Why Are Rights Revolutions Rare?

By Sultan Mehmood, Shaheen Naseer and Daniel L. Chen[1]

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We show that when traditional attitudes are challenged, norm disruptors pay a price. We experimentally foster more progressive gender attitudes among female teachers in Pakistan and show that these attitudes transmit to their students. Progressive gender attitudes, however, elevate stress hormone concentrations in blood plasma by 0.3 standard deviations and lead to a 0.35 standard deviations increase in domestic violence. Leveraging random variation in the fraction of teachers treated within a school, we find, however, that when additional teachers hold progressive attitudes—a moral bandwagoning effect—the costs of holding progressive gender attitudes are attenuated. Overall, our results suggest that deviation from traditional gender attitudes comes at a cost, but this cost diminishes as societal attitudes converge. In particular, domestic violence, more so than stress, stymies gender rights revolutions.

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1 New Economic School (E-mail: smehmood@nes.ru). Lahore School of Economics (E-mail:ranashaheen133@gmail.com) and Toulouse School of Economics (Email: daniel.chen@iast.fr).. Daniel L. Chen acknowledges IAST funding from the French National Research Agency (ANR) under the Investments for the Future (Investissements d'Avenir) program, grant ANR-17-EUR-0010. This research has benefited from financial support of the research foundation TSE- Partnership and ANITI funding. We would like to thank Director Training and Development, Miss Sumera Morris, and Director Academics and Curriculum Development Miss Faria Hafeez at the Progressive Education Network for their invaluable support and cooperation throughout the experiment. We also thank Avner Seror, Matthew Ridley, Alberto Bisin, Paola Giuliano, Chris Bidner, Ekaterina Zhuravskaya, Usman Mahar, Matt Lowe, Eric Reinhardt, Hafeez-ul-Hassan, Ali Bakhtawar and Gautam Rao for their comments and feedback. Sajwaar Khalid, Hafeez-ul-Hassan and Bakthawar Ali provided excellent research assistance and on-the-field support. The trial was Pre-Registered at AEA RCT Registry with ID *AEARCTR-0007465*. Two independent IRBs were obtained for this experiment, the first one from the New Economic School with IRB number *00059/22* and the second is a local IRB obtained from the Lahore School of Economics with IRB Number *RERC-062021-03*.

"*Do not fear to be eccentric in opinion, for every opinion now accepted was once eccentric*."
in The Autobiography of Bertrand Russell (1967).

I. Introduction

Recognition or mutual acceptance of others as having equal rights is considered a fundamental prerequisite for economic and political empowerment of vulnerable groups (Smith, 1759; Hegel, 1820). Campaigns for equal rights, therefore, are often understood as "struggles for recognition" (Taylor, 1992, p. 26). Social norms, however, can be remarkably persistent and slow to change (Fernández, 2013; Giuliano and Nunn, 2021). How can rights revolutions be fostered? What stymies rights revolutions? In this paper, we provide experimental evidence on these questions by cultivating progressive gender attitudes and investigate its first- and second-order consequences.

We conducted a randomized control trial with Pakistani teachers in the Progressive Education Network (PEN), one of the largest charter school networks in the world. We use a novel combination of detailed data on teachers' gender Implicit Association Tests (IAT), behavioral data, blood cortisol measurements, domestic violence, and students' attitudes to show that progressive gender attitudes can materialize in a school using an augmented visual narrative delivered to teachers (Benabou, Falk, and Tirole, 2018). This shift in gender attitudes is magnified when the augmented visual narrative is combined with a semester-long exercise of self-persuasion (Eigen and Listokin, 2012; Schwardmann, Tripodi, and van der Weele, 2022).

Norm disruptors attempting to challenge the status quo may face denunciations, social stigma, and even outright violence (Bursztyn et al., 2020; Giuliano, 2020; Anderson, 2021). This paper shows that novel nonconformist ideas in society can be fostered but it comes with costs to the norm subverters. Many models of social norms involve multiple equilibria, for instance, 'traditional' and 'progressive' attitudes are viewed as distinct equilibria in this framework (see e.g. Cole et al., 1992 or Young, 2007). What keeps these equilibria stable? Why is it costly for individuals to deviate from the traditional to progressive equilibrium?

In this paper, we provide experimental evidence to these questions and suggest two broad explanations for the persistence of traditional gender attitudes: fostering progressive gender attitudes is costly, with norm subverters paying through increased stress and domestic violence. Understanding which of these costs may be more amenable to change is crucial for understanding the stickiness of traditional attitudes and to devise policy to shift potentially harmful attitudes. We measure costs associated with fostering more progressive attitudes by using self-reported stress, hormonal responses to stress in blood plasma, and domestic violence, complementing important new work on the interplay between gender rights and domestic violence (Anderson, 2021). We field an experiment to investigate the relevance of these costs. We cultivate progressive gender attitudes by randomly assigning teachers to a visual narrative augmented by a structured discussion with their teaching peers, and a gender studies curriculum. We use the curriculum as recent research suggests that this can impact the teachers as an exercise of self-persuasion (Schwardmann, Tripodi, and van der Weele, 2022) and shape student attitudes (Alan et al., 2020). In the curriculum, teachers and students are prompted to self-reflect and to envision equal rights for men and women.

We measure gender attitudes among teachers in three ways. Our first measure is an index constructed through surveys eliciting views on rights of women. Our second measure is a higher-stakes decision by teachers to petition the Pakistani parliament for more equal rights. Our third measure is the gender IAT, a computer-based tool developed by social psychologists, designed to minimize the risk of social desirability bias in self-reported answers and capture gender attitudes unknown to the individual (Greenwald et al., 2009).[2] Together, these three measures assess the teachers' gender attitudes.

We then measure the costs associated with the subverting traditional gender attitudes in terms of stress and violence. We assess stress in two ways. First, we measure self-reported stress via a survey. Second, we borrow from neuroscience an objective measure of stress: pre-breakfast blood cortisol concentration (Hessl et al., 2002; Adam et al., 2006). Cortisol is a hormone produced in response to stress (El-Farhan et al., 2017). A large body of literature in neuroscience finds cortisol concentrations are a prominent "biomarker" of stress (see e.g., Hellhammer et al., 2009)

[2] The IAT measures implicit gender attitudes using the difference in reaction times where teachers are asked to associate attributes with names.

where prolonged stress states elevate the cortisol concentration in blood (Lupien et al., 2009).[3] Several recent studies also link high-levels of blood cortisol with clinical depression (see e.g., Qin et al., 2016). These measures capture mental well-being, increasingly recognized as an important indicator for economic development (Schilbach et al., 2016; Ridley et al., 2020; Haushofer et al., 2020).

Building on one of the most prominent sociological theories on costs of increased gender empowerment and attitudes—the male backlash effect—we measure another cost that may arise with holding more progressive gender attitudes: domestic violence (Macmillan and Gartner, 1999). Violence against women, especially those who are more educated or are working is especially prevalent in traditional societies with three-quarters of all violence against women perpetrated by domestic partners (Aizer, 2010; Anderson, 2021). Indeed, domestic violence may stall cultivation of progressive gender attitudes. The majority of primary school teachers in Pakistan are women and all PEN teachers are female, making the study of domestic violence particularly important. We conduct two measurements related to domestic violence. We measure whether the teacher reports having, over the past year, been a victim of domestic violence – "someone hurting or trying to hurt by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force" (UN, 2021).[4] We also measure to what extent the teacher views domestic violence as justified. These measures allow us to assess how more progressive gender attitudes impact domestic violence (e.g., Kishor and Johnson, 2004; Flake, 2005; Burazeri et al., 2005).

Our first result is that the visual narrative with structured discussion succeeded in cultivating progressive gender attitudes. We randomly assigned 607 teachers to a Visual Narrative—a live screening of the movie "Bol," roughly 3 hours long, set in contemporary Pakistan dealing with the issue of women's rights and an 1 hour-long reflection workshop among peers on gender rights themes touched in the movie. Treated teachers were about 0.2 standard deviations more supportive of equitable gender rights, 0.4 standard deviations more likely to petition the

[3] We use pre-breakfast blood cortisol concentrations instead of salivary cortisol since it is much more persistent during the course of the day relative to cortisol concentration in saliva.

[4] It is important to note that we focus on domestic violence, which is distinct from intimate partner violence. We do this for two reasons. First, physical abuse from family members was flagged as a key issue from the PEN administration. Second, the majority of teachers are unmarried in our sample, essentially precluding an analysis of intimate partner violence.

Pakistani parliament for more equitable women's rights, and scored 0.25 standard deviations better on gender IAT scores. These effects persist up to a year after the intervention and are heightened, when we combine the *Visual Narrative* with *Self Persuasion* via a semester-long gender studies curriculum that the teachers taught in class for four months. The impact of self-persuasion was roughly of the same effect size as that found for participating in international debating competitions in recent work (Schwardmann, Tripodi, and van der Weele, 2022).

Several reasons mitigate concerns of spillovers explaining our results. First, to the extent that there are spillovers across teachers within schools, we would likely underestimate the true effect of our treatments since our control teachers would also end up being treated. Second, spillovers between teachers across schools are plausibly small in our context because of the geographic dispersion of schools and the teachers' heavy responsibilities at work and home. Third, our research design allows partial testing for the extent of spillovers, which we find to be limited in magnitude: we use the random variation in treated teachers across the 52 schools in our sample and find that the treatment effect on gender attitudes is essentially identical as more teachers get treated within a school. Last, restricting to the sample of control teachers, the fraction of treated teachers in a school also does not have spillover effects on the teacher's outcomes. These patterns suggest that spillover effects between treated and control teachers within a school, even if they exist, are likely to be small. Irrespective of the fraction of treated teachers in a school, the visual narrative and self-persuasion increase progressive gender attitudes by a similar amount. `

The increase in progressive gender attitudes, however, also accompanies heightened stress and domestic violence. Our second set of results, therefore, indicate that, a year after the intervention, the cultivation of progressive gender attitudes elevated stress hormone concentrations in the blood plasma by 0.3 standard deviations and domestic violence by 0.35 standard deviations. The effect sizes are comparable to recent studies aiming to reduce stress and domestic violence. For instance, Shtreekumar and Vautrey (2022) finds that randomly assigning a popular mindfulness app can reduce stress by 0.4 standard deviations and Castilla (2022) randomly assigns couples therapy to find it reduces domestic violence by 0.35 standard deviations.[5]

[5] In other studies, Taylor and Holston (2016) documents that a few sessions of music therapy can reduce cortisol concentrations by 0.2 standard deviations, Wagman et al. (2015) documents that four community support sessions can

These effects are compounded when the visual narrative is combined with self-persuasion and is consistent with the male backlash hypothesis, that is, as women rally for greater independence and rights, they become more vulnerable to domestic violence (Macmillan and Gartner, 1999). When local traditions mandate a woman's role to be one of subordination, redefining that role is taxing. As a result, women deviating from traditional gender attitudes may experience both domestic violence and heightened stress. We next investigate which of these channels can be mitigated.

Our third set of results leverage random variation in the proportion of treated teachers within a school. We find that as more teachers cultivate progressive gender attitudes, the deleterious effects on stress attenuate. This is consistent with theoretical literature on herding and bandwagoning (Sunstein, 1996; Bikhchandani and Hirshleifer, 1992; Banerjee, 1992; Shiller, 1995): the more that people around you hold similar ideas, the better you feel. Different from this classical literature, our design allows us to estimate this bandwagoning effect because we induce exogenous variation in the fraction of treated teachers within the school. The estimates indicate that when roughly half the teachers within a school are treated, the negative effect of progressive gender attitudes on stress disappears.[6] However, the negative effect of progressive gender attitudes on domestic violence does not. This suggests that novel and contentious ideas in society can be fostered but it comes at costs for the norm subverter but at least some of these costs decrease once the new ideas diffuse.

Four aspects of our experiment offer the interpretation that our results are unlikely to be driven by experimental demand. First, we use blood cortisol concentration to measure stress. Cortisol is secreted by adrenal glands, involuntarily, in response to stress (Hellhammer et al., 2009). Second, we use an implicit association test, which is based on the idea that the easier the mental task, the faster the response. IATs have the advantage of (1) mitigating social-desirability bias in the responses and (2) capturing implicit associations that may be unknown to the individual but may nevertheless affect attitudes and behavior (Greenwald et al., 2009). Third, we observe that

reduce physical intimate partner violence up to 0.69 standard deviations and Shah et al. (2022), who finds that a 90-minute goal setting session by a trained expert can reduce physical intimate partner violence by 0.2 standard deviations.

[6] While the exact mechanism is not observed, the director of training at PEN reported anecdotes of teachers forming mental support groups which may explain this result.

views regarding the justification of domestic violence are unaffected by the treatments. Fourth, we follow Dhar et al., (2018)'s introduction of Marlowe-Crowne social desirability scale in economics, a survey module developed by social psychologists to rigorously measure a person's propensity to misreport in surveys (Crowne and Marlowe, 1960). When we discard the individuals who score high on this scale, the results are essentially identical. These features of our experiment indicate that our attitudinal data is likely to map well onto real-world behavior.

We use the elevation in stress and violence, and differential ameliorative effects of bandwagoning, to explore what stymies gender rights revolutions. That is, we study how internalized and external costs are ameliorated as more teachers hold progressive gender attitudes. To conduct this assessment, we leverage the random variation in the fraction of teachers exposed to *Visual Narrative* and *Self Persuasion* within a school. Exploiting this variation, we observe that the impact of *Visual Narrative* and *Self Persuasion* on stress is reduced the higher the fraction of treated teachers in a school. We also assess alternative mechanisms such as whether teachers are experiencing greater stress due to the realization of one's limited rights or inferior status in the social hierarchy. We find, however, the fraction of treated teachers in a school, does not significantly mediate the impact of *Visual Narrative* and *Self Persuasion* on gender attitudes. Together, these results suggest that moral bandwagoning is a causal mediating factor in the elevation or reduction of stress. Moral bandwagoning mitigates some of the adverse impacts of holding progressive gender attitudes. We further find that having previously seen the visual narrative, Bol movie, mitigates some of the effects on stress. It may be that teachers who previously saw Bol have a more gender equal out-of-school social network. This would be consistent with the treatment being less stress-generating for teachers who have seen the movie previously. On the other hand, we do not find that the variation in the fraction of teachers exposed to *Visual Narrative* and *Self Persuasion* within a school mediates the impact on domestic violence. This highlights how male sanctions continue to impact gender norm subverters even as the psychic costs are alleviated in a moral bandwagon.

We contribute to three key literatures. First, a large literature has investigated how social norms impact economic, social, and political behavior (Fernández, 2013; Bursztyn and Jensen, 2015; Bursztyn et al., 2019; Fujiwara et al., 2019; Chen et al., 2021; Giuliano and Nunn, 2021; Castilla, 2022), highlighting how statistical information helps equilibria be stable or unstable

(Bursztyn et al., 2020a; Bursztyn et al., 2020b). This paper is also related to our recent work that focuses on student-to-teacher transmission of attitudes and the role of inter-gender contact in reducing mathematics gender gap among students (Mehmood, Naseer and Chen, 2022). Different from that study, the current study focuses on teachers, not students, and studies the adverse consequences on teachers for holding progressive gender attitudes. We show that visual narratives joint with structured discussion can have large effects in shifting gender attitudes. We also show the potential *negative* impacts of this shift in social attitudes in terms of stress and male backlash. Our experimental results complement observational analyses of the backlash that can arise with female empowerment (Anderson and Bidner, 2015; Aizer, 2010; Anderberg et al., 2016, Alesina et al., 2016; Tur-Prats, 2017). We also show that stress dissipates as more peers shift their attitudes with these costs dissipating once the new ideas take root. However, domestic violence remains persistent regardless of the number of peer women who hold the progressive gender attitudes.

Second, a vibrant literature has emphasized empowerment, equal rights, and freedom as important components of economic development. Sen (1999), for instance, argues that development cannot be reduced to simply rising average per capita incomes. Rather, it requires a package of overlapping mechanisms that progressively enable the exercise of a growing range of rights and freedoms. A central thesis of this strand of literature is that freedom and rights are both the end and means to development. A critical antecedent to these is recognition of the rights of vulnerable groups. We contribute to this literature by experimentally showing progressive gender attitudes can be fostered and impact unconscious and conscious decision-making, which is reflected in IATs and petitioning to elected representatives, respectively. Holding more progressive gender attitudes, nevertheless, can also lead to stress and even domestic violence. Domestic violence and impoverished mental well-being can create a vicious cycle. Poverty and low psychological well-being mutually reinforce each other (Schoenbaum et al., 2002; Lund et al., 2011; Ridley et al., 2020; Biasi et al., 2021; Ravensteijn et al., 2017). This dovetails with the large literature documenting substantial economic consequences of mental health (Mani et al., 2013; Schilbach et al., 2016; Rao et al., 2021). The lowest income groups are up to 3 times more likely than the rich to experience depression or anxiety (Ridley et al., 2020). We measure mental well-being with surveys and blood cortisol concentrations for individuals in a traditional society. For native members of a particular society or culture, their attitudes are usually a matter of course and, much like the rules of grammar, go unnoticed until they are violated. Sanctions are responses to

norm deviance. One may distinguish sanctions by whether they address the body or the psyche. Whereas physical sanctions, such as domestic violence, bring about physical pain, psychological ones address feelings and emotions. We show that both types of sanctions punish norm subverters as they struggle for their rights. The accompanying stress and violence, as vulnerable groups struggle for their rights, may stymie rights revolutions.

