

# Participatory Theater Empowers Women

Evidence from India

*Karla Hoff*  
*Jyotsna Jalan*  
*Sattwik Santra*



**WORLD BANK GROUP**

Development Economics  
Development Research Group  
June 2021

## Abstract

Domestic violence is common, socially and economically very costly, yet widely accepted in many countries. Can participatory theater—a novel cultural intervention—reduce its occurrence? Through a survey that the authors conducted in 92 villages in West Bengal, India, this paper provides a first large-scale evaluation of participatory theater. By utilizing markers of women’s empowerment, the

survey shows that longterm exposure to plays on patriarchy enhances women’s empowerment and reduces spousal abuse by as much as 25 percent. The evidence suggests that such interactive plays, by encouraging its audience to rethink and rescript collective representations of domestic violence and masculinity, trigger durable social change in village communities.

---

This paper is a product of the Development Research Group, Development Economics. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://www.worldbank.org/prwp>. The authors may be contacted at [kh2830@columbia.edu](mailto:kh2830@columbia.edu), [jjalan@cssscal.org](mailto:jjalan@cssscal.org), and [sattwik@cssscal.org](mailto:sattwik@cssscal.org).

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.*

# Participatory Theater Empowers Women: Evidence from India

Karla Hoff<sup>a</sup>   Jyotsna Jalan<sup>b,c</sup>   Sattwik Santra<sup>c</sup>

(JEL J12, J16, K42, L82, Z13)

**Keywords:** social norm, domestic violence, narrative, framing, gender, patriarchy

*Acknowledgements.* This work was largely done while Karla Hoff was a Lead Economist at the World Bank. The World Bank Research Support Budget and the Centre for Training and Research in Public Finance and Policy, Kolkata provided financial support. We benefitted from comments by Sheheryar Banuri, Kaushik Basu, Sourav Bhattacharya, Annette Brown, Stefan Dercon, Victoire Girard, Willemien Kets, Sandip Mitra, Dilip Mookherjee, Victor Orozco, Joan Ricart-Huguet, Arijit Sen, Moses Shayo, Rohini Somanathan, Ralph Yarrow, and participants at the First International Conference in Ashoka University, West Bengal Conference at the Indian Statistical Institute in Kolkata, XXIX Tax Day Conference at the Max Planck Institute in Munich, 2018 ERINN conference, NIMBios Conference on Social Norms, 2018 ASREC conference, and seminars at the University of East Anglia, Cornell University, the World Bank, and CEDIL. Jalan thanks the Institute for Advanced Studies in Nantes for hosting her when she began analyzing the data. This work would not have been possible without the support of *Jana Sanskriti*, our field investigators, and Jharna Panda, who supervised the survey with great diligence.

<sup>a</sup>Columbia University ([kh2830@columbia.edu](mailto:kh2830@columbia.edu))

<sup>b</sup>Centre for Studies in Social Sciences, Calcutta ([jjalan@cssscal.org](mailto:jjalan@cssscal.org))

<sup>c</sup>Centre for Training and Research in Public Finance and Policy, Kolkata ([sattwik@cssscal.org](mailto:sattwik@cssscal.org))

*Man is an animal suspended in webs of significance he himself has spun.*

—Clifford Geertz, *The Interpretation of Cultures*

Twenty-seven percent of women and teenage girls who have been in a relationship have been physically or sexually assaulted by a male partner (WHO 2021). Such violence is especially prevalent and widely tolerated in low-income and lower middle-income countries (Online Appendix Table 1). In these two groups of countries, the median percentage of women who believe that wife beating is justified under some circumstances is 58 percent and 33 percent, respectively. A statement by an Ethiopian woman illustrates attitudes widely shared in rural areas in these countries: “It is sometimes necessary for husbands to beat their wives when they commit mistakes to correct them...it is also a sign of strong manhood” (Narayan *et al.* 2000). “What kind of a man is he who does not hit?” is a common expression of men in North India (Chowdhry 2015, 12-13). Such beliefs are rooted in stories people learn from childhood and in the patriarchal social patterns they see and experience in their communities (Boudet *et al.* 2013). This paper tests whether community-based participatory theater—a novel, cultural intervention—can shift the focus of attention in spousal violence from the manhood of the assailer and make domestic violence unacceptable by changing the social norms. We find that village exposure to *JS* reduced physical abuse by a quarter and reduced by more than half the proportion of husbands who viewed wife beating as legitimate.

Unless domestic violence becomes socially unacceptable, legal prohibition cannot prevent its widespread occurrence. Between 1990 and 2010, a wave of countries enacted laws against domestic violence for the first time, but they have only half-heartedly been enforced where it is socially accepted (Htun and Jensenius 2019). In the North Indian state of Bihar, Amaral *et al.* (2020) find that “[a]lmost all the male police officers we met at the station level dismissed domestic violence cases, saying that women just came whenever ‘anything tiny’ happened, and ‘they just wanted more control over their husbands and marital families’.” Through the cultural lens of

patriarchy, the police did not see domestic violence as a crime in spite of its criminalization by law in India since 2006.<sup>1</sup>

Economic growth has some positive effects on women's empowerment, and women's empowerment promotes the transition of a society from stagnation to sustained growth, but the links between growth and women's empowerment are too weak and uneven to stop widespread domestic violence or to lead to women's equality with men (Duflo 2012; Diebolt and Perrin 2013; Heise and Kotsadam 2015). Greater women's education can even increase domestic violence, as it did, for example, in Turkey (Erten and Keskin 2018).

Policy makers have tried to harness the power of narratives to change beliefs and preferences. In education entertainment (*edutainment*), information is embedded in an engaging narrative that is motivational. Experiments have shown that information embedded in *edutainment* has had some success in changing preferences in situations where the direct provision of the same information had no impact (for example, in the consumption of iron-fortified salt (Banerjee, Barnhardt, and Duflo 2018)).

But edutainment has had little success in changing deep-seated preferences and attitudes, *e.g.*, the preference to marry within one's ethnic group and attitudes toward domestic violence. Two evaluations have been conducted to date of the impact of edutainment on attitudes towards domestic violence. Banerjee, La Ferrara, and Orozco (2019a) find that in Nigeria, the MTV drama *Shuga* reduced men's tolerance for wife beating but made a precisely estimated zero reduction in the high percentage of women (27 percent) who believed that there were legitimate reasons for a husband

---

<sup>1</sup>China provides another striking example of half-hearted enforcement of legislation against domestic violence. Since China enacted a law against domestic violence in 2016, 900 women have died at the hands of their partners. In one incident, the police ignored three appeals for help by a young woman on the ground that the violent attacks by her husband were "your personal family matter" (Chen 2020). In 2020, her assailant, who was by then her ex-husband, doused her with gasoline and set her on fire.

to beat his wife. Green, Wilke, and Cooper (2020, 2285) find that in Uganda, watching videos of domestic dramas in which a woman's injury or death might have been prevented if bystanders had reported the abuse increased women's willingness to bear witness to domestic violence, but had "no statistically significant effect on general attitudes about VAW [violence against women], such as whether husbands ever have legitimate grounds for hitting their wives."

We evaluate the central tool of Theater of the Oppressed, called *Forum Theater*—so-called because it creates a forum for dialogue between actors and the audience. The invention of Forum Theater was inspired by Paulo Freire (1970), who argued that to learn how to stop oppression, an individual must be a co-creator of the knowledge and develop the self-confidence and agency to act on it. The purpose of Forum Theater is to induce men and women, little by little, to think critically about their prescribed roles, to practice forms of rebellious action against oppression, and to change the way oppression and resistance to it are framed (Boal 1979; Ganguly 2017). Section I of this paper gives a brief overview of the social science literature on the power of stories to change behavior. Sections II and III explain the methodology of Forum Theater and the mechanisms it uses to foster social change.

In every performance, a dramatic story that foregrounds oppression is enacted without interruption. Then it is reenacted. At any point before the climax of the oppression, any individual from the audience can shout "Freeze," go onstage, take the role of the protagonist, and try to avert the oppression. Such a person is called a *spect-actor*, short for spectator-actor. The spect-actor "launches into action. No matter that the action is fictional; what matters is that it is action," since it allows individuals to try out solutions and discuss plans for change (Boal 1979, 121-122). The interaction is like a game:

The game is spect-actors—trying to find a new solution, trying to change the world—against actors—trying to hold them back, to force them to accept the world as it is. But of course the aim of the forum is not to win, but to learn and to train...for 'real life' action...[that is, to] learn the arsenal of the oppressors and the possible tactics and strategies of the oppressed (Boal, 244).

After two or three scenes with different spect-actors, the audience is likely to become aware of the strings that move the oppression and to see "a vision of the

world *as it could be*” (Boal 2002, 243). We evaluate Forum Theater by assessing the impact of one of the largest organizations in the world that performs it—*Jana Sanskriti (JS)* (in translation, “People’s Culture”).

We designed a survey, discussed in Section IV, similar to the National Family Health Surveys of India (2017). The respondents are random samples of married women and their husbands from 32 villages in which *JS* has performed for at least 10 years, and from 60 villages in which *JS* has never performed. Female field investigators interviewed, in private, more than 3,000 married women. In all except one percent of the cases, male field investigators interviewed their husbands at approximately the same time.<sup>2</sup>

A strength of *JS* is that it is a sustained, community-based involvement that has grown organically by drawing on individuals—as actors and as organizers of *JS* satellite teams<sup>3</sup>—who live in the area where the teams perform. They are insiders, not outsiders. Nearly all the actors and organizers of the satellite teams are from families of agricultural or wage laborers. To find out if community-based participatory theater can actually change harmful norms, *JS* is thus a particularly favorable case to evaluate. But the process of growth of *JS* also poses the central methodological challenge to evaluating its impact: the selection of villages where *JS* performs could be endogenous.<sup>4</sup> We discussed several times with the organizers of *JS* whether there were any systematic criteria for selecting the villages where *JS* regularly performs, but got no unambiguous answer. Even without any explicit criteria, there might be

---

<sup>2</sup> We exclude the one percent of the observations that are not a husband-wife pair, since we wish to compare wives’ responses with their husbands’. Our results do not change qualitatively if we include those observations.

<sup>3</sup> At the time of our survey, each of the *JS* satellite teams had existed between 10 and 30 years and performed in 12-19 villages (Ganguly 2019, 371).

<sup>4</sup> We focus on initial selection because in no case did a team stop performing in a village once it had been selected. There have been some unruly disruptions (primarily by men) during *JS* performances, but *JS* teams were never intimidated into stopping to perform in a village.

something special about the villages where the satellite teams are based and about the neighboring villages where the satellite teams perform. A satellite team might have chosen to perform in a village because it seemed to have a large potential for change or to be especially receptive to *JS*; the estimated impact would then be biased upward. It is also possible that a satellite team selected a village to perform in because it had an extreme problem of domestic violence; the estimated impact of *JS* would then be biased downward. We therefore estimate an endogenous treatment model with a binary treatment at the village level and binary outcome variables at the respondent level, *e.g.*, whether or not a husband physically forced his wife to have sexual intercourse or perform other sexual acts. We explain our econometric strategy in Section V.

We find large and statistically significant effects of village exposure to *JS* on domestic violence (see Section VI). Exposure of a village to *JS* increased the proportion of married women free of spousal abuse by 15 percentage points and reduced by 33 percentage points the proportion of husbands who viewed wife beating as legitimate in some circumstances. The proportion of marriages with episodes of alcohol-related abuse, as reported by the husbands, decreased by 38 percent.

The large reductions in domestic abuse and in its acceptance among men suggest that *JS* caused husbands to question the ideology of patriarchy. Evidence that village exposure to *JS* increased women's voice is that the proportion of women who participated with their husbands in making major household decisions (for example, how many children to have, or whether to use contraceptives), significantly increased. The evidence that *JS* empowered women is validated by our finding, using data from the Census of India, that village exposure to *JS* narrowed the gender gap in literacy by 6 percentage points compared to the gap in the control villages of 22 percentage points. In the treatment villages, the literacy rate was 53 percent for females, and 68 percent for males.

An overarching goal of *JS* is to change patriarchal norms. To assess whether it met this goal, we investigate *spillovers* within villages and the *persistence* of its impact. We divide the sample of treatment villages into 1-3 areas served by different electoral polling booths. Within each treatment village, we distinguish the area of the

booth where *JS* normally performed (“active area”) from the areas of booths where it did not perform (“inactive areas”). In Section VII, we assess *spillovers* within treatment villages by comparing outcomes for couples who live in the active area and couples who live in inactive areas. We assess *persistence* by comparing impacts in treatment villages with, and without, a performance of a *JS* play on patriarchy or alcohol abuse in the four years preceding our survey. We find evidence of both spillovers and persistence.

How quickly can participatory theater change preferences and attitudes? To shed light on this question, in Section VIII we use two tests to examine the effect of the duration of exposure to *JS* on its impact. In one of the tests, we divide the treatment villages into two groups: (a) villages first exposed to a play on patriarchy or alcohol abuse in 1998 or 1999 (the earliest years of exposure in our sample) and (b) villages first exposed between 2000 and 2006. We find no difference in impacts between the two sets of villages. This implies that the impact of village exposure to *JS* was likely felt within at most 8-13 years (since villages were surveyed in 2014-2015).

*JS* plays are performed, for free, in a public space in a village before an audience of villagers, and so may give rise to social learning. In Section IX, we present a simple model where social learning shifts equilibrium compliance with norms of patriarchy. We conclude in Section X by drawing on recent work that emphasizes the cognitive foundations of institutions and institutional change.

## **I. Related Literatures on Narratives and Motivated Reasoning**

Historical and experimental evidence suggests that stories may channel our attention, influence how we understand (or misunderstand) causal relationships and, by making a moral point, influence how we respond to real-life situations (Hoff and Stiglitz 2010, 2016; Akerlof and Snower 2016; Banerjee, Barnhardt, and Duflo 2018; Brooks, Hoff, and Pandey 2018; Banerjee, La Ferrara, and Orozco 2019a,b; Blair, Littman and Paluck 2019; Shiller 2019, Akerlof and Rayo 2020). Akerlof (2020) views the neglect of stories in economics as a “sin of omission.”

