

## **THE POWER OF NARRATIVE PERSUASION: HOW AN ENTERTAINMENT-EDUCATION SERIAL DRAMA TACKLED OPEN DEFECATION AND PROMOTED CONTRACEPTIVE USE IN INDIA**

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## **Abstract**

Television and radio serial dramas have been used as an effective entertainment-education (EE) strategy to address complex health and social issues around the world. In this article, we analyse India's experience with the EE television serial, *Main Kuch Bhi Kar Sakti Hoon* Season 3 (*I, A Woman, Can Achieve Anything*, hereafter *MKBKSH-3*), broadcasted in 2019. Produced by Population Foundation of India, *MKBKSH-3* purposely employed principles of narrative persuasion to tackle open defecation, promote contraceptive use, and advocate for gender equality in a deeply entrenched patriarchal system. As part of a larger programme evaluation, we conducted data collection using two complementary methods: (1) field experiments in Uttar Pradesh's Kanpur Dehat district with repeated measures among viewers and non-viewers; and (2) viewer surveys through the popular interactive voice response system with callers from across 28 states and union territories. Wherever possible, we kept questions consistent to help triangulate research findings. Our results indicate a significant increase in toilet ownership and decrease in open defecation among *MKBKSH-3* viewers. Further, *MKBKSH-3*'s characters and storylines helped raise awareness of injectable contraceptives, and viewers—both male and female—displayed an increased likelihood of moving toward adopting contraceptives that were promoted. These empirical findings add to the growing literature on the value of entertainment-education serial dramas as enabling media for social and behaviour change.

**Keywords:** entertainment-education, serial drama, India, open defecation, toilet use, modern contraceptive use

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## Introduction

Entertainment-education (EE) is a social and behaviour change communication strategy that leverages the power of engaged storytelling. Drawing upon social science and humanistic theories in different disciplines, EE brings together deliberate intention with a collaborative process of content production, programme implementation, monitoring, and evaluation in order to create enabling conditions for desirable and sustainable change (Wang & Singhal, in press). As the British writer Gilbert Keith Chesterton pointed out, “Fairy tales are more than true: not because they tell us that dragons exist, but because they tell us that dragons can be beaten” (Chesterton in Medley 2012, p. 1). Chesterton’s brilliant metaphor and allegory distil the essence of EE: the power to attract our attention, spark our imagination, and paint new scenarios of hope; the power to experience vicarious struggles and epic wins; the power to demonstrate how “monsters” – whether personal or societal – can be vanquished (Singhal, 2013).

## EE Around the Globe and in India

For more than half a century now, the EE strategy has served communities around the globe, showing the possibilities of overcoming “monsters” such as HIV/AIDS, cancer, gender-based violence, and post-genocide group prejudice (e.g., Murphy et al., 2015; Paluck, 2009; Singhal, Cody, Sabido, & Rogers, 2004; Singhal & Rogers, 1999; Sood et al., 2017). In its early decades, radio and television serial dramas were the common vehicles for EE fare (Singhal & Rogers, 1999; Singhal, Wang, & Rogers, 2013). Serial dramas with their long-running storyline offer several advantages. Across multiple episodes, intersecting plotlines make the treatment of complex health and social issues possible in both breadth and depth, while engaging the audience to observe, contemplate, articulate, and to act. The narrative may be fictional, but the dramatic twists and turns can allow the creative writers to both ground the story and demonstrate the power of new ideas, practices, and solutions. Relatable characters have the potential to speak to the audience in ways that engage them cognitively and emotionally over time. These messages can further be reinforced on different media, creating multiple points of convergence and reinforcement. Prior research on EE have shown that such programs can raise awareness, increase knowledge, promote favourable attitudes, shift social norms, and even change behaviours (Lacayo & Singhal, 2008; Singhal, Cody et al., 2004; Singhal & Rogers, 1999; Sood et al, 2017; Storey & Sood, 2013).

India has been the playground for implementing various EE projects over the past four decades. At the core of these efforts are the running themes of gender equality, sexual and reproductive health (SRH), and family planning. *Hum Log (We People)*, comprising of 156 episodes, was the first indigenous serial drama on India’s national television—broadcasted in 1984-1985 (Singhal & Rogers, 1988; 1999). Other well-researched EE initiatives in India include radio serial dramas, *Tinka Tinka Sukh* (Happiness Lies in Small Pleasures) in 1996-1997 and *Taru* in 2002-2003 (Duff, Singhal, & Witte, 2005; Law & Singhal, 1999; Papa, Singhal et al., 2000; Singhal et al., 2006; Singhal, Sharma, Papa, & Witte, 2004); and Season 1 and 2 of *Main Kuch Bhi Kar Sakti Hoon (I, A Woman, Can Achieve Anything*, hereafter *MKBKSH*) (Wang & Singhal, 2018). This article investigates the enabling social and behavioural effects of *MKBKSH-3* in the area of sanitation, hygiene, and family planning.

### *Main Kuch Bhi Kar Sakti Hoon*

*Main Kuch Bhi Kar Sakti Hoon (MKBKSH)* was an EE initiative launched by the Population Foundation of India on International Women’s Day on March 8, 2014. It challenged entrenched regressive gender norms and advocates for women’s empowerment through positive role modelling of its protagonist, Dr. Sneha. Sneha, a successful city-based medical doctor, returned to her home village of Pratappur after her sister’s death from a forced sex-selective abortion. She decided to stay on in Pratappur to tackle head-on the multiple social ills—sex selection in favour of male offspring, child marriage, violence against women, and multiple manifestations of entrenched gender inequality. *MKBKSH* exemplified a collaborative partnership among various individuals

and institutions under the leadership at Population Foundation of India—an organization with a long-standing and profound understanding of the issues at stake (Muttreja & Singh, 2018), complemented with a creative team led by the highly-respected, award-winning writer-producer-director Feroz Abbas Khan, and a network of other partners.