Third, we speak to the classic literature on bandwagoning (Scharfstein and Stein, 1990; Becker, 1991; Bikhchandani and Hirshleifer, 1992; Banerjee, 1992; Shiller, 1995). We contribute to this largely theoretical literature by providing experimental evidence that moral bandwagoning can attenuate costs associated with the backlash generated from cultivating novel nonconformist ideas. That is, we show that more progressive gender attitudes can be fostered and transmitted to students, but it has costs which diminish as the new attitudes diffuse. Cultivating progressive gender attitudes and fostering positive attitudes towards outgroups has been a major focus of economics research (Boisjoly et al., 2006; Bertrand and Duflo, 2017; Rao, 2019; Alan et al., 2020; Jayachandran, 2021; Lowe, 2021). Much of this research focuses on intergroup contact. We show that visual narratives with a structured discussion, alone, can affect attitudes. Self-persuasion augments these attitudinal changes. This body of work indicates that norm subverters can challenge and change social norms. Because these individuals are often challenging the status quo, the fact they deviate from the norm can have costly consequences for themselves. We contribute to this literature by documenting these costs and prescribe a way to mitigate some of these costs, by increasing the number of peers who hold similar views.

The rest of the paper is organized as follows. Section II provides the background, discusses the experimental design and ethics. Section III describes the data and empirical specification, while Section IV presents the main results. Section V discusses the competing mechanisms. A final section provides concluding remarks.

II. Background, Study Design and Ethics

Background and Design.—We work with the Progressive Education Network (PEN) to embed a field experiment within their regular teachers training. PEN works 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 managed using public funds by the private actors

in a public-private partnership. In particular, we implement a randomized evaluation in all PEN schools chartered in Punjab, the largest province of Pakistan, where the network employs 607 teachers responsible for around 15000 students. We randomly assign the 607 teachers to the following treatment arms: (i) utilitarian treatment (121 teachers); (ii) malleability treatment (121 teachers); (iii) visual narrative treatment (122 teachers) (iii) visual narrative joint with self-persuasion treatment (121 teachers) and (iv) control group receives training on procedures to open a bank account in Pakistan (122 teachers).[7] The baseline, midline, and endline surveys are conducted in January, August, and December 2021, respectively.

Research Ethics Approvals.— Our study protocols were reviewed and approved by the two independent Institutional Review Boards. The first ethical approval was received from the New Economic School with IRB number *00059/22* and the second a local IRB was obtained from Lahore School of Economics with IRB Number *RERC-062021-03*. The Lahore School of Economics, in particular, made several random spot visits to our experimental site and ensured that all ethical protocols, for instance, consent from teachers and PEN administration was sought as per international standards. Majority of the research team is Pakistani with Dr. Shaheen, who is based in Pakistan. We also closely collaborated with the PEN training department to design and implement the experiment.[8]

Bol Movie Visual Narrative Treatment.— Our first treatment group watched a movie with a structured discussion on the gender-related themes of the movie. We arranged a live screening of the movie within this treatment arm along with the structured discussion. The emotionally charged movie was about 180 minutes long.[9] The screening of the movie followed an hour-long discussion about gender rights. The movie, *Bol* (literally, *to speak up*), is a Pakistani Urdu-language social drama with a strong female lead on death row telling the story of why she found it necessary to murder her father as her "right to exist as a woman" was subverted. The movie is critically acclaimed and one of the highest-grossing Pakistani films of all time. The theme revolves

[7] It should be noted that all teachers in our sample already had a bank account, making the control training likely having a null effect.

[8] Shortly after the rollout of the experiment, the Director of Training and Development at Progressive Education Network suggested that we also track domestic violence and stress of teachers. On behalf of our counterpart, we included measurements on stress and *physical* domestic violence, although these were not included when the experiment was registered at the AEA RCT registry with ID AEARCTR-0007465.

[9] This is roughly the same length as the Utilitarian and Malleability treatment lectures.

around how the female lead and her sisters deal with their father's obsession to have a son and his staunch reluctance to recognize his daughters and wife as equals.

Joint Visual Narrative and Self-Persuasion Treatment.— Our second treatment intensified the visual narrative of the movie and structured discussion with a semester-long gender studies course. This is inspired by the evidence on the efficacy of social-emotional learning and teaching as an instrument of self-persuasion (Yeager et al., 2019; Eskreis-Winkler et al., 2019). The teachers with students envisioned and reflected on the rights of women in contemporary Pakistan. These gender study classes were held once a week for two hours from February to May 2021. The classroom exercises involved readings, drawing, and other activities that encouraged students to reflect on gender attitudes, women's lack of rights and freedoms. More details on this course can be observed in a teacher's lesson plan in Figure B1 of the Appendix B.

Utilitarian and Malleability Treatments.— Another way to increase equitable gender attitudes is to shift empathy - putting oneself in another's shoes plausibly increases equitable attitudes, similar to the ideas of John Rawls. We considered two methods based on utilitarianism and on social psychology that can enhance empathy. The third treatment provided training that emphasized the benefits of empathy and how it can positively affect their teaching. The main message of the treatment: "*All types of evidence backs the idea that empathy is good for you. It is not just the right thing to do but also the most sensible thing to do for your performance as a teacher*." The fourth treatment arm provided training that emphasized the malleability of empathy and was based on identity theory. The malleability training's main message was: "*All types of evidence backs the idea that empathy is not fixed but malleable. It is a skill that can be developed*." The complete transcript of these trainings are presented in Tables A1 and A2 of Appendix A. We did not find significant impacts of these two trainings so we will be interpreting these as control treatments along with our placebo. We, however, always control for these treatments in all our main regressions.

III. Data and Empirical Strategy

A. *The Data*

Sample.— The sample consists of 607 teachers and their 13,932 pupils across 52 charter schools of the Progressive Education Network (PEN) in the province of Punjab. All of these teachers are female and teach every subject from Kindergarten to Grade 6. PEN organizes training

workshops for teachers periodically and we embed our experiment within the PEN teacher-training drives. Since our experimental intervention is embedded within PEN's training we have no attrition: all 607 PEN teachers in the province of Punjab participated in both the experiment and the surveys.[10] Baseline survey and treatment took place in January 2021 and endline in December 2021.

Outcomes on Gender Attitudes.— Our first set of outcome variables concern teachers' attitudes on gender rights conducted six months and a year after the treatment. To summarize gender attitudes of teachers, we use an index of 16 statements on gender rights. The index is constructed as an average and combines all the statements concerning Women's Economic, Legal, and Political Rights. For more details, see the associated survey instrument in Appendix C2. Likewise, we also obtain gender attitudes of students via a survey.[11] Our second set of outcomes concern teachers' high-stakes decisions in the form of petitioning parliament to repeal discriminatory laws and the gender Implicit Association Test (IAT). We attached with our endline survey an open-ended template that gives an opportunity to sign a petition to the Pakistani parliament with teachers' full names and identity card numbers. We then send all the petitions to the parliamentary committee on protection of women at the National Assembly of Pakistan. The petition templates were provided to all teachers in a separate room with our instructions attempting to reduce experimental demand by explicitly mentioning that the teachers are free not to sign the petition and leave it blank if they wish to do so. The petitions are high-stakes since petitioning the parliament with teachers' names and national identity card numbers in a traditional society amounts to women exerting their political rights and demanding rights; such a gesture is also likely to have repercussions for the teachers. The teachers petitioned the parliament by submitting the petition to abolish polygamy and dowry. The text of petitions that were provided to all teachers, including those in the control group, is reproduced in Appendix C3. The gender IAT measures implicit associations towards women. The key idea behind the test is that the easier the mental task, the faster the response prediction. The gender IAT was the career-family word association task and based on 7 questions and administered on Otree. Too short or long answers were

[10] We thank the Progressive Education network for their invaluable support and cooperation to ensure this remarkable take-up. We specially wanted to thank the Director of Training, Miss Sumera Morris and her staff at PEN, who provided invaluable cooperation and support throughout this intervention. It is also worth clarifying, we did not communicate our research question or the treatment status of the teacher, with the PEN administration.

[11] The survey instrument corresponding to students' gender attitudes can be found in Appendix C5.

automatically dropped according to the algorithm determined in Greenwald et al. (2009). We administer the IAT in Urdu online and report the exact text that the teacher saw on their screen with an English translation in Appendix C4.

Outcomes on Stress.— We assess stress in several ways. Our first two variables are self-reported perception of stress, measured via two survey questions. The first one is a rating on a 5-point Likert scale to the question, "Overall, how stressed are you?" The second question is a binary response of yes and no to the question,"Are you stressed?" Noise, social-desirability bias, and concerns about misreporting, however, make the interpretation of self-reported measures complicated. Therefore, we use pre-breakfast cortisol concentration in blood—the stress hormone excreted in response to stress—to get a more accurate estimate of stress (El-Farhan et al., 2017). A large body of literature in neuroscience finds blood cortisol levels are a prominent "biomarker" of stress (see e.g., Hellhammer et al., 2009).[12] Cortisol is released in response to psychological or physiological strain on the body. For instance, it increases following injuries, intense physical exertion, or during public speaking, performing taxing mental arithmetic or enduring unpleasant situations such as waiting in the operation theater before a surgical procedure (Kirschbaum et al., 1993; Ferracuti et al., 1994). The blood cortisol levels can vary throughout the day but plasma cortisol is more stable than salivary cortisol and *less responsive* to time of day relative to salivary cortisol. Nonetheless, we are particularly careful in observing the protocol of cortisol sample timing: we measure cortisol concentration in blood plasma in the morning at 7am (following Kische et al., 2021). To minimize gaps between teachers getting their cortisol tests done at different times and hence prevent a timing imbalance, we ensured all tests are made within a 30-minute time window. That is, by 7.30am we were able to collect samples of all 607 teachers. We thank the competent team of volunteers and lab attendants from the Chughtai Labs that made this possible. The readings are made in micrograms per deciliter (mcg/dl), using the standard Chemiluminescence Immunoassay (CLIA) technique. The cortisol concentration we observe in our sample is about 11.15 mcg/dl with standard deviation of 3.31. To put this into perspective, persons suffering from severe anxiety, adrenal or pituitary gland disorders typically have cortisol readings of above 20 mcg/dl (Mantella et al., 2008; Armario et al., 1996).

[12] Several recent studies also find that high-levels of cortisol in blood is correlated with clinical depression (see e.g. Qin et al., 2016). This is unsurprising since stress is found to cause fundamental changes in neuronal structure and functioning of the brain (Lupien et al., 2009; Goldfarb, 2020).

Outcomes on Domestic Violence.— We measure domestic violence in two ways. First, we evaluate whether the teacher has been a victim of domestic violence in the past. In our survey, we define both who is most likely to commit domestic violence (brother, father or husband) and what is included in domestic violence as per United Nations definition. Specifically, we use the following text: "Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force." To disentangle experiencing domestic violence from differential reporting on domestic violence, which may be a function of teachers' definition of or views on domestic violence, we also assess the extent the teachers find domestic violence justified. In particular, we field the following statement: "Domestic violence by husbands cannot be justified (rate from 1 to 5)". The second measure allows us to investigate whether potential treatment effects are entirely explained by change in reporting or expansion in the definition of domestic violence.

Ex-Post Addition of Stress and Domestic Violence.— Finally, we hope to clarify why stress and domestic violence were not included in the original preregistration outcomes but were later included in the analysis. The original aim of this study was to understand if we could foster more progressive gender attitudes by increasing empathy and through visual narratives, among teachers and see if such norms could be transmitted to students. Before launching the experiment, we conducted three focus groups which showed no indication that our treatment may increase domestic violence or stress. However, a month after the roll-out the director training in a logistics related meeting mentioned that she got some teachers complain about domestic violence and whether we would want to figure out a way to reduce such incidents in a future project (she did not directly link it with our treatment). Thinking back on the sociological literature on male backlash, we worried this may be due to our gender attitudes treatments giving rise to male backlash. Therefore, following discussion with the PEN administration, the directors, and teacher representatives, we decided to include measures of domestic violence. These were not pre-registered but were included following the experimental roll-out but before data collection. There were no additional variables included in our analysis and we report each survey statement and variables collected verbatim in the Data Appendix C of the paper. We, nevertheless, have now scheduled free mental health support by a mental health expert and connected all teachers with a

helpline against domestic violence. We have also scheduled mindfulness exercises and pharma-psychological support for teachers. We hope, these measures, may at least partially offset the negative effects.

Main Explanatory Variables.— Our key explanatory variables are dummies for the four treatments. VN_i and $VN\ \&\ SP_i$ are dummies that switch on if the teachers were assigned the visual narrative of the movie *Bol* and joint treatment augmenting visual narrative with the curriculum. U_i and M_i denote dummies that switch on if the teachers were assigned the Utilitarian and Malleability treatment respectively. A control group receives information on procedures on how to open a bank account in Pakistan. It is worth noting that all 607 teachers in our experiment already have their individual bank accounts.[13]

B. *The Empirical Specification*

The experimental design allows us to run a simple OLS regression:

$$Y_i = \alpha + \beta\, U_i + \gamma M_i + \delta\, VN_i + \omega\, VN\ \&\ SP_i + X_i\ \mu + \epsilon_i \qquad (1)$$

where Y_i is the respective outcome on gender attitudes or sanction to the individual i, VN_i is the dummy variable equal to one if the teacher is assigned to the visual narrative treatment arm of the movie *Bol*, while $VN\ \&\ SP_i$ complements the visual narrative with the gender studies curriculum; U_i is a dummy that switches on if the teacher is assigned to the Utilitarian treatment arm; M_i when assigned to the malleability of empathy treatment arm. X_i is a vector of individual-level controls. Since we randomly assign teachers to our treatment groups, we cluster standard errors at the teacher level. In our investigation of moral bandwagoning, where the variation in fraction of teachers treated only varies across schools not within them, we show the results are robust to clustering the standard errors at the school level.

C. *Balance and Attrition*

The fact that the experiment was embedded within PEN's regular training implied that we had no attrition. PEN training staff was headed by the training director and ensured every teacher responded. Nevertheless, a lack of balance might still complicate causal interpretation of our

[13] PEN administrative data also confirms this.

results. Before proceeding to presenting our main results, we first show in Table 1 that our randomization was successful in creating balance among teachers and students. We also conduct a Joint Orthogonality Test for balance as suggested by Bruhn and McKenzie (2009) to also find similar balance (see Table B1 in Appendix B). Differences across treatment groups are small in magnitude, and almost all p-values are larger than 0.10. For example, teachers' educational specialization, years of education, experience, and marital status are balanced, so are their pretreatment measurements of stress, domestic violence and gender attitudes.

IV. Main Results

Effects on Gender Attitudes of Teachers.— We track attitudes towards gender rights a year after the treatment. Table 2 reports the results on the impact of all the treatments after 12 months. We find that the visual narrative with structured discussion alone had qualitatively and statistically significant impact on gender attitudes. One year after the treatment, the Gender Rights Index is about 0.15 standard deviations higher for the group shown the augmented visual narrative, with the impact increasing to about 0.2 standard deviations when the visual narrative is reinforced via the curriculum treatment (Table 2, Column 1).[14] Similar patterns are also observed in our analysis of distributions.[15] In Figure 1, we observe that both the visual narrative and joint treatment have more mass at higher levels of the Gender Rights Index relative to the control distribution. Our confidence in the self-reported survey results is increased when we observe that these treatments also impact revealed preference measures. We investigate whether teachers petitioned the Pakistani parliament to abolish discriminatory laws that presently allow polygamy for men or whether the teachers petitioned to criminalize men demanding dowry (Anderson and Bidner, 2015). The results here are even more striking than those found for the Gender Rights Index. From Columns 2 and 3 of Table 2, we observe that the visual narrative alone increases the likelihood of sending petitions by about 0.35 standard deviations with the coefficient estimates on the joint treatment being even larger, with petitioning increasing by more than half a standard deviation[16]. Finally, the treatments impact the Implicit Association Tests (IAT) scores. This is particularly

[14] We, however, cannot statistically reject the null of the homogenous effect of visual narrative and joint treatment.
[15] Similar results are found, if we examine individually, each of the 16 statements used to construct this equally weighted Gender Rights Index (see Figure B2 in Appendix B).
[16] We, however, cannot reject the null of equality of coefficients for the standalone visual narrative and combined visual narrative and gender studies curriculum treatment.

interesting because IATs can capture implicit gender bias that may be even unknown to the individual. Column 4 of Table 2 shows that the visual narrative treatment alone reduces the implicit gender bias by about quarter of a standard deviation and when it is augmented with the curriculum, the bias reduces by about a third of a standard deviation.[17] Taken together, these results paint a picture that the visual narrative, alone and when combined with self-persuasion treatment, has a substantial impact on gender attitudes.

