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ORIGINAL PAPER

Community Mobilization Challenging Gender Power Imbalances: Women Sex Workers' Capacity to Engage in Health-Enhancing Practices in Southern India

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Abstract

Research on women sex workers' condom use with non-paying intimate partners suggests social norms of gender power in these relationships constrain women's health-enhancing sexual practice. Theorizing gender relations and sexual practice as structural informs our analysis of elements of community mobilization interventions (CMI) that link to sex workers' capacity to engage consistently in health-enhancing practices, in this case, condom use. We use data from a survey of women (who exchanged sex for money in the preceding 12 months) conducted in the context of an HIV-prevention intervention in southern India. Results of multinomial logistic regression indicate: higher odds of health-enhancing sexual practice with intimate partners and paying clients among women sex workers expressing collective efficacy; lower odds of health-diminishing sexual practice with clients among women sex workers empowered through peer interactions; lower odds of health-diminishing sexual practice with clients *and* lower odds of health-enhancing sexual practice with partners among women sex worker living in households structured by normative gender power relations. We suggest future research on how CMI promoting health-enabling social environments with women in sex work contribute to their capacity to engage in health-enhancing practices.

Keywords Community mobilization · Structural factors · HIV-prevention · India · Sex work

Resumen

La investigación sobre el uso del condón por trabajadoras sexuales con parejas íntimas que no pagan sugiere que las normas de relaciones de género restringen la práctica sexual más segura en estas relaciones. Teorizar las relaciones de género y la práctica sexual como estructurales informa el análisis de aspectos de las intervenciones de movilización comunitaria (CMI) vinculados a la capacidad de las trabajadoras sexuales para adoptar el uso habitual de prácticas que mejoran la salud, en este caso, el uso del condón. Utilizamos datos de una encuesta de mujeres (que intercambiaron sexo por dinero en los 12 meses anteriores) realizada en el contexto de una intervención de prevención del VIH. La regresión logística multinomial indica: mayores probabilidades de prácticas sexuales que mejoran la salud con parejas íntimas y clientes que pagan entre mujeres que expresan eficacia colectiva; menores probabilidades de prácticas sexuales que disminuyen la salud con clientes entre mujeres empoderadas por las interacciones entre pares; menores probabilidades de prácticas sexuales que disminuyen la salud con los clientes así como menores probabilidades de prácticas sexuales que mejoran la salud con parejas íntimas entre mujeres en hogares estructurados por el poder normativo de género. Sugerimos investigaciones futuras sobre como las intervenciones de movilización comunitaria (CMI) que promueven prácticas sexuales que mejoran la salud entre las trabajadoras sexuales contribuyen a su capacidad para adoptar dichas prácticas.

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Introduction

Community mobilization interventions (CMI) with sex workers were a major component of the HIV-prevention programming by Avahan, the India AIDS initiative, funded by the Bill and Melinda gates foundation (BMGF) and launched in 2003 in six Indian states. These interventions represented a diffusion of the pioneering work of the Sonagachi project in Kolkata [1, 2]. Although a primary intention of HIV interventions among women doing sex work in India has been to reduce risk through promoting condom use with clients, many women in sex work maintain relationships with intimate partners. Gender power imbalances structure both commercial and private relationships, although evidence suggests that gender norms constrain women more heavily in the latter [3–5]. And, we maintain, prevailing gender relations constrain women sex workers' capacity to engage in other health-enhancing practices as well. Here we address the question: what elements of CMI link to the capacity of women sex workers in southern India to challenge health-constraining gender power relations and engage consistently in health-enhancing sexual practice in all (hetero) sexual encounters? We frame this analysis with theory about gender relations and sexual practice, and we develop measures of structural elements of CMI that strengthen women's capacity to change disempowering social relations and, thereby, enhance their health and well-being. We conclude with suggestions for research on how CMI, when focused on community empowerment and the synergy of HIV-intervention components, build sex workers' capacity to develop what other investigators refer to as health-enabling social environments [6].

