

## Article

# Impact of the Change Starts at Home Trial on Women's experience of intimate partner violence in Nepal

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## ABSTRACT

Intimate partner violence (IPV) affects 1 in 3 women worldwide. Research in low- and middle-income countries suggests that multicomponent interventions incorporating media, group work, and community mobilization may be effective at changing social norms that enable such violence. Our study aimed to evaluate the impact of a radio programme plus community engagement versus radio programming alone on the 12-month prevalence of IPV. Using a cluster randomized, repeat cross-sectional, single-blinded approach, thirty-six village communities were pair-matched within three districts in Nepal and randomly assigned to either control or intervention. Both groups were exposed to social behaviour change communication through radio programming. In addition, weekly listening and discussion groups (LDGs) were formed in intervention communities to meet and discuss radio programming over the 40-week intervention period. Participants were also exposed to other community mobilization activities such as street theatre and messaging from local leaders who were engaged in intervention programming. IPV was measured at baseline, 12 months post-baseline at program conclusion, and 28 months post-baseline using a simple random sample of 40 married women per cluster (n = approximately 1440 at each time point) along with 382 women who participated in the LDGs. Although control and intervention groups were demographically similar, baseline rates of IPV were higher in control areas. The trend in IPV for both groups was nonlinear, largely declining at midline (control condition) and rising again at endline (control and intervention conditions), possibly reflecting greater reporting due to awareness-raising activities. Significant differences between the two groups were largely absent at endline. Higher LDG attendance was associated with decreases in several forms of IPV, some of which persisted to endline. These findings suggest that intensive community engagement over longer timespans or social network measurement may be necessary to detect significant changes at the community level (NCT02942433).

## Introduction

Intimate partner violence (IPV) affects nearly 1 in 3 women worldwide (Devries et al., 2013). It is also a phenomenon with growing evidence on what works to prevent it (Abramsky et al., 2014; Doyle et al., 2018; Ellsberg et al., 2015; Jewkes et al., 2008; Kim et al., 2007; Wagman et al., 2015; World Health Organization, 2007). Research, including in low- and middle-income countries, has demonstrated the effectiveness of some primary prevention strategies (L. L. Heise, 2011), including group work, community mobilization, and the use of media, with

multicomponent interventions having greater evidence of effectiveness than single intervention approaches (Ellsberg et al., 2015; World Health Organization, 2007). As part of the What Works to Prevent Violence Global Program, a £25 million flagship project of the UK Department for International Development (What Works to Prevent Violence Against Women and Girls Programme, 2019), findings from the Change Starts at Home Trial in Nepal offer important lessons learned about the prevention of IPV and social norms change through a social and behavioural communications (SBCC) strategy involving radio, couples' group work, and community engagement (Cari Jo Clark et al., 2017).

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Existing literature suggests that interventions designed to change social norms can positively influence individual attitudes and practices around IPV (L. L. Heise, 2011). Multicomponent interventions incorporating radio programs have shown increased knowledge and awareness about IPV (Silliman, 2012; Usdin, Scheepers, Goldstein, & Japhet, 2005), decreased endorsement of gender-inequitable attitudes (Pulerwitz, Barker, Segundo, & Nascimento, 2006; Silliman, 2012; Usdin et al., 2005), increased joint household decision making (Silliman, 2012) and communication about domestic violence (Usdin et al., 2005) and sex (Pulerwitz et al., 2006; Silliman, 2012). However, there remain relatively few rigorous studies of social norms oriented violence prevention interventions, and even fewer have been conducted in Nepal. Prior research in Nepal, the VOICES project from which *Change* was derived, targeted the twin pandemics of HIV and violence against women using radio and community outreach. VOICES increased dialogue between husband and wife around sexual relations and HIV, increased understanding of legal issues related to violence against women, increased intervention in cases of violence against women, increased support for help-seeking, and decreased tolerance of violence against women (United Nations Trust Fund Support of Actions to Eliminate Violence Against Women & Women, 2010). However, the prior evaluation did not utilize a control group.

The *Change* trial addressed this gap through a mixed methods cluster randomized trial to: a) assess whether the multicomponent *Change* program (i.e., media + community engagement strategy) yields a greater reduction in IPV prevalence compared to the *Change* radio program alone; b) determine whether any potential reductions in the prevalence of IPV are sustained after cessation of intervention activities. Secondly, the trial expected to observe improved conflict resolution techniques, couple communication, attitudes toward gender equity and acceptability of IPV, and empirical expectations regarding gender equity

and the acceptability of violence among intervention versus control communities.

**Methods**

**Overview.** The study utilized a concurrent mixed methods design (Creswell, Fetters, Plano Clark, & Morales, 2009). The quantitative aspect of the evaluation was a pair-matched, repeated cross-sectional 2-armed, single-blinded cluster trial, comparing a social behaviour change communication (SBCC) strategy to radio programming alone for its impact on physical and/or sexual IPV at 12 and 24 months post-baseline. The qualitative aspects of the design included several longitudinal approaches to understand the impact of the intervention and to examine mechanisms of change including in-depth interviews with participants, and focus group discussions with community leaders, and family members of participants. Originally, endline was to occur at 18, not 24, months post baseline. To ensure comparability across studies included in the What Works consortium, the final data collection time period was extended to 24 months post baseline. Contracting delays required endline data collection to be postponed to 28 months post baseline. Fig. 1 summarizes the study design as it occurred.

**Intervention.** *Change* addresses IPV prevention through three key approaches: social mobilization, behavior change communication, and couple’s-based radio listening and discussion groups (LDG) (*C-Change*, 2012). The behavior change communication component is a 9-month, weekly radio drama plus real-life interviews, which includes a listener engagement component (through an interactive voice response, IVR, platform) to which both the intervention and control conditions are exposed. Members of the intervention communities are further engaged in radio Listening and Discussion Groups (LDGs) through which the married male and female participants meet, on a weekly basis, to

