Community Gender Norms Change as a Part of a Multilevel Approach to Sexual Health Among Married Women in Mumbai, India

Stephen L. Schensul[1], **Rajendra Singh**[2], **Jean J. Schensul**[3], **Ravi K. Verma**[4], **Joseph A. Burleson**[1], and **Bonnie K. Nastasi**[5]

[1] Department of Community Medicine and Health Care, University of Connecticut School of Medicine, 263 Farmington Ave., Farmington, CT 06030-6325, USA

[2] International Center for Research on Women, Mumbai, Mumbai, India

[3] Institute for Community Research, Hartford, CT, USA

[4] International Center for Research on Women, Delhi, New Delhi, India

[5] Tulane University, New Orleans, LA, USA

Abstract

Inequitable gender norms in societies and communities negatively contribute to women's sexual and reproductive health. While the need for change in gender norms is well recognized, the task is highly challenging in terms of intervention design, implementation and assessment of impact. This paper describes a methodology for identification of gender norms, the design of community level intervention, community participation and the assessment of intervention impact in a low income, predominately Muslim community of 600,000 people in Mumbai, India. Formative research focused on in-depth interviews with women, men and couples yielding gender normative statements and assessment of community resources to facilitate change. A Gender Equity Scale (GES) based on this formative research was developed and administered annually for a three-year period to random, cross-sectional samples in the intervention and control communities, and to community based, non-governmental organizations (NGO) staff and Imams (religious leaders) in the intervention community. NGO staff disseminated gender oriented messages to their female constituency through their regular outreach activities and through special events and festivals in the community. Imams disseminated gender messages through lectures on social issues for men attending Friday prayers. The results showed that the NGO staff and Imams, assumed more gender equitable attitudes across time. The intervention was associated with a significant improvement in attitudes towards gender equity in the intervention relative to the control community. Men showed a dramatic change in more positive gender attitudes, while women lagged behind in their GES scores. The meaning of these results are explored and the implications assessed for the generalizability of the methodology for other countries, cultures and communities.

Correspondence to: Stephen L. Schensul.

Stephen L. Schensul schensul@uchc.edu.

Keywords

Gender; Norms; Community intervention; India; Impact

Introduction

Keleher and Franklin (2008), in their review of interventions aimed at changing gendered norms for women and girls, state that, "Gender norms are powerful, pervasive values and attitudes, about gender-based social roles and behaviors that are deeply embedded in social structures…Gender inequity is widely and deeply entrenched in individual and community attitudes and behaviors, societal norms, institutions and market economies, with disproportionate inequities apparent among poor women (pp. 43–44)."

In reproductive health and HIV risk reduction, patriarchal gender norms play a significant role in reducing women's ability to negotiate protective behaviors with their partners, refuse demands for sex, avoid unwanted pregnancies, and seek appropriate health care for reproductive health problems. Changing gender norms to support greater relational equity for women has been shown to reduce HIV risk by improving the dynamics of marital relationships that contribute to risk (Gómez and Marin 1996; Pulerwitz et al. 2006; Amaro and Raj 2000; Wingood and DiClemente 2000).

However, changing and sustaining change in gender norms to support greater relational equity is highly challenging, especially in male-dominated cultures. Key aspects of the intervention process involve *formative research* to establish baseline norms, *community participation* in the change process, *multiple intervention methods* and effective approaches to *evaluating impact*. Formative research, which assesses individuals, institutions, and communities both quantitatively and qualitatively, allows researchers and interventionists to better identify the culture, needs, beliefs, perceptions, and behaviors of the targeted population and the factors that may enhance or limit intervention effectiveness (Young et al. 2006; Gittelsohn et al. 1995; Vastine et al. 2005). Formative research can also be used to identify individuals or institutions that would be instrumental in planning, promoting, and implementing the desired intervention (Young et al. 2006; Atkin and Freimuth 1989).

Community participation in the planning, implementation, and evaluation of interventions has been attributed to program success (Vastine et al. 2005). Community collaboration ensures that educational materials are appealing and relevant, and that the context, format and messages are shaped in such a way as to be acceptable recipients (Rosal et al. 2004). Community collaboration in intervention development also allows researchers and community members to have a shared sense of belonging, mutual support, and common goals, key components to program success (Baker and Brownson 1998). Community input can provide critical information in identifying community institutions, organizations and individuals that can be involved with intervention development and implementation (Rosal et al. 2004; Baker and Brownson 1998).

Community interventions need to be multilevel, employing a variety of strategies. In terms of level, Keleher and Franklin (2008) classify interventions into "downstream" (focused on

individuals), "midstream" (focused on communities and populations) and "upstream" (change in structure and societal mechanisms). They argue that the simultaneous implementation of these three implementation approaches produce the most effective interventions. Community interventions have employed a variety of strategies, including changes in knowledge, behavior, the environment, legislation, and enforcement (Klassen et al. 2000; Baker and Brownson 1998), through mass media (Krishnan et al. 2011; Sarrafzadegan et al. 2009), distribution of written materials (Altaf et al. 2013; Macaulay et al. 1997; Kegeles et al. 1996; Arora et al. 2010), classroom and/or religious instruction (Mittelmark et al. 1986; Altaf et al. 2013), and participation or organization of community events (Sarrafzadegan et al. 2009; Macaulay et al. 1997; Kegeles et al. 1996; Abramsky et al. 2012), among other approaches.

The impact of community interventions is generally evaluated using one of four designs: non-experimental, pre-experimental, quasi-experimental, and true experimental. In order to show a reduction in behavioral, social, and environmental risk factors as a result of the intervention, community interventions are generally evaluated through longitudinal cross-sectional or cohort sampling. Merzel and D'Afflitti (2003) cite a number of shortcomings in the methodology of evaluation of community interventions that include: low statistical power, the difficulty of applying a randomized controlled design and the use of quasi-experimental designs with matched community comparisons, the influence of secular trends beyond the study population, the low effect sizes that require large samples to detect changes, the insufficiency of time and penetration and the potential lack of applicability of the intervention. The complexities of the application of stronger designs to the realities of communities may explain some of these shortcomings.