Effects on Stress of Teachers.— Our standalone visual narrative and joint treatment impacted gender attitudes, but also increased stress. In Column 1 of Table 3, we observe that the joint visual narrative and self-persuasion treatment increased self-reported stress levels by about half a point on a 5-point scale. This is equivalent to a 20% increase over the sample mean. On the other hand, the visual narrative alone increased stated stress by about a third of a point on this 5 point scale, a 13% increase over the mean dependent variable. Similar results are found in the answers to the question "Are you stressed?" The joint visual narrative and curriculum group is about 25 percentage points more likely to report they are stressed. This is roughly a doubling of answering "yes" to the question over the sample mean. The stated stress results hold for a more objective measure of stress: plasma cortisol—a hormone produced in response to stress—is also impacted.[18] The joint treatment increases blood cortisol levels by 1.13 micrograms per deciliter (Table 3, Column 3). This is equivalent to a 10% increase over the sample mean cortisol concentration of 11.15 mcg/dl. Column 4 of Table 3 reports this result in terms of standard deviations: even one year after the treatment, the joint visual narrative and self-persuasion treatment increase stress hormonal response in plasma by about 0.35 standard deviations, while the visual narrative with structured discussion elevated blood plasma concentrations by about 0.2 standard deviations. These results are not limited to changes in mean. In Figure 2, we observe that distributions of visual narrative and joint treatment shifts relative to the control. We find that both visual narrative and joint treatment groups first-order stochastically dominate the blood cortisol concentrations of the group receiving the control. The results in Table 3 and Figure 2 tell a

[17] Similar patterns emerge if we evaluate the distributions of IAT scores across control, visual narrative and joint treated groups (Figure B3). Moreover, the Utilitarian and Malleability treatments appear to have no effect on any measure of gender attitudes.

[18] For further details of the cortisol test and blood extraction, see Figures B4 and B5.

cautionary tale: our treatments cultivated more progressive gender attitudes, but they came at the cost of increased stress.[19]

Effect on Stress as more Teachers are Treated.— Our empirical design allows us to experimentally explore a mitigating factor that diminishes the cost of cultivating progressive gender attitudes. In this specification our variation is at the school level, we, therefore, cluster standard errors at the school level, we also present the distributions of fraction of treated teachers within schools in Figure B6 of Appendix B. The distribution suggests sufficient variation to estimate the impact of the fraction of treated teachers. We exploit this variation to investigate a moral bandwagoning effect: if enough teachers cultivate progressive gender attitudes within a school, the deleterious effects on stress are mitigated. Columns 1 and 2 of Table 4 report these results. We estimate that when about 45% of the teachers within a school are treated with the joint treatment of visual narrative and self-persuasion, the adverse impact on blood cortisol concentrations disappears. These results suggest a "bandwagoning effect" where greater community level adoption of new ideas mitigate the potential costs associated with holding internalized norms (Becker, 1991; Bikhchandani and Hirshleifer, 1992; Banerjee, 1992; Shiller, 1995).[20]

Heterogeneity by Previously Seeing Bol Movie.— Since about half of teachers stated that they had watched the movie when it was released a decade earlier in 2011, we investigate if those teachers who had previously watched Bol are more likely to be impacted by the visual narrative or the joint treatment. Table 5 reports these results. We find little evidence for the heterogeneous effect of treatment on those who had previously watched the movie Bol. These results hold for measures of gender attitudes, domestic violence and blood cortisol. This may be due to many factors. For instance, if the teachers watched the movie a decade earlier when it premiered, and the effects of the movie on teachers may have dissipated after 10 years. It could also be the case that the structured discussion on the gender rights themes of the movie among peers reinforced the message of the movie beyond just watching the movie.

[19] The Utilitarian and Malleability treatments, however, have no effect on stress or any measure of gender attitudes.
[20] In Table B2 of Appendix B, we add interactive effects with all treatments. The results are essentially identical, although in this demanding specification, there is a fall in precision.

Effects on Students.— Our intervention also impacted students. In Figure 3, we observe that teachers treated with the visual narrative have students who hold more equitable gender attitudes. This is intriguing since the visual narrative was shown to teachers, *not student*s, but we also see attitude transmission effects—of more progressive gender attitudes—among the students. The estimated coefficients imply that the visual narrative heightens progressive gender attitudes among students by about 0.15 standard deviations. When this treatment is augmented with the gender studies curriculum, the impact on student compounds to 0.25 standard deviation. These results are reported in table-form in Column 1 and 2 of Table 6. From this table, we also observe that both girls' and boys' attitudes are shifted, however, girls' gender attitudes seem to have shifted by about four times as much as boys'. This difference is even statistically significant. This may be promising for girls' economic outcomes. For instance, a recent randomized control trial found that improving negotiation skills for girls significantly improved their outcomes by moving households' human capital investments closer to the efficient frontier (Ashraf et al, 2020).

V. Alternative Mechanisms

In this section, we investigate whether our treatments impacted domestic violence and rule out several competing mechanisms that may instead explain teachers' elevated stress and domestic violence.

Effects on Experiencing Domestic Violence.— We investigate and find evidence that holding more progressive gender attitudes came at the expense of increased domestic violence experienced by the teachers. We conducted a survey inquiring whether teachers experienced domestic violence over the past 12 months and investigated if the treatments impacted their answers. Domestic violence was defined as "someone hurting or trying to hurt by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force" (UN, 2021). Columns 1 and 2 of Table 7 report these results. We find that teachers who were shown the visual narrative and participated in the structured discussion have about 0.25 standard deviation higher likelihood to report that they had recently experienced an incident of domestic violence relative to the control group (Panel A of Table 7). This is equivalent to more than doubling of domestic violence over the sample mean (Panel B of Table 7). Worryingly, this effect is magnified to about a third of a

standard deviation when the visual narrative is combined with the curriculum. This result indicates that norm subversion elevates both stress and teachers' stated experience of domestic violence.

Effects on Views about Domestic Violence.— The treatments increasing teachers' experience of stated victimhood of domestic violence may also be explained by the alternate channel of a change in attitudes. That is, the treatment may have shifted teachers' views regarding the acceptability of domestic violence. For instance, holding more progressive gender attitudes may prompt teachers to view domestic violence as more unjustified and less likely to report its incidence. In Columns 3 and 4 of Table 7, we explore this channel by investigating whether our treatments impacted acceptability of domestic violence on a 5-point Likert scale. Panel A of Table 7 reports the results in standardized units, Panel B reports them in the original Likert scale. We find the views regarding the justification of domestic violence to be statistically indistinguishable from zero. In contrast, as we noted above, the visual narrative and jointly treated teachers were more likely to state they experienced an incident of domestic violence suggesting that domestic violence may have increased as a result of our treatment.

Effects on Stated Domestic Violence Due to Misreporting.— A related mechanism is that the treated teachers are more likely to report that they have been victims of domestic violence. This may be a salient issue when using stated domestic violence as outcome variable. This is because domestic violence is often misreported in surveys (Flake, 2005). To address this issue, we follow Dhar et al., (2018), who suggest using the Crowne-Marlowe scale, a survey module developed by social psychologists that rigorously measures and purges individuals that are most likely to answer inaccurately (Crowne and Marlowe, 1960). Table 7's Columns 5 and 6 reveal that when we drop the teachers who are most likely to misreport their survey responses, according to the Crowne-Marlowe scale, the results are essentially identical.[21] Taken together, results from Table 7 strongly suggest that the cost of holding progressive gender attitudes, the increase in stress, comes alongside a rise of domestic violence that is not due to our treatment changing views or reporting of domestic violence.

Effect on Violence as more Teachers are Treated.— We also leverage our experimental set-up to experimentally explore as more teachers are treated to the *Joint Visual Narrative and*

[21] Specifically, Crowne-Marlowe assesses if the baseline results change, when teachers who answer yes to the following statements are discarded: 1) I am never jealous of another person's good fortune 2) I am always a good listener. 3) I am never angry. Intuitively, the method drops subjects from the experiment who may be most prone to misreport in surveys.

Self-Persuasion treatment within a school whether the costs associated with social sanctions such as domestic violence fall. As opposed to reduction of costs associated with internalized norms as measured by blood cortisol concentrations (Table 4's Columns 3 and 4), we do not find much evidence that a greater share of treated teachers within a school mitigates the impact of holding progressive gender attitudes on domestic violence (Columns 5 and 6 of Table B4). This result also suggests that the increase in stress is not one-to-one linked to domestic violence and that internal and external sanctions play separate roles for limiting rights revolutions.

Recognition of One's Limited Rights.—A potential consequence of holding more progressive gender attitudes is the realization of one's inferior status in a hierarchy. A large and vibrant literature documents that perceived discrimination affects mental health (Moomal et al., 2009; Kane et al., 2019; Rescicow et al., 2021) Therefore, an alternative mechanism explaining the elevated stress may be that progressive gender attitudes come hand-in-hand with recognition of one's disadvantage in society. Our results suggest that this mechanism is not able to explain all the patterns in our data. First, we observed that as the share of treated teachers in a school increased, the impact of stress is reduced (Table 4). Second, this increase in the share of teachers who were assigned to visual narrative and self-persuasion treatments within a school does not impact gender attitudes (see Table B3). Both of these patterns suggest that our results are unlikely to be driven by teachers recognizing their inferior status in the social hierarchy. This is because as more teachers are treated within a school, the effect of the treatment does not magnify the realization of one's inferior status as documented in Table B3, it does, however, reduce stress as documented in Table 4.

Heterogeneity by Pretreatment Gender Index.— Finally, we explore whether the effect of stress and domestic violence varies by pretreatment gender attitudes. Although we do not have enough statistical power to statistically reject a homogenous effect of costs of holding progressive gender attitudes, results from Table 8 suggest that the costs are mostly borne out by –the norm subverters– who initially had more traditional gender attitudes. Specifically, the results indicate that teachers who had below median (or less progressive) gender attitudes appear to be most negatively affected: for the visual narrative and self-persuasion treatment group, the stress and domestic violence is about half a standard deviation higher. This hints at the fact that the costs of holding new norms are levied on those teachers who abandon their (previous) traditional gender views for more progressive ones.

VI. Robustness

Spillovers.—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 individual teacher to the class and to collect rich granular data such as gender IAT and plasma cortisol concentrations of individual teachers. However, because treated and control group teachers may interact within a school, we might have spillover effects with some of the control teachers becoming partially treated. While such spillover effects certainly exist, there are at least three arguments that support the idea that spillover effects are likely not to be large enough to completely explain our results. First, conceptually, if there are spillovers within a school with some of our control teachers who do end up getting treated, then our estimates are likely to be an underestimate of the true treatment effects. Second, our experimental design allows us to partially test for the extent of potential spillover effects: we exploit the variation in treated teachers across the 52 schools in our sample to see how it impacts our outcomes. Table B3 presents these results. We find that the treatment effect on gender attitudes, stress and domestic violence is essentially identical as more teachers get treated within a school. That is, regardless of the fraction of treated teachers in a school, the visual narrative and self-persuasion treatment impacts gender attitudes, stress and domestic violence similarly. Third, we leverage the fact that our Utilitarian and Malleability treatments had no impact on gender attitudes, stress or domestic violence over the control group. Therefore, we investigate whether the fraction of schools treated with visual narrative or joint treatment causes the control group to increase in progressive gender attitudes. 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 gender attitudes (Tables B4 and B5), domestic violence or stress (Table B6 and B7). The null effect of more intensely treated schools on gender attitudes holds for Utilitarian, Malleability 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.

Experimental Demand.—There are at least five reasons why our results are unlikely to be explained by experimental demand effects. First, the elevated concentration of cortisol observed

for the treated teachers cannot be the result of experimental demand since cortisol is secreted involuntarily in response to stress. Second, our treatments impacted implicit association test scores, where the IAT has the advantage of mitigating social-desirability bias in the responses by capturing implicit associations that may be unknown even to the individual, it evens drops the teachers who it suspects are most likely to respond strategically (Greenwald et al., 2009). Third, we track behavioral change over a fairly long timeframe. The persistence of the effects even a year after the treatment strengthens the inference that the treatment had real impacts beyond experimental demand. Fourth, we observe that the students' gender attitudes are also shifted even when the standalone visual narrative treatment focused only on teachers. Finally, we follow Dhar et al., (2018), who introduce the Marlowe-Crowne method, a survey module developed by social psychologists to rigorously measure a person's propensity to give socially-desirable answers (Crowne and Marlowe, 1960). In Table B8 of Appendix B, when we discard the teachers who score high on this social desirability scale, our results are essentially identical. These features of our experiment indicate that experimental demand is unlikely to explain our results.

Multiple Hypothesis Testing. — Our collaboration and cooperation with the Progressive Education Network allowed us access to a rich set of outcomes to investigate the impact of our treatments. Nevertheless, since we have many outcome variables, our results might be explained by false positives. Under the assumption that the treatments have no effect on any of our outcomes, i.e., 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 80%. Consequently, in this robustness check, we adjust for the fact that we are testing for multiple hypotheses by using sharpened False Discovery Rate (FDR) q-values (Anderson, 2008). The sharpened q-values are reported in square brackets in Table B9, which also shows standard p-values from our baseline regressions in parentheses for comparison. Similar results are obtained when we deploy List et al., (2019)'s 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. Specifically, we apply the most strident test that pools p-values across both outcomes and treatments in a single family. Similar results are obtained if we pooled outcomes into families of gender attitudes (Gender Rights Index, IAT, Petitions), stress (stated stress and cortisol concentration) and domestic violence

(victim of domestic violence and views on domestic violence). The results, reported in Table B10 of Appendix B, strongly suggest that false positives are unlikely to drive our results.

Sample Size and Randomization Inference. — Even though our sample size is about 600 teachers and 14000 students, we follow Imbens and Rubin (2015) suggestion to use randomization inference. That is, we scramble the data, reassign treatments, and compare the distribution of control estimates with the estimates from the experiment. The resulting p-values for 1000 iterations of this process is reported in Table B10 of Appendix B. The results are essentially similar with the treatment effects still statistically significant at conventional levels. We also show that even when we cluster our standard errors at school level, despite the fall in precision for estimating the effect of fraction of treated teachers in a school, our results on moral bandwagoning remain marginally significant with p-values at least 0.10 (see Table B11 in Appendix B for these results).

VII. Conclusion

Many models of social norms involve multiple equilibria. What keeps these equilibria stable? What stymies rights revolutions in gender attitudes? We disentangle two costs to gender norm subverters: domestic violence and stress. We show, however, the costs of stress are more easily eroded, for instance, when a larger share of peers hold the same ideas. Put simply, holding progressive gender attitudes alone in a crowd can be stressful.

In much of the world, women still have fewer labor market and educational opportunities, lower physical mobility, less autonomy to run for political office or to make their own decisions (Doepke and Tertilt, 2009; Duflo, 2012; Fernández, 2014; Fernandez and Wong, 2014; Field et al., 2021; Giuliano and Nunn, 2021). This paper explores how tumultuous transition to a new social norm can be. We implement a randomized control trial testing different methods of shifting teachers' gender attitudes. We find that teacher-training based on visual narrative and self-persuasion is effective in shifting teachers' gender attitudes; they, however, come at a cost.

We find that training teachers using a visual narrative shifted the teachers' attitudes towards more equitable gender rights. The effect sizes are substantial. Teachers' attitudes measured in gender IATs shifted by 0.2 standard deviation. The teachers also became about 0.35 standard deviations more likely to petition the Pakistani parliament to repeal discriminatory laws.

Reinforcing the visual narrative with the gender-rights curriculum compounds these effects. Hence, more progressive gender attitudes can be cultivated and impact unconscious and conscious decision-making.

We then show that holding more progressive gender attitudes also accompanies heightened stress. The increased recognition of gender rights by teachers elevates their blood cortisol concentrations by 0.3 standard deviations and domestic violence by 0.35 standard deviations. Some of these costs, however, attenuate as more teachers hold these progressive gender attitudes. Our findings, therefore, highlight that progressive gender attitudes can be fostered, but it comes at a cost for the norm subverter even as some of these costs diminish as societal norms converge. Future research can explore how domestic violence may be combated and countered, and provide a deeper understanding of the factors that stymie rights revolutions.