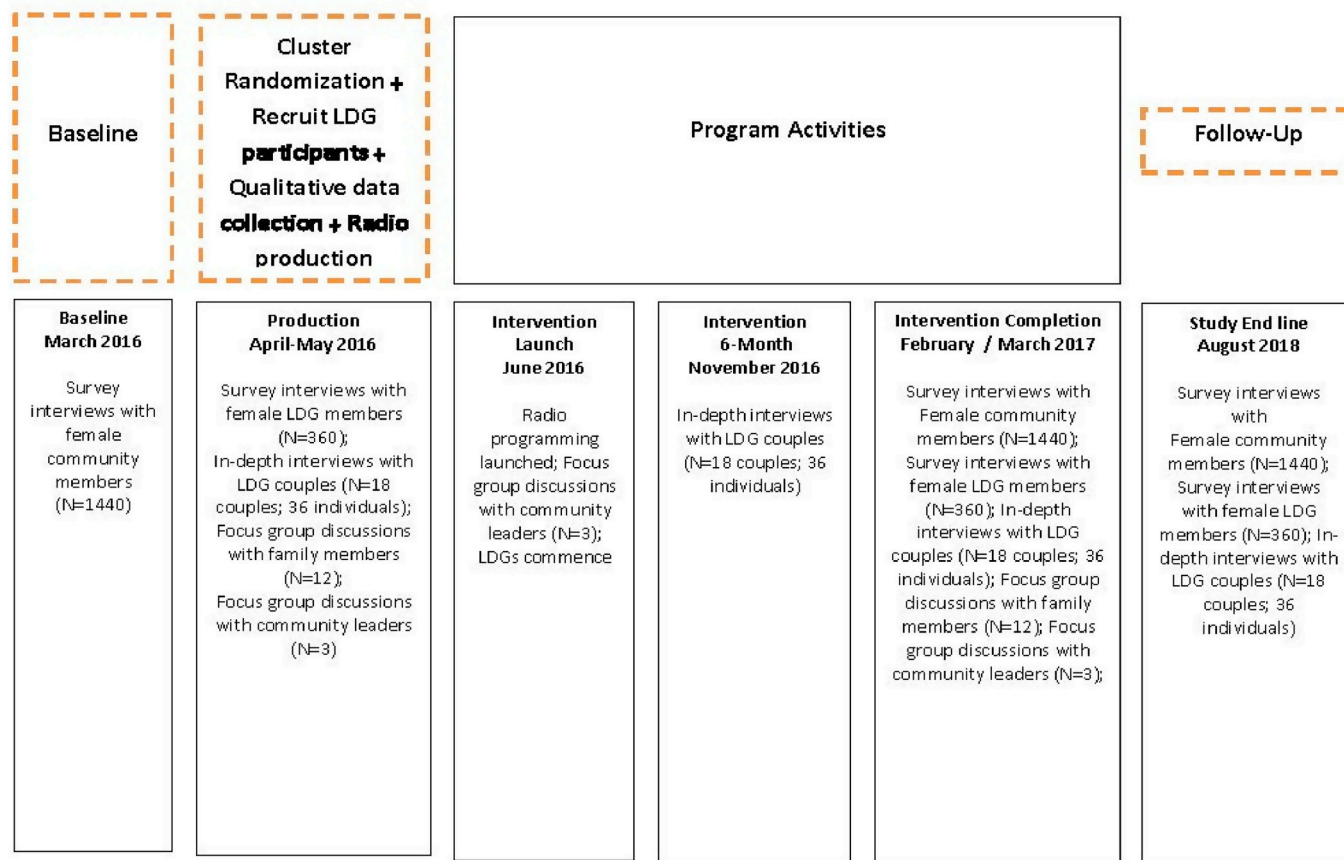


Fig. 1. Research design.

critically reflect on the content of the radio episode and its relevance to their own lives. Through a facilitated process following 3 phases of change, the LDG members build their skills, self-efficacy and social networks as part of a curricularized process (<https://change-starts-at-home.com/our-curriculum/>) of guided discussion, in-group tasks and home-based activities. In this way, the LDGs are designed to be 'norms incubators' made up of "homogenous, tightly knit groups in which there is private dissent against the current norm" (Paluck & Ball, 2010), allowing members to build support and skills for the integration of messages into everyday life (Ernst, 2005). Alongside internal dialogue, LDGs also act as a platform through which community outreach activities are planned and executed. With support from a toolkit of media resources and access to local leaders who receive training, LDG members are encouraged to act as advocates in the community for more equitable social norms.

Men and women attended separate LDGs to allow them to speak openly and freely with facilitators of the same sex due, in part, to the sensitive nature of the material. In addition, group composition, particularly the number of women in small groups, has been shown to affect how much women speak, the respect they are afforded, the content of their contribution, their influence and power over decisions, and perceptions of their own capacity (Karpowitz & Mendelberg, 2014). Therefore, given women's lower status in Nepal, it was important that the majority of the sessions were sex separate. However, both men and women received the same homework, which often required initiating conversations or taking action with their spouses or other family members. These activities provided an opportunity for each member of the partnership to reflect and discuss together. Further, the men and women attended collective sessions once a month to provide space for learning and sharing between and across couples. Men's and women's LDGs also collaborated in the design and implementation of the community-based activities, providing an additional avenue for couple cooperation. All community-based activities were participatory in nature and included opportunities for dialogue and reflection.

**Sample.** A total of 36 Village Development Committees, 12 in each of 3 districts (Chitwan, Nawalparasi, Kapilvastu) in Nepal were selected in 2016 and pair matched within district, with one member of each pair randomly assigned to receive either the full SBCC strategy (radio plus community engagement) or radio programming alone. Using publicly available data from the Central Bureau of Statistics, each VDC was pair-matched based on factors including female literacy rates, caste and primary language. As exact matches are not possible, the final matching procedure was accomplished with field-based partners familiar with the local communities to ensure that the matching process benefited from contextual information not available through public census statistics. Allocation of treatment condition was accomplished by the study Principal Investigator through simple randomization using randomly generated numbers in Excel, with the highest random number per pair being assigned to treatment. Within the VDC, two wards were randomly selected using probability proportionate to size methodology among eligible wards. Eligible wards were defined as having a total household population between 100 and 550, a size assumed appropriate for project activities. Within each ward, an implementing partner representative visited ward subdivisions, comprising approximately 15–20 households to compile a list of households and identify those containing eligible couples. To support this work, the local partner representative drew on information from key informants whose work entails interacting with local households, such as female village health workers and where available, existing lists and documents. These household lists were aggregated at the ward level to create the project's sampling frame. Households were eligible if they included a married woman between 18 and 49 years of age, who resided most of the year with their husband (18 years and above). Couples were rendered ineligible if they did not speak Nepali, had a physical or cognitive impairment or were planning to relocate within 2 years. Using the sampling frame, simple random sampling was used to select 40 women from each VDC, comprising

approximately 20 from each ward for the community-based survey (Fig. 2). Response rates were 78.77%, 83.01%, and 78.64% for baseline, midline and endline respectively.