Research, Theory and Structural Interventions

An overriding focus of research on HIV prevention among women doing sex work across world regions, including south Asia, has been on factors contributing to sex workers' condom use with paying clients [7]. Long-standing concern also exists regarding sex workers' relationships with intimate partners—husbands, boyfriends and lovers. A key theme—articulated in early analysis [8] and of continuing salience in more recent studies [3]—has been the significance of sex workers' intimate relationships for their vulnerability to HIV. These relationships form a crucial aspect of the context in which sex workers practice condom use with their clients [9]. Moreover, much evidence suggests that women in sex work and their intimate partners do not engage consistently in this safer sexual practice [4, 10, 11]. Our interest in women sex workers' condom use practices, particularly with intimate partners, arose because (hetero)sexual encounters present profound sites of gender power imbalance, and such disempowering gender relations extend beyond this particular interaction and constrain women's capacity to engage in health-enhancing practices.

Analysis focused on southern India illuminates important aspects of women sex workers' relationships with intimate partners and lends pivotal insight into the ways gender power imbalances in these relationships constrain health-enhancing sexual practice [3, 5, 10]. Because these are often marital or quasi-marital relationships, culturally rooted gender norms about femininity, masculinity and power relations in marriage influence condom use practice among sex workers and their intimate partners. In the southern Indian context, condomless sex in (heterosexual) marriage is strongly normative; and the representation of "good" women as married mothers and the use of violence as a "normal" means of maintaining men's domination demonstrably constrain safer sexual practice [3] (p 831).

Issues such as women sex workers' lack of bargaining power to negotiate condom use with clients [9] and the power imbalances entrenched in sex workers' private relationships [3] underscore the need for changing gender power relations in everyday interactions and in societal structures in order to reduce vulnerability to HIV and to enable health-enhancing practices among women in sex work. The effectiveness of CMI that include activities intended to strengthen women's capacity to contest and transform gender power relations depends, in part, on theories of gender structure and sexual practice underpinning those activities [12].

Vulnerability to HIV among individuals and in communities has roots in structural constraints on individual capacity to reduce risk and engage in health-enhancing practices. HIV-prevention strategies aimed at altering individual behavior must take full account of larger structures of power relations that shape women sex workers' agency [13]. Although south Asian women in sex work strategize actively to protect their own and others' well-being [12] and claim agency by way of HIV—prevention discourse [13], challenging structural constraints and building health-enabling social relations remain crucial to effective HIV interventions [6, 14]. Efficacy of health intervention, then, requires recognition of how gender inequalities interconnect with other structures of power and how structural inequalities influence gendered sexual practices [15].

Gender patterns of social relationships permeate social life in multifaceted and culturally meaningful ways. Theorizing gender as a structure of dynamic social relations and set of linked social practices bringing bodies into sociocultural processes [16] offers a framework for promoting health-enhancing practices among women in sex work. This framework also involves (re)conceptualizing sexual *behavior* as social *practice* imbued with cultural meaning and constrained by gender structure [12, 17]. Reframing sexual risk behavior as gendered sexual practice brings into view structural influences on the health-enhancing practice of condom use and situates that interactional practice in the context of gendered structures of the health-constraining social relations in which women work and live [13].

In addition, theorizing gender as relational reveals interconnections between contesting gender power relations in

local communities and transforming gender norms in interaction. HIV interventions that encompass creating change in patterns of gender relations at the structural level contribute to shifts in normative expectations at the interpersonal level of sexual health-enhancing practice. Community norms emerging from HIV interventions regarding women's social sexual practice support women's agency in challenging the structure of gender power relations and building health-enabling relations [5]. This theoretical framing carries implications for analysis of CMI [14].

CMI constitute *structural* interventions when activities facilitate marginalized groups' organizing to challenge and change power relations that oppress them and harm their well-being. These characteristics defined the Sonagachi Project which remains among the most widely recognized exemplars of community mobilization interventions for HIV prevention among sex workers [18, 19]. Notably, "community" derives not from shared cultural identity or profession or geographic location but rather emerges in groups that are situated at the complex intersections of structural relations of power [14]. The sense of community among women in sex work proceeds from active development of their critical awareness of their disadvantaged position in intersecting power relations, including gender, sexuality, class and ethnicity. Such "conscious" communities can better articulate demands for structural changes and pursue collective action [20] to combat violence and stigma against sex workers, change policies around sex work, and promote sex workers' human rights [21]. Thus, women sex workers' mobilization has aspired not only to increase condom use with clients and other health-enhancing practices but also to increase women's "material and symbolic power" in the larger community to advance health-enabling social relations [22] (p 2129).