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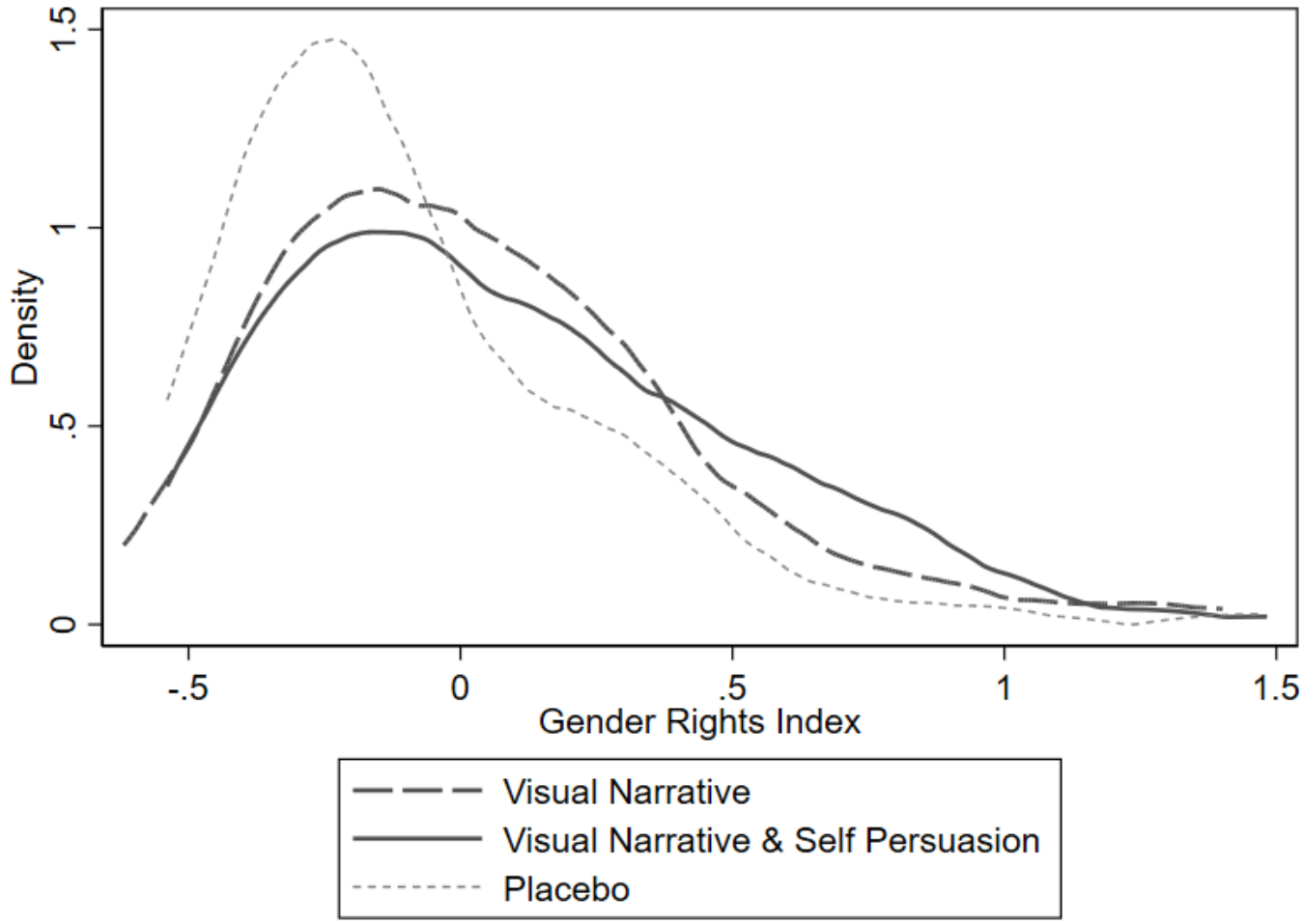
Figures and Tables

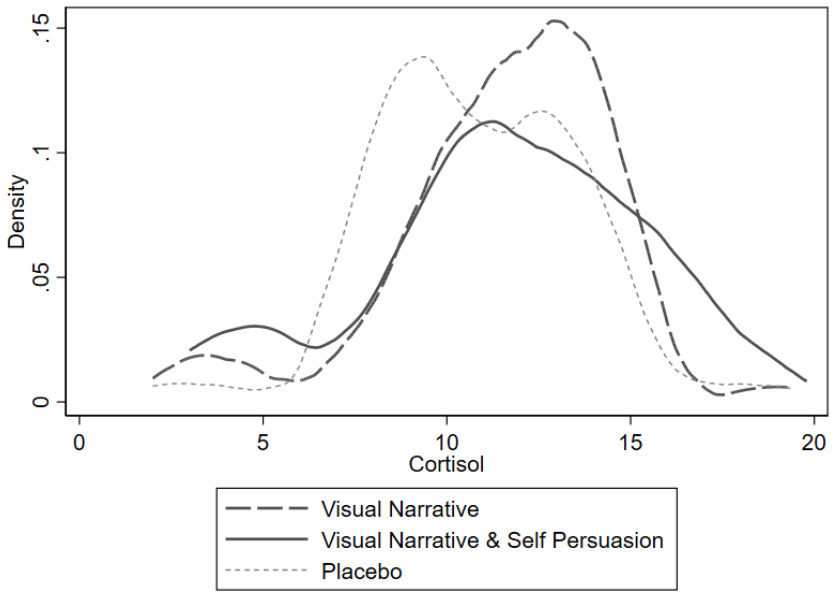
Figure 1: Distributions of Teachers' Gender Rights Index



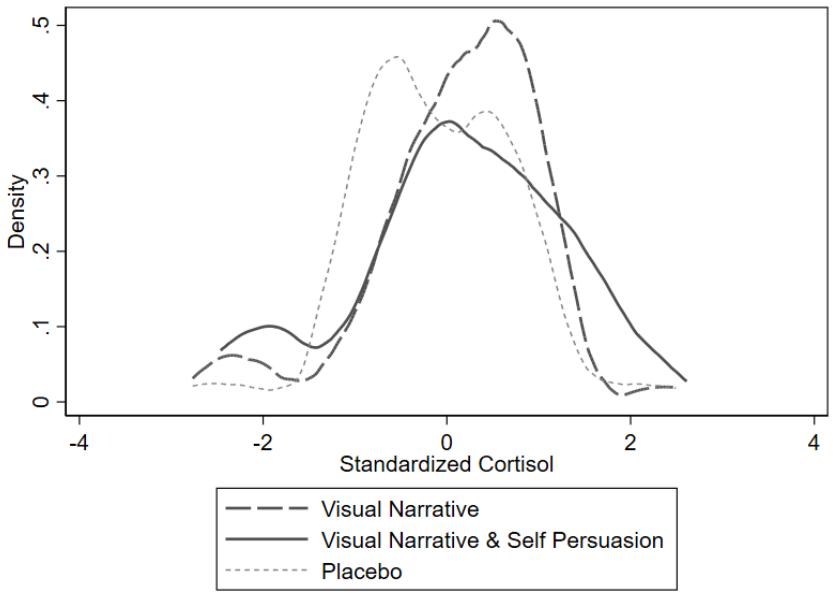
Note: In this figure, the distributions of the Gender Rights Index are shown for the augmented visual narrative and the visual narrative joint with self-persuasion treatments relative to the placebo group. The index is standardized to mean zero and standard deviation one. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the hour-long structured discussion. *Visual Narrative & Self-Persuasion* is the augmented visual narrative of the movie together with the gender studies curriculum.

Figure 2: Distributions of Teachers' Blood Cortisol Concentrations

Panel A: Distributions - Original Scale

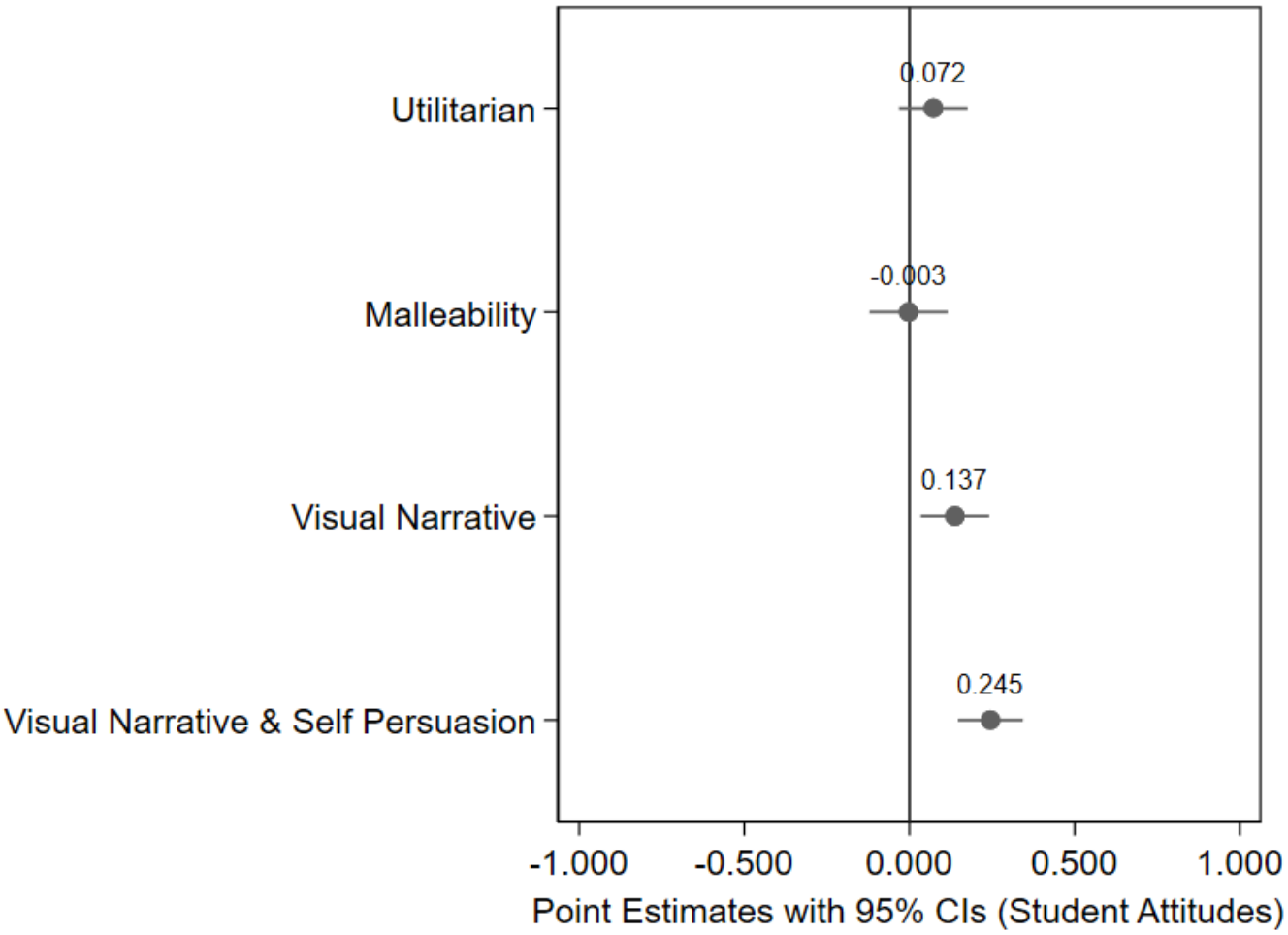


Panel B: Distributions - Standardized



Note: In Panel A, the distributions of cortisol level in blood, measured in micrograms per deciliter, using the Chemiluminescence Immunoassay (CLIA) technique are reported. In Panel B the distributions for blood cortisol readings are reported with the variable standardized to mean zero and standard deviation one. The distributions of augmented visual narrative and the visual narrative joint with self-persuasion treatments relative to the placebo groups are shown.

Figure 3: Impact on Students' Gender Attitudes



Note: The figure report estimates from equation (1) with all controls and school fixed effects with Student Gender Rights Index as the dependent variable which is standardized to mean zero and standard deviation one. The corresponding survey statements fielded to the students are reported in Appendix C5. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. The student level controls include the dummies for student grade (i.e., KG, Nursery, Prep, one, two, three, four, five, six) and students' pre-treatment gender rights index.

Table 1: Balance over Teacher and Student Characteristics

Panel A: *Teacher Characteristics*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pre-Treatment Stress	*Pre-Treatment Domestic Violence (z-value)*	*Pre-Treatment Gender Index*	*Married*	*Bol Movie Watched*	*Av. Teaching Hours*	*Teaching Experience*	*Years of Education*
Visual Narrative	0.0639	0.00533	-0.0720	-0.0767	0.0869	0.418	0.0238	0.0719
	[0.145]	[0.134]	[0.0775]	[0.0674]	[0.0675]	[0.356]	[0.400]	[0.206]
Visual Narrative & Self-Persuasion	0.0942	0.0510	0.00463	-0.0619	0.0598	0.130	0.481	0.138
	[0.147]	[0.136]	[0.0789]	[0.0687]	[0.0688]	[0.362]	[0.407]	[0.210]
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	607	607	607	607
R-squared	0.119	0.091	0.105	0.078	0.075	0.063	0.075	0.057
F Statistics (Joint Significance)	0.41	0.18	0.93	0.96	0.55	0.57	0.77	0.50
Mean of dependent var.	2.153	0.000	0.00	0.473	0.532	30.277	4.608	12.679

Panel B: *Students Characteristics*

	Gender	*Grade 1*	*Grade 2*	*Grade 3*	*Grade 4*	*Grade 5*	*Grade 6*	*Pre-Treatment Student's Gender Rights Index*
Visual Narrative	-0.00445	0.0242	0.0863*	-0.0392	0.0162	-0.0448	0.00105	0.00101
	[0.0243]	[0.0454]	[0.0480]	[0.0464]	[0.0442]	[0.0358]	[0.0206]	[0.0267]
Visual Narrative & Self-Persuasion	0.00169	-0.0483	0.0598	-0.0690	0.00437	0.0846*	-0.00831	-0.0360
	[0.0272]	[0.0443]	[0.0481]	[0.0455]	[0.0414]	[0.0450]	[0.0195]	[0.0271]
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,932	13,932	13,932	13,932	13,932	13,932	13,932	13,932
R-squared	0.360	0.046	0.034	0.019	0.039	0.039	0.096	0.005
F Statistics (Joint Significance)	0.931	0.089	0.109	0.539	0.786	0.017	0.926	0.495
Mean of dependent var	0.459	0.146	0.157	0.177	0.144	0.098	0.031	0.003

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Panel A, the dependent variables are teacher level individual characteristics. Teaching Experience and years of education are teachers' experience and years of education, respectively. Av. Teaching Hours is the average number of hours the teacher teaches every week. Married is a dummy variable that switches on when the teacher is married and zero otherwise. Pre-treatment stress is measured on a 5-point Likert scale as is the dummy for pre-treatment victims of domestic violence variables. Both are measured retroactively. Bol Movie Watched is a dummy whether the teacher has previously seen the movie Bol. In Panel B, the dependent variables are student level individual characteristics and pre-treatment Student's Gender Rights Index scores. Gender is a dummy variable that switches on if the gender of the student is female and zero otherwise. Grade 1 to 6 are dummy variables that switch on when a student is from grade one to six, respectively. Dummies for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender gender studies curriculum. VN is abbreviation for *Visual Narrative* and VN & SP for *Visual Narrative & Self-Persuasion*. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. The student level controls include the dummies for student class (i.e., KG, Nursery, Prep, one, two, three, four, five, six) and students' pre-treatment gender rights index. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Impact on Teachers' Gender Attitudes

	(1)	(2)	(3)	(4)
	Gender Rights Index	*Petition to Criminalize Dowry*	*Petition to Abolish Polygamy*	*Gender IAT Score*
Visual Narrative	0.140***	0.362***	0.349**	0.247*
	[0.0511]	[0.130]	[0.140]	[0.136]
Visual Narrative & Self-Persuasion	0.187***	0.566***	0.512***	0.348**
	[0.0510]	[0.143]	[0.146]	[0.162]
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	527
R-squared	0.138	0.140	0.200	0.131
Mean of dependent var	0.000	0.000	0.000	0.000
p-value (VN = VN & SP)	0.388	0.206	0.409	0.538

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column (1) is an index consisting of 16 gender rights statements concerning Women's Economic, Social, Legal and Political Rights. The statements can be found in Appendix C2. In Column 2, the dependent variable is a signed petition sent to the Pakistani parliament to criminalize dowry, while the dependent variable in Column (3) is similarly standardized petition to abolish polygamy (Appendix C3 provides text on the petitions). Column (4) estimates the main specification with the gender Implicit Association Test (IAT) as the dependent variable (Appendix C4 provides text of the gender IAT administered). All dependent variables in this table are standardized to mean zero and standard deviation one. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: The Cost of holding Progressive Gender Attitudes

	(1)	(2)	(3)	(4)
	Stress Likert	*Stress Dummy*	*Cortisol Levels*	*Standardized Cortisol*
Visual Narrative	0.306**	0.189***	0.694*	0.210*
	[0.153]	[0.0343]	[0.419]	[0.127]
Visual Narrative & Self-Persuasion	0.444***	0.231***	1.138***	0.344***
	[0.158]	[0.0406]	[0.427]	[0.129]
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.156	0.293	0.145	0.145
Mean of Dep. Variable	2.269	0.091	11.152	0.000
p-value (VN = VN & SP)	0.450	0.435	0.322	0.322

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Column (1), the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column (2), the dependent variable is a response to a separate question, but this time formulated as "Are you stressed?", with one being yes and zero being no. In Column 3 the dependent variable is the cortisol concentration in blood, measured in micrograms per deciliter, while in Column (4) we standardize the cortisol concentration in blood to mean zero and standard deviation one. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Bandwagoning Effect on Stress

	(1)	(2)	(3)	(4)
	Stress Likert	*Stress Dummy*	*Cortisol Raw*	*Standardized Cortisol*
Fraction of Joint Treated Teachers X Joint Treatment	0.854	-0.120	-5.988**	-1.810**
	[1.160]	[0.317]	[2.666]	[0.806]
Visual Narrative & Self-Persuasion	0.217	0.263**	2.729***	0.825***
	[0.362]	[0.102]	[0.823]	[0.249]
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.157	0.293	0.151	0.151
Mean of Dep. Variable	2.269	0.091	11.152	0.000

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Column (1), the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column (2), the dependent variable is a response to another question, but this time formulated as "Are you stressed?", with one being yes and zero being no. In Column 3 the dependent variable is the cortisol concentration in blood, measured in micrograms per deciliter, while in Column (4) we standardize the cortisol concentration in blood to mean zero and standard deviation one. The *Fraction of Joint Treated Teachers* is the proportion of teachers treated with the joint *Visual Narrative & Self-Persuasion* treatment within schools. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Is There Any Heterogeneity For Teachers That Previously Saw Bol?