All quantitative data were collected from female members of the couples. Ethical standards for research on violence against women dictate that one person per household be interviewed to reduce the likelihood of negative ramifications associated with the inquiry (World Health Organization, 2016). Further, in Nepal, as elsewhere, married men have been shown to under-report sexual violence relative to their wives' reports (Yoshikawa, Shakya, Poudel, & Jimba, 2014). For all of these reasons, only women were interviewed in this study.

Ten couples were also selected for the weekly LDG sessions with an emphasis on individuals who lived nearby the likely site of the LDG group meetings, met the eligibility criteria, and were willing to commit to weekly participation for 9 months (N = 360 couples). A sub-sample of the LDG couples were invited (n = 18 couples, 36 individuals) to participate in individual in-depth interviews. Data from these couples are included in this manuscript.

**Compliance and Ethical Standards.** Institutional Review Board (IRB) approval was received from Emory University (IRB00091115), the University of Minnesota (1601S82063), George Mason University (802242-1), and the Nepal Health Research Council (178/2015). Permission was also received from the District Development Committees representing Nawalparasi, Kapilvastu, and Chitwan. Written informed consent was obtained from all participants.

## Measures

Quantitative measures for this study stem from tablet-computer-assisted one-on-one interviews conducted in private by female interviewers at baseline, midline (program conclusion), and endline (16 months post-program conclusion) which lasted on average about 45 min. Topics assessed that are essential for this analysis include socio-demographics, gender equitable attitudes, relationship characteristics, violence exposure, and exposure to intervention programming.

The study's primary outcome was women's experience of physical and/or sexual IPV in prior 12 months, measured with the standard items employed through the What Works to Prevent Violence Global Program (*What Works to Prevent Violence Global Program*, 2015). Items assessed the frequency of occurrence (never, once, few, many) of five acts of physical IPV (slapped/having object thrown at them, pushed/shoved, hit with fist/object, kicked/dragged/beaten, threatened with or had weapon used on them) and three acts of sexual IPV (forced sexual activity, performed sexual activity out of fear of other violence, other forced sexual encounter). Cronbach's alpha for the scale was 0.90. Per consortium guidance to standardize modelling across studies, reported occurrence of any item in the prior 12 months constituted exposure to IPV, which was modelled dichotomously. Similarly in accordance with consortium guidance, a measure of severe IPV was also constructed as any occurrence of multiple acts of physical and/or sexual IPV or frequent (few or many times) occurrence of at least one item assessed.

We also assessed emotional IPV with a 4-item scale from the World Health Organization Multi-Country Study on Women's Health and Domestic Violence (García-Moreno, Jansen, Ellsberg, Heise, & Watts, 2005). Similar to the physical and sexual IPV items, emotional IPV responses included: never, once, few and many. Experiences assessed included being insulted/made to feel bad about herself, being belittled or humiliated in front of others, feeling scared/intimidated by husband's behaviour, threatened to be hurt or threatening harm to another. Cronbach's alpha for the scale was 0.85. The measure was modelled dichotomously as exposure to any of the emotional IPV experiences in past 12 months. Past-year economic violence was measured with three items with minor modification from the United Nations Multi-country Study on Men (Fulu, Warner, Miedema, & Liou, 2013). Experiences assessed included having been prohibited from work or other income generating activity, having earnings or valuables taken against her will,

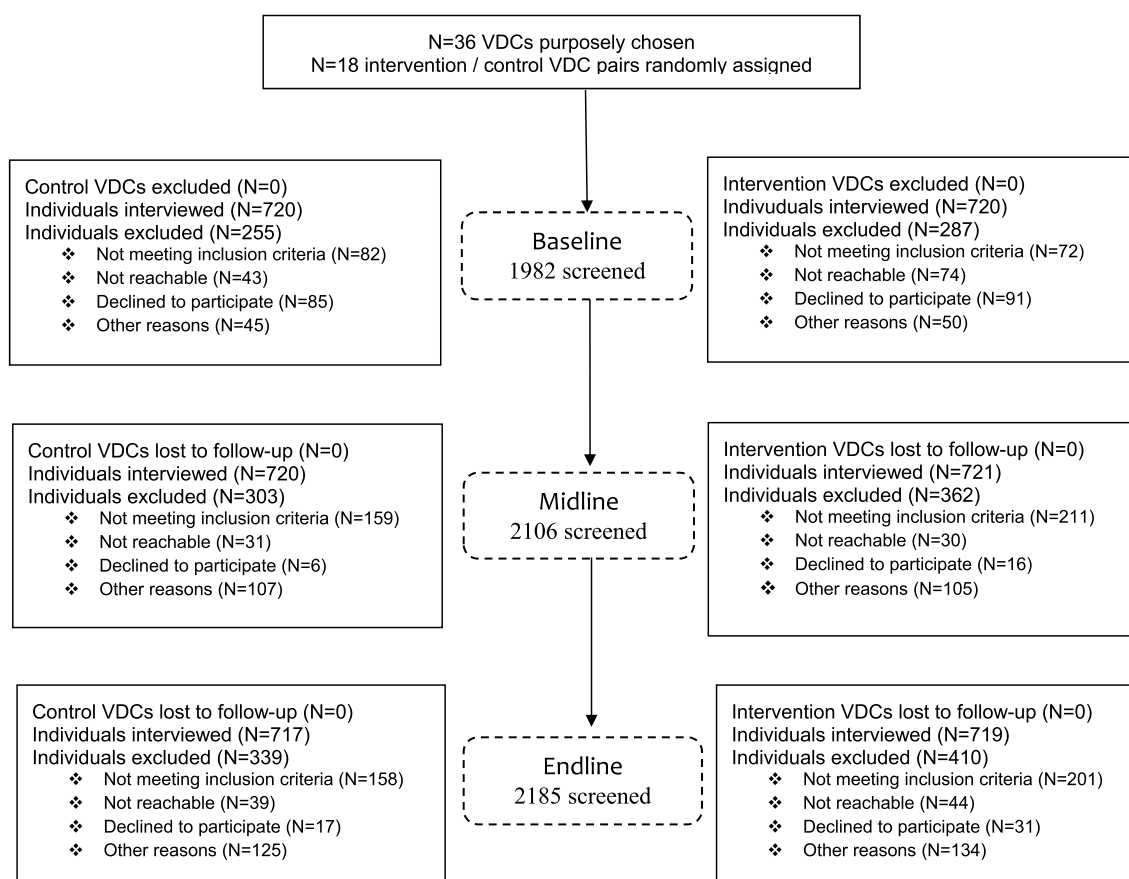


Fig. 2. Change starts at home flow diagram.

or having her husband keep money for alcohol and related expenses when he knew it was difficult to afford household expenses. Respondents who responded “yes” to any of the three items were considered to have experienced economic IPV.