Some stories make things that were hardly noticed (such as the suffering of oppressed women) ‘stand out’ and assume the character of a problem that needs to be solved. The popular Mexican movie “Roma” depicts the suffering due to classism and

racism of two Mexicans from indigenous communities who are employed as domestic workers in an upper middle-class family in Mexico City. The movie created a cultural awareness that led, one year later, to unanimous approval in Mexico's Congress of a bill granting rights of social protection, paid vacation, Christmas bonuses, and days off to the two million domestic workers in the country (Aparicio 2020).

But a story can also create a misleading picture that limits what people perceive or can imagine. After the U.S. Civil War, the Southern White elite used stories of crimes of Black men to enlist support for the suppression of their newly won political rights. "Because of a 'daily barrage of Negro atrocity stories,' the familiar image of an inferior but not malign Black was replaced by the image of a lustful, violent, aggressive Black who had been guilty of crimes against Whites (and would commit them again, given the chance)" (Glaeser 2005, 67). Using these stories, many Southern Whites represented as justice lynching Black men who tried to exercise their political rights. This paper also contributes to the literature that shows that shared stories can be a driver of economic and social change.

This paper also contributes to the literature on motivated reasoning. Ideological biases can lead highly numerate people to misinterpret data that in the absence of the ideology, nearly all would understand (Kahan *et al.* 2017). Experiments show that new experience and exposure can pierce ideological blinders. Trading Palestinian and Israeli financial assets on the stock market in the weeks leading up to Israeli elections shifted votes towards parties more supportive of the peace process (Jha and Shayo 2019). Political reservations for women in India created exemplars of women leaders, which raised aspirations of teenage girls (Beaman *et al.* 2012). Creating this exposure entailed substantial financial and political costs, respectively. In contrast, Forum Theater is a way to pierce ideological blinders that costs only the staffing of theater teams (which include many people who work as volunteers).

## **II. Forum Theater and *Jana Sanskriti***

A performance of Forum Theater—which is preceded by music, dance, and games to create a playful and trusting atmosphere—presents both a play and its analysis. To do this, Boal created the theatrical conventions of *spect-actor*, as

explained earlier, and *joker*. The *joker* coordinates a series of spect-actors and facilitates discussion between actors and audience by addressing questions to them.

A performance of Forum Theater has two parts. The first part is an uninterrupted performance of a drama. The drama is, in general, based on the personal struggles that villagers have described in the discussion groups that *JS* holds when it is preparing to create a new play.

At the end of the first part of the performance, the *joker* asks whether everyone in the audience agrees with the actions that were taken onstage. Some people will probably say no. The *joker* explains that the play will begin again, and a spectator can at any point shout “Freeze,” go onstage, take the role of a victim from whatever point in the play that he or she wants the scene to be taken forward, and try to solve the problems depicted in the drama (Ganguly 2010, 27). (If there are no volunteers, the *joker* shouts “freeze” and the actors freeze in various positions until someone volunteers to go onstage). In many cases, male spect-actors will play the role of female protagonists, just as in a number of village folk forms, men continue to play women’s roles. The actors respond to a spect-actor in such a way as to explore the potential of her/his actions to bring about change in real life (Yarrow 2009, 6). Before the performance of a new play, the core group of *JS* holds workshops with the satellite teams that “become a sociology class, where actors prepare for the dialogue they will have to invent when the spect-actors come onto the stage” (Ganguly 2017, 91).

The first part of a performance may last only 20 minutes; the second part can last 2 or 3 hours (Ganguly 2010, 4), as each spect-actor adds a new dimension to the argument about appropriate behavior and actors and the participants step out of the pretense of the story to discuss its meaning and rescripted turns of the plot.

To see how the first part of a *JS* performance highlights the power of collective representations to entrap people, we give one example of a *JS* play. In *The Brick Factory* (Ganguly 2009), the factory owner promises, in bad faith, overtime pay to his workers to induce them to work late to complete a large sales order. When they have completed the work, the owner refuses to pay the overtime wages. Later in the evening, the owner comes to the home of one of the workers, Phulmoni, to demand

sex. When she refuses to continue the sexual relationship she has had with him in exchange for loans to her husband, he threatens to have her husband jailed if he does not repay the loans that very evening. She gives in to the factory owner's demand for sex. Her husband comes home and discovers her in the arms of the factory owner. In the next scene, the village finds her guilty of dishonoring it by adultery and canes her as punishment. At the end of the play, two actors speak to the audience:

**First Person:** Hunger caused Phulmoni to go to work to the city. Taking advantage of her poverty, the owner forced himself on her. Phulmoni was judged guilty.

**Second Person:** But the owner is the guilty one. Who will punish him?

The first part of the performance directs collective attention to injustice towards women and invites the audience to tackle it.

*JS* is a non-profit, independent network of community-based theater teams. In 2013, the year before our evaluation began, *JS* had 500-600 actors (Ganguly 2017, 86). The gender balance among actors, jokers, spect-actors, and people in the audience was roughly even (Ganguly, 91; Yarrow 2017, 31).

### **III. Mechanisms to Foster Social Change**

To stimulate agency and critical thinking, community-based Forum Theater has three mechanisms that edutainment does not. We discuss each mechanism, in turn.

*Performing agency.*<sup>5</sup> Sociologists have long argued that social structures exist, in part, through our routinized and habitual practice of the behaviors of daily life. A pattern of abuse between spouses creates a *status quo* that becomes hard to break out of. To change society, individuals must not only think differently, they must also practice *acting* differently (Bourdieu 1977). Such practice occurs in Forum Theater: community members rehearse new ways of treating each other. Individuals see some effects almost immediately. They may get social validation from the actors and/or the audience, which bolsters the spect-actors' courage to adopt new behaviors in real life. It is especially important for those who have been denied a voice to have the experience of expressing themselves and resisting oppression onstage, or seeing their

---

<sup>5</sup> This term is from Yarrow (2012).

peers do it. In rural India, girls are trained from childhood not to argue and assert themselves. Acting assertively onstage increases an individual's ability to be assertive offstage (Lillard 2002, 201). Priming a person with a sense of power triggers the generation of ideas and expression of attitudes that are less influenced by those of other people (Galinsky *et al.* 2008).

*Social reframing.* Forum Theater is a tool for examining an instance of oppression and exploring ways to put an end to it. Forum Theater entails a debate between actors, spect-actors, and members of the audience. Compared to group deliberation (Heller and Rao 2015), it is more egalitarian, since low education is no bar to communicating onstage through actions and movement. (See at <http://ctrpfp.ac.in/jana-sanskriti.html> videos of a *JS* performance that one of the authors made.) Forum Theater engages people in stories that motivate many to change their attitudes about domestic violence. After encountering at a bus stop the leading actress he had just seen in a *JS* performance, a young man started crying and promised her, “*Didi* (sister), I will not beat my wife again. I beat her quite often. When you were crying after being beaten by your husband in the play, I remembered my wife. She cries exactly like that when I beat her” (Ganguly 2010, 30). The husband could no longer interpret his actions through the script of ‘masculine man beats disobedient wife’. The *JS* play had provided a counter narrative that weakened the “webs of significance” (an allusion to the epigraph of this paper) that make wife beating a mark of manhood.

Experimental results show that most reasoning does not involve the application of general-purpose reasoning skills. Instead, most reasoning is tied to specific representations or scripts related to particular bodies of knowledge (Wason 1966; Gigerenzer and Hug 1992; Biccheri 2006, 95). Learning to think critically about one set of topics, such as corruption or political violence (themes of some *JS* plays) does not in general improve problem-solving strategies in other domains, such as domestic violence. Only plays about patriarchy are likely to cause a patriarchal community to see its toxic results.

*Focus on local problems.* Many *JS* plays are made in response to specific local issues. Members of the community help script them. For instance, *JS* wrote and

performed a play on rape in response to an incident where neighbors, despite knowing that a rape was occurring, took no action (Ganguly 2017, 94). A play is generally repeated in the same location within 1-3 months (Yarrow 2017, 31). In repeat performances, a play may be adapted to take account of intervening action in the village or with the authorities, which makes the atmosphere more risky, energized, and engaging for the audience.

#### **IV. Survey Design**

From the mid-1990s, *JS* has regularly performed only in three blocks of the state of West Bengal—Kakdwip, Kulpi, and Patharpratima. We randomly sampled “treatment villages” (villages exposed to *JS*) from all villages in which *JS* had performed for at least 10 years.<sup>6</sup> We randomly sampled “control villages” (villages never exposed to *JS*) from three other blocks, Mathurapur I and II and Joynagar II, selected on the basis of their similarity in 1991 to the treatment villages in access to public services—see Table 1. (The 1991 Census of India is the census that immediately precedes the period in which *JS* began performing Forum Theater.) In estimating the impact of *JS*, we control for all variables listed in Table 1. The treatment and control villages are in the district of South 24 Parganas. It is part of the Sundarbans delta (see Figure 1).

Our target population is married female village residents between 18 and 49 years of age and their husbands. To select them, we used stratified random sampling. The Online Appendix describes the sampling procedure. Figure 1C shows that no control villages in our sample are contiguous to treatment villages, which makes large spillovers of the impact of village exposure to *JS* unlikely.<sup>7</sup> To the extent that such spillovers occur, our estimates of the impacts of village exposure to *JS* are biased

---

<sup>6</sup> We use this period because before 2002, there were no systematic records kept of *JS* performances, even though *JS* began performing Forum Theater in the mid-1990’s. We collated the data on *JS* performances from the written records that *JS* shared with us.

<sup>7</sup> We used Geospatial data ([www.gadm.org](http://www.gadm.org)) of South 24 Parganas to check whether proximity of treatment and control villages matters. We grouped treatment villages into

downward. Table 2 shows that our sample is 1,635 couples from 32 treatment villages, and 1,814 couples from 60 control villages.

*Implementation of the survey.* Field investigators implemented the survey between January 2014 and March 2015. We took great care in designing the survey, in its implementation, and in training the field investigators to minimize social desirability bias. An outsider who visits a village in India becomes an important topic of discussion among the villagers. If asked about the nature of the survey, the field investigators were trained to explain that their purpose was to study the occupational patterns in the village, whether children were attending school regularly, and other issues covered in the survey that were not sensitive. In a pilot survey, we observed that visiting the same village over several days created issues in the field; thus, in our actual survey, field investigators always completed the interviews in a village in a single day. Villages in our sample within walking distance of each other were visited on the same day. To maintain privacy, interviews with persons available at home were conducted in a side-room, the kitchen, or even the field.

The field workers interviewed one married couple in each household. Each investigator was given details (name, gender, age, and the household head's or husband's name) of the members of households to be interviewed and a list of possible replacement households if no eligible married woman was present and willing to participate in the survey. If more than one such woman was present, the investigator-team randomly chose one. In only rare cases did an eligible household member refuse to cooperate. The team sought to interview the husband of the selected female respondent wherever he may have been at the time of the wife's interview. The team achieved this in 99 percent of the cases. Investigators asked men and women identical questions about their attitudes towards domestic violence, the wife's role in decision making in the household, and whether they knew that domestic violence was against the law. But only women were asked about acts of domestic

---

two categories – distance between control and treatment villages less than, or more than, the median distance. Estimates show no difference between the two sets of treatment villages, suggesting that there is no “contamination” bias in our sample.

abuse.

Before asking questions on any of these topics, the field investigators asked about less emotionally charged topics—primary schooling, the public works program, and other welfare programs in the village. (We do not use this data in this paper.) This order of the questions makes it more likely that respondents would have become comfortable enough with the field investigators to respond without hesitation to questions relating to domestic violence.

## V. Econometric Strategy

As discussed above, *JS* has grown organically over three decades. There was no fixed procedure—neither random nor based on any fixed set of criteria—for selecting the villages in which *JS* teams performed. This creates a challenge for drawing inferences about the impact of *JS*. A standard approach to model an endogenous selection process is instrumental variables (Imbens and Wooldridge 2007).

Consider the model where  $y_1$  (outcome) and  $y_2$  (endogenous treatment) are binary variables and suppose,

$$y_1 = 1[z_1\delta + \alpha y_2 + u \geq 0] \quad (1)$$

$$y_2 = 1[z\tilde{\delta} + v \geq 0] \quad (2)$$

where  $1[\cdot]$  is the indicator function that takes a value 1 if the inequality in brackets is satisfied and 0, otherwise. In equation (2), where  $n$  is the number of observations, the matrix of control variables  $z$  ( $n \times m$ ), is composed of two sub-matrices  $z_1$  ( $n \times m_1$ ) and  $z_2$  ( $n \times m_2$ ), with  $m = m_1 + m_2$ . Here  $z_2$  are the set of “exclusion restrictions” used to estimate the impact  $\alpha$  of the treatment  $y_2$  on the outcome  $y_1$  (Imbens and Wooldridge 2007). The error terms  $u$  and  $v$  are independent of  $z$  and distributed as a bivariate normal with mean zero, unit variance. We use joint maximum likelihood estimators (MLE) with bootstrapped standard errors<sup>8</sup> (Wooldridge 2010, 594-599).