Panel A: *Impact on Gender Attitudes*

	(1)	(2)	(3)	(4)
	Gender Rights Index	*Petition to Criminalize Dowry*	*Petition to Abolish Polygamy*	*Gender IAT Score*
Previously Seen Bol	0.0516	0.0955	0.0958	-0.176
X *Joint Treatment*	[0.0856]	[0.250]	[0.284]	[0.275]
Previously Seen Bol	-0.0185	0.165	0.399	0.265
X *Visual Narrative*	[0.0876]	[0.235]	[0.254]	[0.219]
Visual Narrative & Self-	0.160**	0.517***	0.466**	0.443**
Persuasion	[0.0669]	[0.192]	[0.216]	[0.214]
Visual Narrative	0.152**	0.272	0.129	0.0986
	[0.0669]	[0.184]	[0.189]	[0.173]
Observations	607	607	607	527
R-squared	0.139	0.141	0.206	0.136
Mean of Dep. Variable	0.000	0.000	0.000	0.000

Panel B: *Impact on Stress and Domestic Violence*

	Stress Likert	*Stress Dummy*	*Victim of Domestic Violence*	*Standardized Cortisol*
Previously Seen Bol	-0.255	-0.137*	0.0297	-0.0300
X *Joint Treatment*	[0.278]	[0.0823]	[0.266]	[0.266]
Previously Seen Bol	-0.380	-0.176***	-0.0402	-0.175
X *Visual Narrative*	[0.274]	[0.0672]	[0.268]	[0.254]
Visual Narrative & Self-	0.575**	0.302***	0.341*	0.359*
Persuasion	[0.224]	[0.0645]	[0.197]	[0.192]
Visual Narrative	0.512**	0.284***	0.296	0.305*
	[0.209]	[0.0577]	[0.187]	[0.184]
Individual Controls and School FE	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.160	0.309	0.102	0.146
Mean of Dep. Variable	2.269	0.091	0.000	0.000

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Panel A, the dependent variable in Column (1) is an index consisting of 16 gender rights statements fielded concerning Women's Economic, Social, Legal and Political Rights. In Column 2, the dependent variable is a signed petition sent to the Pakistani parliament to criminalize dowry, while the dependent variable in Column (3) is similarly standardized petition to abolish polygamy. Column (4) estimates the main specification with the gender Implicit Association Test (IAT) as the dependent variable. All dependent variables in this table are standardized to mean zero and standard deviation one. In Panel B, in Column (1), the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column (2), the dependent variable is a response to another question, but this time formulated as "Are you stressed?", with one being yes and zero being no. In Column (3) the dependent variable is the answer to the question:"Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force.", while in Column (4) the dependent variable is the standardized cortisol concentration in blood to mean zero and standard deviation one. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. The *Previously Seen Bol* is a dummy variable that switches on if the teacher is reported to have previously seen the Bol movie. *Visual narrative* represents the visual narrative treatment of the movie Bol augmented with the hour-long structured discussion of gender rights themes in the movie. *Visual Narrative & Self-Persuasion* is the dummy that switches one for participants who received the visual narrative of the movie (along with the structured discussion) together with the gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Impact on Students' Gender Attitudes

	Student's Gender Rights Index					
	(1)	(2)	(3)	(4)	(5)	(6)
	Overall		*Girls*		*Boys*	
Visual Narrative	0.145***	0.138***	0.263***	0.266***	0.0540	0.0488
	[0.0521]	[0.0530]	[0.0761]	[0.0766]	[0.0591]	[0.0595]
Visual Narrative & Self-Persuasion	0.254***	0.243***	0.406***	0.400***	0.135**	0.112*
	[0.0494]	[0.0504]	[0.0696]	[0.0698]	[0.0616]	[0.0636]
Individual Controls	No	Yes	No	Yes	No	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,911	13,911	6,802	6,802	7,107	7,107
R-squared	0.038	0.043	0.051	0.062	0.034	0.041
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00
p-value (VN = VN & SP)	0.021**	0.027**	0.032**	0.036**	0.154	0.269

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Columns (1) and (2), the dependent variable is an index consisting of 5 gender right statements asked to all students. The survey statements can be found in Appendix C5. In Columns (3) and (4), we show results for girls. In Columns (5) and (6), we show results for boys. The index is standardized to mean zero and standard deviation one. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual narrative* represents the visual narrative treatment of the movie Bol with a structured discussion of gender rights themes in the movie that the teachers were treated with. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for teachers who received the augmented visual narrative of the movie together with the gender studies curriculum. School fixed effects are also included as in the main specification. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. The student level controls include the dummies for student grade (i.e., KG, Nursery, Prep, one, two, three, four, five, six) and students' pre-treatment gender rights index. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Impact on Domestic Violence

Panel A: *Impact on Domestic Violence (Standardized)*

	(1)	(2)	(3)	(4)	(5)	(6)
	Victim of Domestic Violence		*Beliefs about Domestic Violence*		*Victim of Domestic Violence (Marlowe-Crowne)*	
Visual Narrative	0.285**	0.273**	-0.216*	-0.205	0.274*	0.267*
	[0.129]	[0.128]	[0.128]	[0.129]	[0.162]	[0.161]
Visual Narrative & Self-Persuasion	0.375***	0.357**	0.0996	0.114	0.344**	0.332*
	[0.144]	[0.144]	[0.135]	[0.135]	[0.172]	[0.173]
Individual Controls	No	Yes	No	Yes	No	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	526	526
R-squared	0.093	0.101	0.123	0.130	0.096	0.106
Mean of Dep. Variable	0.000	0.000	0.000	0.000	0.000	0.000

Panel B: *Impact on Domestic Violence (Original Units)*

	(1)	(2)	(3)	(4)	(5)	(6)
Visual Narrative	0.0609**	0.0584**	-0.211*	-0.200	0.0584*	0.0569*
	[0.0275]	[0.0273]	[0.125]	[0.126]	[0.0347]	[0.0345]
Visual Narrative & Self-Persuasion	0.0801***	0.0762**	0.0972	0.111	0.0734**	0.0708*
	[0.0307]	[0.0308]	[0.132]	[0.132]	[0.0367]	[0.0369]
Individual Controls	No	Yes	No	Yes	No	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	607	526	526
R-squared	0.093	0.101	0.123	0.130	0.096	0.106
Mean of Dep. Variable	0.047	0.047	1.778	1.778	0.049	0.049

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Columns 1 and 2, the variable is an answer to the question: "*Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force*". The dependent variable in Columns 3 and 4 is the statement on a scale of 1 to 5 for "*To what extent is domestic or physical violence by your husband, father or brother justified.*" In Panel A, all dependent variables are standardized to mean zero and standard deviation one, while in Panel B, the dependent variables are in their original units. Dummy variables for ***Utilitarian*** and ***Malleability*** treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender gender studies curriculum. In Columns 5 and 6, we apply the Marlowe Crowne method of discarding teachers who are most likely to misreport i.e., we discard 81 teachers who answer yes to the following statements: 1) I am never jealous of another person's good fortune. 2) I am always a good listener. 3) I am never angry. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Impact on Stress and Domestic Violence by Below and Above Median Pre-Treatment Gender Index

	(1)	(2)	(3)	(4)
	Standardized Cortisol		*Victim of Domestic Violence*	
	Below Median Pre-Treatment Gender Index	*Above Median Pre-Treatment Gender Index*	*Below Median Pre-Treatment Gender Index*	*Above Median Pre-Treatment Gender Index*
Visual Narrative	0.167	0.148	0.262	0.378*
	[0.182]	[0.212]	[0.177]	[0.210]
Visual Narrative & Self-Persuasion	0.482**	0.149	0.516**	0.351
	[0.217]	[0.196]	[0.251]	[0.217]
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	304	301	304	301
R-squared	0.246	0.234	0.174	0.189
Mean of Dep. Variable	0.000	0.000	0.000	0.000
p-value (VN = VN & SP)	0.119	0.998	0.304	0.916

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Columns 1 and 2 the dependent variable is the cortisol concentration in blood standardized mean zero and standard deviation one, while in Columns 3 and 4, the similarly standardized variable to the answer: "*Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force*". Columns 1 and 3 present results on a sample of teachers with pre-treatment below median gender rights index, while Columns 2 and 4 report results on a sample of teachers with pre-treatment above median gender rights index. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Online Appendix to:

Why are Rights Revolutions Rare?

By Sultan Mehmood, Shaheen Naseer and Daniel Chen

Contents

A. Transcripts

Table A1: Utilitarian Treatment Transcript

I want to welcome all of you. I am your instructor for the soft skills workshop which we are starting next week. What we mean by soft skills are skills that allow us to communicate with and understand people better. The purpose of sending you a presentation is to briefly walk you through some of the core concepts which will provide you the background knowledge that is compulsory for the upcoming workshop next week. And the first thing I want to do is, to make you comfortable. Although, this is a compulsory lecture to get acquainted with the required material but there is nothing uptight about this presentation. I am really here for your benefit. I hope that is going to be a worthwhile experience for you. In this slide you see the topics that sort of headlines this presentation; We will talk about….What is empathy, Why it matters, why we need to talk about it? Then we will discuss qualitative or anecdotal evidence, some examples from teachers, to underscore the importance of empathy. After presenting evidence of these real stories from teachers, we will discuss the research which has been done on hundreds of teachers and students across many countries on empathy. Ok to begin with: In developed countries, the relevance of soft skills for student achievement in primary, middle and high school is increasingly gaining traction. More than ever before, we are talking about school culture in a way that is not primarily focused on academic achievement and passing high school. Instead, we are looking at education systems that have to come to appreciate the interdependence of academic achievement on building empathy in students. Jean Decety, a world-renowned neuroscientist, in his book 'The Social Neuroscience of Empathy' talks about how learning, particularly in the curriculum areas of reading, literature, and social studies, should be facilitated by empathy because the empathic child is better able to place him or herself in the role of central characters portrayed in the fictional and historical readings. In addition to being better able to understand the roles and perspectives of these fictional and historical characters, the empathic child is better able to share and experience, to some degree, their feelings. These shared feelings may serve to underline and reinforce what they have read and been taught, resulting in better recall. Also, a number of educators have suggested that there is a reciprocal relationship between the process of reading and empathy, such that reading helps heighten and reinforce empathy (Budin, 2001; Cress & Holm, 2000). There is also evidence that teacher empathy may have a positive influence on student attitudes: teacher empathy toward withdrawn students is related with middle-school peers' acceptance of withdrawn students in their classes (Chang, 2003). This is not just limited to academic achievement though. A leading psychology and education professor at Columbia University in the US views one of the main challenges schools face today is helping students be healthy, happy and successful in meeting the challenges of their increasingly complex social environment. Empathetic teachers can play a significant role in making this happen. A research that studied teachers' behaviours in their schools to understand the role of empathy in teaching culturally diverse students in the US (McAllister, 2000), finds how teachers found it easier to work with students after being immersed into their context through interactions with their parents and their wider communities. Even the world outside school is accepting and acknowledging the importance of empathy.To contextualize the discussion with some examples, let's take the example of some of the most profitable

and biggest firms across the globe. In this table you see the names of companies across the globe which scored highest points in the empathy score. That means employees and employers in these firms are rated very high in empathy. Isn't it fascinating? "It is a puzzling question for economists why the most profitable and biggest firms rank so highly in empathy scores?" Why do firms who earn millions in profits also have high empathy scores? Is cut throatiness not going to get you more profits? Is the selfish notion of maximizing profit is most important? "Actually, it seems to be the case that soft skills are critical in all this!! "it may turn out that empathy boosts profit". This occurs because empathy equips key partners "employees and employers with the soft skills that allow the companies to navigate complex relationships and satisfy client needs and maintain employee trust and motivation". This empirical evidence is dispelling the view that it is being selfish and unemphatic to others is what will get you ahead in life. So, here are a few interesting definitions of empathy from different sources; this concept has been around for a while, and various religious beliefs teach us that it is something that we should practice as human beings towards others. There are different definitions of empathy in academic literature. Since there seems to be no universally agreed upon definition of empathy, "we don't need to go into the nitty gritty of each specific definition of empathy but in a nutshell empathy is putting yourself in another's shoes". It matters because the skill of empathy can help you succeed in your professional life. It can boost performance". That is to say, Empathy influences overall organizational performance and individual performance and well-being at a workplace. That is why, recent research is paying more and more attention to the effects of empathy on others. As we just saw in previous slide companies integrate empathy into their business strategies, because they think it'll help them to provide better services to their clients. We don't want to dwell too long on the private sector, but to bring it back to our context, of the importance of empathy for teachers. Empathy is important for school teachers because schools are challenging workplaces. That can be subject to emotionally demanding situations; you face demands of parents, students, school principals etc. Empathy towards yourself, toward others, and towards the students you serve can help you navigate this space better. It can help you at the job and it can improve learning for your students, because you consciously empathize with their needs, take their point of view, understand their concerns. This is especially relevant in a country where most kids face severe hardship in daily lives and depend very much upon teachers for a safe learning environment!! For instance, think of your favorite teachers as a kid. What made them special? For me, it was their ability to understand my needs and to make me feel safe in the classroom. Teachers I could go and talk to about my concerns and I knew they would understand. And if for you that wasn't a teacher but someone else, that's okay too. The point being, we like to learn from people who can understand us. Systematic research of large population backs the idea that empathy can improve performance...also a related question is: why do all leading organisations train their employees in empathy? What is in for them? After all there is a Cutthroat competition in the corporate world for making profit. The point that I am trying to make is: in the 21st century companies might be investing in empathy to improve their profits and community engagement. A large body of research backs this up. For instance, in one prominent study at Stanford by Professor Zaki documents that empathy is more 'useful' than selfish behavior. It seems like a myth, being selfish is what will get you ahead but empathy and concern for other is key skill that those around you cherish. Empirical evidence shows that Empathy benefits at different levels. First at a personal level, empathic people report to be much happier than less empathetic people. Second at a social level, empathic people have more fulfilling social lives than less empathetic people. " We have

briefly touched on key findings from seminal studies on empathy that show empathy benefits the very people who show empathy themselves. We would have time to go into detail of these study but I did want to give you a flavor of some cutting edge research in this field...So we will go into detail of one of the studies. For instance, a research by a Yale university psychologist, Marc A. Brackett, (Brackett et al., 2011) studies 2000 students across 90 classrooms to find that there is a direct positive relationship between classroom emotional climate, driven by teacher's ability to build strong relationships with their students. The classroom environments rated with objective indicators to be emotionally supportive had a positive impact on student conduct, suggesting that in the emotionally supportive classrooms, students liked and respected their teachers more and , in turn, behaved better. so the question is What is going on? (emphasis on it) Why is it that teachers are also investing in creating these environments? The answer many world renowned educators and psychologists (Blase, 1982; Byrne, 1994; Friedman, 1995; Hastings & Bham, 2003) say is as teachers you must have experienced the stress of when student misbehave, and this stress is not just what you feel but is proven through empirical studies showing how teacher stress, burnout and well-being have been linked consistently to student conduct. So teachers are investing their time in understanding their students and creating an environment that can support them. Empathy is social good which is valued by others If you are empathic, your students will be more motivated to work with you FOR YOU! Empathy is mutually beneficial. Empathy helps you bring the best out of people. Only by taking the perspective of others can you realize the problems other people face in accomplishing their tasks and how they may overcome them. There are several studies that back the idea that if the teacher is empathic then the whole class performs better. Empathic leaders have better communication and trust with their peers and students.Another research on teams and performance, finds something very interesting. If you ask people on a team: who is the leader of the team? they are not likely to name the designated leader but the "effective leader who helped them out" in other words a colleague who was empathic to their needs, who may or may not be the designated leader. Again "humans are social animals", empathy begets empathy. For you teachers this is of course not a surprise. You must have heard stories of the celebrated teachers, the ones that made the difference! They incidentally also were revered not just for their work ethic and commitment to public service but also their empathy. All types of evidence backs the idea that empathy is good for you. It is not just the right thing to do but also the most sensible thing to do for your performance as a teacher.