**Intervention participation.** Participation was assessed weekly through LDG group program monitoring. The LGD facilitator reported the presence or absence of each member of the group on a paper attendance log and transmitted this information via a tablet-based application to facilitate review by program staff in Kathmandu and the US. Quality control of this information was monitored through weekly phone calls to select facilitators and quarterly in-person field monitoring. Based on these data, female participants attended 35.15 sessions ( $se = 0.45$ ,  $min = 0$ ,  $max = 40$ ,  $mode = 40$ ) while men attended 33.21 sessions ( $se = 0.54$ ,  $min = 0$ ,  $max = 40$ ,  $mode = 40$ ) suggesting that frequent participation was the representative experience. Therefore, we modelled participation as a count variable and as frequent participation (attendance at 33 or more sessions) versus less frequent participation (attendance at less than 33 sessions). These variables were highly correlated for men and women (count:  $r = 0.73$ ; dichotomous:  $r = 0.87$ ). Therefore, only men’s attendance was modelled.

**Socio-demographic variables** assessed included age, age at marriage, type of marriage (love marriage with and without parental blessing and arranged marriage with and without participant’s blessing), and the participants’ and their husbands’ educational levels (categorized as none, primary, some secondary, and School Leaving Certificate and higher). Survey respondents were also asked if they or their husband were frequently felt stressed because of not having enough income (dichotomous). Caste/ethnicity was categorized into upper caste and relatively advantaged Janajatis, disadvantaged non-Dalit and Janajatis, and Dalit and religious minorities as previous research in Nepal has found lower caste and religious minority status to

be associated with a higher risk of IPV (Atteraya, Gnawali, & Song, 2015). These participant characteristics are presented to assess balance across study arms.

**Covariates** assessed at baseline that might confound the relationship between intervention participation and occurrence of IPV are described below. Decision-making agency (Alkire, 2008) was assessed with items from the UN Multi-Country Study on Men and Violence (Fulu et al., 2013). Items assessed who had the final say in decisions related to the health of women in the family, how the family spends money on food and clothing and on large investments. Response options included mostly the respondent’s husband (1), mostly the respondent (2), the respondent and her husband equally (3), and someone else (4). If a respondent indicated responded 2 or 3, she was considered to have participated in that decision. One additional item was developed for the study to measure respondent’s say in whether or not to engage in sexual relations with her husband in the same format as the other decision-making variables. Response options to this item included mostly the husband (1), mostly the respondent (2), or both equally (3). If the respondent reported either 2 or 3, she was considered to have participated in decisions regarding sexual activity. Decision making regarding financial purchases and sexual decision making were particularly salient themes in mid-intervention qualitative transcripts (McGhee et al., ), so these items were singled out for the endline analysis.

The wife’s gender equitable attitudes were measured with 10 items derived from the Gender-Equitable Men (GEM) scale with a ranting scale from strongly from strongly disagree (0) to strongly agree (3) (Pulerwitz & Barker, 2008). Items were reverse coded and a score was calculated as a mean across the items, with a higher score representing more gender equitable attitudes (Cronbach’s  $\alpha = 0.83$ ). The husband’s gender equitable behaviour in front of his family was assessed with 3 items

developed for the study. Respondents were asked how frequently (never (0), sometimes (1), or often (2)) their husband supported her when she disagreed with a member of his family, he assisted with housework in front of his family, and he asked her opinion about important matters in front of his family. A mean across the three items was calculated with higher scores indicating greater enacted gender equitable behaviour in front of his family. Cronbach's alpha for the measure was 0.82. As this variable was highly skewed toward enacted equitable behavior, a dichotomous variable was modelled as a score of 2 or greater compared to less than 2.

The frequency of communication between the respondent and her husband in the prior week (never, once, few, many times) was assessed with items from the World Health Organization's Multi-Country Study on Health and Domestic Violence Against Women (WHO MCS) (World Health Organization, 2005). Topics assessed included "things that happened to him during the day", "things that happened to you during the day," "his worries or feelings," and "your worries or feelings." The score was calculated as a mean across the items (Cronbach's alpha = 0.90). The frequency of quarrelling (never, sometimes, often) and husband's inebriation (never, once a month or less, at least weekly) were each assessed with one item from the WHO MCS (World Health Organization, 2005). Frequent drunkenness as defined as being drunk at least weekly (reference "once a month or less" or "never").

**Analysis.** For the primary outcome and associated secondary outcomes, we followed intention-to-treat principles and examined the impact of (1) the intervention on the randomly selected community based sample and (2) the impact of participation among the LDG cohort, who were not included in the first analysis. Characteristics of community-based participants and baseline levels of study outcomes across arms were compared descriptively at baseline to examine potential confounding and to assess the success of randomization. Treatment effects were estimated as risk differences with linear mixed models. A random effect for cluster (VDC) was included to account for within-group clustering, and degrees of freedom were adjusted to account for nesting. Time, condition, and time by condition interactions were entered as fixed effects. No further adjustments were made as individual-level potential confounders were relatively similar across conditions and they have limited impact while group-level confounders absorb critical degrees of freedom (Hannan, 2006). We tested the impact of participation in the LDG groups on the primary and secondary violence-related outcomes in models accounting for the baseline level of the violence outcome and covariates that could have influenced participation and the experience of violence. Choice of covariates was based on prior literature including analyses of baseline data (Clark et al., 2019, 2019, b). To address missing data in the LDG sample (0.3%, 9% and 14% missing outcome or covariate data at baseline, midline and endline, respectively) we used multiple imputation. We created 30 imputed datasets. Variables used in the imputation process included core analytic variables from all waves of data collection, dummy variables representing each cluster, and all interaction terms that were to be tested (Enders, 2010). As the missing pattern was not monotone, we used the Markov chain Monte Carlo imputation method (Enders, 2010).

## Results

Table 1 describes the sociodemographic characteristics of the community-based samples representing the intervention and control communities. Overall, the intervention and control communities were quite similar in terms of participant background characteristics. There were notable differences in outcome measures at baseline. The proportion of respondents who reported violence in their relationship was higher (worse) in comparison condition participants than among intervention community participants, revealing that pair-matching and randomization did not sufficiently balance the clusters before treatments were administered.