Community "empowerment" among women in sex work has comprised various HIV-intervention activities, including targeted biomedical and behavioral components (HIV/STI testing, peer outreach and condom distribution) as well as structural components (fostering social cohesion, social justice and economic opportunities) [21]. The evidence for increased likelihood of consistent condom use practice with clients appears strong among women doing sex work in India "exposed" to CMI [19, 22–25]. Even more than with clients, enabling women's condom use practice with intimate partners may require transforming structural power relations that produce the social marginalization, that is, the health-constraining social environment women experience in southern India.

Notable variation exits in how fully CMI have operationalized structural aspects of community empowerment. Promoting community members' leadership and "ownership" of programs intended to foster social cohesion, collective efficacy and collective agency potentially enables communities to "achieve the most effective HIV outcomes and address... structural barriers to [community members'] health..." [21] (p 173). A systematic review of CMI impact, focused on indicators used in evaluating CMI, asserted the importance of measuring "linking constructs" to expand understanding of *how* community mobilization works to transform disempowering relations, for example [26]. Linking constructs can "capture the process of moving from participation to empowerment" among those involved in mobilization activities [26] (p 86). In turn, measures of sex workers' social cohesion, collective efficacy and collective agency suggest the connections between the process of community mobilization and structural change. In the analysis to come, we include indicators of linking constructs as part of our effort to address the question: what elements of CMI link to the capacity of women sex workers in southern India to challenge health-constraining gender power relations and engage consistently in health-enhancing sexual practice in all (hetero)sexual encounters?

Measures and Methods

To investigate the links between various aspects of community mobilization and women sex workers' capacity to challenge power relations and engage in health-enhancing practices, specifically, condom use with commercial clients and intimate partners, we draw on data from Project Parivartan, which was among the research projects funded by BMGF under Avahan. Parivartan was a multi-methods study designed to understand the context of sex work and to analyze the implementation and impact of a CMI for HIV prevention among women sex workers. The intervention, based primarily in Rajahmundry in the East Godavari district of Andhra Pradesh, was intended to increase the collective power of sex workers and address some of the structural barriers to their well-being, emulating the intentions—if not the exact form—of the Sonagachi Project [27]. The operation of the intervention (which transitioned to the Andhra Pradesh State AIDS Control Society during 2011–2012) was independent of Project Parivartan, and there was no overlap between intervention staff and research personnel.

Rajahmundry, with a population of about half a million, is one of two major towns in the largely rural, prosperous district; located on a national highway, a major north–south route for truckers, it was well-known as a location for sex workers. Sex work has taken multiple forms here, including street sex work, home-based sex work, and sex work in brothels and hotels as well as along the highways and in agricultural fields. As such, the town likely captures much of the diversity of sex work that can be found in India [28], although it is unlike large metropolitan centers in the global South that have closer connections to the global economy and tourism.

Project Parivartan comprised a team of researchers and staff from both India and the United States. Data collection activities included focus group and semi-structured interviews with intervention staff and ethnographic observation of intervention operations and intervention-organized activities. Researchers conducted extensive ethnographic observation, focus group and semi-structured interviews with sex workers to better understand their work and lives outside of work. Data collection with sex workers also included a serial cross-sectional survey administered in three waves from 2006 to 2010.