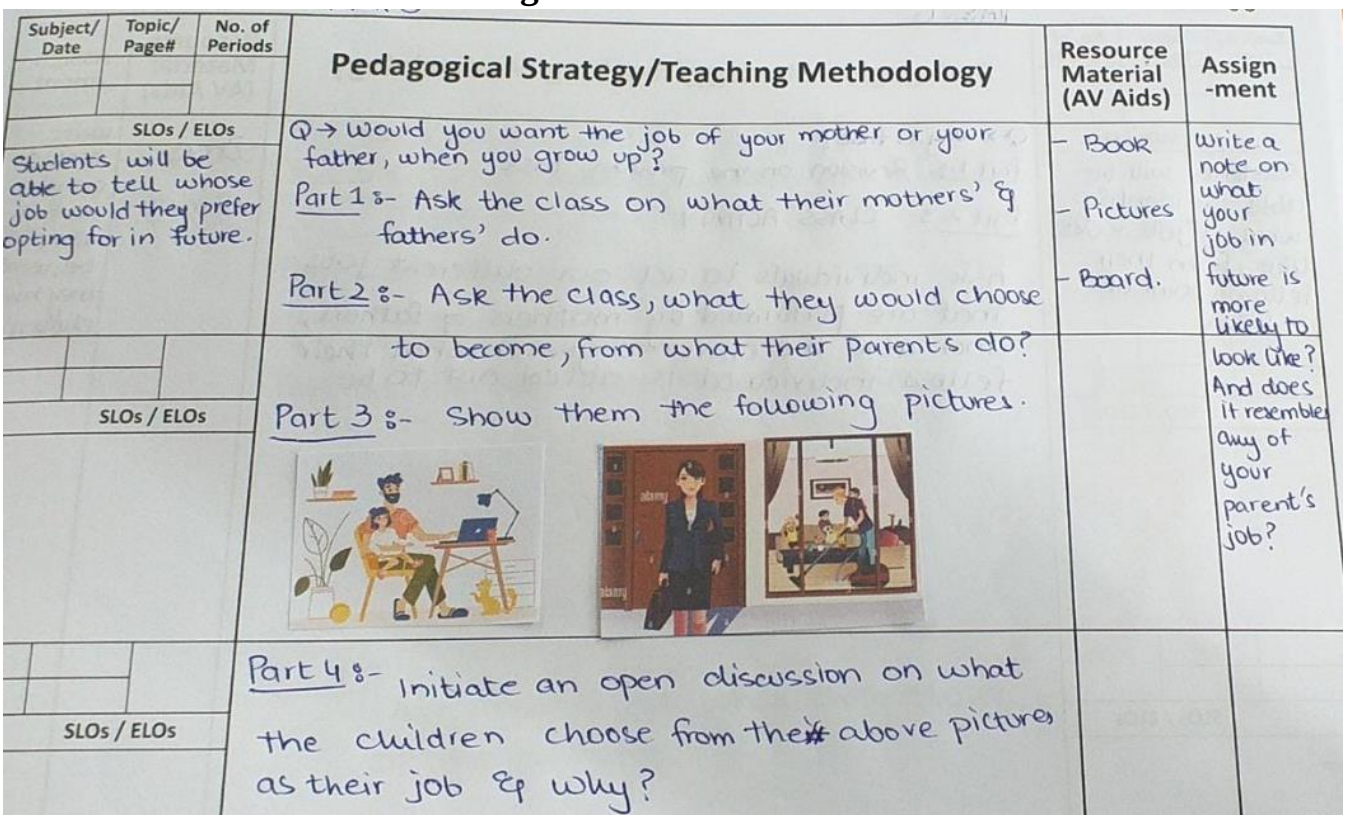
Table A2: Malleability Treatment Transcript

I want to welcome all of you. I am your instructor for the soft skills workshop which we are starting next week. The purpose of sending you a presentation is to briefly walk you through some of the core concepts which will provide you the background knowledge that is compulsory for the upcoming workshop next week. And the first thing I want to do is, to make you comfortable. Although, this is compulsory lecture to get acquainted with the required material but there is nothing uptight about this presentation. I am really here for your benefit. I hope that is going to be a worthwhile experience for you. In this slide you see the topics that sort of headlines this presentation. We will talk about: What is empathy? Is empathy fixed? Before going in depth in the question of whether empathy is fixed in a person. I would mention some motivating examples that point towards the notion that empathy of person is not an immutable or unchangeable force of nature. After going through the qualitative research and stories of change, I will discuss some recent large scale research that shows whether empathy changes over time? We will specifically discuss Research on Malleability of Empathy. So, here are a few interesting definitions of empathy from different sources; this concept has been around for a while, various religious beliefs teach us that it is something that we should practice as human being toward others. There are different definitions of empathy in academic literature. Since there seems to be no universally agreed upon definition of empathy, "we don't need to go into nitty gritty of each specific definition of empathy but in a nutshell, empathy just means putting yourself in another shoes, its taking the perspective of others when making a decision". So the question is, Is Empathy fixed? Throughout history anecdotal accounts suggest people can change, people can change in the level of empathy they show to others (From Religion: Hazrat Umar, Khalid bin Waleed (Islamic religious leaders) and their transformation from enemy of the Islam to the greatest champions of Islam. We can find various recent examples of people who are known for their drastic transformation; growing themselves into an empathetic personality. For instance, Consider the example of Majid Nawaz from being international terrorist to running the biggest counter-terrorism organization in Pakistan (Quilliem) that fights the battle against radicalization by presenting alternative narratives to radicalized youth and actual terrorists in jails across the world (see his book "The Radical" for his fascinating story). Many other examples across the world show that people can change in the level of empathy: For instance, some White people who believed that White race is better than all in the US becoming the biggest fighters of minority rights. So, the question is what is going on? These example suggest that one can grow himself in empathy. So I made a rather bold claim based on few stories that empathy is not fixed. In fact a large body of research backs this up. For instance, in one prominent study at Stanford Zaki and co-authors show empathy is not fixed in a person. Several studies show empathy is nor fixed in a person (see e.g. Zaki and Ochsner, 2012). "Empathy is changeable and can be influenced over time. Empathy is not stable over one's lifetime. It can be developed and cultivated." Survey after surveys also show that empathy of populations changes over time. An important point is: Empathy doesn't come naturally in all situation: For instance: Sometimes we struggle with showing empathy for someone or considering their perspective. That's OK, empathy can be changed. If we don't feel empathy naturally, it doesn't mean that we are incapable of feeling it. empathy is changeable, and that understanding that it can sometimes be difficult to feel empathetic unless we work on it: is important step to developing this important life skill. Another important

point is “Empathy is not a constant of nature determined by your upbringing alone, it rises and falls based on the environment around you”). For instance, in United States where most amount of data is available empathy scores have been falling for the last 30 years i.e. empathy in US now is about 50% of what it was 30 years ago. Why is it falling, if it is fixed? And it is not just one measure of empathy but all measures seem to follow this downward trend. This data convinced many psychologists that empathy is malleable, people can grow in empathy or they can fall in empathy. That is exactly what this graph indicates: that empathy is falling over time! If empathy is fixed theory is correct, this graph would not be downward trending. It should be a straight line. Essentially, this is inconsistent with the fixed empathy theory where empathy of individual and populations are fixed over time. This observed decline has put out of business all the psychological theories that had argued earlier empathy was fixed. We have briefly touched on key findings from the seminal study on empathy that show empathy is not fixed. I do want to give you some more flavor of cutting-edge research in this field. So we will go into detail of couple of the studies. For instance: does empathy change? empathy changed when they were given perspective of others (VR glasses, research article: Bernard et al., 2018). In the first study when researchers gave virtual reality goggles to people and made them take perspective of others (e.g. see the lives through the eyes of homeless people and beggars), the level of empathy they showed to others skyrocketed both in surveys as well as high-stake decisions). Therefore, being open minded and willing to change and learn, is essential to grow in empathy and develop this skill. A seminal study from Stanford University shows that people who are most rigid in their believe that empathy cannot change in them or others are the least empathetic to begin with. People who believe empathy is inherent and unchangeable disengage from situations where empathy is difficult for them to experience. By contrast, people who believe empathy can be developed, they feel less threatened by perceiving that their empathic abilities are being challenged in a difficult situation. Another study shows that “Resilience training” increased empathy among radicalized Moroccan youth (research article: Feddes et al., 2015). This suggests that “People really change? it hints towards the notion that we need to revise this notion empathy cannot be changed and is fixed, the level of empathy an individual has is not destiny. This also suggests the answer of the puzzling question why the most profitable and biggest firms engage in empathy workshops and “waste” millions if empathy is unchangeable? Can it be that companies like Google and Facebook think empathy is malleable in people? They can inculcate these skills So, coming back to the basic question we began with, can empathy evolve in a person? Commonsense stories, all types of evidence point to one conclusion that empathy is malleable and it can change. Empathy is a skill that can be developed. Like any skill it needs work, to understand the needs of others and not just to best serve them but bring the best out of your students. Learning “The art of empathy” needs practice. All types of evidence backs the idea that empathy is not fixed but malleable. It is a skill that can be developed.

Appendix B: Additional Figures and Tables

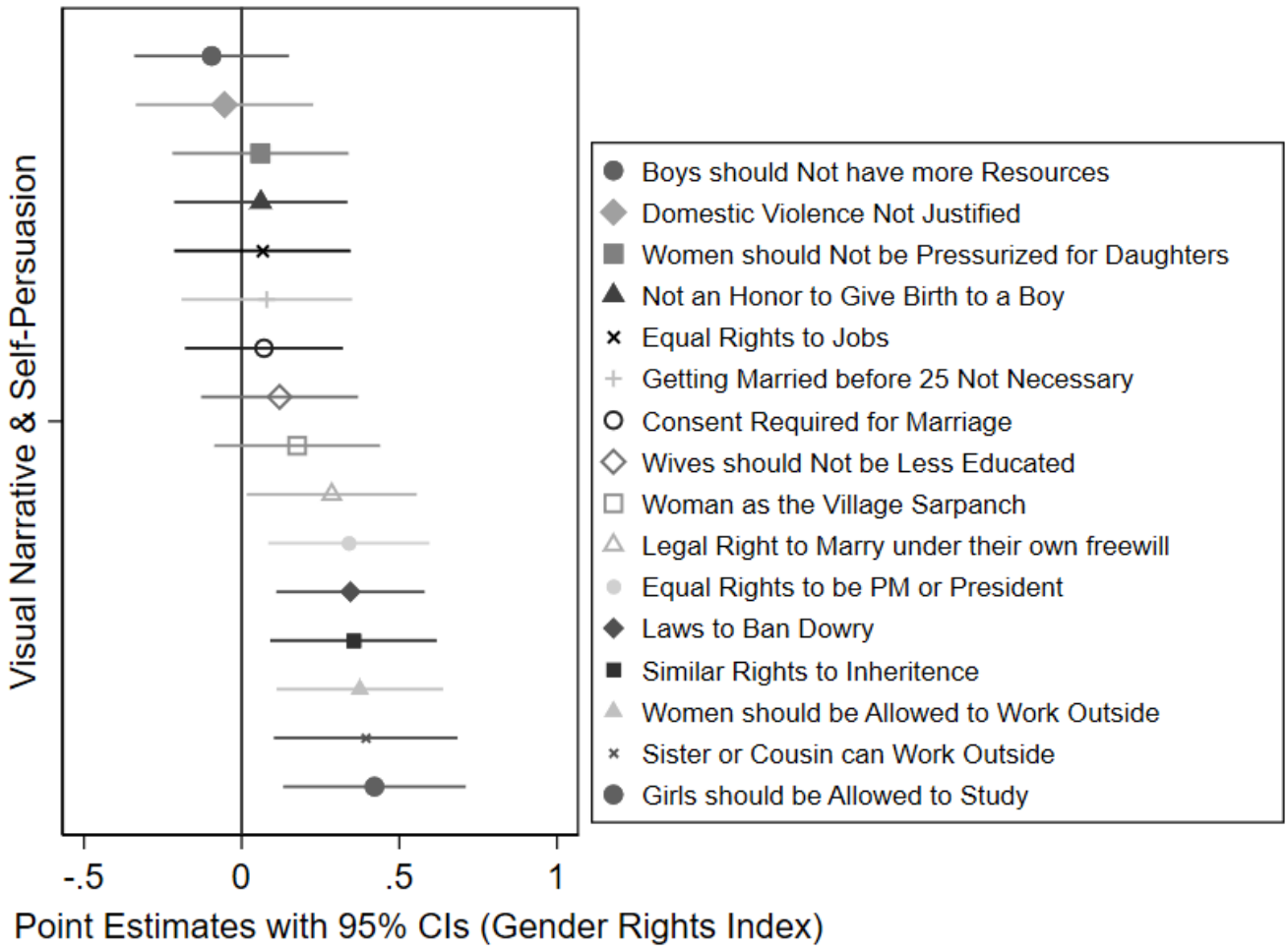
Figure B1: Lesson Plan



Subject/ Date	Topic/ Page#	No. of Periods	Pedagogical Strategy/Teaching Methodology	Resource Material (AV Aids)	Assign -ment
SLOs / ELOs			Q→ Would you want the job of your mother or your father, when you grow up?	- Book	Write a note on what your job in future is more likely to look like? And does it resemble any of your parent's job?
Students will be able to tell whose job would they prefer opting for in future.			Part 1:- Ask the class on what their mothers' & fathers' do.	- Pictures	
			Part 2:- Ask the class, what they would choose to become, from what their parents do?	- Board.	
SLOs / ELOs			Part 3:- Show them the following pictures.		
SLOs / ELOs			Part 4:- Initiate an open discussion on what the children choose from the above pictures as their job & why?		

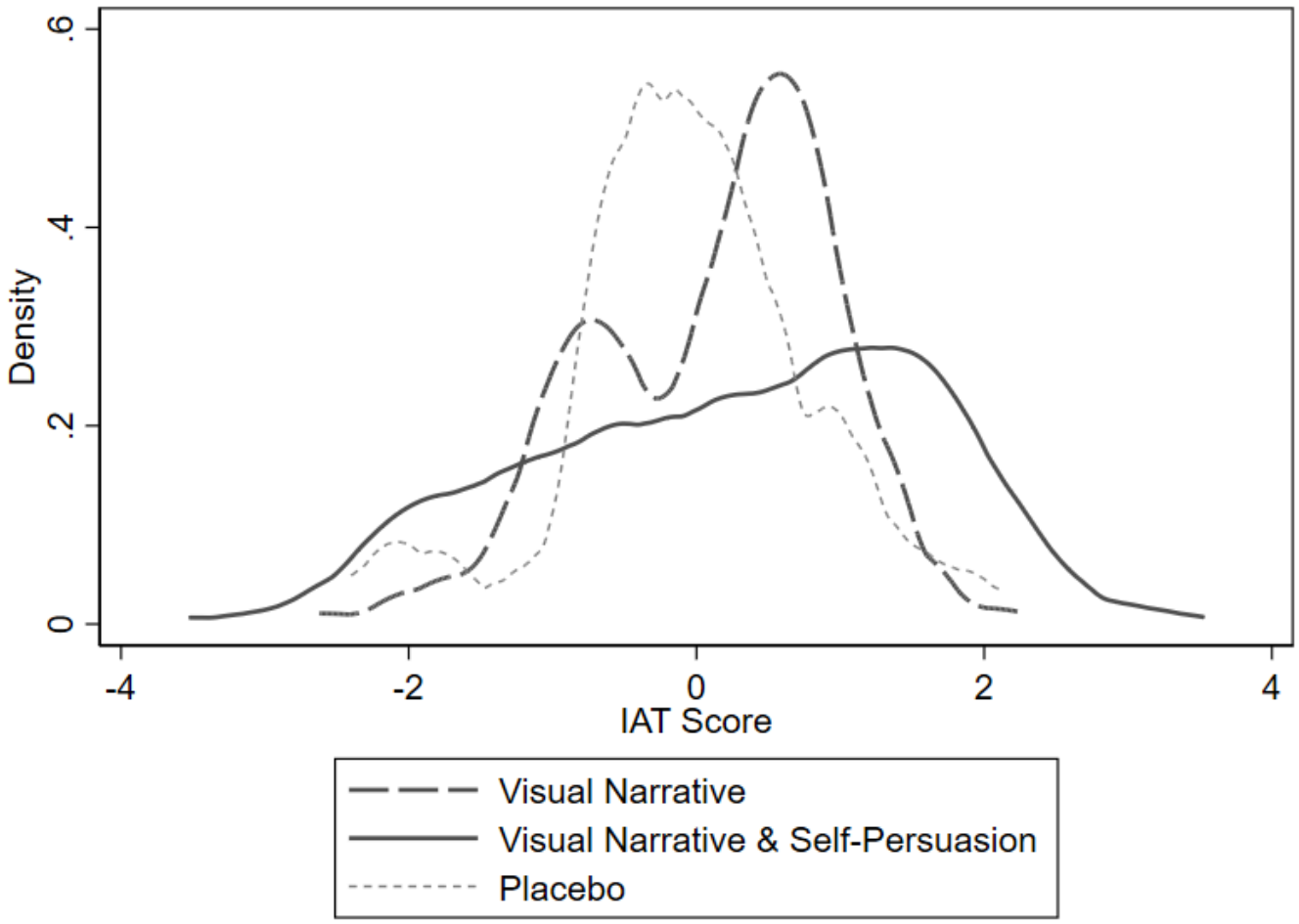
Note: The teachers entered the gender rights curriculum in their lesson plan log and used it as a teaching aid on the material to cover in class. A typical lesson plan log is shown in this figure.