**Table 1**

Baseline characteristics of the community-based sample by condition (N = 1400).

	Intervention N = 720	Control N = 720
<b>Socio-Demographics</b>		
	Mean (sd)	Mean (sd)
Age	34.01 (8.23)	34.43 (8.38)
Age at marriage	18.03 (3.57)	17.64 (3.08)
Caste/Ethnicity	%	%
Uppercaste and relatively advantaged Janajatis	47.43	45.69
Disadvantaged non-Dalit and Janajatis	45.06	45.97
Dalit and religious minorities	7.51	8.33
Respondent educational level	%	%
None	30.14	31.67
Primary	22.36	25.28
Some secondary	28.33	24.31
SLC and above	19.17	18.75
Husband educational level	%	%
None	13.63	15.18
Primary	21.28	22.56
Some secondary	36.58	33.43
SLC and above	28.51	28.83
Marriage type	%	%
Love marriage with your family's blessing	11.53	11.25
Love marriage without your family's blessing	14.86	17.92
Arranged by family with my consent	63.47	61.39
Arranged by family without my consent	10.14	9.44
Household financial stress	43.53	46.8
Primary Outcome	%	%
Physical and/or sexual IPV, prior 12 months	23.89	31.81
Secondary Outcomes	%	%
Physical IPV, prior 12 months	15.14	20.42
Sexual IPV, prior 12 months	16.53	23.92
Severe IPV, prior 12 months	21.67	28.33
Emotional IPV, prior 12 months	28.61	32.78
Economic IPV, prior 12 months	18.75	18.19
Other Baseline Covariates	%	%
Husband frequently drunk	22.78	26.39
Respondent participates in decision to have sex	60.69	66.48
Respondent participates in decisions about major household purchases	63.14	67.64
	Mean (sd)	Mean (sd)
Frequency of quarrelling	0.71 (0.53)	0.72 (0.54)
Couple communication	1.92 (0.83)	1.91 (0.89)
Gender equitable attitudes	1.89 (0.45)	1.88 (0.49)
Husband enacts gender equitable behaviors in front of his family	1.56 (0.56)	1.48 (0.61)

## Intervention exposure

Over the course of the 9-month intervention, a total of 39 radio programs were produced and aired in both intervention and control communities. In the intervention communities, 72 LDG groups (36 for men and 36 for women) were held weekly for 40 weeks, a feature-length film (*Samajhdari*) was produced, a community-based theatre program was produced and performed in all 18 intervention VDCs, one of which was filmed and distributed to LDG groups for showing in their communities to widen the reach of the theatre production. A total of 34 community and religious leaders (14 of whom were female) from the 3 districts attended 2 workshops to introduce them to the project, to strengthen ties between project activities and local leaders, and to provide a forum for reflection about their role and capacity to respond to violence against women in the community. Participants included religious leaders, social workers, teachers, local committee representatives, members of local co-operative institutions and other community based organizations. The leaders reported a total of 29 follow-on events they conducted in their communities during the 6-months following the workshops.

Table 2 describes exposure to intervention programming by

condition as reported in the community-based survey. Overall 25.89% (n = 408) of community-based participants in the intervention communities were exposed to at least one type of intervention activity compared to 13.48% (n = 226) of control group participants. Among those who were exposed to at least one type, intervention community members reported exposure to an average of 1.83 (sd = 1.17; range 1–7) activity types while the control community members were exposed to 1.29 (sd = 0.64; range 1–5). Samajhdari street theatre (10.85%) and radio (8.25%) were the most often reported intervention exposure in the intervention condition. In the control condition, exposure to messaging from a religious leader was the most frequent exposure (5.79%) followed by Samajhdari radio (3.70%). Due to the inability of many respondents to recall the exact name of the leader, attribution of leader messaging to the project is less certain than the more clearly branded exposure types. When leader messaging is excluded, 23.79% of intervention community-based participants and 9.25% of community-based control participants were exposed to project activities based on the community survey.

The male and female LDG groups collaboratively conducted a total of 108 community engagement activities (3 activities per male/female LDG group collaboration) in intervention areas. Overall, these activities included film exhibition (39 activities, with 8 of these film exhibition followed by short games or rally or songs highlighting the same issue), radio episode listening and discussion groups (34 activities), interactive programs with discussion (20 times, with 6 of the interaction program accompanied by short drama, songs or rally), cultural programs with songs and dances highlighting the issue (10 times) and 5 trainings/workshops. In total, 8071 persons (64% female) attended an activity based on community-event monitoring according to project monitoring.

#### Community members experience of violence and treatment effect

Fig. 3a graphically displays the proportion of women in clusters who reported IPV by condition and time period. In addition to the baseline differences noted above, on average, the values for the comparison condition fell at midline, while those in the experimental condition were largely unchanged. By endline, which was 16–17 months after the cessation of all program activities, participants in both conditions reported higher values: 31% in the comparison group and 30% in the intervention group. Other forms of IPV (Fig. 3a) and other secondary outcomes (Fig. 3b) similarly did not reflect a pattern of intervention impact confirmed by Table 3 which displays treatment effect estimates (i.e., risk differences). Because of the clear non-linearity over time, estimates compare baseline values to midline and, separately, to endline. Results show that the adjusted difference in physical and/or sexual IPV declines more in the comparison condition as compared to the experimental condition. This is why the estimated effect (0.08) is not negative but positive. This estimate is marginally statistically discernible from

**Table 2**

Exposure to intervention activities by study condition reported at end of intervention or follow-up (N = 3252).

	Intervention N = 1576	Control N = 1676
Radio	8.25 (130)	3.70 (62)
Family/Friend Listening and Discussion Group Participant	2.98 (47)	nr (<5)
Street Theatre	10.85 (171)	1.85 (31)
Film	4.89 (77)	0.72 (12)
Training	7.68 (121)	3.34 (56)
Community Leader	5.46 (86)	5.79 (97)
Community Leader Workshop	1.27 (20)	nr (<5)
Community Forum	5.84 (92)	1.13 (19)
Other Intervention	nr (<5)	0.48 (8)
Any exposure including community leader	25.89 (408)	13.48 (226)
Any exposure excluding community leader	23.79 (375)	9.25 (155)

zero, with  $p = 0.08$ . The effect between baseline and endline is 0.07, again positive, but is not statistically discernible from zero. When examined separately, physical and sexual IPV in the prior 12 months demonstrate similar patterns that are also marginally significant except for risk differences at endline which are statistically significant for physical IPV (estimate 0.07,  $p$ -value 0.03). No other differences are detectable across the other forms of IPV or other secondary outcomes except for decision-making around sex, which improved in the intervention communities but stayed the same in the control communities.