Through *MKBKSH*, Population Foundation of India adopted a 360-degree approach to reach mass audiences in India across various media platforms: Three seasons of *MKBKSH*, containing a total of 183 episodes, were broadcasted on Doordarshan (DD-1) from March to October 2014 (Season 1), April 2015 to January 2016 (Season 2), and January to September 2019 (Season 3). They were subsequently re-telecast in Hindi and dubbed in at least a dozen regional languages on DD National, DD regional Kendras, and DD India across 50 countries. Season 1 and 2 were also adapted for broadcast on 216 All India Radio stations, mobile vaani (mobile voice) networks, and community radio stations to reach “media dark” rural areas. *MKBKSH* garnered millions of audience members in its first two seasons with research reports indicating shifts in knowledge and attitudes. It was also arguably the first EE programme to ever use an interactive voice response system (IVRS) to engage audience members at scale and in real time, with a mind-boggling 1.7 million calls in Season 1 and 2 from 390,000 unique numbers across 29 states of India, enabling women, youth, and the less privileged to access and interact with curated content, answer questions, and share personal opinions and actions (Wang & Singhal, 2018).

Further, the *MKBKSH* story world was supplemented with a series of mini documentaries titled “Reel to Real” documenting Dr. Sneha visiting real communities where the impact of *MKBKSH* was profound. Other *MKBKSH* miniseries, *Kishor Ka Shor* (The Voice of Youth) and *Satya Ki Adalat* (The Truth Court) were carved out of *MKBKSH*'s television content, extending the storyline on *MKBKSH*'s Facebook page and YouTube channel. In *MKBKSH-3*, an AI-powered chatbot called *Snehai* (for Sneha AI) was introduced on the *MKBKSH* Facebook page via the Messenger app. This chatbot helped create a safe, non-judgmental, and private platform for India's youth to seek information on sexual and reproductive health.

*MKBKSH-3* had 52 episodes, dealing with multiple cross-cutting plots and themes. As part of a larger programme evaluation, this investigation focuses on two of the most prominent issues addressed in Season 3— (1) ending open defecation, and (2) adoption of family planning and contraception.

Ending open defecation has been identified as a global priority for reducing inequalities in sanitation and hygiene and it is closely associated with the United Nations' Sustainable Development Goals. Despite the progress in recent years, at least half of the population in India (1.2 billion people) still routinely defecate outdoors (Census Organization of India, 2011; Doron & Jeffery, 2014). Having a toilet is a complex challenge for millions of the households (Ghosh & Cairncross, 2013; Hossain & Howard, 2014). Therefore, the first 26 episodes focused on sanitation and hygiene, especially open defecation and toilet use.

Family planning and contraception are one of the most cost-effective ways to promote gender equality, improve long-term health, and ultimately reduce extreme poverty and economic disparities, directly and indirectly achieving multiple Sustainable Development Goals (Starbird, Norton, & Marcus, 2016). According to India's National Family Health Survey/NFHS-4, 2015-2016, among currently married women age 15-49 years old, the unmet need for family planning was 12.9 per cent and self-reported contraceptive use were: 53.5 per cent any method, 47.8 per cent any modern method, 36.0 per cent female sterilization, 5.6 per cent male condom, 4.1 per cent oral contraceptive pills, 3.5 per cent rhythm, 2.3 per cent withdrawal, and 1.5 per cent IUD/PPIUD, 0.3 per cent male sterilization/vasectomy, 0.2 per cent injectables, 0.1 per cent long-acting methods, and less than 0.1 per cent for female condom (International Institute for Population Sciences and ICF, 2017). Therefore, the latter 26 episodes of *MKBKSH-3* focused on SRH and family planning, especially modern contraceptive use.

Several new characters were introduced in *MKBKSH-3*, including Panna, a young woman who is molested when she goes to the field to defecate on account of not having a toilet at home. Her molestation, recovery from trauma, and courageous journey to become the village Accredited Social Health Activist-ASHA (frontline health worker) undergirds, in part, the plot of Season 3, bringing into sharp focus the importance of building and using toilets to reduce open defecation and disease. Encouraged and supported by Dr. Sneha, and finding the agency and efficacy to make her life count, Panna becomes the village ASHA, providing young people information on otherwise taboo topics related to SRH and promoting contraception use. Specific plots

and new characters were used in Season 3 to feature four modern contraceptive methods: male condom, vasectomy, oral contraceptive pills, and injectables.

Our programme evaluation centred around the following research questions:

RQ1: Did watching *MKBKSH-3* inspire any positive change among the viewers?

RQ2: What type of change, if any, took place over the course of *MKBKSH-3* broadcast?

## **Methods**

### **Field Experiments**

EE programme evaluations have relied heavily on audience reception surveys and been criticised for participants' self-selection bias (Sherry, 1997). In the past 25 years, scholars and practitioners have made extra efforts to secure resource and conduct assessments using more rigorous designs such as field experiments (e.g., Banerjee et al., 2019; Paluck, 2009; Vaughan, et al., 2000). A recent meta-analysis on the use of EE narratives to promote safer sexual behaviours of youth from 1985 to 2017 found only 10 qualified publications using either a full or a quasi-experimental design (Orozco-Olvera et al., 2019). In our research design of *MKBKSH* Season 3 programme evaluation, it was crucial to include an experimental component in order to better understand how the exposure to the storylines and the underlying educational themes made any difference among the audience as compared to those without any exposure. In addition, by visiting the same participants more than once, we hoped to track any individual changes over time.