The current analysis uses data from the third wave of the survey which was conducted between November 2009 and February 2010 among women who were at least 18 years of age and had exchanged sex for money at least once in the 12 months prior to the survey. The sample was generated using respondent-driven sampling (RDS). Despite limitations, RDS has proven effective in recruiting hidden populations, and there is evidence that respondent-driven samples are more representative than place-based sampling or other feasible alternatives [29]. Survey interviews lasting 90–120 min were conducted in Telugu by trained interviewers, after confirming participants' informed consent, and covered a wide range of topics, including: sexual behavior and sex work; family and home life; and knowledge of and engagement with the community mobilization intervention. By the third wave of the survey, the intervention had been going on for about five years, and more than three-quarters of the respondents reported having exposure to the intervention, such as using program services or meeting with program staff [5].

In the analysis presented here, the dependent variable denotes consistency in condom use practice in all women sex workers' (hetero)sexual encounters. However, prevailing gender power relations constrain women sex workers' capacity to engage in health-enhancing practices, in general, not just in this specific interaction, because all are marked by gender power imbalances. Women sex workers practicing consistent condom use—with intimate partners, in particular—indicates their capacity to build health-enabling social relations that potentially foster other health-enhancing practices in addition to safer sex practices. In our view, this potential turns on linking CMI and health-enabling social environments.

We constructed the dependent variable using the following criteria: women reported having sex in the last seven days with regular or occasional clients (hereafter "client") and with husbands, temporary husbands or boyfriends/lovers ("partner") and also recounted their condom use during that time with both clients and partners. Of 850 survey respondents in wave three, 435 women (51%) reported sexual encounters and condom use practice with both clients and partners; these 435 participants constitute the sample for analysis. Among the 415 women excluded from analysis, all recounted having clients in the last seven days. Eighty-seven of these women (21%) reported having partners but did not recall sexual encounters with them during the reporting period. In all, 59% of respondents in the third wave of the survey reported having partners. This percentage is in line with other studies in India that have analyzed women sex workers' condom use practice with intimate partners, stating proportions of "more than half" and up to 60% of women in sex work having intimate partners [7, 8]. We note that the 7-day window of reporting increases our confidence in the reliability of women's recollections about their sexual encounters and condom use practice.

Condom use practice was classified by women's responses to the questions, "In the last 7 days, how often did you use condoms with your [client, partner]?"; the response categories were never, rarely, sometimes, usually, always. Women who recounted "always" using condoms were classified as practicing consistent condom use; all other responses, including "never," were classified as practicing "inconsistent" condom use. The dependent variable comprises three categories of health-enhancing practice: (1) practicing condom use consistently both with clients and with partners (31.7%); (2) practicing condom use consistently with clients but inconsistently with partners (41.8%); and (3) practicing condom use inconsistently both with clients and with partners (26.4%). Category 2 includes 163 women (89.5% of that category) who recounted never using condoms with partners; category 3 includes 90 women (78% of that category) who reported never using condoms with partners and 28 women (24% of the group) who reported never using condoms with clients.

These acknowledgments—by women in categories 2 and 3—of *never* using condoms underline for us the importance of women's intimate partner relationships for engaging in health-enhancing practices, such as condom use. Although (by our definition) none of the women in category 3 always used condoms with clients, the 24% who recount *never* using condoms with clients comprise about 6% of our sample. In contrast, 58% of the women in our sample for analysis report *never* using condoms with partners. The latter signals a real need to understand how to shift the gender dynamics of women sex workers' intimate partner relationships to promote health-enhancing practices, in this case safer sex practice, in all (hetero) sexual encounters.

We included four measures of structural elements of CMI in the analysis as indicators of "linking constructs" [26] in order to uncover how such interventions empower communities to address structural barriers to health and well-being, in this case, to enable safer sex practice in all (hetero)sexual encounters. (Table 1) We developed measures from existing survey questions that align with (four of seven) proposed

dimensions of the Community Mobilization Measure [30] (p 129). Social cohesion forms one aspect of community mobilization, measured as women asserting other women in sex work will help when they need it with childcare, with food or money for food, or if they are arrested; this variable "captures... connectedness and working trust" [30]. Another facet of community mobilization is capacity for collective agency, measured as women's membership or decision-making participation (in the last six months) in one of the community-based organizations (CBOs) initiated through the intervention; this variable "capture[s]... CBOs... as a resource in mobilizing" [30]. Collective action represents a third element of community mobilization, measured as women attending a public event such as a rally or gathering of sex