---

<sup>8</sup> We report unclustered bootstrapped standard errors since (i) the number of village clusters is small, and (ii) the model is nonlinear. Kline and Santos (2012) suggest a score-based bootstrap method for complex nonlinear models, but Roodman *et al.*

Let  $\rho = \text{corr}(u, v)$ . We can write the joint distribution of  $(y_1, y_2)$  given  $\mathbf{z}$  as  $f(y_1, y_2 | \mathbf{z}) = f(y_1 | y_2, \mathbf{z})f(y_2 | \mathbf{z})$ . Assuming  $(y_2 | \mathbf{z}) \sim N(\mathbf{z}\tilde{\boldsymbol{\delta}}, \tau)$ , the conditional density of  $y_1$  given  $(y_2, \mathbf{z})$  is:

$$\Pr(y_1 = 1 | y_2, \mathbf{z}) = \Phi \left[ z_1 \delta + \gamma y_2 + (\rho/\tau)(y_2 - \mathbf{z}\tilde{\boldsymbol{\delta}})/(1 - \rho^2)^{1/2} \right] \quad (3)$$

We define the term in square brackets by  $w$ . Then:

$$f(y_1, y_2 | \mathbf{z}) = \Phi(w)^{y_1} (1 - \Phi(w))^{1-y_1} (1/\tau) \phi \left( \frac{y_2 - \mathbf{z}\tilde{\boldsymbol{\delta}}}{\tau} \right) \quad (4)$$

Using the equation (4), it is straightforward to test whether the treatment  $JS$  (indicated by the variable  $y_2$ ) is exogenous once the MLE is obtained by using the null hypothesis  $\rho = 0$ . For every estimation of the model, we report the value of the correlation. In the majority of cases, the correlation is not significantly different from zero. In these cases, the estimates are similar to the estimates we obtain in regressions that assume that assignment to the treatment, given the control variables, is exogenous. The results are reported in Online Appendix Table 2.

For the problem at hand, our model of triangular form is:

Structural equation representing the causal relationship:

$$y = 1[z_1\beta + \gamma JS + u \geq 0] \quad (5)$$

and

Assignment equation for the endogenous treatment:

$$JS = 1 [z\tilde{\boldsymbol{\beta}} + v \geq 0] \quad (6)$$

An example of the binary outcome variable in equation (5) is whether or not the respondent states that her husband has physically abused her. In equation (6), the dependent variable is whether or not  $JS$  performs in the village where the respondent lives.

As defined earlier,  $\mathbf{z} = [z_1 \ z_2]$ . In the structural equation, the controls, denoted by  $z_1$ , are age and literacy of the household head; average education level of females

---

(2019) caution against its use because score-based bootstrap estimates do not accurately estimate the parameter distribution for complex nonlinear models.

of at least 30 years of age in the household<sup>9</sup>; a dummy for Hindu households and scheduled caste and tribe households; the male-female ratio of household members 15-49 years old; three dummy variables for whether the respondent (a) reads a newspaper, (b) listens to the radio, or (c) watches TV; and the distance from the respondent's electoral booth to the district headquarters, block headquarters, and *Gram Panchayat* office. In the assignment equation, the controls, denoted by  $z_2$ , are village-level variables from the 1991 Census of India – proportion of households who are Scheduled Caste and Tribe; access in the village to pucca road, busstop, rail station or navigable waterway, post and telegraph, electricity, educational institutions, and medical facilities; and distance of the village from the nearest town.<sup>10</sup>

## VI. Individual Outcomes

This section discusses the impact of village exposure to *JS* on behavior, a wife's voice in her household, and attitudes towards domestic violence. Estimates are “average treatment effects” in the parlance of impact evaluation. All tables also report mean outcomes in the control villages. We report  $p$ -values in the text and Anderson's sharpened  $q$ -values for multiple hypothesis testing for false discovery rate corrections in Online Appendix Table 4 (Anderson 2008). No result is weakened.

### A. Spousal Abuse and Marital Control

The field investigators asked female respondents about three types of spousal abuse—emotional, physical, and sexual.<sup>11</sup> Table 3 shows that in the control villages,

---

<sup>9</sup> We exclude women below the age of 30, since their primary school education may have been impacted by village exposure to *JS*.

<sup>10</sup> An example of the likelihood estimates from the above model is given in the Online Appendix Table 3.

<sup>11</sup> The definitions are based on the National Family Health Surveys for India: ***Emotional abuse***: say or do something to humiliate you in front of others; threaten to hurt or harm you or someone close to you; insult you or make you feel bad about yourself. ***Physical abuse***: push you, shake you, or throw something at you; slap you; twist your arm or pull your hair; punch you with his fist or with something that could hurt you; kick you, drag you, or beat you up; try to choke you or burn you on purpose;

32 percent of women had been physically abused by their husbands. Village exposure to *JS* reduced the proportions by 8.5 percentage points ( $p < 0.01$ ).

In the control villages, 35 percent of women had been emotionally abused and 18 percent of women had been sexually abused. Village exposure to *JS* reduced emotional abuse by 5 percentage points, but the level of statistical significance is weak ( $p = 0.07$ ) and we find no impact of *JS* on sexual abuse. The field investigators enumerated for each respondent incidents that constitute each category of abuse. In contrast to physical abuse, emotional and sexual abuse are nuanced and may depend on subjective interpretation. The goal of *JS* is to make people aware of the injustices in their communities and to learn how to put a stop to them. The findings that the impact of *JS* on emotional abuse is only weakly significant and the impact on sexual abuse is insignificant could reflect either an objectively small impact of *JS* or, alternatively, a large impact of *JS* on the awareness of self and of hurtful behavior so that actions that had once seemed well-deserved later seemed abusive.

Taking into account all forms of spousal abuse, village exposure to *JS* increased the proportion of women free of abuse by 15 percentage points ( $p < .01$ ) relative to the proportion of 45 percent in the control villages.

We define marital control to include any of the following: the husband does not permit his wife to meet her female friends, he limits her contact with her family in her natal village,<sup>12</sup> and/or he does not trust her with any money. Table 4 (col. 1) shows that in control villages, only 4 percent of married women are free of marital control. Exposure of a village to *JS* nearly doubled this proportion ( $p < .01$ ), but still it remained very low, at 8 percent.

---

or threaten or attack you with a knife, gun, or any other weapon. ***Sexual abuse:*** physically force you to have sexual intercourse with him when you did not want to; physically force you to perform any other sexual acts you did not want to perform; force you with threats or in any other way to perform sexual acts. ***Abuse-free:*** none of the above forms of abuse occurs.

<sup>12</sup> In North India including West Bengal, Hindu women leave their natal villages to marry into families in distant villages (Bhalotra *et al.* 2019).

Alcohol abuse has high social costs. The World Health Organization (2014) estimates that among all countries for which it has data, India has the highest number of years of life lost due to alcohol consumption. Excessive alcohol consumption is a major cause of domestic violence. Luca, Owens, and Sharma (2015) estimate that the prohibition of alcohol sales, which occurred during some periods between 1990 and 2020 in six Indian states (but not in West Bengal), is associated with a 50 percent reduction in the likelihood that a husband beats his wife. In some *JS* plays the burden on families of excessive alcohol consumption is a central theme. To assess who would be categorized as a “drinker,” field investigators asked each female respondent whether her husband regularly consumed alcohol. This proportion was 33 percent in the control villages (see Table 4, col. 4). Village exposure to *JS* reduced the proportion by 6 percentage points, though the significance level is weak ( $p = 0.07$ ).

We examine the impact of village exposure to *JS* on alcohol-related violence in two ways: (i) the impact on all couples; (ii) the impact on the subsample where the husband was a “drinker.” In the subsample, village exposure to *JS* reduced the proportion of women who were abused due to drinking by 20 percentage points ( $p < 0.01$ ) relative to the proportion of 35 percent in the control (according to the women’s responses). Like the wives’ responses, the husbands’ responses also indicate a 57 percent reduction in the proportion of abuse related to drinking. The pair-wise correlation between spouses’ responses on whether drinking led a husband to abuse his wife is substantial at 0.32.

### **B. Wives’ Voice in Decision Making in Their Households**

The finding that village exposure to *JS* reduced domestic abuse suggests that exposure led people to question the ideology of patriarchy. We assess this by examining whether wives in treatment villages were allowed a greater role in making decisions about their lives and their households. This is a valid measure of the impact on the ideology of patriarchy because *JS* plays are about pivotal life events; they are not about day-to-day household decision making. If in daily decision making, a wife has greater voice, it is not because of priming by *JS*. Instead, it may be because the appropriate role of a wife is seen differently.

Field investigators asked each female respondent and, separately, her husband whether she participated with him in making decisions in seven domains: education of the children, family health care, major household purchases, her visits to her relatives, the children's marriages, number of children to bear, and use of contraception. Table 5 reports two summary measures – (i) whether the wife participated in *all* seven domains, and (ii) whether she participated in *none*. We characterize a wife who participated in making decisions in none of these domains as “voiceless.” (Online Appendix Tables 5A and 5B report components of the summary measures.) Village exposure to *JS* significantly increased wives' voice in their households. Consider first the wives' responses (cols. 1 and 3 of Table 5). Village exposure reduced by 12 percentage points ( $p < .01$ ) relative to the proportion of 21 percent in the control villages the proportion of wives with *no* voice in the seven domains. But *JS* had no impact on making the wife an equal partner in the household: exposure to *JS* did not lead to wives participating in decision making in *all* seven domains.

Not surprisingly, most husbands believed that their wives had a larger role in decision making than their wives did; less than 5 percent of husbands in the control group reported that their wives participated in no major household decisions. *JS* impact on this was negative but insignificant. The pairwise correlation between the beliefs of a wife and her husband that they shared in decision making in all seven domains is only 0.099. The pairwise correlation in their beliefs that the wife is voiceless is about zero (it is 0.031). It is possible that a wife does not express disagreement on many issues because she believes it would be too costly, and her silence allows the husband to believe that she agrees with him.

### **C. Attitudes Towards Domestic Violence**

Field investigators asked husbands and wives whether a husband was justified to hit or beat his wife under seven circumstances: she (i) goes out without telling her husband, (ii) neglects the children and household work, (iii) argues with her husband, (iv) refuses to have sex with him, (v) disrespects her in-laws, (vi) is suspected of having an illicit relationship, and (vii) has borne no male child. Table 6 reports the results. In the control group, 8 percent of women said that beating was justified in any of these seven situations, and the impact of *JS* was not statistically significant. In

contrast, a whopping 58 percent of husbands in the control group said that wife beating was acceptable for at least one reason. Exposure of a village to *JS* reduced this proportion by 33 percentage points ( $p < .01$ ). Husbands' self-reported attitudes are consistent with their behavior. In couples in which the husband said that domestic violence was never justified, the wife was significantly more likely to report an abuse-free marriage.

Based on the two evaluations of edutainment, discussed in Section I, *JS* has been more effective than edutainment in reducing men's belief that domestic violence is legitimate under any circumstances. (We focus here on MTV *Shuga* because the outcomes that were evaluated for *Shuga* overlap more closely with the outcomes we evaluate for *JS*.) Compared to *Shuga*, *JS* had a larger impact on men's attitudes toward domestic violence. *JS* reduced the proportion of men who believed that domestic violence is justified in some circumstances by 33 percentage points, which is more than a 50 percent reduction, but *Shuga* reduced the proportion by only 6 percentage points, which is a 21 percent reduction. The much greater impact of *JS* compared to *Shuga* on men's attitudes is despite the fact that direct exposure of an individual to *JS* was smaller than direct exposure to *Shuga*. In only 68 percent of couples in treated villages did at least one person see any *JS* play, whereas every participant in the treatment group in *Shuga* saw eight 22-minute episodes.<sup>13</sup>

#### **D. Community Actions**

Our survey asked respondents if they would report to *anyone* acts of domestic violence that they witnessed (see Table 7, cols. 1-2). Village exposure to *JS* made almost universal the willingness to bear witness: *JS* increased by 13 percentage points ( $p < .01$ ) the proportion of women willing to report domestic violence to someone relative to the proportion of 84 percent in the control villages. *JS* increased the proportion among men by 7.5 percentage points ( $p < .01$ ) relative to the proportion of 91 percent in the control villages. The nearly universal willingness in the treatment

---

<sup>13</sup> Like *JS*, *Shuga* had no impact on women's attitudes towards domestic violence, but here the baseline acceptance of domestic violence was much higher: 27 percent in the *Shuga* study compared to 8 percent in the *JS* study.

villages to report to someone domestic violence that was witnessed is consistent with the results in the next section that suggest that *JS* changed village norms—it made wife beating no longer a normal way to behave.

However, a change in the villages in attitudes does not imply a society-wide change, in particular, among the police. Less than 3 percent of both female and male respondents to our survey said that they would register a complaint at the local police station about an incident of domestic violence that they witnessed. (Instead, they would report it to a neighbor, the victim’s parents, or her in-laws.) Survey evidence is corroborated by the study by Palermo, Bleck, and Peterman (2014), who found that in India, only 2 percent of women of reproductive age who had experienced physical or sexual violence reported it to a formal source.

A major focus of *JS* is on the mistreatment of a wife by her husband and in-laws if they view her dowry as too low,<sup>14</sup> and on alcohol abuse, which is an important cause of domestic violence. (See the Online Appendix synopses of *JS* plays on these two themes.) A question in our survey asked, “If there was an illegal liquor shop in your community, would you participate in demolishing it?” Village exposure to *JS* increased the proportion of women willing to help demolish an illegal liquor shop by 15 percentage points ( $p < .01$ ) relative to the proportion of 50 percent in control villages. Among the husbands, village exposure to *JS* had an even larger effect: it increased the proportion who would help by 24 percentage points ( $p < .01$ ) relative to 69 percent in the control villages. (See Table 7, cols. 3-4.)

#### **E. Awareness that Domestic Violence Is Against the Law**

In 2006, India legally prohibited domestic violence for the first time. The new law gives a female victim the right to file a police report and receive compensation from her in-laws for health expenses related to the abuse. The law bars the husband and in-laws from evicting her from the marital home. Many *JS* plays refer to women’s rights under the 2006 law. The core *JS* team instructs the satellite teams to mention

---

<sup>14</sup> Zhang and Chan (1999) present a theory and evidence of dowries as premortem bequests by altruistic parents for daughters that increase the daughters’ bargaining power in the spouses’ household.

them whenever relevant in the interactive sessions with the audience. Table 8 shows that in the control villages, only 52 percent of men and women are aware of women's new legal rights. Village exposure to *JS* increased awareness by 10 and 13 percentage points ( $p < .01$ ), respectively, among men and women.