#### ***Field Experiment Procedures***

Uttar Pradesh (UP) is India's most populous state with a population of 200 million (Census Organization of India, 2011) with a total fertility rate of 3.1 and 39.8 per cent self-reported modern contraceptive use among currently married women age 15-49 (significantly below the national average of 51.2 per cent), according to the National Family Health Survey/NFHS-4, 2015-2016 (International Institute for Population Sciences and ICF, 2017). We selected the villages of Kanpur Dehat in UP as the site for field experiments because its residents represented the characteristics of *MKBKSH-3*'s target audience with respect to both the theme of open defecation and contraceptive use. Working closely with our local NGO partner, Shramik Bharati, 13 representative villages were identified in Kanpur Dehat district to establish the viewer group and 10 villages for the non-viewer group. We ensured that the non-viewing respondents were outside the broadcast area of the community radio station, *Waqt Ki Awaaz*, which previously had broadcasted the radio versions of *MKBKSH* Season 1 and 2.

Based on guidelines provided by us with respect to gender and marital status and support from Shramik Bharati, field researchers at our data collection partner, Centre for Media Studies (CMS), crafted a recruitment instrument to identify viewers and non-viewers at baseline T1. This recruitment instrument took into account potential participants' ownership of television sets, availability of the Doordarshan channel DD-1 on which *MKBKSH* was broadcasted, their viewing habits with respect to television serials, and a reasonable availability of power supply as power outages in rural India is common. Informed consent was taken from all the study participants in each round and, in case of minors (< 18 years old), consent from their parents along with the participants' assent was taken, before administering the survey instrument. After T1 data collection, random experimental manipulation checks carried out by CMS and Shramik Bharati ensured that the non-viewers did not have any exposure of *MKBKSH* Season 3. Viewing sessions were held with the designated villagers in the viewer group so they were exposed to all of the key plots and messages regarding open defecation and toilet use before T2 data collection. Similarly, manipulation checks post T2 validated the non-exposure for villagers in the designated non-viewer group, and viewing sessions were organised to ensure that adequate villagers in the designated viewer group had exposure to all of the key plots and messages regarding family planning and contraceptive options. Therefore, T1 served as the pre-test for the first half of *MKBKSH* Season 3 featuring the theme of sanitation and gender equality; T2 served as the post-test on sanitation-related assessments and pre-test for the second half of *MKBKSH* Season 3 featuring the theme of family planning and gender equality; T3 served as the follow-up on selected sanitation-related questions and post-test on family planning related assessments (see more details in Wang & Singhal, in press).

### **Field Experiment Participants**

A total of 514 residents in Kanpur Dehat, UP, participated in at least one if not all three in-person field surveys administered by CMS in January (T1), June (T2), and November (T3), 2019: T1 had 332 participants, T2 had 442 participants, and T3 had 421 participants. Of the 332 T1 participants, 54.8 per cent were in the viewer group and 45.2 per cent were in the non-viewer group; 47.3 per cent were male and 52.7 per cent were female; 68.9 per cent had a toilet at home and 31.1 per cent did not. There were no significant differences in demographic characteristics between the viewer group and the non-viewer group.

For repeated measures on open defecation and toilet use, we obtained answers from 248 participants at T1, T2, and T3. The overall attrition rate from T1 to T3 was 25.3 per cent, with 28.2 per cent for the viewer group and 22.0 per cent for the non-viewer group. Of these 248 participants, 52.8 per cent were in the viewer group and 47.2 per cent were in the non-viewer group; 47.2 per cent were male and 52.8 per cent were female; their age ranged from 15 to 29 years old,  $M = 20.84$ ,  $SD = 4.40$ ; 66.5 per cent were single and 33.5 per cent were currently married, divorced, or widowed; 41.5 per cent were students, 23.8 per cent were home makers, another 26.6 per cent were spread across different occupations such as farming, agricultural and non-agricultural labour, skilled workers, business, and service; and 8.1 per cent were not employed.

For repeated measures on SRH, contraceptive options, and family planning, we obtained answers from 421 participants at T2 and T3. The overall attrition rate was 4.8 per cent, with 6.3 per cent for the viewer group and 2.3 per cent for the non-viewer group. Of these 421 participants, 59.9 per cent were in the viewer group and 40.1 per cent were in the non-viewer group; 47.7 per cent were male and 52.3 per cent were female; their age ranged from 14 to 41 years old,  $M = 22.68$ ,  $SD = 5.59$ ; 48.0 per cent were currently married and 52.0 per cent were not; 62.3 per cent did not have children and 37.7 per cent had children (14.7 per cent had one child, 14.0 per cent had two, and 9.0 per cent had three or more children); 34.2 per cent were students, 27.8 per cent were home makers, another 31.4 per cent were spread across different occupations such as farming, agricultural and non-agricultural labour, skilled workers, business, and service; and 6.6 per cent were not employed.

### **Field Experiment Measures**

The repeated measures about open defecation and toilet use at T1, T2, and T3 included the following three questions: “In the last three months, where did *you* go for defecation mostly?” (1 = *own toilet*, 2 = *community toilet*, 3 = *neighbour’s toilet*, 4 = *relative’s toilet*, 5 = *field*), “Does your household have a toilet within the premises?” (yes/no); “In the last three months, how regularly have you been using the toilet?” (1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *always*). At T1 baseline, we also asked questions such as “What percentage of household in your village have a toilet at home?” “What type of toilet facility does your household have?” “When was the toilet built?” “In the last three months, where did *your family members* go for defecation mostly?” “What are the reasons for *you/your family* to go out in the field for defecation?” To cross validate self-reported data collected from the villagers, we included several observational questions based on the measures recommended by 3ie (3ieimpact.org) and its Promoting Latrine Use in Rural India Evidence Programme (Srinivasan et al., 2019). These additional self-reported and observational questions provided contextual insights to the three main questions, but they were not repeated at T2 or T3.

