a prominent celebrity. Role Model delivers the same message but via the medium of a female role model. A placebo group is assigned an equal length message unrelated to COVID-19 vaccination via the same female role model. The student-level controls include all student characteristics reported in Panel B of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T8: Impact of Role Model on Vaccination Status, no fixed effects

Panel A. Second-stage least squares results				
	(1)	(2)	(3)	(4)
	Mathematics	*English*	*General Knowledge*	*Urdu*
Full Vaccination	0.675**	0.643**	0.676**	0.680***
	(0.275)	(0.287)	(0.283)	(0.253)
Individual Controls	Yes	Yes	Yes	Yes
Observations	13,933	13,933	13,933	13,933
Panel B. First-stage results				
			Full Vaccination	
Role model			0.214***	
			(0.054)	
Individual Controls			Yes	
Observations			13,933	
F-statistic			15.545	
Mean Dependent var			0.315	

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Columns (1) switches on if the teacher is fully vaccinated against COVID-19. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation one scores for Mathematics, English, General Knowledge, and Urdu. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. First-stage in Column 1 is the same for all second-stage regressions from Columns 2, 3, 4, and 5. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1 respectively. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T9: Impact of Vaccination Status on Absenteeism, no fixed effects

Panel A. Second-stage least squares results			
	(1)	(2)	(3)
	Teachers' Absenteeism	COVID is Reason for Absence	All Other Reasons for Absence
Full Vaccination	-1.719***	-1.881***	0.437
	(0.663)	(0.694)	(0.509)
Individual Controls	Yes	Yes	Yes
Observations	607	607	607
Panel B. First-stage results			
		Full Vaccination	
Role model		0.212***	
		(0.054)	
Individual Controls		Yes	
Observations		607	
F-statistic		15.54	
Mean Dependent var		0.314	

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column 1 is the total number of absences recorded after 12 months post-treatment. The dependent variable in Column 2 is the total number of absences due to COVID illness measured 12 months following the treatment. The dependent variable in Column 3 is the total number of absences due to other reasons (i.e., marriage, funeral) recorded after 12 months post-treatment. The dependent variables are standardized to mean zero and standard deviation one. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. The first stage in Column 1 is the same for all second-stage regression from Columns 2, 3 and 4. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1 respectively. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T10: Impact on Vaccinations and Student Achievement – Assessing Spillovers, no fixed effects

	(1)	(2)	(3)	(4)	(5)
	Full Vaccination	*Math*	*English*	*General Knowledge*	*Urdu*
Fraction of Role Model Treated Teachers X Role Model	0.240	0.763***	0.760***	0.658***	0.551***
	(0.724)	(0.189)	(0.221)	(0.198)	(0.199)
Role Model	0.368	-0.067	-0.040	-0.041	0.011
	(0.236)	(0.083)	(0.095)	(0.086)	(0.082)
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
Observations	607	13,933	13,933	13,933	13,933
R- squared	0.050	0.006	0.006	0.005	0.005

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificates. This variable is standardized to mean zero and standard deviation one. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation one scores for Mathematics, English, General Knowledge, and Urdu. The Fraction of Role Model Treated Teachers is the proportion of teachers treated with the Role Model treatment within a school. Role Model treatment delivers the same message as the celebrity but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. The student-level controls include all student characteristics reported in Panel B of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T11: Impact on Vaccinations and Student Achievement – Multiple Hypothesis Test, no fixed effects

	(1)	(2)	(3)	(4)	(5)
	Full Vaccination	*Math*	*English*	*General Knowledge*	*Urdu*
Role model	0.429	0.128	0.154	0.127	0.152
p-value	(0.003) ***	(0.009) ***	(0.004) ***	(0.009) ***	(0.001) ***
Sharpened q-value	[0.016] **	[0.044] **	[0.036] **	[0.044] **	[0.018] **
FWER p-value	{0.001} ***	{0.005} ***	{0.002} ***	{0.004} ***	{<0.001} ***
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
Observations	607	13,933	13,933	13,933	13,933
R- squared	0.050	0.004	0.004	0.004	0.004

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. The dependent variable in column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificate. This variable is standardized to mean zero and standard deviation one. The dependent variables in Columns 2, 3, 4 and 5 are standardized to mean zero and standard deviation for Mathematics, English, General Knowledge, and Urdu test scores. Role Model emphasizes the same message as the celebrity but via the medium of a female role model. The teacher-level and student-level controls include all teacher and student characteristics reported in Panel A and Panel B of Table 1 respectively. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T12: Impact on Teacher Absenteeism – Multiple Hypothesis Test, no fixed effects

	(1)	(2)	(3)	(4)	(5)
	Teachers' Absenteeism	COVID *is Reason for Absence*	*All Other Reasons for Absence*	*Short Absences*	*Lumpy Absences*
Role model	-0.509	-0.547	0.089	0.084	-0.350
p-value	(<0.001) ***	(<0.001) ***	(0.524)	(0.571)	(0.013) **
Sharpened q-value	[0.002] ***	[0.002] ***	[0.682]	[0.682]	[0.111]
FWER p-value	{<0.001} ***	{<0.001} ***	{0.967}	{0.972}	{0.013} **
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.024	0.028	0.022	0.008	0.017