The research presented in this paper is focused on "midstream" gender normative change as a part of a multilevel intervention to support the "downstream" interventions of a project aimed at sexual risk reduction and improvement of sexual health for married women and the wife-husband dyad in a low income area of Mumbai. The project involved formative research utilizing ethnographic data collection to establish baseline normative gender attitudes and resources for change in the study community, partnerships with multiple community sectors including non-governmental organizations (NGOs) and the Muslim religious sector and the collaborative development and dissemination of gender equitable messages through, street dramas, written materials (handbills), and community events. The project utilized a quasi-experimental design comparing the intervention community to a nearby control community and assessing change among the intervention community partners. To measure change in gender attitudes, a scale was developed and administered to both the intervention and the control community and to NGO staff and Muslim religious leaders in the study community annually over the course of three years (2009–2011). We report here on the methods for developing and implementing the intervention and its impact on women, men and the special population sectors.

Methodology

The data for this paper are drawn from the project, "The Prevention of HIV/STI among Married Women in Urban India" (2007–2013) funded by US National Institute of Mental

Health. The project was a part of a decade long program, "Research and Intervention in Sexual Health: Theory to Action" (RISHTA, meaning "relationship" in Hindi and Urdu). The project and the program of which it was a part was a collaboration, on the India-side, of the International Center for Research on Women (ICRW), the Population Council and the Tata Institute of Social Sciences (TISS) and on the US-side, the University of Connecticut, School of Medicine, the Institute for Community Research and Tulane University.

Multilevel interventions introduced through the study included individual psychosocial counseling for women, group couples intervention, the development of a Women's Health Clinic (WHC) in the local municipal urban health center and a community campaign focused on the promotion of gender equity. The project design for individuals and couples consisted of a randomized controlled trial (RCT) in which consenting women coming to the WHC, were randomly assigned to individual counseling, couples' intervention, a combination of both, or a control group that received standard medical care from the WHC only (see Schensul et al. 2009 for a detailed description of the RCT design). This paper describes and provides the evaluation data for the community intervention campaign.

The Study Community

The study community is located in the northeastern sector of Mumbai with a population of approximately 600,000. It is classified as a "slum" in the Mumbai municipality, which is an official designation of type of community characterized by both legal and illegal settlements. The community was formed in the 1970s by families experiencing severe housing shortages in central Mumbai. The majority of adults residents (66 %) are migrants from the impoverished northern States of Uttar Pradesh and Bihar and rural areas of Maharashtra (the State in which Mumbai is located) and Tamil Nadu in the south. In-migration to the community has slowed in the last decade and the mean time of community residence for those not born in Mumbai is 14 years. The community is characterized by a high percentage of substandard housing, inadequate roads, poor sanitation and limited water supply. Houses are constructed of cement blocks in legal settlement areas and of found materials in illegal encroachments. Most households consist of a single room with an average family size of 6.2 members.

The population is primarily Muslim (80 %) and Hindu (16 %) with a small percentage of Christians and Buddhists; non-Muslims are widely dispersed throughout the community. Average income per household is Rs. 5900 (approximately US$ 100) per month and most men have daily wage jobs that result in unstable incomes. There has been a significant increase in women working for cash income both within and outside the home. Of those women who work for cash income, 60 % work in the home doing embroidering and sewing, while 40 % work as housemaids or sell vegetables and fruit. The mean income for women is Rs. 1200 ($20) per month.

In terms of community resources, the municipality provides small amounts of funding for two groups in the service sector: *Anganwadi* teachers who conduct *balwadi* (nursery and day care) and Community Health Volunteers (CHVs) who work with an allotment of 100 households and provide support for prenatal care, family planning and health education.

While members of these organizations were assessed in terms of gender norms, their activities and their availability for supplemental work precluded involvement in the community intervention.

Mahila mandals are small women's groups consisting of 6–12 neighbors located in lanes in the community. These groups frequently mobilize around particular issues (e.g. water, food rations, safety) but their once the impetus for action is removed, their collective activity is difficult to sustain.

The study area includes six NGOs that provide a range of health, economic, counseling and advocacy services. The NGOs have been in the community for more than two decades and most of the staff are community residents. These NGOs are subsidiaries of organizations with outposts in other communities and have a central board of primarily middle and upper class academic and business women who do not reside in the communities. Their activities are funded by individual donors, the corporate sector, local partners and national, not for profit organizations.

There are 48 mosques in the study community, a number that has grown significantly over the last decade, an indicator of a move toward greater religiosity and external funding for mosque development from Muslim countries. Each of the mosques have an Imam (clerical leader), a mosque committee of lay co-religionists and *madrassas* (religious schools). Close to 90 % of the Muslims in the study community are Sunni, and 5 % are Deobndi and Ahl Hadeeth (two conservative sects that emerged in India as a reaction to British colonialism) and 5 % Shi'a. Each of the mosques has a committee responsible for the management of the mosques. These committees organize Islamic religious programs, activities and events such as religious lectures on important Muslim events like *Ramadan* and different *Eids* (holy days). They are also involved in community welfare activities such as schools, development and repair of the mosques and collecting donations for the poor for wheat, rice, cereals and cooking oil. The committees are also an important resource for addressing community and familial problems such as dowry, domestic violence, property distribution, rape, and criminal activity. Women are not allowed in mosques and depend on their husbands for conveying religious instruction.

For the minority population in the intervention community, Hindus and Buddhist priests and temples serve primarily a limited role focused on performing rituals. Individuals and families visit the temples for special events (*pooja*) and prayer and priests perform weddings and home-based *poojas*, but they provide little normative guidance. For interventions in majority Hindu and Buddhist communities other intervention channels would need to be found.

The area includes an allopathic Urban Health Center and an Urban Health Post run by the municipality and staffed by physicians, residents and medical students from a Mumbai based public medical college. There are a number of private maternity homes for delivery and perinatal care. The bulk of health care in the study community is provided by over 180 private practitioners of Indian systems of medicine in small clinics throughout the community (*ayurveda, unani* and homeopathy, see Schensul et al. 2006a).