The repeated measures about contraceptive options and family planning at T2 and T3 included the following questions: “How helpful is it for young people like you to have regular counselling with frontline health workers about sexual and reproductive health?” (1 = *not helpful*, 2 = *somewhat helpful*, 3 = *very helpful*); “Have you heard of male condom/ vasectomy/ pills/ injectable?” (yes/no) and “How likely are you/your spouse to use it for family planning in the future?” (1 = *not at all likely*, 2 = *not likely*, 3 = *can’t say*, 4 = *somewhat likely*, 5 = *very likely*, 6 = *already using it now*).

### **IVRS Viewer Surveys**

The interactive voice response system (IVRS) is a popular information system in India that leverages its vast mobile telephony infrastructure to reach rural residents, empower local communities, and enable pro-social actions. Unlike conventional viewer surveys conducted in person, online, or through computer-assisted telephone interviewing, the IVRS allows for large-scale and real-time engagement with the audience. In 2014,

PFI collaborated with an innovative technology company Gram Vaani and pioneered the use of IVRS for audience engagement and programme monitoring during *MKBKSH* Season 1 and 2 (Wang & Singhal, 2018). Building on prior experience, we took advantage of the IVRS to collect data from viewers across the country for Season 3 as well.

### ***IVRS Viewer Survey Procedures***

Similar to previous seasons, a toll-free number was advertised during the *MKBKSH* Season 3 broadcast that audience members could give a “missed” call to receive a free callback and participate in different activities. Callers could provide feedback by pressing numeric keys and recording voice messages. This helped us collect log data on the calls as well as caller-centred information based on the type of their participation. Although these callers were by no means representative of the *MKBKSH* general audience, their unfiltered responses offered us authentic and invaluable insights.

Two sets of viewer survey questionnaires were implemented: Survey 1A ( $N = 3,417$ ) focused on open defecation and toilet use with data collection from February 4 to June 7, 2019; and Survey 2A ( $N = 3,760$ ) focused on SRH, contraceptive options, and family planning with data collection from June 8 to July 30, 2019. Among the IVRS callers who indicated their geographic location, the survey participants came from 28 states and union territories, including UP where the field experiments were conducted. Therefore, the triangulation of IVRS viewer survey results with the field experiments in Kanpur Dehat, UP would help enhance the external validity of our research findings.

### ***IVRS Viewer Survey Respondents***

Data were collected from a total of 3417 IVRS survey respondents. The response rate was 98.6 per cent and completion rate was 82.7 per cent. They were divided into two groups: Group A ( $N = 2,076$ ) answered questions during the first half of *MKBKSH* Season 3 broadcasting from February through April while Group B ( $N = 1,341$ ) answered the same questions in May and June after the sanitation storylines *MKBKSH-3* ended its broadcast. Their key demographic characteristics are summarized in Table 1.

**Table 1: Demographic Characteristics of Respondents to IVRS Survey 1A**

Demographics	Overall	Group A	Group B
Male	53.3%	51.1%	56.8%
Female	46.7%	48.9%	43.2%
14 or younger	29.3%	30.4%	27.6%
15-24 years old	48.4%	47.3%	50.3%
25-34 years old	13.1%	12.8%	13.6%
35 and older	9.1%	9.5%	8.5%

Data were collected from a total of 3,760 IVRS survey respondents. The response rate was 22.2 per cent and completion rate was 38.9 per cent. They were divided into two groups: Group A ( $N = 1,510$ ) answered questions when the second half of *MKBKSH-3* featuring family planning began broadcasting in June and July while Group B ( $N = 2,250$ ) answered the same questions in October five weeks after *MKBKSH-3* ended its broadcast. Their key demographic characteristics are summarized in Table 2.

**Table 2: Demographic Characteristics of Respondents to IVRS Survey 2A**

Demographics	Overall	Group A	Group B
Male	66.7%	60.0%	72.5%
Female	33.3%	40.0%	27.5%
14 or younger	16.0%	20.9%	11.6%
15-24 years old	43.8%	51.0%	37.3%
25-34 years old	21.5%	17.6%	25.0%
35 and older	18.7%	10.6%	26.0%
Single	56.7%	66.9%	46.8%
Married	40.9%	31.6%	49.8%
Divorced/Widowed	2.5%	1.5%	3.4%
No children	59.4%	71.4%	47.1%
One child	13.4%	10.1%	16.7%
Two children	14.7%	9.4%	20.1%
Three or more children	12.5%	9.1%	16.0%

## IVRS Viewer Survey Measures

We tried to keep the questions as consistent whenever possible between the IVRS surveys and the field experiment instruments to facilitate results interpretations and triangulation. However, the IVRS had a substantial limitation in terms of the survey length and number of answers. In some cases, we had to reduce the number of options to help with survey response and completion rates. The key questions about open defecation and toilet use were: “Where do *you* go for defecation mostly?” and “Where would *other members of your family* go for defecation mostly?” (1 = *own toilet*, 2 = *community toilet*, 3 = *neighbour or relative’s toilet*, 4 = *field*), “Does your household have a toilet within the premises?” (yes/no); “Who in your family usually use the toilet at your household?” (1 = *women, children, and the elderly*, 2 = *men*, 3 = *everyone*, 4 = *no toilet in the household*) “How regularly do you use the toilet?” (1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *always*), “Who in a family that has a toilet should be responsible for cleaning it?” (1 = *only women*, 2 = *only men*, 3 = *any family member who is available regardless of sex*, 4 = *servant*), “What may benefit an open defecation free village or ward?” (1 = *cleanliness*, 2 = *safeguarding from illness*, 3 = *both*).