#### Listening and discussion group participation and experience of intimate partner violence

Among LDG recruits, the trend in IPV was similar to that in the intervention communities, although the levels of violence were lower (baseline = 14.96, midline = 15.19, endline = 19.52). Tables 4a and 4b describes the impact of men's participation on the prevalence of violence reported at midline and endline, adjusting for baseline levels of violence and covariates that could influence the decision to participate in the LDG. The prevalence of violence perpetration among men with frequent participation was lower at intervention end (midline) than that of men with less frequent participation for physical and/or sexual IPV (estimate =  $-0.10$ ,  $p$ -value = 0.01), severe physical and/or sexual IPV (estimate =  $-0.09$ ,  $p$ -value = 0.02), and sexual IPV (estimate =  $-0.10$ ,  $p$ -value = 0.01). Men with frequent participation had a lower prevalence of financial IPV (estimate =  $-0.07$ ,  $p$ -value = 0.05) at endline, compared to men with less frequent participation, although the estimate is marginally significant. The other aforementioned forms of violence did not retain significance at endline. Among the other secondary outcomes, wives with husbands who participated frequently also reported greater decision-making around sex at midline than wives of husbands with less participation. When men's participation was modelled as a continuous variable (Table 4b) the findings were similar except that physical and/or sexual IPV and severe physical and/or sexual IPV retained their significance at endline.

#### Discussion

This study builds on prior literature by testing an SBCC intervention in a randomized trial designed to reduce IPV. While the findings are mixed, they provide critical insights into future studies and highlight the potential promise of well targeted radio and community engagement activities for preventing IPV.

Intervention and control arms were sociodemographically very similar. However, baseline IPV was higher overall in control communities, despite similar observations of theorized mediators such as communication, decision-making in for both control and treatment arms. Decreases in IPV reported at midline among the control group did not persist to endline. In fact, there were increases in reported IPV from midline to endline for both groups. Per the process evaluation results, there was no evidence of back lash to the intervention, but the overall trend towards increased reporting, especially in the intervention groups, is potentially explained by greater rapport over time in the intervention areas given the intensity of the intervention. Exposure to other gender-equity focused interventions in our study sites, such as the Suaahara II project (Hellen Keller International & USAID, 2015 not stated) may have also impacted our trial outcomes. However, the severity of IPV from baseline to endline did not follow the same pattern as physical and sexual IPV in the intervention areas. This may show a lack of impact or reflect an ongoing challenge in the modelling of IPV variables whereby dichotomization obscures a more nuanced set of experiences that frequently co-occur and demonstrate latent patterns of exposure. This manuscript reports the outcomes as set forth by the larger consortium. Further analysis with different modelling approaches, including latent variable modelling which has been successfully used to identify underlying patterns of exposure (Christofides et al., 2019, under review; Clark

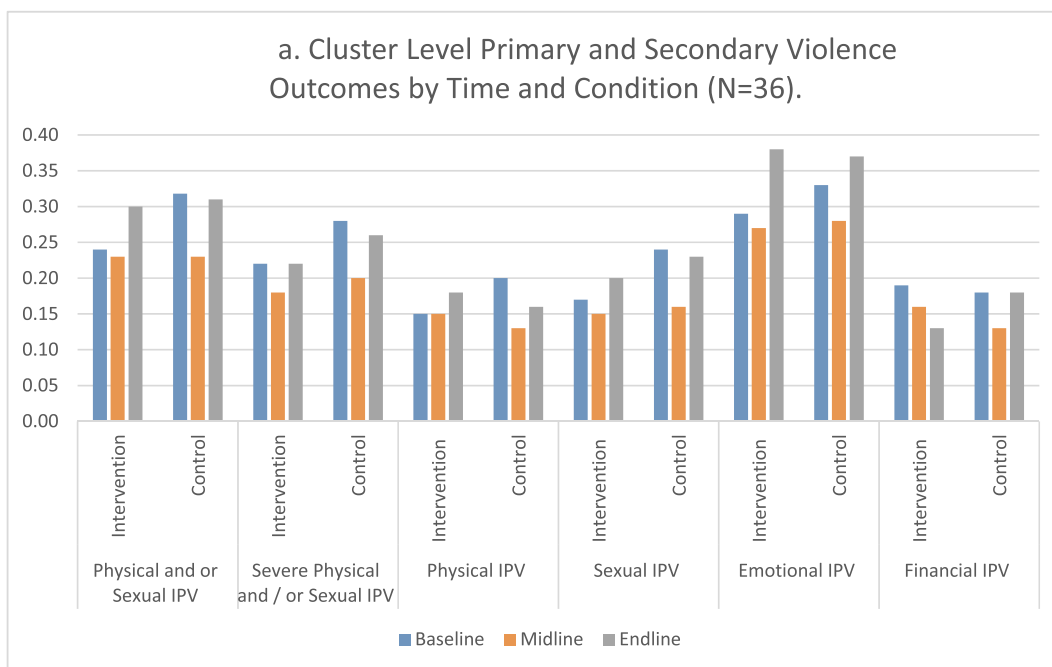


Fig. 3a. Cluster level Primary and Secondary violence Outcomes by Time and Condition (N = 36).