The assessment of these different community based entities resulted in the selection of the NGOs and the religious sector as the most promising potential partners in the community intervention effort. NGO activities and services were primarily focused on women while Imams and Mosques focused their attention on men.

Developing the Intervention

Stage 1: Formative Research

From 2001 to 2007, we conducted a research and intervention grant funded by NIMH that focused on prevention of HIV/STI among married men and a supplement from the Office of AIDS Research that focused on married women. As a part of this grant and supplement, we conducted 51 indepth interviews with married men, 66 married women's interviews and 56 couples' interviews and pre- (N = 2408) and post (N = 2470) cross-sectional surveys with married men 21–40. The current project supplemented these qualitative data with 39 in-depth interviews with women, 21 with men and 15 with joint wife-husband dyads as well as baseline surveys with 1125 married women recruited into the RCT. The qualitative data were coded and analyzed in Atlas.ti software (Muhr 2010) allowing for the identification of gender attitudes when quotes reflected women's roles and behaviors viz-a-viz men. The survey data was analyzed using SPSS (v21).

Step 2: Community Partnerships

To identify community collaboration in gender norms change, project staff assessed the structure and activities of the two primary sectors, NGOs, and the Muslim religious sector. The focus of the six NGOs in the community was on addressing women's needs for education, health care, training for job skills, and addressing intimate partner violence among other issues. In addition, the NGOs have traditionally participated in community-wide events that included International Women's Day and AIDS Day and festivals that attracted both men and women.

The Muslim religious sector was by far the most effective in reaching men. Over the last decade, the number of mosques in the community have almost doubled to 48, with many having large congregations, particularly at Friday prayers. It is estimated that close to 20,000 men attended prayers on a weekly basis. A multi-step process to engage these sectors was utilized. First individual meetings and interviews were used to introduce the project, develop rapport, assess perspectives and learn about the activities. Second, research staff conducted participant observation of NGO community activities and Friday prayers (*jumma namaz*) at the mosque, including the *taqrir* (lecture) on the Qu'ran approaches to behavior. Finally, our staff addressed group meetings of NGO staff and Imams and mosque committee members to discuss collaboration on gender equity issues.

Stage 3: Generating Messages

The RISHTA project organized a series of separate workshops with 28 NGO staff and 20 Imams and mosque committee members focused on the development of messages related to the concepts generated by the formative research. The findings of the formative research were shared at these workshops and sessions focused on the problem, the consequences that

would be recognized by community residents and messages that could be readily understood and were relevant to encouraging positive behavioral and attitudinal change with regard to gender equity (see Table 1). For the religious sector, linking gender equity to the Qu'ran proved easier than expected. The principles in accordance with Shari'a law and the Haddeeth supported such messages as: "beating a woman is not permitted (*manaai*);" "extramarital relationships (zeena) is a sin;" and "men and women are equal." As one Imam put it, "The Prophet has said that the best person among you is one who behaves with love and niceness toward his wife."

Messages were phrased appropriately in Hindi and Urdu, and piloted in the community through NGO activities and meeting with mosque committees and modified as needed for relevance, understandability and cultural and religious acceptance. While Muslims, Hindus and Buddhists are members of distinct religions, they share a common culture, celebrate each other's holidays, and show more continuity than discontinuity. As a result, there was a convergence of message content between those generated by the NGO staff and those developed by the Imams.

Stage 4: Implementing Message Dissemination

The six NGOs conducted regular outreach activities in the areas of health, economic development, sports, advocacy for women's rights, sanitation and water and community education. Our first approach was to integrate the gender equity messages into these regular NGO activities. While this approach offered a means of conveying the messages in the community, overburdened NGO staff, irregular timings and inadequate resources limited the delivery and impact of the messages. Far more successful was a focus on disseminating messages as a key component of community wide events organized collaboratively by the six NGOs in collaboration with RISHTA. These events included: International Women's Day, AIDS Day, *Ramadan Eid, Ganpati* (for the Lord Ganesha) and the *Navaratri* (a ten night celebration of the female god, Durga). For these events, messages were printed on handbills, posters, banners and presentations and included at rallies and in street dramas. From 2009 to 2013, more than 20,000 men, women and children in each year participated in at least one of these five events in which they were exposed to messages related to improving marital relationships and gender equity.

RISHTA staff met with Imams, members of mosque committees and *madrassa* teachers to understand the principals of the Qu'ran, assess attitudes and develop rapport leading to collaboration in the effort to promote gender equity. The response from religious leaders was very positive, frequently stating that they had not been asked to participate in the past. For the Imams, the focus for dissemination activities was on the *taqrir*, in which prior to the *jumma namaz* (the Friday prayer service), the Imam gives a speech on family and social issues, providing religious and culturally framed guidelines for behavior consistent with the Qu'ran. The RISHTA staff convened a workshop with Imams to formulate the messages and invited Muslim scholars to work with local Imams in this process. Imams actively incorporated the messages concerning positive marital relationships, women's health and extramarital relations (although they were more reluctant to discuss HIV/STI prevention through the use of condoms) in their communications with congregants. In addition, posters

and banners with gender-equitable messages were placed on the gates of each mosque, with the approval of the mosque committees, to promote discussions among prayer attendees. Regular follow-up meetings were conducted to provide support to the Imams and respond to their input and suggestions. The content of the *taqrir* were monitored by RISHTA Muslim staff in randomly selected mosques and found to be consistent with the messages that were jointly developed.