The key questions about SRH, contraceptive options, and family planning were: “What is your most important source of information about sexual and reproductive health?” (1 = *frontline health workers/ASHAs*, 2 = *family*, 3 = *friends*, 4 = *online*), “How helpful is it for young people like you to have regular counselling with frontline health workers about sexual and reproductive health?” (1 = *not helpful*, 2 = *somewhat helpful*, 3 = *very helpful*); “How likely are you or your spouse to use condoms/vasectomy/pills/injectables for family planning?” (1 = *not likely*, 2 = *likely*, 3 = *already using it now*).

## Data Analysis

The field experiment data were collected in Hindi through in-person field surveys and manually entered into a computer database by CMS. The viewer survey data were collected in Hindi through the IVRS and shared through MS Excel .csv files by Gram Vaani. We used SPSS V26 for data analysis. Frequency distributions were used for descriptive statistics. Chi-square was used for significance tests of categorical variables (i.e., toilet ownership and defecation behaviour). Non-parametric tests were used for significance tests on ordinal scales (i.e., toilet use, perceptions about regular SRH counselling for youth, likelihood of adopting male condoms, vasectomy, oral contraceptive pills, and injectables). Specifically, Friedman tests were used to compare three repeated measures, Wilcoxon signed-ranks tests were used to compare two related groups, and Mann-Whitney tests were used to compare two independent groups.

## Results

### Field Experiment Results on Toilet Use

Results of our baseline assessment showed that most participants perceived their villages to have a high coverage of toilet ownership (*Range*: 10-99 per cent,  $M = 75.5$  per cent,  $SD = 21.71$ ); 68.7 per cent reported having a toilet at home; among those with a toilet, 96.9 per cent had flush/pour type of toilet connected either to a septic tank or a single/twin pit; over half of their toilets were built within the last four years (*Range*: 1-120 months,  $M = 37.77$ ,  $SD = 24.49$ ); 96.1 per cent of the toilet owners chose “always” using their toilet; 85.1 per cent said women and 65.4 per cent said men in their family cleaned the toilet when given this multiple choice question about toilet cleaning responsibility. However, 33.4 per cent of the T1 participants admitted mostly defecating in the field; they reported the same behavioural tendency for their family members. Among those who reported open defecation, 93.7 per cent said it was because they didn’t have a toilet at home. The observational data collected by having the field researchers inspecting toilets at the participants’ home suggested that a great majority of these participants were using their toilets at home properly: Is the latrine being used for some other purpose? (100 per cent *no*); Is the squatting pan clogged with leaves, dirt, or other materials? (97.8 per cent *no*); Is the water container such as lota or mug for washing after defecation in the latrine? (93.3 per cent *yes*); According to your (enumerator’s) judgement, does the latrine look like it is likely being used? (97.8 per cent *yes*).

Results of our field experiment among villagers showed a significant increase of 16.0 per cent in toilet ownership among the viewers (71.8 per cent at T1, 87.8 per cent at both T2 and T3;  $N = 393$ ,  $\chi^2 = 15.505$ ,  $df$

= 2,  $p < .001$ ) but no significant change in toilet ownership among the non-viewers (61.5 per cent at T1, 62.4 per cent at T2, and 65.0 per cent at T3;  $N = 351$ ,  $\chi^2 = 0.318$ ,  $df = 2$ ,  $p = .853$ ). In addition, there was a significant decrease in self-reported open defecation behaviour among viewers (29.0 per cent at T1, 12.2 per cent at both T2 and T3;  $N = 393$ ,  $\chi^2 = 16.825$ ,  $df = 2$ ,  $p < .001$ ) but no significant change among non-viewers (41.0 per cent at T1, 37.6 per cent at T2, and 35.0 per cent at T3;  $N = 351$ ,  $\chi^2 = 0.896$ ,  $df = 2$ ,  $p = .639$ ). These findings suggest that watching *MKBKSH* Season 3 helped motivate the viewers to build toilets and stop going into the field to defecate.

Results of Friedman tests showed significant differences in self-reported toilet use across T1, T2, and T3 among participants in the viewer group ( $N = 94$ ,  $\chi^2 = 18.500$ ,  $df = 2$ ,  $p < .001$ ) but not among participants in the non-viewer group ( $N = 55$ ,  $\chi^2 = 5.158$ ,  $df = 2$ ,  $p = .076$ ). Post hoc Wilcoxon signed-ranks tests indicated that among viewers, there was no difference from T1 to T2 ( $N = 94$ ,  $Z = -.272$ ,  $p = .785$ ), a significant difference from T2 to T3 ( $N = 115$ ,  $Z = -4.439$ ,  $p < .001$ ), and a significant difference from T1 to T3 ( $N = 94$ ,  $Z = -2.985$ ,  $p = .003$ ). These significant changes among viewers included the elimination of the three respondents who said “never” or “rarely” earlier, a substantial increase in the category of “sometimes” from about 1.0 per cent to 27.8 per cent, but also a decrease of 25.4 per cent in “always” that moved to “sometimes” at the time. These findings suggest watching *MKBKSH* Season 3 encouraged the few participants who didn’t use toilet to start using it while helping those who reporting using toilet to realise that they might not have been using it as regularly as they thought they would be.