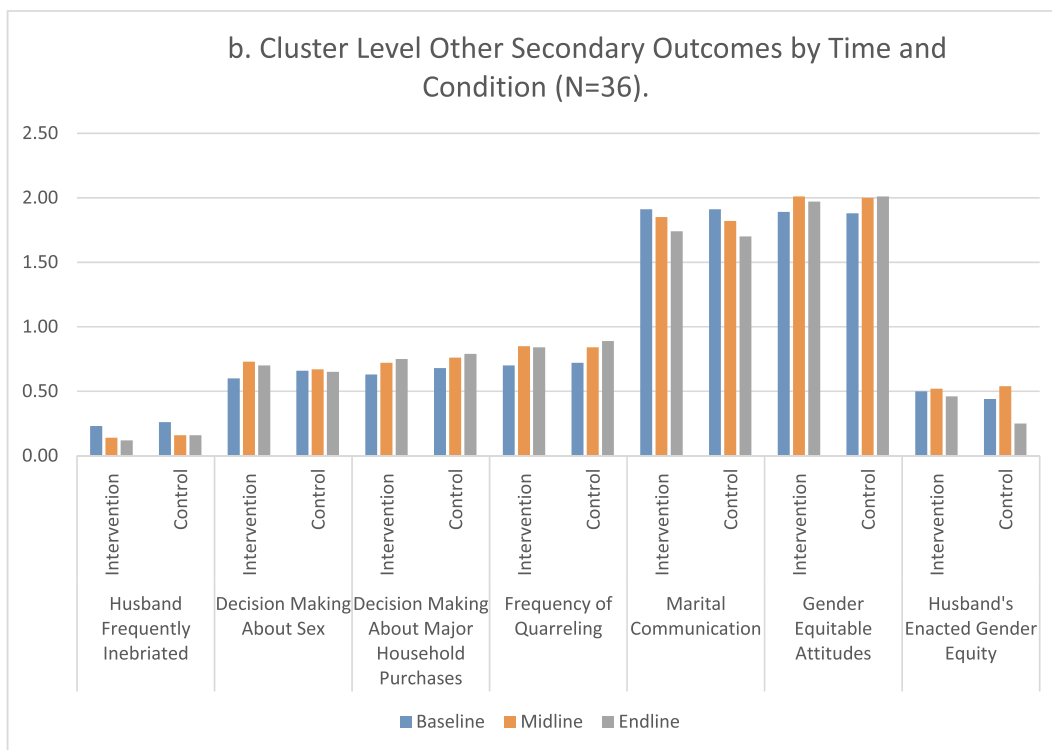


Fig. 3b. Cluster level Other Secondary Outcomes by Time and Condition (N = 36).

et al., 2019), are needed to provide greater understanding of potential shifts in both the intervention and control conditions.

A lack of demonstrable community-based findings is in line with a recently completed trial in South Africa that used community-based mobilization to address IPV, the Sonke Community Health Action for Norms and Gender Equity trial (Christofides et al., 2019 under review). In that study, changes over time in the control arm challenged the study's ability to detect significantly different change between

intervention and control communities, despite identifying reductions in IPV, although promising results were identified in men perpetrating less severe forms of IPV. Alternatively, the SASA! trial conducted in Uganda identified improvements in both onset and continuation of IPV (Abramsky et al., 2016b) in comparison to the control group (Abramsky, Devries, Michau, Nakuti, Musuya, Kyegombe et al., 2016), and attributed its success to largely to social norms change (Abramsky, Devries, Michau, Nakuti, Musuya, Kiss et al., 2016). Similarly, a recently

**Table 3**  
Estimated risk difference treatment effects, primary and secondary outcomes.

	Baseline - Midline			Baseline-Endline		
	Estimate	95% CIs	P-value	Estimate	95% CIs	P-value
Primary Outcome						
Physical and/or sexual IPV, prior 12 months	0.08	-0.01, 0.16	0.08	0.07	-0.03, 0.16	0.16
Secondary Outcomes						
Severe physical and/or sexual IPV, prior 12 months	0.05	-0.03, 0.12	0.21	0.03	-0.06, 0.12	0.49
Physical IPV, prior 12 months	0.07	0.00, 0.13	0.05	0.07	0.01, 0.13	0.03
Sexual IPV, prior 12 months	0.07	0.00, 0.13	0.05	0.04	-0.05, 0.13	0.36
Emotional IPV, prior 12 months	0.02	-0.08, 0.13	0.67	0.05	-0.03, 0.13	0.20
Economic IPV, prior 12 months	0.02	-0.05, 0.09	0.61	-0.04	-0.12, 0.03	0.23
Husband frequently drunk	0.01	-0.06, 0.08	0.70	0.00	-0.07, 0.07	0.98
Respondent participates in decision to have sex	0.12	0.03, 0.20	0.01	0.11	0.00, 0.21	0.05
Respondent participates in decisions about major household purchases	0.01	-0.07, 0.08	0.84	0.01	-0.08, 0.10	0.84
Frequency of quarrelling	0.02	-0.09, 0.14	0.69	-0.03	-0.14, 0.08	0.59
Couple communication	0.03	-0.22, 0.27	0.82	0.05	-0.14, 0.23	0.53
Gender equitable attitudes	0.00	-0.11, 0.11	0.96	-0.04	-0.12, 0.04	0.28
Husband enacts gender equitable behaviors in front of his family	-0.08	-0.26, 0.10	0.38	-0.10	-0.24, 0.04	0.15

**Table 4a**  
Estimated impact of frequent group participation at midline and endline, N = 382.

	Baseline - Midline			Baseline-Endline		
	Estimate	95% CI	P-value	Estimate	95% CI	P-value
Physical and/or sexual IPV, prior 12 months	-0.10	-0.19 -0.01	0.02	-0.06	-0.18 0.06	0.31
Severe physical and/or sexual IPV, prior 12 months	-0.09	-0.17 -0.01	0.02	-0.07	-0.17 0.03	0.17
Physical IPV, prior 12 months	-0.01	-0.08 0.06	0.75	-0.04	-0.12 0.04	0.32
Sexual IPV, prior 12 months	-0.10	-0.17 -0.03	0.01	-0.02	-0.12 0.09	0.77
Emotional IPV, prior 12 months	0.00	-0.10 0.10	0.97	-0.09	-0.22 -0.05	0.22
Financial IPV, prior 12 months	-0.06	-0.14 0.02	0.15	-0.08	-0.16 -0.00	0.05
Husband frequently drunk	-0.06	-0.14 0.02	0.12	-0.01	-0.09 0.08	0.89
Respondent participates in decision to have sex	0.12	0.01 0.23	0.04	0.06	-0.06 0.19	0.34
Respondent participates in decisions about major household purchases	0.03	-0.07 0.13	0.54	0.00	-0.10 0.10	0.96
Frequency of quarrelling	-0.05	-0.17 0.08	0.44	-0.03	-0.16 0.10	0.67
Couple communication	-0.03	-0.26 0.21	0.82	0.18	-0.04 0.40	0.12
Gender equitable attitudes	0.01	-0.12 0.13	0.93	0.00	-0.12 0.12	0.99
Husband enacts gender equitable behaviors in front of his family	-0.03	-0.16 0.10	0.62	0.08	-0.05 0.21	0.24