*Graphical summary of results.* Figure 2 summarizes the impact of village exposure to *JS*. Despite the modest increase in villagers' knowledge that domestic violence was a crime, village exposure to *JS* substantially reduced physical and emotional abuse of wives. It increased wives' role in household decision making. It led both genders to be willing to take community action to protect women by reporting domestic violence that they witnessed and by helping to demolish illegal liquor shops. These results are evidence that exposure to *JS* moved villages consistently in the direction of empowering the wife.

*Social Desirability Bias.* A potential threat to the validity of our results is social desirability bias. This, however, is not likely to be an issue in our data. First, the respondents were not told that the survey was being done to gather information about the effectiveness of *JS* or theater in the treatment villages. It is only in the penultimate section that the survey asked about *JS*: Have you heard of *JS*? Have you watched a *JS* play? If so, when was the last time and how many *JS* performances have you watched?<sup>15</sup> Nonetheless, survey respondents may exaggerate behaviors and attitudes that they believe are viewed as desirable and underreport behaviors and attitudes that they believe are viewed as undesirable. To check this, we estimate impacts on mutual insurance, which we do not expect village exposure to *JS* to affect. The survey asked whether in times of need, the respondents would depend on their neighbors, friends and relatives, and community. Tables 9a-b show that village exposure to *JS* had a near-zero and insignificant impact on mutual insurance.

#### **F. Interaction with Head of Household's Education**

In rural areas, lines of hierarchy and authority in an Indian household are clearly drawn: the norm is to accept the authority of the household head. To

---

<sup>15</sup> In the treatment villages, 88 percent of female respondents and 89 percent of male respondents said that they had heard of *JS*.

investigate whether the impact of *JS* depends on his level of education, we disaggregate households between those with a household head with no formal education (24 percent), up to primary school (33 percent), and beyond primary school (43 percent). The impact of village exposure to *JS* was not significantly different across these three groups, as shown in Online Appendix Table 6.

## VII. Changes in Village Norms

Fear of social sanctions leads some married couples to disguise the nature of their relationships, as in the case of Yusef and Habiba:

They relate to each other in ways that are at odds with the normal pattern of interaction between the two sexes in the village. Yusef can be seen at times helping with household chores or chatting with Habiba in the evening as if she were his friend....Yusef is careful not to flaunt their relationship in the village. When Yusef is helping to clean the house or doing other 'women's work,' they close the shutters and lock the door.<sup>16</sup>

An overarching goal of *JS* is to change patriarchal norms. To assess whether it met this goal, we investigate *spillovers* within villages and the *persistence* of its impact. Compared to couples living in inactive areas (where *JS* does not perform), 8 percent more couples living in active areas (where *JS* performs) have viewed at least one *JS* performance. To assess spillovers within villages exposed to *JS*, we compare the impacts on couples who live in the active area of their village and on couples who live in the inactive areas. Table 10 shows that there is no significant difference between these impacts.

---

<sup>16</sup>Dandekar (1986, 94). The example describes a couple in the 1980s in one of the most socially advanced states of India (Maharashtra). Similar social pressures still exist in our survey area. In 2015-16, the difference in gender relations between rural Maharashtra and rural West Bengal is suggested by the difference in the prevalence of domestic violence: the percentage of ever-married women age 15 to 49 who had experienced spousal violence was 37 percent in rural West Bengal and only 26 percent in rural Maharashtra (National Family Health Survey 2015-16, International Institute for Population Sciences and ICF, 2017).

We next consider the persistence of the impacts. We compare treatment villages with, and without, a *JS* performance of plays on patriarchy or alcohol issues in the four years preceding the survey. In treatment villages *with no* recent performances on these themes, the reductions in spousal abuse, in “voiceless” wives, and in wives with no knowledge of legal protections to victims of domestic violence were highly significant ( $p < .01$ ) (not shown). Table 11 shows that there is no significant difference in impact between villages with and without recent *JS* performances on these themes. This indicates that village exposure to *JS* plays had enduring effects on behavior and knowledge.

Particularly suggestive evidence that *JS* changed village norms would be a finding that village exposure to *JS* changed the behavior and attitudes of couples in a treatment village who have *never* watched a *JS* performance. Since watching a *JS* performance would likely be correlated with prior openness to change in gender roles, a simple comparison of viewers and non-viewers cannot establish cause and effect. We use a difference-in-differences method. The first difference is between couples who chose and couples who did not choose to watch at least one *JS* performance. We compare this difference across two sets of villages: villages with, and without, exposure within the four years preceding the survey to a *JS* play on patriarchy or alcohol issues. We would predict *no* significant difference if *JS* changed village norms. In that case, attitudes of people in a village about the appropriate way to behave would be shared collectively. In the alternative case where *JS* did *not* change village norms, we would predict a *larger* absolute difference between viewers and non-viewers in villages *with* recent performances on patriarchy or alcohol issues than in villages *without* recent performances.

Table 12 reports the impact of *JS* on three indicators (domestic abuse, a wife’s voice, and awareness of legal protection for victims of domestic violence) for couples disaggregated by whether or not they have watched a *JS* performance<sup>17</sup> and whether

---

<sup>17</sup> Qualitative results are unchanged if the category of “either husband or wife has watched a performance” is subdivided into the finer categories of “husband has watched a play, but not wife” and “wife has watched a play, but not husband.” We chose the

or not *JS* has performed a play on patriarchy or alcohol issues in the four years preceding the survey. Either the wife or husband or both in 68 percent of the couples in the treatment group had seen at least one performance. With two exceptions, there is no statistically significant difference in impacts whether or not respondents have watched a *JS* performance. The overall pattern of results suggests that the new ideas expressed in *JS* performances, and the new gender roles rehearsed, have spread through village networks and changed village norms.

*JS* is not a one-time intervention; rather, *JS* plays have been shown in the treatment villages with varying frequency for at least 10 years (at least one performance in every year). To assess the impact of length of exposure to *JS*, we tested two effects:

(i) *Duration of village exposure to JS plays on patriarchy or alcohol abuse.* In 14 of 32 villages in our treatment sample, *JS* performed its first play on patriarchy or alcohol abuse sometime between 1996 and 2000; in the remaining 18 villages, it performed its first play on patriarchy or alcohol abuse sometime between 2001 and 2006. We test whether the impact of *JS* differs between the two sets of villages.

(ii) *Age of the wife at the time of the survey.* The median age of female respondents is 30 years. Using the median as the cutoff, we compare the impacts on female respondents between 18 and 29 and female respondents between 30 and 49 years. We report this for three outcomes: abuse-free marital relationship, no participation by the wife in making important household decisions, and willingness to report to someone an incident of domestic violence that they witnessed.

We find no effect of duration of village exposure to *JS*. We also find no effect of the age of the female respondent, even though the older cohort has been exposed to *JS* for a longer period of time (Tables 13a-b).

---

parsimonious model.

### VIII. Literacy as a Measure of Empowerment: An External Validity Result

If women have become more empowered, one would expect that parents' aspirations for their daughters, and the daughters' aspirations for themselves, to increase (Beaman *et al.* 2012). One measure of such an increase in aspirations is the reduction in the gender gap in literacy. The decennial Census of India reports literacy rates by census village for males and females above age seven. Drawing on data for 1991 (pre-*JS* first intervention) and 2011 (post-*JS* first intervention), we test whether village exposure to *JS* reduced the gender gap. We estimate a fixed effect panel data model at the village level:

$$y_{jt} = X_{jt}\beta + \gamma JS_j * t + \mu_j + \varepsilon_{jt} \quad j=1, \dots, 91^{18} \text{ and } t=1,2 \quad (7)$$

where  $y_{jt}$  is the literacy rate in village  $j$  at time  $t$ ,  $JS_j$  is a dummy equal to 1 if the village has been exposed to *JS* plays,  $X_{jt}$  is a set of time-varying village controls,  $\mu_j$  is the village fixed effects, and  $\varepsilon_{jt}$  is the error term. The control variables (here for 1991 and 2011) are the same as the village-level variables used in equation (5).

We find from Census of India data on male and female literacy that village exposure to *JS* increased the rate for both males and females, but did so by significantly more for females (see Table 14). Village exposure to *JS* increased the ratio of female-to-male literacy rates from 56 percent to 77 percent ( $p < .01$ ).

We do not use official records of police stations as an additional source of data on domestic violence because these vastly underreport it. The largest multi-country comparison to date of reporting gender-based violence to formal sources used Demographic Health Surveys to assess bounds on formal sources of data on gender-based violence (Palermo, Bleck, and Peterman 2014). The study found that in India and East Asia, only 2 percent of women of reproductive age who had experienced physical or sexual violence reported it to a formal source.

---

<sup>18</sup> This estimation uses 59 instead of 60 control villages from the original sample because for one of the control villages data on distance to nearest town was not available for 2011 from the Census.

## IX. A Simple Model of Adherence to Norms of Patriarchy

We present a model in which a collective process of belief change gives rise to a new pattern of behavior. The agents in the model are the husbands in a community. If social sanctions to a husband from violating patriarchal norms are expected to be high, then most men will want to follow them because they feel strong social pressure to do so (*e.g.*, Derné 1994a, b; Chowdhry 2015). Being seen to violate the patriarchal norms changes relations with uninvolved parties in subsequent transactions. As one urban merchant in India said, “Whatever the social restrictions are, if [a woman] does not live according to them, the honor [*izzat*] of her family [*ghar*] is finished,” with consequences for the family’s social status and business opportunities and the children’s marriage prospects (Derné 1994b, 209).

The husbands are indexed by  $h$  on the continuum of the unit interval. Each agent makes a binary decision whether or not to practice patriarchal norms. The payoff to an agent  $h$  has two parts. The first part is his intrinsic utility payoff  $v_h^A$  if he allows his wife some autonomy (violating the patriarchal norms), or  $v_h^P$  if he exercises full control over her. The second part is the utility cost, denoted  $C$ , of the social sanctions he suffers if he violates the patriarchal norms by giving his wife some autonomy. The utility cost is assumed to be the same across agents.

Let  $\Delta_j = v_h^A - v_h^P$  define agent  $h$ ’s differential in intrinsic utility between a relationship in which his wife has some autonomy and a strictly patriarchal relationship. The cumulative distribution of  $\Delta$  is the continuous function  $F(\Delta)$ . If an agent  $I$  is indifferent between following and not following the patriarchal norms, then (i)  $C = \Delta_I$ , (ii) the fraction of agents who follow the norms is  $F(\Delta_I)$ , and (iii) the set of agents who do not follow the norms is  $\{\Delta \mid \Delta > \Delta_I\}$ . Husbands for whom  $0 < \Delta \leq \Delta_I$  follow the norms even though, if there were no social sanctions for norm violations, they would prefer not to; none of them, by behaving differently, could make himself better off. We make the simplifying assumption that the utility cost of being sanctioned is a proportion  $\alpha \in (0,1]$  of the measure of agents who follow the

patriarchal norms, which implies, using property (ii), that  $C = \alpha F(\Delta_I)$ .<sup>19</sup>

The assumption that the incentive to follow the patriarchal norms is increasing in the proportion of norm followers (*i.e.*, the players' decisions are *strategic complements*) means that the environment may harbor more than one equilibrium. If there are multiple equilibria, which equilibrium is attained depends on the beliefs that people have held at some point in the past and on the way they revise their beliefs.

Strategic complementarities capture an important real-world element. For example, in Western countries, there is a prescriptive norm that men wear a necktie to formal events. But if many men do not wear a necktie to a particular event, the social cost of not wearing it is likely to be small, and the meaning of wearing a necktie at the event is likely to change.

Equilibrium is defined by any value of  $\Delta$  such that  $\alpha F(\Delta) = \Delta$ , that is, a value at which the utility cost of sanctions equals the marginal violator's utility gain. An equilibrium is stable if in a neighborhood of the equilibrium, for all values of  $\Delta$  less than the equilibrium value,  $\alpha F(\Delta) > \Delta$ , and for all values of  $\Delta$  more than the equilibrium value,  $\alpha F(\Delta) < \Delta$ .

In Figure 3, the gain  $\Delta$  from violating the norms and the cost imposed on norm violators,  $\alpha F(\Delta)$ , are equal at the intersection of the curve  $\alpha F(\Delta)$  and the 45-degree line from the origin. The figure illustrates the case of three equilibria.  $R$  is an unstable equilibrium,  $Q$  and  $S$  are stable equilibria, and  $Q$  (with the lower proportion of agents who practice the patriarchal norms) is Pareto superior.

We use this simple model to show that community exposure to  $JS$  may change

---

<sup>19</sup> Norm followers' punishment of norm transgressors can be modelled as an equilibrium outcome. Folk Theorem results show that social norms can create incentives where not only deviators from the desired behavior are punished, but also persons who fail to punish the deviators are punished. These incentives can sustain a norm under a local information system regardless of individuals' tastes for punishing transgressors and their tastes for observance of the norm (Kandori 1992). In that case, the parameter  $\alpha$  is the marginal increase in the incentive to follow the norm as the measure of norm followers increases.

a social outcome through two channels—impulses and preferences. To see the role of impulses, suppose that the community is initially at equilibrium  $S$ . Viewers of  $JS$  performances and those in their social networks who observe around them changes in attitudes and behavior, as well as the consequences of those changes, may develop new instincts that lead them to shrink back from sanctioning men who allow their wives some autonomy. Agents use the observation of their own impulses to form a belief about other agents' impulses. Kets and Sandroni (2021) show that in coordination games, any conflict between impulsive reactions and reasoned responses can be resolved: after sufficiently many steps of reasoning, the process converges to an *introspective equilibrium*. Figure 3 illustrates two cases starting from equilibrium  $S$ . In one case, the impulse is large ( $\hat{p}$ ), and Pareto superior equilibrium  $Q$  is selected. In the other case, the impulse is small ( $\tilde{p}$ ), and the Pareto inferior equilibrium is selected. As in the analysis in Greif (1994), culture “selects” the equilibrium outcome. Greif considers the case in which differences in history produce distinct cultures. We consider the case in which long-run exposure to participatory theater changes cultures.