Figure B2: Gender Rights Index – Impact of Visual Narrative and Self-Persuasion



Note: The figure summarizes the effect of joint visual narrative and self-persuasion treatment on each of the 16 statements used in the gender rights index used in the main text. All these variables are standardized to mean zero and standard deviation one. The 16 statements are as follows "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.", "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.", "S10. 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", "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?" Equation (1) is estimated with all controls with the coefficient estimate corresponding to the joint visual narrative and self-persuasion treatment. *** p<0.01, **p<0.05, * p<0.1.

Figure B3: Distributions of Teachers' Gender IAT Scores

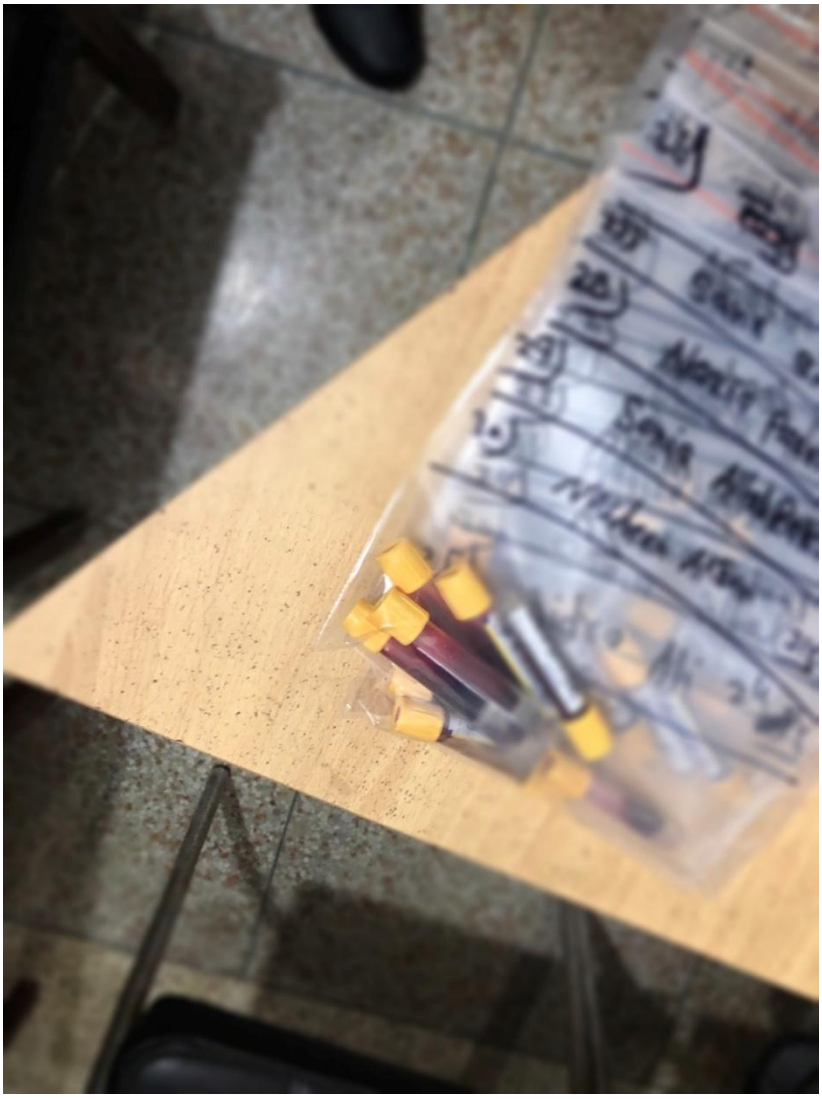


Note: In this figure, the distributions of the Gender IAT scores are shown for the visual narrative and the visual narrative joint with self-persuasion treatments relative to the placebo group. The gender IAT is standardized to mean zero and standard deviation one. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the augmented visual narrative of the movie together with the gender gender studies curriculum.

Figure B4: Collection of Blood Sample

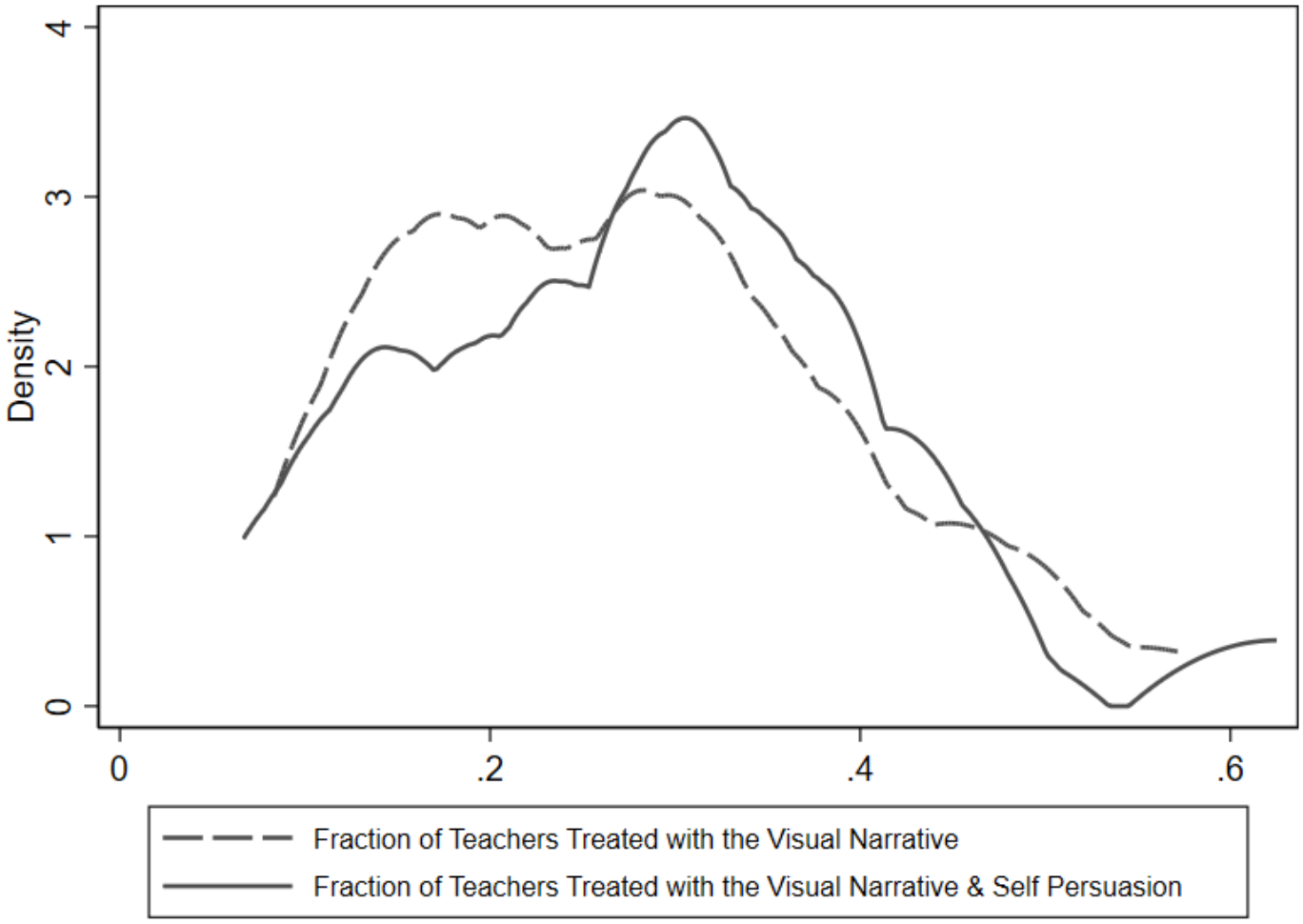
Note: The picture shows one teacher giving her blood to determine her blood cortisol concentration. The blood cortisol level is determined via the Chemiluminescence Immunoassay (CLIA) technique that measures cortisol concentrations in micrograms per deciliter. Vacunas tubes were deployed to reduce the discomfort of a venipuncture syringe.

Figure B5: Blood Samples of Teachers for Cortisol Measurements



Note: The blood samples were collected and transported to a prominent lab in Lahore, where measurement of plasma cortisol concentrations are recorded using the standard Chemiluminescent immunoassay (CLIA). All 607 teachers had their sample collected within our specified 30-minute window with the help of a team of volunteers and lab attendants. Vacunas tubes were deployed to mitigate the discomfort of a venipuncture syringe. We obtained results of blood plasma concentration readings from the lab of all teachers within 24 hours.

Figure B6: Distribution of Fraction of Teachers Treated Within Schools



Note: The figure above shows the distributions of the fraction of teachers treated within schools with the visual narrative of the movie Bol (long-dashed curve) and the fraction of teachers treated with the joint visual narrative and self-persuasion gender-rights curriculum (solid curve).

Table B1: Joint Orthogonality Test - Balance

	(1)	(2)	(3)	(4)
	Visual Narrative	*Visual Narrative & Self-Persuasion*	*Utilitarian*	*Malleability*
Pre-Treatment Stress	0.00754	0.0121	-0.0192	0.00382
	[0.0159]	[0.0157]	[0.0159]	[0.0159]
Pre-Treatment Domestic Violence	0.000479	0.00912	-0.0111	0.00140
	[0.0171]	[0.0169]	[0.0171]	[0.0172]
Pre-Treatment Gender Index	-0.0173	0.0292	-0.0444	0.00348
	[0.0296]	[0.0292]	[0.0296]	[0.0296]
Married	-0.0272	-0.0112	0.0415	-0.0383
	[0.0340]	[0.0336]	[0.0340]	[0.0341]
Bol Movie Watched	0.0277	0.0109	-0.0229	0.0238
	[0.0340]	[0.0336]	[0.0340]	[0.0341]
Average Teaching Hours	0.00803	0.000586	-0.00549	-0.000110
	[0.00645]	[0.00637]	[0.00644]	[0.00646]
Teaching Experience	-0.00463	0.00516	-0.00325	0.00666
	[0.00592]	[0.00585]	[0.00591]	[0.00593]
Years of Education	0.00910	0.00773	-0.00734	-0.0103
	[0.0115]	[0.0114]	[0.0115]	[0.0115]
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.098	0.115	0.095	0.091
F-Statistics (Joint Significance)	0.55	0.49	0.98	0.44
Mean of Dep. Variable	0.201	0.199	0.199	0.199

Note: Robust standard errors appear in brackets (clustered at the teacher level). Dummy variables that turn on for our treatments are the dependent variables. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender studies curriculum. *Utilitarian* and *Malleability* are dummy variables that switch on for the Utilitarian and Malleability treatments. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. F-Statistic in each column correspond to joint significance test for all available baseline teacher characteristics and pretreatment variables *** p<0.01, ** p<0.05, * p<0.1

Table B2: The Cost of Empowerment with all interactive effects

	(1)	(2)	(3)	(4)
	Stress Likert	*Stress Dummy*	*Cortisol Raw*	*Standardized Cortisol*
Fraction of Joint Treated Teachers X Joint Treatment	1.033	-0.138	-5.115*	-1.546*
	[1.242]	[0.317]	[3.011]	[0.910]
Fraction of Joint Treated Teachers X Visual Narrative	-0.481	0.0727	2.213	0.669
	[1.212]	[0.323]	[3.324]	[1.005]
Visual Narrative & Self-Persuasion	0.181	0.265***	2.551***	0.771***
	[0.369]	[0.102]	[0.860]	[0.260]
Visual Narrative	0.386	0.177***	0.326	0.0985
	[0.256]	[0.0576]	[0.746]	[0.225]
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.159	0.294	0.154	0.154
Mean of Dep. Variable	2.269	0.091	11.152	0.000

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Column (1), the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column (2), the dependent variable is a response to another question, but this time formulated as "Are you stressed?", with one being yes and zero being no. In Column 3 the dependent variable is the cortisol concentration in blood, measured in micrograms per deciliter, using the Chemiluminescence Immunoassay (CLIA) technique, while in Column (4) we standardize the cortisol concentration in blood to mean zero and standard deviation one. The *Fraction of Joint Treated Teachers* is the proportion of teachers treated with the joint Visual Narrative & Self-Persuasion treatment within schools. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1

Table B3: Bandwagoning does not differentially impact Gender Attitudes or Domestic Violence

	(1)	(2)	(3)	(4)	(5)	(6)
	Gender Rights Index	*Petition to Criminalize Dowry*	*Petition to Abolish Polygamy*	*Standardized Gender IAT Score*	*Victim of Domestic Violence*	*Beliefs about Domestic Violence*
Fraction of Joint Treated Teachers X Joint Treatment	-0.204	0.524	-0.194	-1.355	0.649	-1.240
	[0.332]	[1.012]	[0.997]	[1.232]	[0.996]	[0.963]
Visual Narrative & Self-Persuasion	0.242**	0.426	0.564*	0.693*	0.185	0.443
	[0.106]	[0.300]	[0.332]	[0.374]	[0.307]	[0.302]
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	607	607	607	527	607	607
R-squared	0.139	0.141	0.201	0.134	0.102	0.133

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column (1) is an index consisting of 16 gender rights statements fielded concerning Women's Economic, Social, Legal and Political Rights. The statements can be found in Appendix C2. In Column 2, the dependent variable is a signed petition sent to the Pakistani parliament to criminalize dowry, while the dependent variable in Column (3) is similarly standardized – to mean zero and standard deviation one – petition to abolish the law that allows polygamy for men in Pakistan. Column 4 has the dependent variable on gender Implicit Association Test (IAT). All dependent variables are standardized to mean zero and standard deviation one. The *Fraction of Joint Treated Teachers* is the proportion of teachers treated with the joint Visual Narrative & Self-Persuasion treatment within schools. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual Narrative* represents the visual narrative treatment of the movie Bol augmented with the structured discussion. *Visual Narrative & Self-Persuasion* is the dummy that switches to one for participants who received the augmented visual narrative of the movie together with the gender gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. Please also note that this specification also includes all treatment dummies as in the baseline specification but these coefficients are not shown in the interest of brevity. *** p<0.01, ** p<0.05, * p<0.1

Table B4: Impact of schools more intensely treated by the Visual Narrative on Gender Attitudes

Panel A: *Utilitarian Treated Group*						
	(1)	(2)	(3)	(4)	(5)	(6)
	Gender Rights Index		*Petition*		*Gender IAT Score*	
Fraction Treated with the Visual Narrative	0.00558	0.00366	0.0141	0.0157	-0.0686	-0.0736
	[0.0107]	[0.0103]	[0.0390]	[0.0361]	[0.0476]	[0.0575]
Individual Controls	No	Yes	No	Yes	No	Yes
Observations	121	121	121	121	107	107
R-squared	0.002	0.041	0.002	0.082	0.022	0.101
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00
Panel B: *Malleability Treated Group*						
Fraction Treated with the Visual Narrative	0.00753	0.00967	0.000506	0.00453	-0.00493	-0.00749
	[0.0153]	[0.0151]	[0.0206]	[0.0181]	[0.0258]	[0.0259]
Individual Controls	No	Yes	No	Yes	No	Yes
Observations	121	121	121	121	121	121
R-squared	0.002	0.042	0.000	0.031	0.000	0.035
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00
Panel C: *Placebo Treated Group*						
Fraction Treated with the Visual Narrative	-0.0153	-0.0157	-0.0129	-0.0103	-0.0234	-0.0198
	[0.0126]	[0.0121]	[0.0235]	[0.0267]	[0.0315]	[0.0327]
Individual Controls	No	Yes	No	Yes	No	Yes
Observations	122	122	122	122	85	85
R-squared	0.010	0.104	0.002	0.063	0.003	0.094
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column 1 and 2 is an index consisting of 16 gender rights statements fielded concerning Women's Economic, Social, Legal and Political Rights. The statements can be found in Appendix C2. In Column 3 and 4, the dependent variable is a signed petition sent to the Pakistani parliament to criminalize dowry, Column 5 and 6 estimates the main specification with the gender Implicit Association Test (IAT) as the dependent variable. All dependent variables in this table are *standardized* to mean zero and standard deviation one. Panel A represents the Utilitarian treated group, Panel B represents the Malleability treated group and Panel C represents the Placebo treated group. The *Fraction of Visual Narrative Treated Teachers* is the proportion of teachers treated with the *Visual Narrative* treatment within schools. *Visual narrative* represents the visual narrative treatment of the movie Bol with a structured discussion of gender rights themes in the movie. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. Please also note that this specification also includes all treatment dummies as in the baseline specification but these coefficients are not shown in the interest of brevity. *** p<0.01, ** p<0.05, * p<0.1.