**Table 4b**  
Estimated impact of weekly group participation at midline and endline, N = 382.

	Baseline - Midline			Baseline-Endline		
	Estimate	95% CI	P-value	Estimate	95% CI	P-value
Physical and/or sexual IPV, prior 12 months	-0.01	-0.01 0.00	0.03	-0.01	-0.01 0.00	0.04
Severe physical and/or sexual IPV, prior 12 months	0.00	-0.01 0.00	0.01	-0.01	-0.10 0.14	0.01
Physical IPV, prior 12 months	0.00	-0.01 0.00	0.12	0.00	-0.01 0.00	0.10
Sexual IPV, prior 12 months	0.00	-0.01 0.00	0.09	0.00	-0.01 0.00	0.44
Emotional IPV, prior 12 months	0.00	-0.01 0.00	0.82	0.00	-0.01 0.00	0.37
Financial IPV, prior 12 months	0.00	-0.01 0.00	0.64	-0.01	-0.01 0.00	0.01
Husband frequently drunk	0.00	-0.01 0.00	0.16	0.00	-0.01 0.00	0.28
Respondent participates in decision to have sex	0.01	0.00 0.01	0.05	0.00	-0.17 0.10	0.98
Respondent participates in decisions about major household purchases	0.00	0.00 0.01	0.68	0.00	0.00 0.00	0.95
Frequency of quarrelling	0.00	-0.01 0.00	0.62	0.00	-0.01 0.00	0.18
Couple communication	0.00	-0.01 0.01	0.49	0.01	-0.01 0.02	0.24
Gender equitable attitudes	0.00	-0.01 0.01	0.70	0.00	-0.01 0.00	0.90
Husband enacts gender equitable behaviors in front of his family	0.00	0.29 0.01	0.37	0.00	0.00 0.01	0.50

Notes: Adjusted for baseline measure of the outcome and all other baseline variables listed. Baseline measure of physical and/or sexual IPV was included as a control variable in the non-IPV outcome models.

conducted community-engagement trial in Ghana identified changes in women’s reports of sexual IPV and controlling behavior and reductions in depressive symptoms (Ogum-Alangea, Addo-Lartey, Chirwa, Sikweyiya, Coker-Appiah, Jewkes et al. 2019 under review). The involvement of religious leaders was identified as a potential contributor to study impact in Ghana given the leaders’ couples-focused counselling.

The *Change* trial did find that frequent LDG attendance was associated with decreases in many types of IPV, some of which persisted to endline. The benefits of the intervention concur with findings from the qualitative LDG cohort which found sustained changes in labor roles,

communication, decision-making, alcohol abuse, roaming, conflict resolution, and experience of IPV within the cohort (McGhee et al., ). Study findings also concur with another recently conducted trial in Rwanda involving couples and communities which found couple-related improvements in IPV that went through an intensive, 6 month curriculum but no impact in the community sample in response to activism based activities (Chatterji, Stern, Dunkle, & Heise, 2019 under review). Across all studies, the duration of time spent on the community mobilization was less than that of the SASA! Trial, which has found that 3–5 years of intervention might be needed for significant impact. Further, the



intensity of exposure among the community samples was less than anticipated, and similar to the intensity of exposure of the Sonke Community Health Action for Norms and Gender Equity trial, which found impact only among men perpetrating the least severe forms of IPV (Christofides et al., 2019, under review). *Change* trial community-based exposure was considerably less than that reported in the successful SASA! trial (91% of men exposed; 68% of women) (Abramsky et al., 2014). These differences may highlight the need for community-wide engagement on a level intense and sustained enough for detectable change to occur in a typical grant timeframe, especially when using community-wide measurement to determine primary outcome impact.

Diffusion-focused analyses of *Change* trial data found evidence of diffusion-related behavior change. In analyses of intervention community data, those with the greatest degree of message diffusion, defined as the number of different people spoken to about the message across all message sources - identified in the *Change* trial as family, friends, and neighbors, also demonstrated more widespread assistance to an IPV survivor in the prior 12 months, including among those who were not directly exposed to the messaging but who lived in a community where there was greater diffusion (Cislaghi et al., 2019). This study's reliance on a random selection of community members dispersed across the entire study area, as opposed to a social network or close neighborhood-based sampling may have hindered its ability to detect change that may otherwise be occurring. Assessing exposure to messaging and to diffusion at the micro community level or social network level will likely bring additional insights into the effectiveness of the intervention.

*Change* trial findings must be considered in light of its limitations. While VDCs were selected to avoid contamination and to avoid other gender equity-focused programming, this could not be fully controlled. Control community members were exposed to a least a small degree of intervention programming. While most of the intervention activities were branded, efforts of the religious and community leaders were more difficult to brand and not all study participants may have been able to clearly differentiate *Change* trial activities from other possible exposure. The lack of significant change detected in the quantitative findings for some of the hypothesized mediators in the trial may be due to the ability of the qualitative inquiry to identify more subtle changes that are not captured in the coarser quantitative measures but may also reflect the select nature of the LDG cohort as they were not a random sample of all LDG participants. In addition, there was no control group for the cohort. Given the evidence of change for many measures in the control groups, findings should be considered preliminary. Reliance on self-report for study outcomes is typical in the field given the general lack of more objective sources at the population-level. However, self-report may be influenced by rapport, social desirability, and changing perceptions of IPV over time. Considerable efforts were made to mitigate these limitations by using well-trained interviewers with prior experience with sensitive topics, especially violence against women and children, extended training, and for the population-based sample, a repeat random selection. In addition, the primary investigator was not blinded to allocation. The data collectors along with the statistician were blinded to offset the potential for bias. Finally, the shift in IPV among the control condition suggests potential measurement error. Measurement invariance examination is needed to more formally diagnose the functioning of the IPV measure across conditions and over time.

Overall, the *Change* trial demonstrated promise among those with the greatest participation in programming, but further research is needed with a control condition for the groups before stronger conclusions can be drawn. Greater and more intensive community participation may be necessary to reach critical mass; however, more targeted and intensive engagement and formal measurement of social networks is likely needed to more clearly identify early signs of change, especially over shorter time frames given the identified social and geospatial closeness of individuals to whom the respondent spoke to about message content. Formal social network data collection and analysis could be used to trace

message diffusion, attitudinal and behavior change through interpersonal networks, along with identifying those in the community who are identified as social references, as well as those whose position in the community seems to bridge sociocultural subgroups. In communities as diverse as Nepal, identification of both influencers and bridges between sub-communities will likely improve the consistency of community engagement and diffusion of study impact.

## Declaration of competing interest

The authors have no conflicts of interest to disclose.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmph.2019.100530>.

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