Besides affecting equilibrium selection,  $JS$  may also change payoffs  $v_h^A$  and  $v_h^P$  by changing either deep values or what a husband perceives as a challenge to, or an expression of, his manhood. “A situation can be interpreted and categorized in several ways, with very different consequences for norm compliance,” as Bicchieri (2006, *xi*) notes. Village exposure to  $JS$  may reframe domestic violence by shifting the focus of attention from the manhood of the assailant to the harm to the victim. The young husband quoted in Section III who promised never to beat his wife again is an instance where a  $JS$  performance led a frequent wife-abuser to focus for the first time on the pain that he caused his wife. Shifting attention to the suffering of victims of domestic violence also raises self-image concerns (Bénabou, Falk, and Tirole 2018). Discussions in the second part of a  $JS$  performance of a play on the theme of patriarchy would normally include arguments that a man who beats his wife is behaving like a bad man. The change in framing implies a shift in the distribution of preferences to grant one's wife a measure of autonomy,  $F(\Delta)$ . Figure 4 illustrates a downward shift to  $G(\Delta) \leq F(\Delta)$  for all  $\Delta$ . Such a shift reduces the set of husbands

who follow the patriarchal norms. As illustrated in the figure, a large enough shift induces a unique equilibrium with low conformity to the patriarchal norms.

In this simple model, husbands are the drivers of change and the community costlessly assigns an observable reputational label to each husband. There are two additional channels through which *JS* is likely to change social outcomes. First, by increasing women's self-confidence and agency, as discussed in Section III, women may increase men's acceptance of greater gender equality in the household. Second, by creating a context in which members of a community share ideas about gender norms, village exposure to *JS* may correct possibly exaggerated beliefs about the proportion of men who practice patriarchal norms and who would sanction men who do not. Evidence of such a large misperception in Saudi Arabia is in Bursztyn, Gonzalez, and Yanagizawa-Drott (2020).

## **X. Conclusion**

The belief that wife beating is a husband's right and that it shows his manhood is entrenched in many communities in low- and lower middle-income countries. This mindset makes it impossible for legal prohibition to stop widespread domestic violence. *JS* equipped villagers with new stories, impulses, and critical thinking skills to question the ideology of patriarchy. The first part of a *JS* performance presents a play that makes people spectators of their own actions in real life. In the second part, volunteers from the audience intervene; they change the script of the oppressive situation presented in the first part. "In this process, the relationship between the artists and their audience undergoes a change, turning a monologue into a dialogue" (Ganguly 2010, 26). As Ganguly notes, "Nobody is reduced to just watching...everybody can speak, act, and suggest [and]...become analytical about the society she/he lives in." *JS* thus provides ordinary people the means of framing and interpreting critical experiences in their lives.

Using an endogenous treatment model, we estimate that village exposure to *JS* for at least 10 years substantially increased the proportion of abuse-free marriages, sharply decreased alcohol-related domestic abuse, and increased wives' role in decision making in their households. Village exposure to *JS* halved the proportion of men who believed that it was acceptable for a husband to hit or beat his wife. We find

evidence of spillover effects within villages and of persistence.

Greif and Mokyr (2017, 26) write that the “‘scaffolds’ on which institutional structures rest” are beliefs that people hold to be true and reasonable. *JS*’s central goal can be expressed in these terms: to foster the critical thinking that permits people to dismantle the scaffolds that support patriarchy. By creating a forum in which plays of oppression are rescripted with the intervention of the audience, *JS* changed what people in the community believe is possible and acceptable. It also added to the repertoire of stories about domestic relations that people learn. In these ways, *JS* weakened the feedback loop through which patriarchy creates a representation of manhood as toughness towards one’s wife, which justifies oppressive actions towards her, which in aggregate reproduce patriarchy. The self-perpetuating cycle may thus end.

Future research should experiment with ways to scale up elements of participatory theater. Many questions loom large: What part of the performances could be videotaped and shown as movies rather than performed live? What other social meanings –such as those that underpin the tolerance of corruption, abuse of stigmatized groups, corporal punishment of children, and sexism in the workplace— could Theater of the Oppressed change?

## References

- Akerlof, G. A. (2020). "Sins of Omission and the Practice of Economics." *Journal of Economic Literature*, 58(2): 405-418.
- Akerlof, G. A., and D. J. Snower (2016). "Bread and Bullets." *Journal of Economic Behavior & Organization* 126: 58-71.
- Akerlof, R., and L. Rayo (2020): "Narratives and the Economics of the Family."  
Available at SSRN: <https://ssrn.com/abstract=3671894>.
- Amaral, S., G. Borker, N. Fiala, N. Prakash, H. Rainer, and M. M. Sviatschi (2020).  
"Debiasing Law Enforcement Officers: Evidence from an Expressive Arts  
Intervention in India." Pre-submission note to *Journal of Development Economics*.
- Anderson, M. (2008). "Multiple Inferences and Gender Differences in the Effects of  
Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool and Early  
Training Projects." *Journal of the American Statistical Association* 103: 1481-1495.
- Aparicio, Y. (2020). "In Mexico, 'Roma' Lit a Fire for Workers' Rights" *New York  
Times*, May 23.
- Banerjee, A., S. Barnhardt, and E. Duflo (2018). "Can Iron-fortified Salt Control  
Anemia? Evidence from Two Experiments in Rural Bihar." *Journal of Development  
Economics*, 133(C): 127-146.
- Banerjee, A., E. L. Ferrara, and V. Orozco (2019a). "Entertainment, Education, and  
Attitudes Toward Domestic Violence." *American Economic Review*, 109: 133-137.
- Banerjee, A., E. L. Ferrara, and V. Orozco (2019b). "The Entertaining Way to  
Behavioral Change: Fighting HIV with MTV." *NBER Working Paper No. 26096*.
- Beaman, L., E. Duflo, R. Pande, and P. Topalova (2012). "Female Leadership Raises  
Aspirations and Educational Attainment for Girls: A Policy Experiment in India."  
*Science* 335: 582-586.
- Bénabou, R., A. Falk, and J. Tirole (2018). "Narratives, Imperatives and Moral  
Persuasion." *NBER Working Paper No. 24798*.
- Bhalotra, S., A. Chakravarty, D. Mookherjee, and F. J. Pino (2019). "Property Rights  
and Gender Bias: Evidence from Land Reforms in West Bengal." *American  
Economic Journal: Applied Economics*, 2: 205-237.

- Bicchieri, C. (2006). *The Grammar of Society. The Nature and Dynamics of Social Norms.* Cambridge, MA: Cambridge University Press.
- Blair, G., R. Littman, and E. L. Paluck (2019). "Motivating the Adoption of New Community-minded Behaviors: An Empirical Test in Nigeria." *Science Advances.*
- Boal, A. (1979). *Theatre of the Oppressed.* New York: Urizen.
- Boal, A. (2002). *Games for Actors and Non-Actors.* 2<sup>nd</sup> ed. New York: Routledge.
- Boudet, A. M. M., P. Petesch, C. Turk and M. A. Thumala (2013). *On Norms and Agency: Conversations about gender equality with women and men in 20 countries.* Washington DC: World Bank.
- Bourdieu, P. (1977). *Outline of a Theory of Practice.* Cambridge UK: Cambridge University Press.
- Brooks, B. A., K. Hoff, and P. Pandey (2018). "Cultural Impediments to Learning to Cooperate: An Experimental Study of High- and Low-caste Men in Rural India." *Proceedings of the National Academy of Sciences*, 115(45): 11385-11392.
- Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020). "Misperceived Social Norms: Women Working Outside the Home in Saudi Arabia." *American Economic Review*, 110(10): 2997-3029.
- Census of India (1991). *Primary Census Abstracts.* New Delhi: Registrar General of India, Ministry of Home Affairs, Government of India.
- Census of India (2011). *Primary Census Abstracts.* New Delhi: Registrar General of India, Ministry of Home Affairs, Government of India.
- Chen, E. (2020). "Her Abuse Was a 'Family Matter,' Until It Went Live." *New York Times*, Nov. 15, A16.
- Chowdhry, P. (2015). "Popular Perceptions of Masculinity in Rural North Indian Oral Traditions." *Asian Ethnography*, 74(1): 5-36.
- Dandekar, Hemalata C. (1986). *Men to Bombay, Women at Home: Urban Influence on Sugao Village, Deccan Maharashtra, India, 1942-1982.* Ann Arbor: University of Michigan.
- Derné, S. (1994a). "Cultural Conceptions of Human Motivation and Their Significance for Culture Theory." In: *Sociology of Culture: Emerging Theoretical Perspectives* eds. Diana Crane: Cambridge, MA: Blackwell, 1994.

- Derné, S. (1994b). "Hindu Men Talk About Controlling Women: Cultural Ideas as a Tool of the Powerful." *Sociological Perspectives*, 37(2): 203-227.
- Diebolt, C., and F. Perrin (2013). "From Stagnation to Sustained Growth: The Role of Female Empowerment." *American Economic Review*, 103(3): 545-49.
- Duflo, E. (2012). "Women Empowerment and Economic Development." *Journal of Economic Literature*, 50(4): 1051-1079.
- Erten, B., and P. Keskin (2018). "For Better or for Worse?: Education and the Prevalence of Domestic Violence in Turkey." *American Economic Journal: Applied Economics*, 10(1): 64-105.
- Freire, P. (1970). *Pedagogy of the Oppressed*. New York: Herder and Herder.
- Galinsky, A. D., J. C. Magee, D. H. Gruenfeld, J. A. Whitson, and K. A. Liljenquist (2008). "Power Reduces the Press of the Situation: Implications for Creativity, Conformity, and Dissonance." *Journal of Personality and Social Psychology*, 95(6), 1450–1466.
- Ganguly, S. (2009). "The Brick Factory." In: Ganguly, *Where We Stand: Five Plays from the Repertoire of Jana Sanskriti*. Kolkata, India: CAMP: 111-123.
- Ganguly, S. (2010). *Jana Sanskriti: Forum Theatre and Democracy in India*. Oxon: Routledge.
- Ganguly, S. (2017). From *Boal to Jana Sanskriti*, edited by R. Yarrow. London: Routledge.
- Ganguly, S. (2019). "Jana Sanskriti: Continuous Presence, Aesthetical Rigor, and Political and Social Movement." In: *The Routledge Companion to Theatre of the Oppressed*, eds. K. Howe, J. Boal, and J. Soeiro. New York: Routledge.
- Geertz, C. (1973). *The Interpretation of Cultures*. Basic Books. Mahwah, NJ: Lawrence Erlbaum Associates.
- Gigerenzer, G., and K. Hug (1992). "Domain-specific Reasoning: Social Contracts, Cheating, and Perspective Change." *Cognition* 43(2): 127-171
- Glaeser, E. L. (2005). "The Political Economy of Hatred." *Quarterly Journal of Economics*, 120(1): 45–86.

- Green, D. P., A. Wilke, and J. Cooper (2020). “Countering Violence Against Women by Encouraging Disclosure: A Mass Media Experiment in Rural Uganda.” *Comparative Political Studies* 53(14): 2283-2320.
- Greif, A. (1994). “Cultural Beliefs and the Organization of Society.” *Journal of Political Economy*, 102(5): 912-950.
- Greif, A., and J. Mokyr (2017). “Cognitive Rules, Institutions, and Economic Growth: Douglass North and Beyond.” *Journal of Institutional Economics*, 13(1): 25–52.
- Heise, L. L., and A. Kotsadam (2015). “Cross-national and Multilevel Correlates of Partner Violence: An Analysis of Data from Population-based Surveys.” *The Lancet. Global health*, 36: e332-40.
- Heller, P., and V. Rao, eds. (2015). *Deliberation and Development: Rethinking the Role of Voice and Collective Action in Unequal Societies*. Washington, DC: World Bank Group.
- Hoff, K., and J. E. Stiglitz (2010). “Equilibrium Fictions: A Cognitive Approach to Societal Rigidity.” *American Economic Review*, 100: 141-146.
- Hoff, K., and J. E. Stiglitz (2016). “Striving for Balance in Economics: Towards a Theory of the Social Determination of Behavior.” *Journal of Economic Behavior and Organization*, 126(B): 25-57.
- Htun, M., and F. R. Jensenius (2019). “Violence Against Women: Laws, Norms, and Challenges Ahead.” University of New Mexico, working paper.
- Imbens, G., and J. M. Woolridge (2007). *Summer Institute 2007 Methods Lectures*. Massachusetts: NBER.
- Jha, S., and M. Shayo (2019). “Valuing Peace: The Effects of Financial Market Exposure on Votes and Political Attitudes.” *Econometrica*, 87: 1561-1588.
- Kahan D. M., E. Peters, E. C. Dawson, and P. Slovic (2017). “Motivated Numeracy and Enlightened Self-government.” *Behavioural Public Policy*, 1(1): 54-86.
- Kandori, M. (1992). “Social Norms and Community Enforcement.” *Review of Economic Studies*, 59(1): 63–80.
- Kets, W., and A. Sandroni (2021). “A Theory of Strategic Uncertainty and Cultural Diversity.” *Review of Economic Studies*, 88(1): 287-333.