Evaluation

Instrument Development

Review of approximately 100 in-depth interviews with men, women and couples, in addition to key informant interviews with individuals in the various sectors of the community, generated 81 statements concerning gender roles and norms. These statements were easily identified in the narratives, since they frequently began with, "men (or women) ought to …" "It is the woman's responsibility to…" and "Husbands should not allow …" These statements were formatted on a 4-point Likert scale and administered to a representative, but non-random sample of 101 married female and male community residents aged 21–60 identified in various community settings and in homes. The frequencies of the individual items were assessed for skewness, reliability (Cronbach's alpha) and ease and clarity of comprehension. As a result, 29 items were identified from the original 81 and a final measure, entitled the Gender Equity Scale (GES; see ESM Appendix) was developed that included the 29 items and basic demographic variables (gender, age, ethno-religion, birthplace, occupation, education, and household income), The major components of the scale included: mobility, health and health care, nutrition, marital sexuality, household maintenance, physical abuse, status, arguments, dress, marital communication, men's freedom, family reputation, and communication outside the household. Reliability analyses showed that the Cronbach's α was sufficiently high across all three years ($\alpha_{T1} = .85$; $\alpha_{T2} = .91$; $\alpha_{T3} = .72$).

Design

Community impact was evaluated using a quasi-experimental design. Three cross sectional samples were recruited in the years 2010, 2011 and 2012 and administered the GES, in the intervention community and a nearby control community. The communities were matched on percentage Muslim (80 %), tenure of migrants and similarity of health and NGO services. The control community is located approximately 3 km from the study community. It is smaller (approximately 60,000) and is also 80 % Muslim. The control community was also the control for the focus on men in the RISHTA project conducted in 2001–2007, but no work was conducted in either data collection or intervention in the course of this project. The community has its own NGOs providing a similar set of services but not linked to the NGOs in the study community. There is little reason for members of the control community to visit the intervention community since markets, events and shopping areas are external to both communities.

The RCT in the study community ran parallel to the intervention. The couples' intervention and the individual counseling, the arms of the RCT were implemented in the period of July

15, 2009 to December 31, 2012. The administration of the GES took place in the period of October to November of 2009, 2010 and 2011. In the RCT period, 418 women received individual counseling and 351 women and men received group couples intervention, with 503 as controls, receiving no intervention. Given an estimated 300,000 married adults in the community, the penetration was minimal.

The GES instrument was also administered to Imams and NGO staff across the 3-year period in the intervention community. To monitor fidelity, research staff attended and documented all NGO events and established a regular pattern of monitoring and transcribing a sample of Imam-delivered *taqrir*.

The Sample

Inclusion criteria for the community samples involved age (21–70), married, living in the community for at least 5 years and not a participant in the RCT. A stratified sample by gender was established to ensure an equal number of men and women. The intervention and control community samples were structured by plots that were randomly selected. Within each plot, lanes were selected randomly and from the selected lanes every fifth household was chosen, generating a systematic random sample. The objective for the cross-sectional sample for the intervention community each year was 450, while the cross-sectional sample in the control community in each year was 150; over the 3 years a total of 1751 respondents. The lower number of respondents in the control community reflected the relatively smaller size and a limitation on research resources.

Of the Imam respondents, 85 were interviewed at least once and as many as three time across the successive years. In the case of the NGO staff, 67 (46 female and 21 males) were interviewed at least once and as many as three times. A minimum of one interview was necessary for inclusion in the longitudinal analysis of the change scores of the NGO staff and the Imams.

Analysis

For the Imams, three demographic variables were considered for inclusion as covariates in the analysis; age, years of experience as an Imam and number of congregants. For the NGO staff, three demographic variables, age, years of experience and education were considered for inclusion as covariates in the analysis. A hierarchical longitudinal analysis was performed on the data to test the unconditional growth hypothesis (i.e., linear change across time generally) as well as any significant conditional growth as a function of the three covariates. All results show report the estimation of fixed effects with robust standard error.

For the community samples, eight demographic variables were considered for inclusion as covariates in the analysis in order to control for differences in the intervention and control communities with regard to the in GES. They were respondent's (1) Gender, (2) Age, (3) Education, (4) Family Income, (5) Marital Status, (6) Religion, (7) Birthplace, and (8) Time spent (if not born) in Mumbai.

Statistical analyses was carried out by use of either SPSS (v21) or, for longitudinal analyses, HLM statistical software (Raudenbush et al. 2011). For the Imam and NGO samples, longitudinal analyses in HLM creates estimates of intercept and slope for cases with incomplete data, thereby utilizing all cases with data from one or more time points.

Results

Impact results will first be presented for the facilitators of change, the NGO staff and the Imams, in the intervention community. We then present the results of the GES at baseline for the intervention and control communities.

Baseline Results

A cultural consensus analysis of the data from the baseline administration of the GES was conducted in 2010 (Kostick et al. 2011) to examine and establish the degree of cohesion or agreement among respondents. A consensus analysis correlates individuals in the community (between and across subgroups) with other individuals based on their responses to the GES items, resulting in a respondent-by-respondent correlation matrix. This matrix identifies variation within a community but also has the unique feature of gauging and comparing cohesion within and among segments of a community with regard to beliefs and norms. The results showed that across all community respondents (both intervention and control, Imams and NGO staff), the distributions reflected a negative skew toward less equitable views with a mean score of 2.01 (R: 1 = less equitable to 4 = more equitable). However there was a considerable range of variation among sub-groups: men had significantly more inequitable views than women. Imams had the most inequitable views (M = 1.93), while the NGO staff had the most gender equitable attitudes (M = 3.03). There was a trend toward significance for NGO males versus NGO females, b = − 0.172, SE = 0.102, $t(143) = − 1.69$, $p = .093$, $\eta^2 = .02$, such that female NGO staff had a slightly higher GES score at baseline than male NGO staff.

Longitudinal Analysis of Imams and NGO Staff

For both Imams and NGO staff, there was a significant overall change in GES from Year 1 to Year 3, b = 0.390, SE = 0.025, $t(143) = 19.01$, $p < .001$, $\eta^2 = .72$, such that overall subjects changed significantly toward more equitable views. There was a significant differential change as a function of years of experience, b = 0.041, SE = 0.016, $t(143) = 2.50$, $p = .014$, $\eta^2 = .04$, such that the more years of experience for both NGO staff and Imams, the more positive the change in GES scores. There was no significant differential change as a function of NGO gender, b = 0.053, SE = 0.039, $t(143) = 1.34$, $p = .18$, $\eta^2 = .01$, such that female and male NGO staff changed at the same rate. There was a significant differential change for Imams relative to NGO staff; b = −0.119, SE = 0.023, $t(143) = 5.21$, $p < .001$, $\eta^2 = .16$, such that Imams changed significantly more than NGO staff (see Table 1 and Fig. 1).