Table B5: Impact of schools more intensely treated by the Joint Treatment - Visual Narrative and Self-Persuasion on Gender Attitudes

Panel A: *Utilitarian Treated Group*						
	(1)	(2)	(3)	(4)	(5)	(6)
	Gender Rights Index		*Petition*		*Gender IAT Score*	
Fraction Treated with the Visual Narrative & Self- Persuasion	0.489*	0.532*	-0.351	-0.383	-0.340	-0.130
	[0.264]	[0.274]	[0.582]	[0.594]	[0.785]	[0.757]
Individual Controls	No	Yes	No	Yes	No	Yes
Observations	121	121	121	121	107	107
R-squared	0.033	0.078	0.003	0.084	0.001	0.076
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00
Panel B: *Malleability Treated Group*						
Fraction Treated with the Visual Narrative & Self- Persuasion	-0.0490	-0.0542	-0.268	-0.197	0.930	0.932
	[0.222]	[0.243]	[0.464]	[0.472]	[0.624]	[0.699]
Individual Controls	No	Yes	No	Yes	No	Yes
Observations	121	121	121	121	121	121
R-squared	0.000	0.038	0.002	0.032	0.028	0.060
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00
Panel C: *Placebo Treated Group*						
Fraction Treated with the Visual Narrative & Self- Persuasion	-0.170	-0.233	0.480	0.669	-0.0417	0.383
	[0.253]	[0.274]	[0.566]	[0.534]	[0.723]	[0.746]
Individual Controls	No	Yes	No	Yes	No	Yes
Observations	122	122	122	122	85	85
R-squared	0.004	0.102	0.007	0.075	0.000	0.095
Mean of Dep. Variable	0.00	0.00	0.00	0.00	0.00	0.00

Note: Robust standard errors appear in brackets (clustered at the teacher level). The dependent variable in Column 1 and 2 is an index consisting of 16 gender rights statements fielded concerning Women's Economic, Social, Legal and Political Rights. The statements can be found in Appendix C2. In Column 3 and 4, the dependent variable is a signed petition sent to the Pakistani parliament to criminalize dowry, Column 5 and 6 estimates the main specification with the gender Implicit Association Test (IAT) as the dependent variable. All dependent variables in this table are standardized to mean zero and standard deviation one. Panel A presents the analysis on the Utilitarian treated teachers, Panel B the Malleability treated teachers and Panel C the Placebo treated group. The *Fraction of Joint Treated Teachers* is the proportion of teachers treated with the joint *Visual Narrative & Self-Persuasion* treatment within schools. *Visual narrative* represents the visual narrative treatment of the movie Bol with a structured discussion of gender rights themes in the movie. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. *** p<0.01, ** p<0.05, * p<0.1.

Table B6: Impact of schools more intensely treated by the Visual Narrative on Domestic Violence and Stress

Panel A: *Utilitarian Treated Group*				
	(1)	(2)	(3)	(4)
	Victim of Domestic Violence	*Stress Likert*	*Cortisol Raw*	*Standardized Cortisol*
Fraction Treated with the Visual Narrative	0.0390	-0.0614*	0.129	0.0390
	[0.0423]	[0.0311]	[0.130]	[0.0393]
Individual Controls	Yes	Yes	Yes	Yes
Observations	121	121	121	121
R-squared	0.068	0.099	0.071	0.071
Mean of Dep. Variable	0.0	2.033	10.709	-0.133
Panel B: *Malleability Treated Group*				
Fraction Treated with the Visual Narrative	-0.0199	0.0257	-0.00673	-0.00204
	[0.0231]	[0.0377]	[0.0940]	[0.0284]
Individual Controls	Yes	Yes	Yes	Yes
Observations	121	121	121	121
R-squared	0.022	0.036	0.115	0.115
Mean of Dep. Variable	0.0	2.247	11.004	-0.044
Panel C: *Placebo Treated Group*				
Fraction Treated with the Visual Narrative	0.00979	0.0462	0.0819	0.0247
	[0.0124]	[0.0340]	[0.136]	[0.0410]
Individual Controls	Yes	Yes	Yes	Yes
Observations	122	122	122	122
R-squared	0.063	0.115	0.035	0.035
Mean of Dep. Variable	0.0	2.073	10.835	-0.095

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Column 1, the dependent variable is answer to the question: "Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force." In Column 2, the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column 3, the dependent variable is the cortisol concentration in blood, measured in micrograms per deciliter, using the Chemiluminescence Immunoassay (CLIA) technique, while in Column 4, we standardize the cortisol concentration in blood to mean zero and standard deviation one. Panel A presents the analysis on the Utilitarian treated teachers, Panel B the Malleability treated teachers and Panel C the Placebo treated group. The *Fraction of Visual Narrative Treated Teachers* is the proportion of teachers treated with the *Visual Narrative* treatment within schools. *Visual narrative* represents the visual narrative treatment of the movie Bol with a structured discussion of gender rights themes in the movie. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. *** p<0.01, ** p<0.05, * p<0.1

Table B7: Impact of schools more intensely treated by the Visual Narrative on Teachers' Stress and Domestic Violence

Panel A: *Utilitarian Treated Group*				
	(1)	(2)	(3)	(4)
	Victim of Domestic Violence	*Stress Likert*	*Cortisol Raw*	*Standardized Cortisol*
Fraction Treated with the Visual Narrative & Self- Persuasion	0.265	-0.526	-2.423	-0.732
	[0.331]	[0.752]	[2.682]	[0.810]
Individual Controls	Yes	Yes	Yes	Yes
Observations	121	121	121	121
R-squared	0.049	0.081	0.071	0.071
Mean of Dep. Variable	0.0	2.033	10.709	-0.133
Panel B: *Malleability Treated Group*				
Fraction Treated with the Visual Narrative & Self- Persuasion	0.154	0.284	0.310	0.0937
	[0.352]	[0.739]	[1.998]	[0.604]
Individual Controls	Yes	Yes	Yes	Yes
Observations	121	121	121	121
R-squared	0.017	0.032	0.115	0.115
Mean of Dep. Variable	0.0	2.247	11.004	-0.044
Panel C: *Placebo Treated Group*				
Fraction Treated with the Visual Narrative & Self- Persuasion	-0.154	-1.060*	-2.108	-0.637
	[0.214]	[0.574]	[1.898]	[0.573]
Individual Controls	Yes	Yes	Yes	Yes
Observations	122	122	122	122
R-squared	0.063	0.123	0.040	0.040
Mean of Dep. Variable	0.0	2.073	10.835	-0.095

Note: Robust standard errors appear in brackets (clustered at the teacher level). In Column 1, the dependent variable is answer to the question: "Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force." In Column 2, the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column 3, the dependent variable is the cortisol concentration in blood, measured in micrograms per deciliter, using the Chemiluminescence Immunoassay (CLIA) technique, while in Column 4, we standardize the cortisol concentration in blood to mean zero and standard deviation one. Panel A presents the analysis on the Utilitarian treated teachers, Panel B the Malleability treated teachers and Panel C the Placebo treated group. The *Fraction of Joint Treated Teachers* is the proportion of teachers treated with the joint *Visual Narrative & Self-Persuasion* treatment within schools. *Visual Narrative & Self-Persuasion* or *Joint Treatment* is the dummy that switches to one for participants who received the visual narrative of the movie together with the gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. *** p<0.01, ** p<0.05, * p<0.1

Table B8: Dropping the likely misreporters - Marlowe Crowne

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Gender Rights Index	*Petition to Criminalize Dowry*	*Petition to Abolish Polygamy*	*Standardized Gender IAT Score*	*Stress Likert*	*Stress Dummy*	*Cortisol*	*Standardized Cortisol*
Visual Narrative	0.171***	0.298**	0.441***	0.245*	0.273	0.182***	0.443	0.134
	[0.0577]	[0.146]	[0.170]	[0.136]	[0.176]	[0.0389]	[0.502]	[0.152]
Visual Narrative & Self-Persuasion	0.225***	0.493***	0.548***	0.346**	0.430**	0.225***	1.171**	0.354**
	[0.0587]	[0.157]	[0.165]	[0.162]	[0.177]	[0.0430]	[0.474]	[0.143]
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	526	526	526	526	526	526	526	526
R-squared	0.162	0.144	0.210	0.131	0.155	0.294	0.157	0.157

Robust standard errors appear in brackets (clustered at the teacher level). The dependent and independent variables in this table are identical to those in main text but in this table, we apply Marlow Crowne and discard teachers who answer yes to the following statements: 1) I am never jealous of another person's good fortune. 2) I am always a good listener. 3) I am never angry. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1.

Table B9: Multiple Hypothesis Testing

Panel A: *Impact on Gender Attitudes*

	(1)	(2)	(3)	(4)
	Women's Rights Overall	*Petition to Criminalize Dowry*	*Petition to Abolish Polygamy*	*IAT Score*
Visual Narrative	0.140	0.362	0.349	0.247
p-value	(0.006) ***	(0.006) ***	(0.013) **	(0.071) *
Sharpened q-value	[0.01] **	[0.01] **	[0.02] **	[0.147]
FWER p-value	{0.03} **	{0.029} **	{0.027} **	{0.091} *
Visual Narrative & Self-Persuasion	0.187	0.566	0.512	0.348
p-value	(0.001) ***	(0.001) ***	(0.001) ***	(0.032) **
Sharpened q-value	[0.005] ***	[0.005] ***	[0.005] ***	[0.147]
FWER p-value	{0.017} **	{0.011} **	{0.005} ***	{0.045} **
Observations	607	607	607	527

Panel B: *Impact on Stress and Domestic Violence*

	(1)	(2)	(3)	(4)
	Stress Likert	*Stress Dummy*	*Standardized Cortisol*	*Victim of Domestic Violence*
Visual Narrative	0.189	0.306	0.210	0.273
p-value	(0.001) ***	(0.046) **	(0.098) *	(0.033) **
Sharpened q-value	[0.003] ***	[0.075] *	[0.175]	[0.06] *
FWER p-value	{0.018} **	{0.048} **	{0.101}	{0.034} **
Visual Narrative & Self-Persuasion	0.231	0.444	0.344	0.357
p-value	(0.001) ***	(0.005) ***	(0.008) ***	(0.014) **
Sharpened q-value	[0.003] ***	[0.021] **	[0.034] **	[0.06] *
FWER p-value	{0.043} **	{0.027} **	{0.031} **	{0.033} **
Observations	607	607	607	527

Note: p-values from our baseline regressions appear in parentheses for comparison, while Anderson q-values are reported in square brackets. As Anderson (2008) notes, sharpened 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 too and still maintain a low false discovery rate. List et al., (2019)'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. Similar results are obtained if we pooled outcomes into, less conservative, families of gender attitudes (Gender Rights Index, IAT, Petitions), stress (stated stress and cortisol concentration) and domestic violence (victim of domestic violence and views on domestic violence).

Table B10: Randomization Inference

Panel A: *Impact on Gender Attitudes*				
	(1)	(2)	(3)	(4)
	Women's Rights Overall	*Petition to Criminalize Dowry*	*Petition to Abolish Polygamy*	*IAT Score*
Visual Narrative	0.140	0.362	0.349	0.247
	(0.006) ***	(0.006) ***	(0.013) **	(0.071) *
	{0.005} ***	{0.009} ***	{0.008} ***	{0.094} *
Visual Narrative & Self-Persuasion	0.187	0.566	0.512	0.348
	(0.001) ***	(0.001) ***	(0.001) ***	(0.032) **
	{0.001} ***	{0.001} ***	{0.001} ***	{0.017} **
Observations	607	607	607	527
Panel B: *Impact on Stress and Domestic Violence*				
	Stress Likert	*Stress Dummy*	*Standardized Cortisol*	*Victim of Domestic Violence*
	(1)	(2)	(3)	(4)
Visual Narrative	0.189	0.306	0.210	0.273
	(0.001) ***	(0.046) **	(0.098) *	(0.033) **
	{0.001} ***	{0.049} **	{0.123}	{0.046} **
Visual Narrative & Self-Persuasion	0.231	0.444	0.344	0.357
	(0.001) ***	(0.005) ***	(0.008) ***	(0.014) **
	{0.001} ***	{0.003} ***	{0.013} **	{0.004} ***
Observations	607	607	607	607

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 and independent variables are identical to those used in the regressions in the main text.

Table B11: Bandwagoning Effect on Internalized Sanctions - Standard Errors Clustered at the School level

	(1)	(2)	(3)	(4)
	Stress Likert	*Stress Dummy*	*Cortisol Raw*	*Standardized Cortisol*
Fraction of Joint Treated Teachers X Joint Treatment	0.854	-0.120	-5.988	-1.810
	[1.413]	[0.419]	[3.655]	[1.105]
			p-value = 0.10	p-value = 0.10
Visual Narrative & Self-Persuasion	0.217	0.263**	2.729***	0.825***
	[0.438]	[0.118]	[0.921]	[0.278]
Individual Controls	Yes	Yes	Yes	Yes
School Fixed Effects	Yes	Yes	Yes	Yes
Observations	607	607	607	607
R-squared	0.157	0.293	0.151	0.151
Mean of Dep. Variable	2.269	0.091	11.152	0.000

Note: Robust standard errors appear in brackets (clustered at the school level). In Column (1), the dependent variable is the answer to the question "Overall, how stressed are you?", on a 5-point Likert scale, with one being not stressed at all and 5 being very stressed. In Column (2), the dependent variable is a response to another question, but this time formulated as "Are you stressed?", with one being yes and zero being no. In Column 3 the dependent variable is the cortisol concentration in blood, measured in micrograms per deciliter, using the Chemiluminescence Immunoassay (CLIA) technique, while in Column (4) we standardize the cortisol concentration in blood to mean zero and standard deviation one. The *Fraction of Joint Treated Teachers* is the proportion of teachers treated with the joint *Visual Narrative & Self-Persuasion* treatment within schools. Dummy variables for *Utilitarian* and *Malleability* treatments are always added as controls in the regressions. *Visual narrative* represents the visual narrative treatment of the movie Bol with a structured discussion of gender rights themes in the movie. *Visual Narrative & Self-Persuasion* or *Joint Treatment* is the dummy that switches to one for participants who received the visual narrative of the movie (along with structured discussion on gender right themes touched on in the movie) together with the gender studies curriculum. The teacher level controls include years of teaching experience, educational qualification, professional qualification, average teaching hours, class size, and marital status. School fixed effects are also included. *** p<0.01, ** p<0.05, * p<0.1

C. *Data Appendix*

Appendix C1. 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:

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 C2. Teacher Gender Attitudinal survey

Likert Scale:

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

5. Totally Agree

The following 16 statements are used to construct the Gender Rights Index for teachers.

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.

Statements on Stress

S17) Overall, how stressed are you? Rate from 1 to 5, with 1 not stressed at all and 5 being very stressed

S18) Are you stressed?

Yes ◉ No ◉

Statements on Domestic Violence

S19) Over the past year, have you been a victim of domestic violence i.e., physical violence by your husband, father or/and brother? By physical abuse, we mean hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force.

Yes ◉ No ◉

S19') Domestic violence by husbands cannot be justified (rate from 1 to 5)

Appendix C3. Petition Template Presented to all teachers

Please fill this in a separate room individually. Please also note that we will actually send this petition to the National Assembly of Pakistan, so feel free to leave one or both petitions blank if you wish not to send one or both of these petitions.

Polygamy Petition

I, ---------- (enter full name), daughter of ---------, am signing this petition to request the repeal of "".

I hereby grant permission to send this petition to demand from the National Assembly and Senate of Pakistan to repeal the Muslim family law pertaining to polygamy. The law is as follows:

"6. Polygamy.– (1) No man, during the subsistence of an existing marriage, shall, except with the previous permission in writing of the Arbitration Council, contract another marriage, nor shall any such marriage contracted without such permission be registered under this Ordinance.

(2) An application for permission under sub-section (1) shall be submitted to the Chairman in the prescribed manner, together with the prescribed fee, and shall state reasons for the proposed marriage, and whether the consent of existing wife or wives has been obtained thereto.

(3) On receipt of the application under sub-section (2), the Chairman shall ask the applicant and his existing wife or wives each to nominate a representative, and the Arbitration Council so constituted may, if satisfied that the proposed marriage is necessary and just, grant, subject to such conditions, if any, as may be deemed fit, the permission applied for."

Yours Truly,

Your CNIC:

Your Full Name:

Dowry Petition

I, ---------- (enter full name), daughter of ---------, am signing this petition to request the complete ban and criminalization of dowry.

I hereby grant permission to send this petition to demand from the National Assembly and Senate of Pakistan to make dowry a criminal offense pertaining imprisonment for up to three years.

Yours Truly,

CNIC:

Your Full Name:

Appendix C4. IAT Test Details. Gender IAT in Urdu (actually administered) with an English translation

For details on IATs administered, please see the following supplementary material link HERE