- Kline P. and A. Santos (2012). "A Score-Based Approach to Wild Bootstrap Inference." *Journal of Econometric Methods*, 1(1): 23-41.
- Lillard, A. (2002). "Pretend Play and Cognitive Development." In: *Blackwell Handbook of Childhood Cognitive Development*, eds. U. Goswami, Malden, MA, Blackwell Publishers Ltd.
- Luca, D. L., E. Owens, and G. Sharma (2015). "Can Alcohol Prohibition Reduce Violence Against Women?" *American Economic Review*, 105(5): 625-629.
- Narayan, D., R. Chambers, M. K. Shah, and P. Petesch (2000). *Voices of the Poor: Crying out for Change*. New York: Oxford University Press.
- National Family Health Survey 2015-16 (NFHS-4) (2017). International Institute for Population Sciences and ICF.
- OECD Development Centre/OECD (2021). "Gender, Institutions and Development (Edition 2019)", OECD International Development Statistics (database), <https://doi.org/10.1787/ba5dbd30-en> (accessed on 08 May 2021).
- Palermo T., J. Bleck, and A. Peterman (2014). "Tip of the Iceberg: Reporting and Gender-based Violence in Developing Countries." *American Journal of Epidemiology*, 179(5): 602-612.
- Roodman, D., M. Ø. Nielsen, J. G. MacKinnon, and M. D. Webb (2019). "Fast and Wild: Bootstrap Inference in Stata using Boottest." *The Stata Journal*, 19 (1), 4–60.
- Shiller, R. (2019). *Narrative Economics: How Stories Go Viral and Drive Major Economic Events*. Princeton, NJ: Princeton University Press.
- Wason, P. (1966). "Reasoning." In B.M. Foss (ed.) *New Horizons in Psychology*. Harmondsworth: Penguin.
- Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. Cambridge, MA: MIT Press.
- World Health Organization (2014). *Global Status Report on Alcohol and Health, 2014*. Geneva: WHO Press.
- World Health Organization (2021). *Violence against Women Prevalence Estimates, 2018*. Geneva: WHO Press.

- Yarrow, R. (2009). "Introduction." In: Ganguly, S., *Where We Stand: Five Plays from the Repertoire of Jana Sanskriti*. Kolkata, India. CAMP: 9-20.
- Yarrow, R. (2012). "Performing Agency: Body Learning, Forum Theatre and Interactivity as Democratic Strategy." *Studies in South Asian Film and Media*, 4(2): 211-226.
- Yarrow, R. (2017). "From Performers to Spectactivists: Jana Sanskriti's Training for Agency in and Beyond *Theatre*." *Indian Theatre Journal*, 1(1): 29-37.
- Zhang, J., and Chan, W. (1999). "Dowry and Wife's Welfare: A Theoretical and Empirical Analysis." *Journal of Political Economy*, 107(4): 786-808.

**Table 1. Characteristics of villages in treatment and control blocks, Census of India 1991**

	<i>Control</i>	<i>Treatment</i>	<i>Difference in means (p-values)</i>
Proportion of Scheduled Caste and Scheduled Tribe households in the village	0.3502	0.2679	0.026**
Distance to nearest town (km)	19.16	50.50	0.000***
<b><i>Percentage of villages with:</i></b>			
Access to secondary schools	33.82	38.71	0.507
Medical facilities	66.91	74.19	0.306
Access to electricity	69.85	58.06	0.105
Post, telegraph, telephone facility	51.47	48.39	0.689
Access to 'pucca' road	38.24	19.35	0.008***
Bus stop, rail station, navigable waterway	56.62	80.85	0.001***

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 2. Number of administrative regions and households from which the respondents are drawn**

	<i>Control</i>	<i>Treatment</i>
Blocks	3	3
<i>Gram panchayats</i>	18	8
Census villages	60	32
Electoral polling booths	78	87
Households	1,814	1,635
		In active areas: 873
		In inactive areas: 762

Source: Primary survey, 2014-15

**Table 3. Men's abuse of their wives—wives' responses**

<i>Dependent variable</i>	<i>Emotional abuse</i>	<i>Physical abuse</i>	<i>Sexual abuse</i>	<i>Abuse-free</i>
	(1)	(2)	(3)	(4)
Living in a village exposed to <i>JS</i>	-0.0505*	-0.0852***	-0.0349	0.1545***
	(0.028)	(0.027)	(0.025)	(0.032)
Mean of control group	0.3506	0.3202	0.1795	0.4475
	(0.014)	(0.016)	(0.015)	(0.018)
Log-likelihood	-2845	-2651	-2214	-3017
<i>N</i>	3,443	3,443	3,441	3,441
$\rho$	-0.0756	0.1157	0.0287	-0.1108*
	(0.066)	(0.073)	(0.087)	(0.065)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 4. Freedom from marital control and spousal abuse due to husband's drinking**

<i>Dependent variable</i>	<i>Freedom from marital control</i>		<i>Full sample</i>		<i>Whether husband drinks</i>	
	<i>Verbal or physical abuse due to husband's drinking</i>		<i>Verbal or physical abuse due to husband's drinking</i>		<i>Verbal or physical abuse due to husband's drinking</i>	
	<i>Wives' responses</i>	<i>Wives' responses</i>	<i>Husbands' responses</i>	<i>Wives' responses</i>	<i>Wives' responses</i>	<i>Husbands' responses</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Living in a village exposed to JS	0.0375*** (0.014)	-0.0472** (0.019)	-0.1064*** (0.038)	-0.0624* (0.034)	-0.2024*** (0.048)	-0.2487*** (0.051)
Mean of control group	0.0444 (0.006)	0.1309 (0.014)	0.2826 (0.026)	0.3335 (0.020)	0.3453 (0.042)	0.4397 (0.042)
Log-likelihood	-1455	-1777	-2388	-2568	-1124	-1371
<i>N</i>	3,404	3,396	3,408	3,384	1,650	1,857
$\rho$	0.1882*** (0.073)	0.2708*** (0.083)	0.0172 (0.103)	0.1385* (0.080)	0.1216 (0.113)	0.0119 (0.131)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 5. Wives' participation in making major household decisions**

<i>Dependent variable</i>	<i>Participates in <u>all</u> major household decisions</i>		<i>Participates in no major household decisions</i>	
	<i>Wives' responses</i>	<i>Husbands' responses</i>	<i>Wives' responses</i>	<i>Husbands' responses</i>
	(1)	(2)	(3)	(4)
Living in a village exposed to <i>JS</i>	0.0294 (0.021)	0.1314*** (0.043)	-0.1225*** (0.034)	-0.0234 (0.014)
Mean of control group	0.0657 (0.010)	0.2232 (0.018)	0.2122 (0.021)	0.0459 (0.009)
Log-likelihood	-1385	-2018	-1840	-901
<i>N</i>	2,997	2,632	2,997	2,632
$\rho$	0.2291** (0.096)	-0.1396 (0.096)	0.1890 (0.129)	0.1175 (0.115)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 6. Wives' and husbands' belief that wife beating can be justified**

<i>Dependent variable</i>	<i>Wives' responses</i>	<i>Husbands' responses</i>
	(1)	(2)
Living in a village exposed to <i>JS</i>	-0.0107 (0.023)	-0.3272*** (0.029)
Mean of control group	0.0804 (0.012)	0.5832 (0.018)
Log-likelihood	-1594	-2836
<i>N</i>	3,443	3,450
$\rho$	0.1100 (0.137)	0.1112* (0.066)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 7. Willingness to report domestic violence and to participate in demolishing illegal liquor shops**

<i>Dependent variable</i>	<i>Would report to someone acts of domestic violence he/she witnesses</i>		<i>Would help demolish an illegal liquor shop</i>	
	<i>Wives' responses</i>	<i>Husbands' responses</i>	<i>Wives' responses</i>	<i>Husbands' responses</i>
	(1)	(2)	(3)	(4)
Living in a village exposed to JS	0.1294*** (0.017)	0.0754*** (0.016)	0.1536*** (0.037)	0.2378*** (0.028)
Mean of control group	0.8371 (0.013)	0.9079 (0.013)	0.5027 (0.019)	0.6867 (0.020)
Log-likelihood	-1675	-1305	-2831	-2196
<i>N</i>	3,408	3,418	3,373	3,378
$\rho$	-0.1456 (0.091)	-0.1202 (0.109)	0.0276 (0.083)	-0.2313 (0.107)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 8. Lack of awareness of legal protections for victims of domestic violence**

<i>Dependent variable</i>	<i>Wives' responses</i>	<i>Husbands' responses</i>
	(1)	(2)
Living in a village exposed to JS	-0.1311*** (0.033)	-0.0953*** (0.035)
Mean of control group	0.5158 (0.017)	0.5239 (0.018)
Log-likelihood	-2968	-2992
<i>N</i>	3,443	3,450
$\rho$	0.0281 (0.071)	0.1066* (0.063)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 9A. Test of social desirability bias (wives' responses)**

<i>Dependent variable</i>	<i>In times of need, do you have confidence about getting help from:</i>		
	<i>Neighbors</i> (1)	<i>Friends &amp; relatives</i> (2)	<i>Community</i> (3)
Living in a village exposed to <i>JS</i>	0.0044 (0.018)	0.0055 (0.014)	0.0008 (0.017)
Mean of control group	0.9215 (0.010)	0.9395 (0.008)	0.9190 (0.009)
Log-likelihood	-1576	-1420	-1597
<i>N</i>	3,405	3,407	3,401
$\rho$	-0.3469*** (0.080)	-0.3367*** (0.081)	-0.4089*** (0.084)

**Table 9B. Test of social desirability bias (husbands' responses)**

<i>Dependent variable</i>	<i>In times of need, do you have confidence about getting help from:</i>		
	<i>Neighbors</i> (1)	<i>Friends &amp; relatives</i> (2)	<i>Community</i> (3)
Living in a village exposed to <i>JS</i>	0.0285 (0.023)	0.0076 (0.017)	0.0131 (0.020)
Mean of control group	0.8959 (0.013)	0.9315 (0.009)	0.9129 (0.010)
Log-likelihood	-1729	-1511	-1653
<i>N</i>	3,447	3,448	3,445
$\rho$	-0.2201* (0.113)	-0.1713* (0.098)	-0.2182** (0.092)

Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 10. Spillovers: Impact of JS by whether or not treatment household lives in an area where JS performs (wives' responses)**

A: Respondent lives in a part of treatment village where JS performs			
B: Respondent lives in a part of treatment village where JS does not perform			
<i>Dependent variable</i>	<i>Abuse-free</i>	<i>No joint decisions</i>	<i>Lack of awareness of legal protections for victims of domestic violence</i>
<i>p</i> -value of difference between A and B	0.5692	0.3600	0.1390

**Table 11. Persistence: Impact of JS on behavior and awareness of laws, by whether or not respondent lives in a village exposed to JS plays on patriarchy or alcohol abuse in the 4 years preceding the survey (wives' responses)**

A: Lives in a treatment village not exposed to a JS play on patriarchy or alcohol abuse in the 4 years preceding the survey			
B: Lives in a treatment village exposed to a JS play on patriarchy or alcohol abuse in the 4 years preceding the survey			
<i>Dependent variable</i>	<i>Abuse-free</i>	<i>No joint decisions</i>	<i>Lack of awareness of legal protections for victims of domestic violence</i>
<i>p</i> -value of difference between A and B	0.6408	0.5736	0.3323

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%

**Table 12. Impact of JS disaggregated by whether or not at least one partner in a couple has watched a JS play and whether or not JS has performed a play on patriarchy or alcohol abuse in the 4 years preceding the survey (wives' responses)**

<i>Dependent variable</i>	<i>Abuse-free</i>	<i>No joint decisions</i>	<i>Lack of awareness of legal protections for victims of domestic violence</i>
<i>p</i> -value of:			
Difference between A and B	0.2962	0.1569	0.9130
Difference between A and C	0.1256	0.0703*	0.3178
Difference between A and D	0.2454	0.2156	0.1171
Difference between B and C	0.2442	0.6328	0.2157
Difference between B and D	0.6478	0.9828	0.0312**
Difference between C and D	0.2412	0.5586	0.4176

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%

**Table 13A. Impact of JS on behavior, disaggregated by the period in which a treatment village was first exposed to a JS play on patriarchy or alcohol abuse (wives' responses)**

A: Treatment village exposed to first JS play on patriarchy or alcohol abuse before 2000			
B: Treatment village exposed to first JS play on patriarchy or alcohol abuse in 2000 or later			
<i>Dependent variable</i>	<i>Abuse-free</i>	<i>No joint decisions</i>	<i>Willingness to report domestic violence</i>
<i>p</i> -value of difference between A and B	0.3049	0.1652	0.2317

**Table 13B. Impact of JS on behavior, disaggregated by the age cohort of female respondent (wives' responses)**

A: Female respondent is less than 30 years of age			
B: Female respondent is at least 30 years of age			
<i>Dependent variable</i>	<i>Abuse-free</i>	<i>No joint decisions</i>	<i>Willingness to report domestic violence</i>
<i>p</i> -value of difference between A and B	0.4833	0.0880*	0.1627