Baseline Analysis of Community Samples

The results showed that there was a significant effect for Age, $p < .001$, $\eta^2 = .011$, such that the older the respondent, the more inequitable the GES score, r = −.10, $p < .001$. There was a significant effect for Education, $p < .001$, $\eta^2 = .100$, such that the more educated the respondent, the higher the GES, r = .32, $p < .001$. There was a significant effect for Family Income, $p < .001$, $\eta^2 = .039$, such that the higher the income, the higher the GES score, r = .20, $p < .001$. There was a significant effect for Religion, $p < .001$, $\eta^2 = .041$, such that Muslim respondents (M = 2.01, SD = 0.50) had less equitable scores on the GES than non-Muslim (M = 2.26, SD = 0.55) respondents. There was a significant effect for city of birth, such that those born in Mumbai (M = 2.19, SD = 0.52) had significantly more equitable GES scores than those who migrated to Mumbai. (M = 2.08, SD = 0.51). These variables were controlled for intercommunity comparisons.

Longitudinal Analysis of Community Samples

Since no community respondent was ever tracked across successive years, respondents for each year within a given community could not be yoked in a longitudinal analyses. The approach instead was to test whether there are significantly successive differences across the three years. As such, a 2 (community) × 3 (Year) between-subjects design was employed that treated the total dataset as a function of the intervention versus the control community. These different communities were modeled by year as two orthogonal polynomials (linear and quadratic) in order to assess successive differences in the GES as a function of time. There was no significant main nor interactive Year Quadratic effects, nor were there (except for Gender) any significant interaction effects among demographic variables and Year, such that they were removed from the analysis. There was a significant positive Year Linear effect, $p < .001$, $\eta^2 = .095$, such that the GES rose significantly across time. There was no significant Group main effect, $p = .11$, $\eta^2 = .001$. In order to control for the Community × Year interaction of interest, other significant demographic main effects included Gender, $p = .014$, $\eta^2 = .003$, such that Males (M = 2.07) were significantly higher than females (M = 2.02); Age, $p < .001$, $\eta^2 = .008$, such that the older the respondent, the lower the GES; Religion, $p < .001$, $\eta^2 = .077$, such that Muslims (M = 1.99) were significantly lower than others (M = 2.28); Born in Mumbai, $p < .001$, $\eta^2 = .023$, such that those Born in Mumbai were significantly higher (M = 2.15) than those not (M = 1.98); Education, $p < .001$, $\eta^2 = .054$, such that the higher the education, the higher the GES; and Income, $p < .001$, $\eta^2 = .012$, such that the higher the income, the higher the GES (see Table 2).

There was a significant Gender by Year effect, $p < .001$, $\eta^2 = .032$, such that males increased their GES significantly more over the 3-year period than did females (Table 3). There was a significant Gender by Community effect, $p = .019$, $\eta^2 = .003$, such that the difference between males were significantly higher than females on the GES in the Experimental community (Male M = 2.10; Female M = 2.01), but significantly lower than females in the Control community (Male M = 1.99; Female M = 2.05).

There was a significant Community by Year effect, $p < .001$, $\eta^2 = .020$, such that the increasing linear differences across the years were significantly higher for the Experimental

community (Year 2009: M = 1.85, SD = 0.48; Year 2010: M = 2.03, SD = 0.42; and Year 2011: M = 2.29, SD = 0.57) than for the Control community (Year 2009: M = 1.96, SD = 0.49; Year 2010: M = 2.04, SD = 0.52; and Year 2011: M = 2.06, SD = 0.49).

Finally, there was a significant Gender by Community by Year effect, $p < .001$, $\eta^2 = .014$, such that there was significantly more positive change for men in the Intervention community (Year 2009: M = 1.74; Year 2010: M = 2.13; Year 2011: M = 2.45) relative to the Control community (Year 2009: M = 1.94; Year 2010: M = 1.93; and Year 2011: M = 2.13). Women, however, showed no significantly different patterns of change as a function of year (Intervention Community: Year 2009: M = 1.97; Year 2010: M = 1.93; and Year 2011: M = 2.13; versus Control Community: Year 2009: M = 1.97; Year 2010: M = 2.15; and Year 2011: M = 2.02). Women in the control community had greater positive gains in gender equity than women in the intervention community in the T1 to T2 years. Women in the intervention community showed significant improvement from T2 to T3, resulting in the intervention and control communities ending at the same point in T3 (see Table 4 and Fig. 2).

Discussion

The NGO staff in the study community showed the highest level of gender equity as measured by the GES at baseline. Nonetheless they showed a significant gain over the course of the intervention. The most dramatic change, however, occurred among the Imams who were the least gender equitable of any of the samples at baseline and significantly lower in their GES score than men or women in the study and control communities. By the second follow-up in 2011, however, they showed a mean GES score higher than the community and a rate of change much greater than the NGO staff. These results belie the stereotype of Imams, who are often seen as not supportive of and even opposed to interventions and intransient in their attitudes and behavior. In fact, the Imams appreciated the involvement in the intervention, found correspondence with the principles of the Qu'ran and were enthusiastic about being invited to NGO-organized community activities. Since the NGO staff and the Imams were the main communicators of the community intervention messages, these positive gender equity changes represented a crucial part of the intervention strategy.

The intervention community demonstrated significantly more gender equitable attitudes as measured by change in the GES over the three year period of the study than the control community. Most of the improvement in the gender equity scores of the intervention community was accounted for by a dramatic positive change in gender equity attitudes over time among men in the intervention community versus men in the control community.