### ***IVRS Survey Results on Toilet Use***

When asked, “Where do *you* go for defecation mostly”, 13.0 per cent reported ( $N = 3,266$ ) mostly defecating in the field, 27.8 per cent the community toilet, 2.4 per cent their neighbour or relative’s toilet, and 56.9 per cent their own toilet. We also asked, “Where do *other members of your family* go for defecation mostly”, 13.7 per cent reported their family ( $N = 3,131$ ) mostly defecating in the field, 16.8 per cent mostly using the community toilet, 21.9 per cent mostly using their neighbour or relative’s toilet, and 67.6 per cent mostly using their own toilet. Between these two questions, 77.2 per cent of the respondents reported the same preference for both themselves and their family. This suggests that toilet use is a normative behaviour as more than three in every four respondents answered the same way they defecate as their family.

Overall, toilet ownership among the survey respondents was 86.2 per cent. There was no significant difference between Group A and Group B ( $N = 3,090$ ;  $\chi^2 = 1.179$ ,  $df = 1$ ,  $p = .277$ ). However, results of Mann-Whitney test indicated that there was a significant difference in self-reported toilet use between the two groups ( $N = 3,200$ ;  $U = 1,148,551.000$ ;  $p < .001$ ). Post hoc Chi-square tests showed that fewer respondents in Group B reported “always” or “sometimes” than those in Group A and slightly more in Group B chose “rarely” or “never” than in Group A. A possible explanation of these findings is that watching *MKBKSH* Season 3 helped the viewers reflect and became more self-conscious about their toilet use behaviour. In fact, among those who owned a toilet at home, 5.9 per cent ( $N = 157$ ) still openly defecated in the field most of the time. These 157 respondents constituted 37.0 per cent of all respondents who reported that they mostly defecate in the field. This means, among all respondents who admitted that they defecate in the field, more than one third actually had access to a toilet in their home.

Overall, 21.3 per cent of the respondents ( $N = 2,873$ ) chose “cleanliness” as the benefit of being open defecation free, 7.3 per cent chose “safeguarding illness”, and 71.3 per cent chose “both”. Among the 157 toilet owners who still openly defecated, 39.2 per cent chose “cleanliness” as the benefit of being open defecation free, 11.9 per cent chose “safeguarding illness”, and 49.0 per cent chose “both”.

### ***Field Experiment Results on Modern Contraceptive Use***

Results of Wilcoxon signed-ranks tests showed that villagers who participated in our field experiment did report significantly higher overall ratings at post-test on their perceived value of regular SRH counselling for young people than at pre-test ( $N = 421$ ,  $Z = -6.950$ ,  $p < .001$ ); particularly, those in the viewer group had more positive change ( $N = 252$ ,  $Z = -8.109$ ,  $p < .001$ ) than those in the non-viewer group ( $N = 169$ ,  $Z = -2.029$ ,  $p = .042$ ). This means, watching *MKBKSH* Season 3 did help viewers better value the importance of providing regular SRH counselling services for young people in India.

In terms of likelihood of adopting male condoms, results of Wilcoxon signed-ranks tests showed that male villagers in the viewer group reported significantly higher ratings at post-test than at pre-test ( $N = 100$ ,  $Z = -3.582$ ,  $p < .001$ ) whereas male villagers in the non-viewer group did not have any significant change from pre-test to post-test ( $N = 84$ ,  $Z = -0.593$ ,  $p = .553$ ).

In terms of likelihood of adopting vasectomy, results of Wilcoxon signed-ranks tests showed that male villagers in the viewer group reported significantly higher ratings at post-test than at pre-test ( $N = 100$ ,  $Z = -2.498$ ,  $p = .012$ ) whereas male villagers in the non-viewer group did not have any significant change from pre-test to post-test ( $N = 78$ ,  $Z = -0.557$ ,  $p = .578$ ).

In terms of likelihood of adopting oral contraceptive pills, results of Wilcoxon signed-ranks tests showed that female villagers in the viewer group reported significantly higher ratings at post-test than at pre-test ( $N = 151$ ,  $Z = -2.413$ ,  $p = .016$ ) whereas female villagers in the non-viewer group did not have any significant change from pre-test to post-test ( $N = 74$ ,  $Z = -1.116$ ,  $p = .264$ ).

In terms of likelihood of adopting injectables, results of Wilcoxon signed-ranks tests showed no significant change from pre-test to post-test among female villagers in the viewer group ( $N = 149$ ,  $Z = -0.125$ ,  $p = .901$ ) or those in the non-viewer group ( $N = 56$ ,  $Z = -0.344$ ,  $p = .731$ ). Post hoc Chi-square tests showed that the number of villagers who had heard of injectables increased in both groups from pre-test to post-test; although more viewers said yes ( $N = 504$ ,  $\chi^2 = 75.945$ ,  $df = 1$ ,  $p < .001$ ; percentage changed from 73.8 per cent to 100 per cent) than non-viewers who also said yes ( $N = 338$ ,  $\chi^2 = 4.409$ ,  $df = 1$ ,  $p = .036$ ; percentage changed from 62.7 per cent to 73.4 per cent); similarly, more female viewers said yes ( $N = 282$ ,  $\chi^2 = 43.918$ ,  $df = 1$ ,  $p < .001$ ; percentage changed from 73.0 per cent to 100 per cent) than female non-viewers ( $N = 158$ ,  $\chi^2 = 5.831$ ,  $df = 1$ ,  $p = .016$ ; percentage changed from 48.1 per cent to 67.1 per cent). These results suggested the watching *MKBKSH* Season 3 did help raise awareness of injectables, a relatively new contraceptive method in India, especially among women.