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

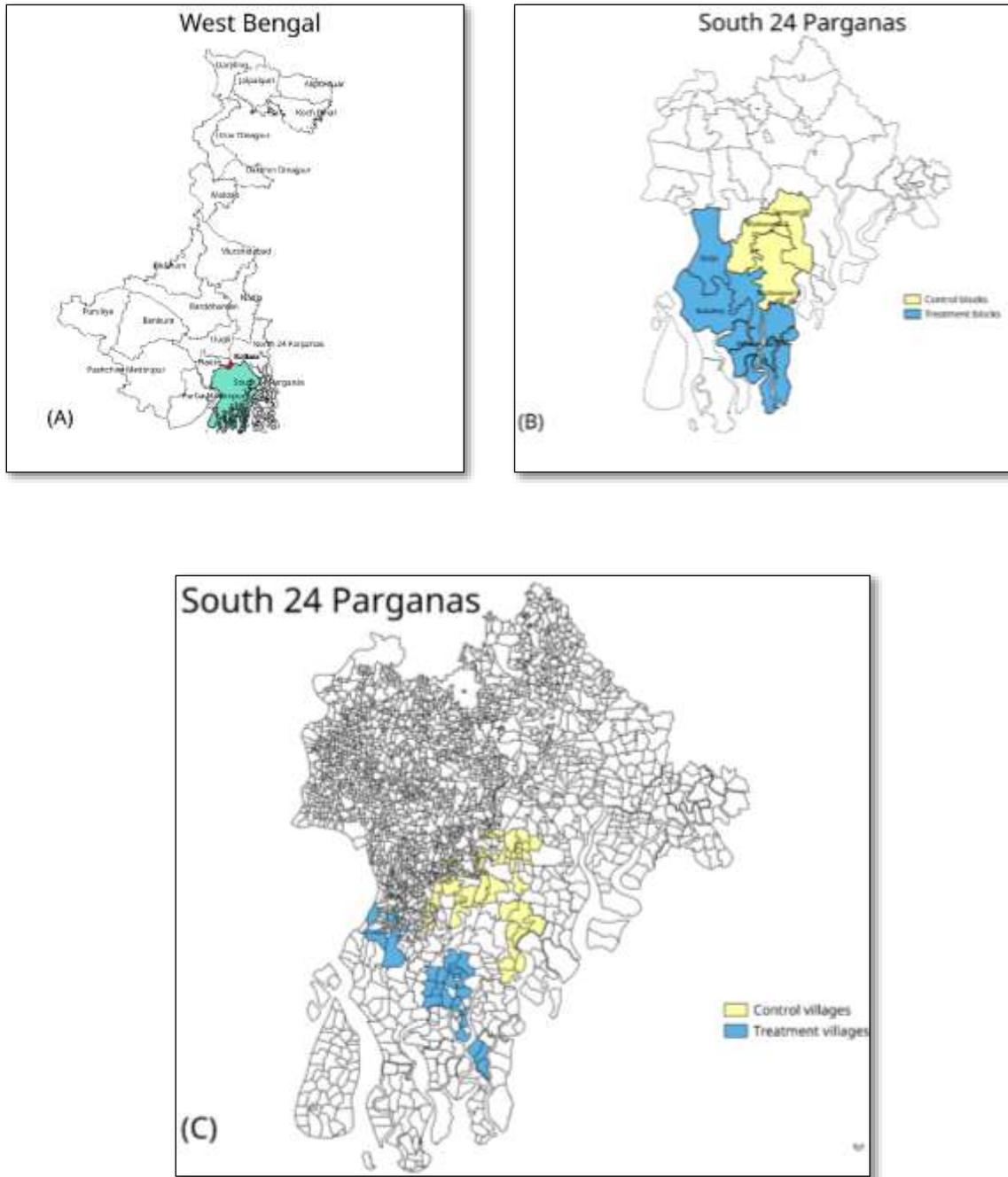
**Table 14. Impact of JS on literacy rates**

<i>Dependent variable</i>	<i>Female literacy rate</i>	<i>Male literacy rate</i>	<i>Ratio of female to male literacy rates</i>
	(1)	(2)	(3)
Living in a village exposed to JS	0.1386*** (0.024)	0.0743*** (0.021)	0.1102*** (0.025)
Mean of control group	0.3873 (0.015)	0.6100 (0.010)	0.5614 (0.041)
R <sup>2</sup>	0.1382	0.0477	0.1367
N	182	182	182

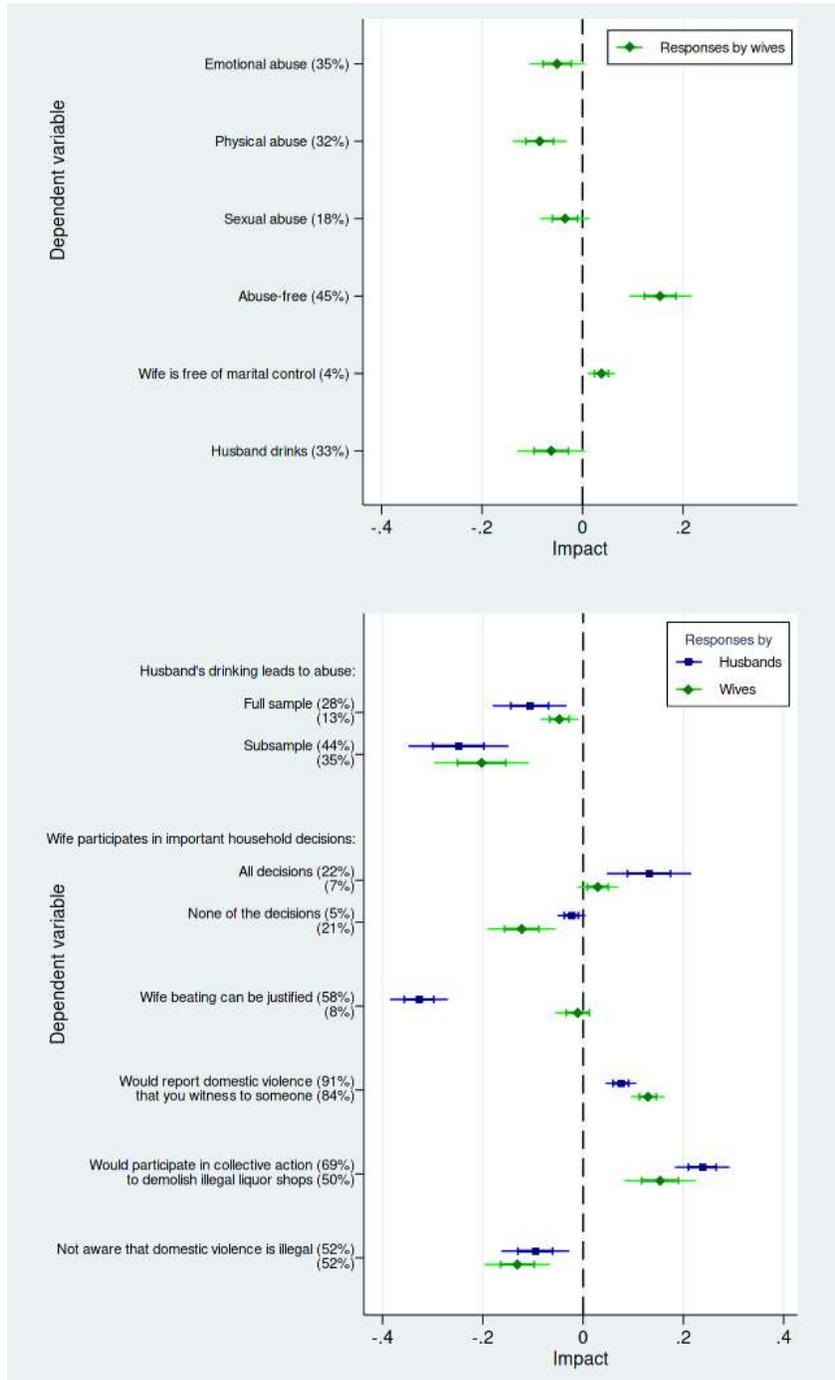
Standard errors are in parentheses. Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

Data source: Census of India, 1991 and 2011

**Figure 1. Administrative areas of the survey.** The highlighted areas show (A) the district of South 24 Parganas, (B) control and treatment blocks of South 24 Parganas, and (C) control and treatment villages.

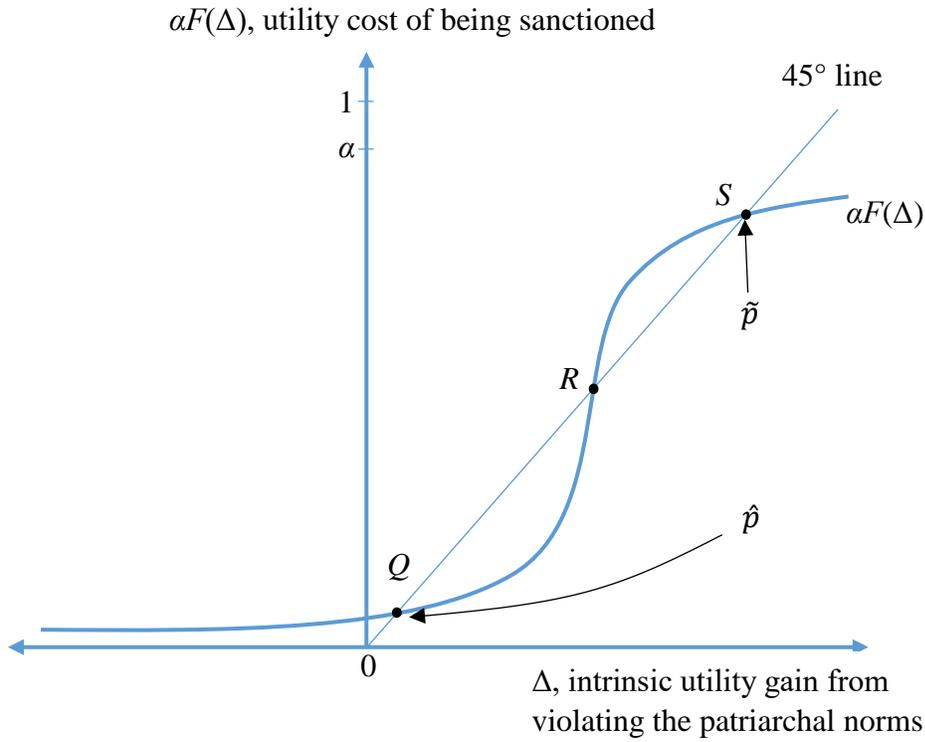


**Figure 2. Summary of the impact of village exposure to JS on spousal abuse, wife’s voice, and the acceptability of wife beating**

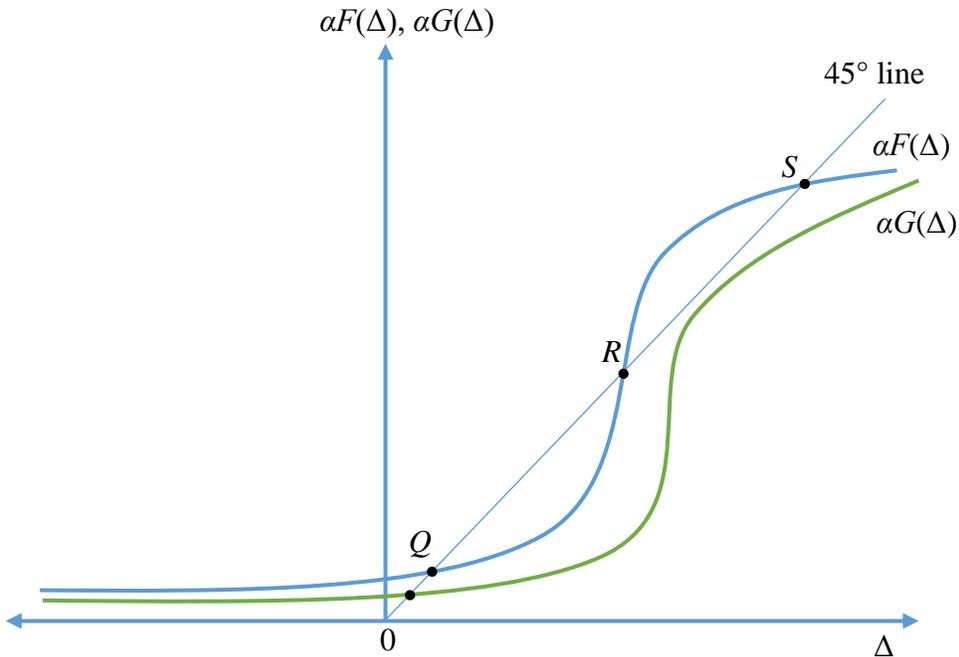


*Notes:* 95% confidence intervals (light lines) surround the estimated point estimates for the outcomes. Thicker lines between the vertical bars represent  $\pm 1$  standard error. The numbers in parentheses adjacent to a dependent variable are the proportions of respondents in the control group who indicate that the dependent variable holds true for them.

**Figure 3. Impulses  $\hat{p}$  and  $\tilde{p}$  against sanctioning violators of the patriarchal norms, and the introspective equilibria to which they converge**



**Figure 4. A shift in preferences away from patriarchy**



# ONLINE APPENDIX

## CONTENTS

<b>Synopsis of three JS plays</b>	<b>2</b>
<i>Shonar Meye</i> (Golden Girl)	2
<i>Ekti Meyer Kahini</i> (Story of a Girl)	3
<i>Hay Re Mod</i> (The Curse of Alcohol)	4
<b>Sampling Procedure</b>	<b>5</b>
<b>Online Appendix Table 1. Percentage of women who believe that wife beating can be justified, and percentage of women who have suffered intimate partner violence, selected countries, 2019</b>	<b>6</b>
<b>Online Appendix Table 2. Endogenous and exogenous treatment models where the null hypothesis <math>\rho=0</math> is accepted</b>	<b>7</b>
<b>Online Appendix Table 3. Maximum likelihood estimates for physical abuse</b>	<b>8</b>
<b>Online Appendix Table 4. Anderson's sharpened <math>q</math>-values &amp; associated <math>p</math>-values for Tables 3-8</b>	<b>9</b>
<b>Online Appendix Table 5A. Wives' participation in making major household decisions (wives' responses)</b>	<b>10</b>
<b>Online Appendix Table 5B. Wives' participation in making major household decisions (husband's responses)</b>	<b>11</b>

## Synopsis of three JS plays

### *Shonar Meye* (Golden Girl)

*Shonar Meye* addresses the plight of young women in India. It portrays the life of a girl from childhood to adulthood. The writing of *Shonar Meye* was a result of five years of intensive work in remote areas of the Sunderbans in West Bengal. At this time JS conducted theater workshops with many groups of villagers. The play *Shonar Meye* is based on the discussions at these workshops in which individuals shared their experiences of oppression and their daily challenges. Though written almost 15 years ago, it remains an extremely relevant play today.

In the play, Ram *babu* is a middle-class villager who lives with his wife, son, and daughter. Ram *babu* favors his son over his daughter because he believes that his son will look after him and his wife in their old age but his daughter will get married and leave for her in-laws' home. His daughter wants to study but her family will not support her education. The family makes her spend most of her time on daily household chores.

Before marriage, prospective in-laws inspect the girl to check whether she is physically suitable to marry their son. The girl passes the inspection, and Ram *babu* arranges for his daughter to marry the handsome son of a well-to-do family. The groom's family demand a dowry of 10,000 rupees and 110 grams of gold. They ask Ram *babu* to arrange the dowry by the time of the marriage.