The pattern of change among women was less straightforward. From the baseline in 2009 to the first follow-up in 2010, married women in the control community showed more improvement in gender equitable attitudes than women in the intervention community, where GES scores did not change. This shift in the control community may have represented a secular trend in Indian society or a pattern unique to the control community. In the period from 2010 to the second follow-up in 2012, there was no significant change in the mean GES scores in control community, but the women in the intervention community

significantly increased their GES scores. However, the net result was that the women in the intervention community ended up at the second follow-up (2011) with exactly the same mean score on the GES as the control community women.

An explanation of the difference in female versus male trajectories of change in GES scores may be due to the nature of the intervention. The delivery of gender equitable messages to men through Imams' weekly lectures prior to Friday prayers in the mosques was very effective. Research staff monitored the *taqrir* and found that the Imams were providing messages consistent with those developed with RISHTA. The audiences for these messages were large and delivered by individuals who had high prestige in the community. In contrast, the five big events organized by the NGOs and aimed primarily at women in which RISHTA collaborated with the six NGOs reached many women with gender equity messages, but by nature of being event-oriented were less consistent and had variable attendance.

A second possible explanation has to do with gender differentiation in the adoption of new norms in a patriarchal context. When women take on new and more equitable norms and behaviors in what they perceive to be an unchanged cultural context, there can be negative outcomes such as domestic violence and poor health (Rocca et al. 2009; Tuladhar et al. 2013; Moonzwe Davis et al. 2014). It may be that the lag in change reflects women's recognition of the need to wait, to ensure a positive and supportive environment, before manifesting behavioral and attitudinal shifts.

The collaborations with community institutions were based on more than a decade of research and intervention in the study community. The development of effective collaboration takes time, development of rapport with key leaders, and recognition of the need to meet mutual agendas (see Schensul et al. 2006b). While we recognize that most intervention projects cannot devote a decade to the development of community collaboration, it must also be recognized that externally initiated projects cannot expect collaboration "on-demand." Formative research, which includes the identification of community resources that can contribute to population intervention, is essential to the process of effective community collaboration.

Communication of messages in population-based interventions must be conducted frequently to achieve impact. Weekly *taqrir* in the mosques, handbills distributed regularly and posters affixed outside mosques, frequent NGO activities, street dramas, festivals and other special day events maintained a continual flow of gender equitable messages.

The development and implementation of the GES was based on qualitative research focused on in-depth interviews with married men, women and couples. Gender-oriented, attitudinal statements were identified that evidenced both positive and negative attitudes providing a comprehensive picture of female to male relationships in the study community. We see this process of developing the GES as generalizable to a wide range of cultural and community contexts. We maintain that the GES used in this study (see ESM Appendix) is to be considered unique to this area of Mumbai. Scales with different content using the same methodology described in this paper should be developed for other communities, regions,

cultures and countries. This approach avoids the complexities and cultural dissonance of adapting scales and ensures the cultural relevance of "ground-up" normative statements as the basis for assessing gendered norms. Thus, a unique and culturally specific GES needs to be built for each research and intervention context. The generalizability of this work lies in developing a culturally appropriate scale, a set of interventions in collaboration with key sectors in the community, and an effective means of monitoring change that can assess a shift in gendered norms.

The results of this work have been presented on ten occasions to members of the study community including a gathering of NGO staff, meetings with Imams and other Muslim religious leaders and gatherings organized in multiple sectors of the community. Following community presentations, a Mumbai-level dissemination meeting was held involving municipal and state ministry representatives, university faculty, and NGO representatives. A national dissemination was held in Delhi that involved UN agencies, governmental representatives, bilateral agencies and international NGOs. Follow-up dissemination for individual agencies was provided at the National AIDS Control Organization, the National Institute for Medical Statistics, the Public Health Foundation of India, and the Indian Council for Medical Research. For each of these dissemination opportunities, a project brief, a video presenting the project and intervention manuals were prepared and distributed (available from the corresponding author). Qualitative feedback from these diverse groups indicates a greater recognition of the role of culturally-based gender norms in issues such as health, sexual risk, empowerment, violence and marital communication.

There are many programs which seek to create greater equity and empowerment for individual women. Behavioral and attitudinal change at the individual level, however, must be accompanied by interventions, which support these changes at the family, community and societal levels. This paper has provided a generalizable methodology, both for intervention and measurement of change, and a case study of implementation in a low income community in Mumbai that has contributed to a supportive community environment for gender equity, sexual health and well-being for women.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

References

Abramsky T, Devries K, Kiss L, Francisco L, Nakuti J, Musuya T, Watts C. A community mobilisation intervention to prevent violence against women and reduce HIV/AIDS risk in Kampala, Uganda (the SASA! Study): Study protocol for a cluster randomised controlled trial. Trials. 2012; 13(1):96. [PubMed: 22747846]

Altaf A, Shah SA, Shaikh K, Constable FM, Khamassi S. Lessons learned from a community based intervention to improve injection safety in Pakistan. BMC Research Notes. 2013; 6(1):159. [PubMed: 23607289]

Amaro H, Raj A. On the margin: Power and women's HIV risk reduction strategies. Sex Roles. 2000; 42(7–8):723–749.

Arora M, Tewari A, Tripathy V, Nazar GP, Juneja NS, Ramakrishnan L, Reddy KS. Community-based model for preventing tobacco use among disadvantaged adolescents in urban slums of India. Health Promotion International. 2010; 25(2):143–152. [PubMed: 20190265]

Atkin, C.; Freimuth, V. Formative evaluation research in campaign design. In: Rice, RE.; Atkin, CK., editors. Public communication campaigns. 2nd. Sage; Newbury Park, CA: 1989. p. 131-150.

Baker EA, Brownson CA. Defining characteristics of community-based health promotion programs. Journal of Public Health Management and Practice. 1998; 4(2):1–9. [PubMed: 10186729]

Gittelsohn J, Harris SB, Whitehead S, Wolever TMS, Hanley AJ, Barnie A, Zinman B. Developing diabetes interventions in an Ojibwa-Cree community in northern Ontario: Linking qualitative and quantitative data. Chronic Diseases in Canada. 1995; 16(4):157–164.