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. The dependent variable in Column 1 is the total number of absences recorded after 12 months post treatment. The dependent variable in Column 2 is the total number of absences due COVID illness. The dependent variable in Column 3 is the total number of absences due to other reasons (i.e., marriage, funeral). The dependent variable in Columns 4 is a dummy that switches on if the teacher has taken a consecutive leave for 7 days or less. The dependent variable in Column 5 is a dummy that switches on if the teacher has taken a consecutive leave for more than 7 days. Dependent variables are standardized to mean zero and standard deviation one and measured 12 months following the treatment. Role Model emphasizes the same message as the celebrity but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T13: Role Model and RMET Score Impact on Vaccination– Multiple Hypothesis Test, no fixed effects

	Fully Vaccinated			
	(1)	(2)	(3)	(4)
Role model	0.238	0.451	0.253	0.371
p-value	(0.098) *	(0.002) ***	(0.079) *	(0.009) ***
Sharpened q-value	[0.197]	[0.014] **	[0.225]	[0.033] **
FWER p-value	{0.090} *	{0.001} ***	{0.099} *	{0.003} ***
Role model X Female RMET	0.246		0.234	
p-value	(0.009) ***		(0.021) **	
Sharpened q-value	[0.051] *		[0.105]	
FWER p-value	{0.004} ***		{0.021} **	
Role model X Male RMET		0.038	0.135	
p-value		(0.723)	(0.195)	
Sharpened q-value		[0.999]	[0.415]	
FWER p-value		{0.894}	{0.331}	
Role model X Overall RMET				0.320
p-value				(0.006) ***
Sharpened q-value				[0.033] **
FWER p-value				{0.003} ***
Female RMET	0.115		0.134	
p-value	(0.014) **		(0.020) **	
Sharpened q-value	[0.051] *		[0.105]	
FWER p-value	{0.007} ***		{0.021} **	
Male RMET		0.039	-0.033	
p-value		(0.376)	(0.541)	
Sharpened q-value		[0.999]	[0.785]	
FWER p-value		{0.733}	{0.840}	
Overall RMET				0.079
p-value				(0.058) *
Sharpened q-value				[0.107]
FWER p-value				{0.038} **
Individual Teacher Controls	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.087	0.052	0.090	0.077

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. The dependent variable in column (1) switches on if the teacher has taken two doses of COVID-19 vaccination as ascertained by COVID-19 certificate. Dependent variable is standardized to mean zero and standard deviation one and measured 12 months following the treatment. Role Model emphasizes the same message as the celebrity but via the medium of a female role model. RMET reports the total number of correct answers to a total of 20 questions, each of which asks "What emotion are the eyes showing?" on different pictures of male and female eyes. This is also standardized to mean zero and standard deviation one. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. The student-level controls include all student characteristics reported in Panel B of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.

Table T14: Impact on Gender Attitudes – Multiple Hypothesis Test, no fixed effects

	(1)	(2)	(3)	(4)	(5)
	Women's Rights Overall	Women's Economic Rights	Women's Political Rights	Women's Social Rights	Women's Legal Rights
Role Model	-0.055	0.057	-0.079	-0.210	-0.038
p-value	(0.236)	(0.250)	(0.363)	(0.025) **	(0.620)
Sharpened q-value	[0.761]	[0.761]	[0.969]	[0.467]	[0.999]
FWER p-value	{0.673}	{0.695}	{0.851}	{0.041} **	{0.969}
Individual Teacher Controls	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607
R-squared	0.024	0.022	0.013	0.021	0.012

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. Note that the sharpened q-values can be less than unadjusted p-values when several hypotheses are rejected, because if there are many true rejections, you can tolerate several false rejections too and still maintain a low false discovery rate. List et al., (2021)'s familywise error rate corrected (FWER) p-values are reported in curly brackets. This extends the False Discovery Rate (FDR) method by incorporating the point-dependence structure of different treatments, allowing p-values to be correlated while adjusting for multiple hypotheses and controlling for the familywise error rate. In the reported results of FWER correct p-values, we pool p-values across both outcomes and treatments in a single family. Women's Rights Overall is an index consisting of all the statements concerning Women's Economic, Social, Legal and Political Rights. Women's Economic Rights is an index combining women's rights to education and work outside home, based on reactions to statements "Women should be allowed to work outside the home". "Women and men should have equal rights to jobs". "I have no problem with my sister or female cousin working outside the home". "Daughters should have the same right to inherit property as sons". "Women and men should have equal rights to get an education". "Wives should not be less educated than their husbands". "Boys should not have more opportunities and resources for education than girls.". Women's Political Rights is based on statements "It would be a good idea to elect a woman as the village Sarpanch (local politician)." "Women and men have equal rights to be President or Prime Minister.". Women's Social Rights is based on statements "Domestic violence by husbands cannot be justified" "Parents should seek their daughter's consent before fixing her marriage". "A woman should not necessarily get married before her 25th Birthday". "Women who give birth to a son need not be honored in the family". "A woman with five daughters should not be under social pressure to bear a son.". Finally, the Women's Legal Rights index is based on statements "Laws should be passed to ban dowry.". "Under Article 35 of the Constitution of Pakistan & Judgment of Federal Shariat Court, the consent of `Wali' is not required and a sui juris Muslim female can enter into a valid Nikah / Marriage under her own free will without the consent of Wali. To what extent do you approve of this legal right of women to enter marriage under their own free will". Role Model emphasizes the same message as the celebrity but via the medium of a female role model. The teacher-level controls include all teacher characteristics reported in Panel A of Table 1. School fixed effects are not included. *** p<0.01, ** p<0.05, * p<0.1.