Ram *babu* decides to sell off his land and take a bank loan for the marriage, but fails to pay the dowry by the time of the marriage. The groom's father threatens Ram *babu* and his family that they will not be able to see their daughter again until he satisfies all their demands. The daughter faces the wrath of her husband's parents because of her father's inability to meet the dowry demands. She has to work very hard. If she makes even a small mistake, she is beaten. The play ends when the oppressed character confronts her oppressors.

### ***Ekti Meyer Kahini (Story of a Girl)***

This is another play that depicts the different stages in the lives of women: the period before marriage, the arrangement of the marriage, and life after marriage. The first part of the play highlights gender inequality. The protagonist, Sankari, is a teenage daughter of a poor agricultural worker. She has an elder brother who is married. Sankari wants to study, but because of her family's poverty she is unable to do so. Her brother and sister-in-law want her to get married and leave for her in-laws' house as soon as possible.

The second part of the play showcases dowry-related problems and the lack of choice that Sankari has about when and whom to marry. Sankari's father pays a hefty dowry at the time of her marriage.

The last part of the play focuses on the ill effects of early marriage on young girls (13-14 years old) and how the central characters of the family into which a young girl marries (the mother-in-law and husband) become tools of oppression. As punishment for mistakes she made doing household chores, Sankari is sent back to her natal family to bring money to meet the medical expenses incurred by her in-laws when she fell sick. At her father's house, the situation is no better for Sankari: her brother and sister-in-law harass her and put pressure on her father and on her to go back to her in-laws' house. Sankari knows that if she returns to her husband's home without the money her in-laws demand, she will be killed. The play ends as she sees her dilemma – whether to return to her husband's home or stay at her father's home and try and earn a living for herself.

### ***Hay Re Mod (The Curse of Alcohol)***

In early 2005, JS organized a sit-in protest against the illegal production and sale of liquor in the region in West Bengal where the teams perform. Villagers blocked the main highway that connects Kolkata to the Sundarbans. This was the start of an anti-liquor campaign. There is a strong nexus between politicians, illegal liquor shop owners, local government officials, and the police. As Prasad Sarkar, one of the protesters, explained the cause of the protest in this indictment of the police: “You are spineless policemen. You find our work illegal [*i.e.*, blocking the highway], and you don’t notice (*chokhe pore na*) the illegal production of liquor because it is in your self-interest” (Da Costa 2010). Women and adolescent children bear the brunt of the consequences of alcohol abuse in increased domestic violence and children forced to drop out of school due to the shortage of funds.

The play *Hay Re Mod (The Curse of Alcohol)* presents these problems in the narrative of a woman named Naina. She has two school-going sons and two married brothers-in-law. Naina’s husband is a drunkard. Her husband spends all his earnings on alcohol and contributes nothing to run the household or to buy books and school supplies for their sons. From time to time, she has to borrow from her neighbors and do odd jobs outside her home to support the household. When Naina asks him for money, he becomes violent and mercilessly beats her. Naina complains to the head of the village government (the *Panchayat*). She even goes to the police station to register a complaint. Naina laments that the police “take bribes behind the scenes (*pechon theke ghoosh*), that is why they cannot find a solution to our problems” (Da Costa 2010). The husband’s brothers, too, plead with him to stop drinking, but their efforts fail. The play ends with the brothers’ moving out of the house and Naina’s taking her husband to a barely functional rural hospital to get him treated for nausea, abdominal pain, and dizziness – all effects of consuming illicit liquor.

## Sampling Procedure

To select a sample of married women between 18 and 49 years, we use stratified random sampling:

- From each of the three control blocks and three treatment blocks, we randomly sampled between 1 and 7 *Gram Panchayats* (GPs).
- From each control GP, we sampled census villages with probabilities proportional to the 1991 population.
- From each treated GP, we randomly sampled census villages from a list provided by JS of the villages where it regularly performs.
- From each census village, we randomly sampled either one or two polling booths from the 2014 electoral list.
- From each electoral list for each selected polling booth, we randomly sampled, in the control villages, 15-35 households and, in the treatment villages, 20 households from the active area (electoral booth where plays were performed) and 15 households from the inactive area (where plays were not performed). We used the electoral list because a voting card is a proof of identity held by most residents of at least 18 years of age (the minimum voting age in India).

**Online Appendix Table 1. Percentage of women who believe that wife beating can be justified, and percentage of women who have suffered intimate partner violence, selected countries, 2019**

<i>Countries</i>	<i>Percentage of women who consider a husband justified in hitting or beating his wife for at least one specified reason*</i>	<i>Percentage of women who have suffered violence from an intimate partner</i>
Guinea	92	80
Afghanistan	80	61
Ethiopia	63	28
Uganda	58	50
Côte d'Ivoire	48	26
Peru	32	33
India	22	29
Ukraine	3	13
<b>Median values</b>		
Low-income countries	58	35
Lower middle-income countries	33	27
Upper middle-income countries	18	24
High-income countries	9	20

\* The survey specifies five possible reasons: the wife burns the food, argues with her husband, goes out without telling him, neglects the children, or refuses sexual relations with him.

*Source:* Authors' calculations from *OECD Gender, Institutions, and Development Database 2019*.

**Online Appendix Table 2. Endogenous and exogenous treatment models where the null hypothesis  $\rho=0$  is accepted**

<i>Dependent variable</i>	<i>Endogenous treatment</i>	<i>Exogenous treatment</i>
Emotional abuse	-0.0505* (0.028)	-0.0764*** (0.022)
Physical abuse	-0.0852*** (0.027)	-0.0491*** (0.019)
Sexual abuse	-0.0349 (0.025)	-0.0283 (0.018)
Abuse-free	0.1545*** (0.032)	0.1144*** (0.022)
Whether husband drinks (wives' responses)	-0.0624* (0.034)	-0.0194 (0.021)
Verbal or physical abuse due to husband's drinking (husbands' responses) Full sample	-0.1064*** (0.038)	-0.1016*** (0.024)
Verbal or physical abuse due to husband's drinking (wives' responses) Subsample	-0.2024*** (0.048)	-0.1643*** (0.033)
Verbal or physical abuse due to husband's drinking (husbands' responses) Subsample	-0.2487*** (0.051)	-0.2447*** (0.027)
Participates in all major decisions (wives' responses)	0.0294 (0.021)	0.0616*** (0.014)
Participates in all major decisions (husbands' responses)	0.1314*** (0.043)	0.0892*** (0.027)
Participates in no major decisions (wives' responses)	-0.1225*** (0.034)	-0.0812*** (0.019)
Participates in no major decisions (husbands' responses)	0.0234 (0.014)	-0.0153 (0.011)
Wife beating can be justified (wives' responses)	-0.0107 (0.023)	0.0035 (0.016)
Wife beating can be justified (husbands' responses)	-0.3272*** (0.029)	-0.2895*** (0.021)
Would report to someone acts of domestic violence he/she witnesses (wives' responses)	0.1294*** (0.017)	0.1085*** (0.012)
Would report to someone acts of domestic violence he/she witnesses (husbands' responses)	0.0754*** (0.016)	0.0623*** (0.010)
Would help demolish an illegal liquor shop (wives' responses)	0.1536*** (0.037)	0.1636*** (0.023)
Would help demolish an illegal liquor shop (husbands' responses)	0.2378*** (0.028)	0.1864*** (0.015)
Lack of awareness of legal protections for victims of domestic violence (wives' responses)	-0.1311*** (0.033)	-0.1210*** (0.019)
Lack of awareness of legal protections for victims of domestic violence (husbands' responses)	-0.0953*** (0.035)	-0.0552** (0.027)

Standard errors in parentheses; Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Online Appendix Table 3. Maximum Likelihood Estimates for Physical Abuse**

<i>Equation 4</i>	Coeff. est.	Std. err.	<i>p</i> -value
Household size	-0.0173	0.013	0.188
Scheduled Caste or Tribe household (dummy)	0.0991	0.055	0.073
Age of household head	-0.0483	0.014	0.000
Age <sup>2</sup> of household head	0.0004	0.000	0.008
Head of household is illiterate (dummy)	0.0653	0.074	0.378
Females above age 30 years are illiterate (dummy)	0.0119	0.061	0.845
Male to female ratio in the household	-0.0326	0.054	0.543
Whether respondent can read? (dummy)	-0.2768	0.066	0.000
Whether respondent reads a newspaper? (dummy)	-0.1996	0.081	0.014
Whether respondent listens to the radio? (dummy)	0.1329	0.063	0.036
Whether respondent watches television? (dummy)	0.0389	0.046	0.402
Whether household's religion is Hinduism? (dummy)	-0.2938	0.068	0.000
Distance of the booth to district headquarters	0.2118	0.103	0.039
Distance of booth to block headquarters	0.0644	0.039	0.097
Distance of booth to <i>GP</i> headquarters	0.1335	0.041	0.001
Village exposure to <i>JS</i>	-0.2667	0.086	0.002
Constant	-0.0022	0.525	0.997
<i>Equation 5</i>	Coeff. est.	Std. err.	<i>p</i> -value
Proportion of Scheduled Caste/Tribe households in village	-1.5475	0.188	0.000
Distance to nearest town from village	0.02334	0.009	0.007
Square of distance to nearest town	0.0004	0.000	0.000
Whether village had a pucca road?	-1.5553	0.117	0.000
Whether village had a secondary school?	0.7083	0.080	0.000
Whether village had access to a medical facility?	1.3098	0.103	0.000
Whether village has access to roadways?	-0.3972	0.094	0.000
Whether village had access to post and telegraph facility?	-0.3175	0.089	0.000
Whether village had power facilities?	0.4971	0.141	0.000
Correlation (error.eq 4, error.eq 5)	0.1157	0.073	0.113

No. of observations: 3443; Replications: 50; Wald chi-square (16 d.f.): 168.47.

**Online Appendix Table 4. Anderson’s sharpened *q*-values & associated *p*-values for Tables 3-8**

<i>Dependent variable</i>	<i>p</i> -value	Sharpened <i>q</i> -value
<b><i>Wives’ responses</i></b>		
Emotional abuse	0.072*	0.046**
Physical abuse	0.002***	0.003***
Sexual abuse	0.166	0.075*
Abuse-free	0.000***	0.001***
Freedom from marital control	0.014**	0.015**
Verbal, physical abuse due to husband’s drinking	0.028**	0.026**
Husband drinks	0.068*	0.046**
Participates in all major household decisions	0.156	0.075*
Participates in no major household decisions	0.000***	0.001***
Attitudes toward wife beating	0.643	0.175
Report acts of domestic violence he/she witnesses	0.000***	0.001***
Would help demolish an illegal liquor shop	0.000***	0.001***
No awareness of laws	0.000***	0.001***
<b><i>Husbands’ responses</i></b>		
Verbal or physical abuse due to husband’s drinking	0.005***	0.004***
Participates in all major household decisions	0.002***	0.003***
Participates in no major household decisions	0.100*	0.015**
Attitudes toward wife beating	0.000***	0.001***
Report acts of domestic violence he/she witnesses	0.000***	0.001***
Would help demolish an illegal liquor shop	0.000***	0.001***
No awareness of laws	0.006***	0.004***

Sharpened *q*-values are based on Anderson (2008). Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Online Appendix Table 5A. Wives' participation in making major household decisions (wives' responses)**

<i>Dependent variable</i>	<i>Looking after children's education &amp; family health</i>	<i>Purchase of major household items</i>	<i>Visiting relatives</i>	<i>Children's marriages</i>	<i>Number of children to bear</i>	<i>Use of contraceptives</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Living in a village exposed to JS	0.0811* (0.043)	0.0542 (0.039)	0.1370*** (0.033)	0.0843* (0.044)	0.1176*** (0.036)	0.1502*** (0.042)
Mean of control group	0.4940 (0.023)	0.3846 (0.018)	0.2082 (0.015)	0.5447 (0.021)	0.4592 (0.016)	0.2901 (0.019)
Log-likelihood	-2613	-2561	-2218	-2593	-2612	-2503
<i>N</i>	2997	2997	2997	2997	2997	2997
Corr. between errors of the outcome & assignment eqns	0.0138 (0.089)	0.1089 (0.071)	0.0707 (0.082)	0.0323 (0.098)	-0.1016 (0.069)	-0.0270 (0.085)

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Online Appendix Table 5B. Wives' participation in making major household decisions (husband's responses)**

<i>Dependent variable</i>	<i>Looking after children's education &amp; family health</i>	<i>Purchase of major household items</i>	<i>Visiting relatives</i>	<i>Children's marriages</i>	<i>Number of children to bear</i>	<i>Use of contraceptives</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Living in a village exposed to JS	0.1325*** (0.048)	0.1144** (0.047)	0.1454*** (0.043)	0.0804*** (0.028)	0.0874*** (0.030)	0.0985*** (0.027)
Mean of control group	0.4928 (0.025)	0.4403 (0.022)	0.4457 (0.019)	0.7768 (0.018)	0.8257 (0.019)	0.8364 (0.018)
Log-likelihood	-2221	-2279	-2254	-1745	-1522	-1418
<i>N</i>	2632	2632	2632	2632	2632	2632
Corr. between errors of the outcome & assignment eqns	0.0926 (0.091)	-0.1020 (0.090)	-0.1062 (0.810)	0.0183 (0.077)	-0.0417 (0.089)	-0.1188 (0.091)

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.

**Table 6. Impact of JS on behavior and awareness of legal protections, disaggregated by household head’s level of education (wives’ responses)**

A: Household head has no formal education

B: Household head has formal education upto primary school

C: Household head has formal education beyond primary school

	<i>Abuse-free</i>	<i>No joint decisions</i>	<i>Lack of awareness of legal protections for victims of domestic violence</i>
Difference between A & B ( <i>p</i> -value)	0.6166	0.5374	0.1947
Difference between A & C ( <i>p</i> -value)	0.5980	0.3058	0.1020
Difference between B & C ( <i>p</i> -value)	0.1896	0.0258**	0.5646

Levels of significance: \* 10%; \*\* 5%; \*\*\* 1%.