Gómez CA, Marin BV. Gender, culture, and power: Barriers to HIV-prevention strategies for women. Journal of Sex Research. 1996; 33(4):355–362.

Kegeles SM, Hays RB, Coates TJ. The Mpowerment Project: A community-level HIV prevention intervention for young gay men. American Journal of Public Health. 1996; 86(8_Pt_1):1129–1136. [PubMed: 8712273]

Keleher H, Franklin L. Changing gendered norms about women and girls at the level of household and community: A review of the evidence. Global Public Health. 2008; 3(S1):42–57. [PubMed: 19288342]

Klassen TP, MacKay JM, Moher D, Walker A, Jones AL. Community-based injury prevention interventions. The Future of Children. 2000; 10(1):83–110. [PubMed: 10911689]

Kostick KM, Schensul SL, Singh R, Pelto P, Saggurti N. A methodology for building culture and gender norms into intervention: An example from Mumbai, India. Social Science & Medicine. 2011; 72(10):1630–1638. [PubMed: 21524835]

Krishnan A, Ekowati R, Baridalyne N, Kusumawardani N, Kapoor SK, Leowski J. Evaluation of community-based interventions for non-communicable diseases: experiences from India and Indonesia. Health Promotion International. 2011; 26(3):276–289. [PubMed: 21071458]

Macaulay AC, Paradis G, Potvin L, Cross EJ, Saad-Haddad C, McComber A, Rivard M. The Kahnawake Schools Diabetes Prevention Project: intervention, evaluation, and baseline results of a diabetes primary prevention program with a native community in Canada. Preventive Medicine. 1997; 26(6):779–790. [PubMed: 9388789]

Merzel C, D'Afflitti J. Reconsidering community-based health promotion: promise, performance, and potential. American Journal of Public Health. 2003; 93(4):557–574. [PubMed: 12660197]

Mittelmark MB, Luepker RV, Jacobs DR, Bracht NF, Carlaw RW, Crow RS, Blackburn H. Community-wide prevention of cardiovascular disease: Education strategies of the Minnesota Heart Health Program. Preventive Medicine. 1986; 15(1):1–17. [PubMed: 3714655]

Moonzwe Davis L, Schensul SL, Schensul JJ, Verma RK, Nastasi BK, Singh R. Women's empowerment and its differential impact on health in low-income communities in Mumbai, India. Global Public Health: An International Journal for Research. 2014; 9(5):484–494.

Muhr, T. 2010. User's Manual for ATLAS.ti 6.0, ATLAS.ti Scientific Software Development, GmbH, Berlin

Pulerwitz, J.; Barker, G.; Segundo, M.; Nascimento, M. Promoting more gender-equitable norms and behaviors among young men as an HIV/AIDS prevention strategy. Population Council; New York: 2006.

Raudenbush, SW.; Bryk, AS.; Cheong, YF.; Congdon, RT.; du Toit, M. HLM 7: Hierarchical linear and nonlinear modeling. Scientific Software International; Chicago: 2011.

Rocca CH, Rathod S, Falle T, Pande RP, Krishnan S. Challenging assumptopms about women's empowerment: social and economic resources and domestic violence among young married women in urban south India. International Journal of Epidemiology. 2009; 38:577–585. [PubMed: 18952621]

Rosal MC, Goins KV, Carbone ET, Cortes DE. Views and preferences of low-literate Hispanics regarding diabetes education: results of formative research. Health Education & Behavior. 2004; 31(3):388–405. [PubMed: 15155047]

Sarrafzadegan N, Kelishadi R, Esmaillzadeh A, Mohammadifard N, Rabiei K, Roohafza H, Malekafzali H. Do lifestyle interventions work in developing countries? Findings from the Isfahan Healthy Heart Program in the Islamic Republic of Iran. Bulletin of the World Health Organization. 2009; 87(1):39–50. [PubMed: 19197403]

Schensul SL, Mekki-Berrada A, Nastasi B, Saggurti N, Verma RK. Healing traditions and men's sexual health in Mumbai, India: The realities of practiced medicine in urban poor communities. Social Science & Medicine. 2006a; 62(11):2774–2785. [PubMed: 16412544]

Schensul SL, Nastasi BK, Verma RK. Community-based research in India: A case example of international and transdisciplinary collaboration. American Journal of Community Psychology. 2006b; 38(1–2):95–111. [PubMed: 16838073]

Schensul SL, Saggurti N, Singh R, Verma RK, Nastasi BK, Mazumder PG. Multilevel perspectives on community intervention: an example from an Indo-US HIV prevention project in Mumbai, India. American Journal of Community Psychology. 2009; 43(3–4):277–291. [PubMed: 19357946]

Tuladhar, S.; Khanal, KR.; Lila, KC.; Ghimire, PK.; Onta, K. Nepal Ministry of Health and Population, New ERA and ICF International; Calverton, MD: 2013. Women's empowerment and spousal violence in relation to health outcomes in Nepal.

Vastine A, Gittelsohn J, Ethelbah B, Anliker J, Caballero B. Formative research and stakeholder participation in intervention development. American Journal of Health Behavior. 2005; 29(1):57–69. [PubMed: 15604050]

Wingood GM, DiClemente RJ. Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. Health Education & Behavior. 2000; 27(5):539–565. [PubMed: 11009126]