### ***IVRS Survey Results on Modern Contraceptive Use***

When asked, “What is the most important source about sexual and reproductive health for you?” 35.7 per cent chose the ASHAs, 32.2 per cent family, 12.6 per cent friends, and 19.5 per cent online. Chi-square test results showed no significant differences between male and female respondents ( $N = 3,760$ ;  $\chi^2 = 4.972$ ,  $df = 3$ ,  $p = .174$ ); however, there were significant differences across different age groups ( $\chi^2 = 65.408$ ,  $df = 9$ ,  $p < .001$ ) with ASHAs most preferred by those 14 and younger, family for the 15-24 age group, friends and online sources for both 15-24 and 25-34 age groups, and online sources for 35 and older; there were also significant differences based on marital status ( $N = 3,760$ ;  $\chi^2 = 111.729$ ,  $df = 6$ ,  $p < .001$ ) with ASHAs most preferred by single respondents and family by married respondents.

When asked, “How helpful would it be for young people to have regular counselling about sexual and reproductive health?” results of Mann-Whitney tests showed a significant difference between Group A and Group B ( $N = 2,108$ ;  $U = 458,958.000$ ;  $p = .984$ ). Post hoc Chi-square tests showed that, 32.6 per cent in Group A and 41.6 per cent in Group B chose “somewhat helpful” but those who chose “very helpful” dropped from 45.9 per cent to 31.2 per cent ( $N = 2,108$ ;  $\chi^2 = 45.461$ ,  $df = 2$ ,  $p < .001$ ). These results suggest that the perceived importance of regular SRH counselling for youth did not sustain the same impact five weeks after the season ended.

In terms of likelihood of adopting male condoms, results of Mann-Whitney tests showed no significant difference between Group A and Group B ( $N = 1,177$ ;  $U = 172,025.000$ ;  $p = .984$ ) or among the male respondents in these groups ( $N = 814$ ,  $U = 80,394.500$ ;  $p = .492$ ). Post hoc Chi-square tests showed that, overall, 50.8 per cent in Group A and 41.3 per cent in Group B chose “likely” but those who chose “using now” increased from 19.2 per cent to 24.3 per cent ( $N = 1,177$ ,  $\chi^2 = 11.038$ ,  $df = 2$ ,  $p = .004$ ); this meant the significant difference occurred in the percentage change from “likely” to “using now”. Similarly, among male respondents only, 53.7 per cent in Group A and 42.7 per cent in Group B chose “likely” but those who chose “using now” increased from 17.8 per cent to 25.4 per cent ( $N = 814$ ,  $\chi^2 = 11.328$ ,  $df = 2$ ,  $p = .003$ ). Taken together, the overall trend of self-reported condom adoption likelihood was stable between the time when the second half

of *MKBKSH* Season 3 began broadcasting and five weeks after it ended, with a great majority of the survey respondents choosing a positive response and more reporting actual adoption.

In terms of likelihood of adopting vasectomy, results of Mann-Whitney tests showed no significant difference between Group A and Group B ( $N = 1,128$ ;  $U = 152,699.500$ ;  $p = .313$ ) or among the male respondents in these groups ( $N = 773$ ,  $U = 72,309.500$ ;  $p = .507$ ). Post hoc Chi-square tests showed that, overall, 50.2 per cent in Group A and 52.5 per cent in Group B chose “not likely” but those who chose “using now” increased from 10.9 per cent to 21.5 per cent ( $N = 1,128$ ,  $\chi^2 = 34.614$ ,  $df = 2$ ,  $p < .001$ ); this meant the significant difference occurred in the percentage change from “likely” to “using now.” Similarly, among male respondents only, 51.6 per cent in Group A and 54.2 per cent in Group B chose “not likely” but those who chose “using now” increased from 10.5 per cent to 20.6 per cent ( $N = 773$ ,  $\chi^2 = 23.055$ ,  $df = 2$ ,  $p < .001$ ). Taken together, the overall trend of self-reported vasectomy adoption likelihood was stable with reasonable resistance between the time when the second half of *MKBKSH* Season 3 began broadcasting and five weeks after it ended, but our findings shows promising potential among those who were already open to this contraceptive option.

In terms of likelihood of adopting oral contraceptive pills, results of Mann-Whitney tests showed no significant difference between Group A and Group B ( $N = 1,031$ ,  $U = 126,188.500$ ;  $p = .519$ ) or among the female respondents in these groups ( $N = 303$ ,  $U = 9,293.000$ ;  $p = .246$ ). Post hoc Chi-square tests showed that, overall, 47.2 per cent in Group A and 53.2 per cent in Group B chose “not likely” but those who chose “using now” increased from 12.4 per cent to 18.3 per cent ( $N = 1,031$ ,  $\chi^2 = 17.422$ ,  $df = 2$ ,  $p < .001$ ); this meant the significant difference occurred in the percentage change from “likely” split to both “not likely” and “using now”. Among female respondents only, 47.3 per cent in Group A and 56.1 per cent in Group B chose “not likely”, the percentage dropped from 38.5 per cent to 29.6 per cent among those who chose “likely”, and the percentage stayed about the same at 14.1 per cent and 14.3 per cent among those who chose “using now” ( $N = 303$ ,  $\chi^2 = 23.055$ ,  $df = 2$ ,  $p = .285$ ). Taken together, the overall trend of self-reported pills adoption likelihood was not significantly different between the two groups.

In terms of likelihood of adopting injectables, results of Mann-Whitney tests showed a significant difference between Group A and Group B ( $N = 887$ ,  $U = 81,365.000$ ;  $p < .001$ ) and also among the female respondents in these groups ( $N = 270$ ,  $U = 6,971.500.000$ ;  $p = .020$ ). Post hoc Chi-square tests showed that, overall, 50.6 per cent in Group A and 67.0 per cent in Group B chose “not likely”, 39.3 per cent in Group A and 20.8 per cent in Group B chose “likely” and those who chose “using now” increased only from 10.2 per cent to 12.1 per cent ( $N = 887$ ,  $\chi^2 = 33.558$ ,  $df = 2$ ,  $p < .001$ ); this meant the significant difference occurred in the percentage change from “likely” to “not likely.” Among female respondents only, 51.4 per cent in Group A and 67.7 per cent in Group B chose “not likely”, the percentage dropped from 35.6 per cent to 21.5 per cent among those who chose “likely”, and the percentage dropped from 13.0 per cent and 10.8 per cent among those who chose “using now” ( $N = 270$ ,  $\chi^2 = 7.037$ ,  $df = 2$ ,  $p = .030$ ). Taken together, the overall trend of self-reported injectables adoption likelihood had a significant decrease five weeks after the season ended, especially among female viewers.