Young DR, Johnson CC, Steckler A, Gittelsohn J, Saunders RP, Saksvig BI, McKenzie TL. Data to action: using formative research to develop intervention programs to increase physical activity in adolescent girls. Health Education & Behavior. 2006; 33(1):97–111. [PubMed: 16397162]
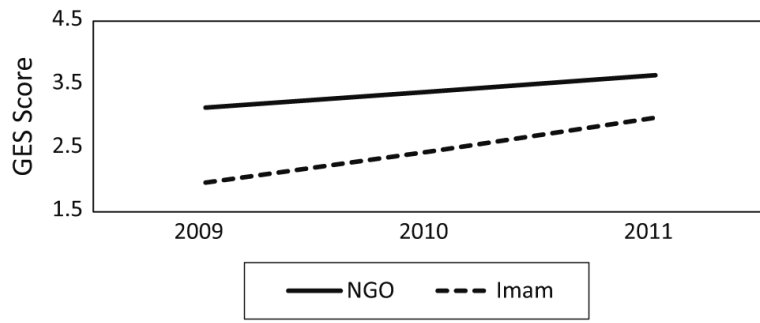
Fig. 1.
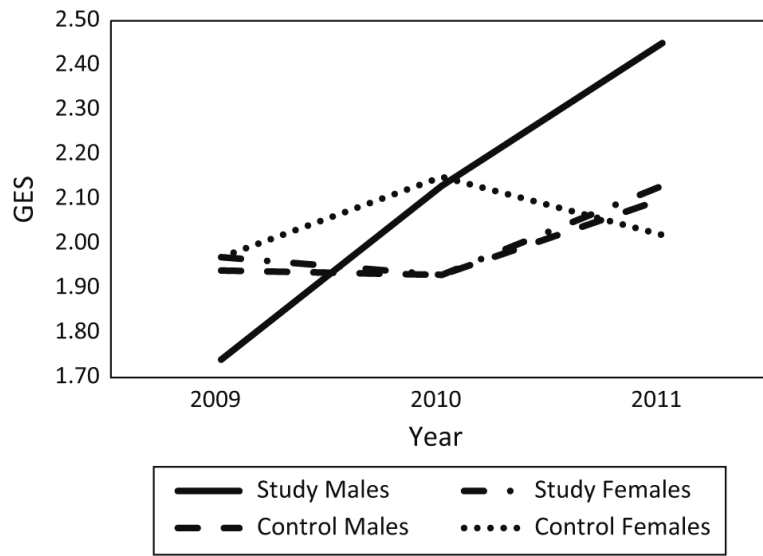Longitudinal GES Scores for Imams and NGO staff

Fig. 2.
Comparison of men and women in the intervention versus control communities by year

Table 1

Issues, consequences, solutions

Concept	Problem (core value)	Consequence(s)	Messages
Communication	Poor communication because husbands limit conversations with their wives and wives are culturally constrained not to discuss problems with their husbands	Escalating marital tensions create a difficult household environment and poor problem solving	Husbands and wives should engage in joint discussion and solving of problems
Women's health	Women's health problems are a result of their own dysfunctional behavior Money should not be spent on healthcare of women Women must have as their priority maintaining the household despite their health problems	Women underutilize health care services until their problems are severe	Women's health should be a high priority Husbands and wives need to address women's health needs as a vital part of the quality of life for the woman and the family
Extramarital sex	Husbands are free to do what they want and wives should not question their husbands' fidelity	Extramarital sex decreases trust and can convey HIV/STI to husbands and from husbands to wives	Husbands and wives need to seek sexual satisfaction at home
Marital sex	Husbands and wives should not talk about sex Wives should not initiate sex Wives cannot refuse their husbands' demands for sex	A lack of sexual satisfaction for women A lack of interest on the part of women for sex Husbands forcing wives to have sex Women's concerns about unwanted pregnancy	Men and women should discuss sexual needs and satisfaction generating greater sexual interest and satisfaction
Spousal violence	Husbands and wives accept the view that husbands should abuse their wives in order to maintain control in the household	Negative impact on wives' emotional and physical health.	Marital disputes should be addressed through discussion rather than through violence resulting in a healthier household for husband, wife and children
Empowerment	Women should play a limited role in decisions made concerning the family, the household, and the allocation of resources	Isolation of wives from decision making lowers wives' productivity for the household and does not help men with the burden of social and economic support of their families	Women should be partners in the welfare of the household and encouraged to pursue supportive relationships and resources outside of the household for the benefit of the family

Table 2

Means and standard deviations of Gender Equity Scale (GES) at 3 time-points for Imams and NGO staff

	Baseline			6-Months			12-Months		
	n	M	SD	n	M	SD	n	M	SD
Total	83	2.45	0.66	77	2.79	0.59	70	3.23	0.42
Imam	48	1.96	0.25	49	2.45	0.40	44	2.98	0.31
NGO	35	3.14	0.38	28	3.39	0.34	26	3.65	0.19

Table 3

Sample Sizes and percentages of dichotomous measure and means and standard deviations of continuous measure predictor variables for intervention and control community samples

Dichotomous measures	n	%
Total	1779	100.0
Year		
2009	598	33.6
2010	589	33.1
2011	592	33.3
Community		
Intervention	1331	74.8
Control	448	25.2
Gender		
Male	899	50.5
Female	880	49.5
Religion		
Muslim	1,397	78.5
Other	382	21.5
Born in Mumbai		
Yes	718	40.4
No	1,061	59.6

Continuous measures	M	SD
Age (18–69)	36.2	9.6
Education (0–18)	5.7	4.4
Monthly Income (Rs. 100–100,000 ($2–$1,667)	Rs. 6,391 ($106)	Rs. 4,803 ($80)

Table 4

Means and standard deviations of Gender Equity Scale (GES) at 3 time-points for intervention and control community males and females

	Baseline			**6-Months**			**12-Months**		
	n	**M**	**SD**	**n**	**M**	**SD**	**n**	**M**	**SD**
Total	601	1.88	0.49	600	2.04	0.49	596	2.23	0.52
Community	452	1.85	0.49	451	2.03	0.52	445	2.29	0.50
Male	226	1.74	0.47	230	2.13	0.53	222	2.44	0.47
Female	226	1.96	0.48	221	1.94	0.48	223	2.13	0.47
Control	149	1.96	0.48	149	2.04	0.41	151	2.06	0.57
Male	75	1.94	0.49	74	1.93	0.43	78	2.10	0.65
Female	74	1.97	0.47	75	2.15	0.38	73	2.02	0.47