## **Discussion**

### **Triangulating Findings on Toilet Use**

Our data showed that national campaigns (such as Swachh Bharat Abhiyan) in recent years to promote a clean India have helped to improve the structural changes when it comes to tackling the issues of open defecation. Most of the villagers in Kanpur Dehat, UP and the IVRS callers from 36 India’s states reported having a toilet in the household. In Kanpur Dehat, over half of their toilets were built within the past four years and most of them were flush/pour toilets. Toilet cleaning responsibility was expected for everyone in most families, while some preferred women more than men. Home inspections by our field researchers showed that most toilets were used and maintained properly.

When asked where they mostly went to defecate, most of the respondents answered the same way for themselves as well as for other members of their family, indicating that toilet use is a normative behaviour. Results of our field experiment provided empirical evidence that, while there was no change in the non-viewer group, watching *MKBKSH* Season 3 significantly increased toilet ownership, decreased self-reported open defecation behaviour, and improved the regularity of toilet use over time. Participants who reported defecating

in the field mainly attributed their behaviour to the lack of access. Among participants who had a toilet in their household, a great majority consistently said that they used it sometimes or always. However, our results also showed that *MKBKSH* Season 3 might have heightened their attention to the matter and motivated them to become more self-conscious about how regularly they actually used their toilet as many respondents switched from “always” to “sometimes”. Moreover, we did find a small group of toilet owners who admitted mostly defecating in the field despite having access to a toilet in their household. They should be a priority for future endeavours and would require tailored messaging and interventions for lasting behaviour change.

### ***Triangulating Findings on Family Planning***

Overall, ASHAs and family were rated as the most important information sources about SRH although friends and online sources held more weight for the older age groups; ASHAs were most preferred by those who were single while family by married respondents. Watching *MKBKSH* Season 3 helped viewers better value the importance of providing regular SRH counselling services for young people in India than non-viewers. While there was no change in their non-viewer counterparts, male viewers reported significantly higher likelihood of adopting male condoms and vasectomy and female viewers reported significantly higher likelihood of adopting oral contraceptive pills at post-test than at pre-test. *MKBKSH* Season 3 also helped raise awareness of injectables among the villagers in Kanpur Dehat, UP, especially among female viewers.

Between the time when the second half of *MKBKSH* Season 3 featuring the theme of family planning began broadcasting and five weeks after the season ended, the general trends of self-reported condom adoption likelihood remained stable with a great majority of the IVRS viewer survey respondents choosing a positive response and significantly more respondents reporting actual adoption, especially among men. The general trends of self-reported vasectomy adoption likelihood also remained stable, although just above half of the IVRS viewer survey respondents chose “not likely”. However, among those who were already open to this contraceptive option, significantly more respondents reported actual adoption, especially among men.

The general trends of self-reported likelihood of adopting oral contraceptive pills among the IVRS viewer survey respondents or female respondents only had no significant differences between the time when the second half of *MKBKSH* Season 3 featuring the theme of family planning began broadcasting and five weeks after the season ended, with just above half of them chose “not likely”. And the general trends of self-reported likelihood of adopting injectables dropped significantly among the IVRS viewer survey respondents as well as among female viewers. This suggested that the condensed exposure to *MKBKSH* Season 3 was effective in raising awareness for viewers but for something most of the viewers were not familiar with, it was difficult to hold the desirable attitude without additional messaging reinforcement.

### ***Limitations and Future Research***

Field experiments and IVRS viewer surveys were complementary research methods and deliberately selected to balance the internal and external validity of our *MKBKSH* Season 3 programme evaluation. This combination enabled us to assess the impact of *MKBKSH* Season 3 by comparing viewers with non-viewers and gaining feedback from viewers across India at multiple points in time before, during, and after the broadcast of key storylines. Nonetheless, applying these methods in real communities would inevitably encounter certain challenges and limitations.

First, for the second most populous country in the world, data collected from a few hundred or a few thousand people can only shed a light on the issues of our interest to the extent that our observations of the research participants could represent. Our sample sizes were acceptable for the statistical analyses reported here although larger stratified samples would enhance research generalisability and allow more nuanced subgroup comparisons when funding and community support are in place.

Second, random assignment in the field experiments was not possible at the individual or village level due to the feasibility of participant recruitment, manipulation checks, and repeated measures within our project timeline or budget. In particular, the villages designated for the non-viewer group had to meet a number of criteria to minimize the risk of *MKBKSH* Season 3 messaging exposure and contamination.

Last but not least, our team was mindful about the educational background, prior research experience, and contextual factors when designing the data collection instruments. Although interval and ratio scales would have allowed for better measurement and a different set of inferential statistical analyses, we had to prioritise simplicity and clarity to ensure the respondents fully understood our questions and answer options whether it was in person interviews or keying in their responses on the phone. These compromises left our key variables to be either categorical or ordinal with less powerful non-parametric analyses. Future research may consider other creative alternatives to obtain more precise measurements.

Limitations aside, our investigation of *MKBKSH-3* clearly points to the value of employing creative narrative persuasion approaches—such as melodramatic serial dramas—as enabling media for social and behaviour change.

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