Table 1 Conceptual dimensions and explanation of independent variables

Variables within conceptual dimensions	Explanation of variable
Structural intervention	
Social cohesion—connectedness/working trust	
Expects help from other women in sex work	When you are arrested other sex workers help you; When you need help taking care of your children othersex workers help you; When you need food or money for food other sex workers help you [0 = never, rarely; 1 = sometimes, usually, always. Score summed]
Collective agency—CBO as resource for mobilizing	
CBO member/participant	Have you been a member or participant of thiscommunity based organization the last 6 months: Nari-SAKSHAM, Rajahmundry; Chaitanya Mahila Sangam, Dhowaleswaram; Vanitha Sakti Sangam, Kotthapetam; Asha Kiranalu, Namavaram; Jyoti Kiranalu, Syamala Ctr; Satya Priya Mahila Sangam, Ravulapad; Arunodaya, Tummalova; Divya Mahila Sangam, Moramanda S; Meghamala Mahila Sangam, Mandapeta; Sirivennala Mahila Sangam, Seetampeta [0 = no; 1 = yes]
Collective action—collective activities for social change	
Attended public event	In the last 6 months, have you attended any public events (such as a rally or gathering of sex workers) where you could have been identified as a sex worker? [0 = no; 1 = yes]
Collective efficacy—intervene for common good	
Engaged powerful others	In the last year have you negotiated with/stood up against neighborhood club members/political leaders in order to help a fellow sex worker? In the past 6 months, have you gone to the police to speak for the rights of sex workers? [0 = no; 1 = yes]
Targeted intervention	
Information/knowledge	
STI/HIV prevention information from intervention	In the past 6 months, how many times have you been visited by someone from the CARE-SAKSHAM office, or an SCA, or a sex worker talking about condoms or STIs, or received any written materials, pamphlets, or brochures relating to HIV prevention? [0 = never; 1 = 1 or more times]
Knowledge of HIV-testing location	Have you ever taken an HIV test? [0 = no; 1 = yes]
Intervention utilization	
Gets condoms from intervention	In general, do you get your condoms from the CARE-SAKSHAM office? [0 = no; 1 = yes]
STI treatment/HIV testing at intervention	In the last 6 months, where did you usually go for STI Treatment or HIV Testing or Counseling most often? [0 = I did not get the service, government run health sercies, private doctors, RMPs, self-help groups, local government, other; 1 = CARE-SAKSHAM office]
Individual, household, work (IHW) attributes	
Age	How old are you now? [age in years]
Cohabiting intimate partner	Who else lives in the same house with you: Legal husband, temporary husband, or boyfriend/lover [0 = no; 1 = yes]
Running water in home	Do you have running water your home? [0 = no; 1 = yes]
Single venue sex work	In the area you conducted sex work most recently, what "type" of sex work did you practice: brothel, street, lodge or hotel, home, highway, agricultural field or garden, other. [each type/location asked yes/no separately then summed 0 = more than one type; 1 = single venue]

workers (in the last six months); this variable "capture[s] the presence of... collective activities... aimed at social change" [30]. A fourth mark of community mobilization is collective efficacy in challenging disadvantageous power relations in which the community is embedded, measured as women going to the police to assert the rights of sex workers (in the last six months) or negotiating with/standing up to local officials in order to help fellow sex workers (in the last year); this variable "captures whether community members intervene on behalf of the common good" [30].

CMI also comprise targeted interventions intended to increase information/knowledge of HIV-prevention and service use among women in sex work; we incorporated four measures of women's exposure to such targeted interventions in the analysis. Women receiving a visit and/or information about STI/HIV prevention from someone connected to the intervention (in the last 6 months) and women knowing where to go for HIV testing provide indicators of information and knowledge gleaned from the intervention. Women getting condoms from Social Change Agents (peer educators) or from the intervention NGO directly and women going to an intervention clinic for STI treatment/HIV testing (in the last six months) indicate women's use of intervention services.

Based on other research on condom use practices of women in this social group [5], we also included in the analysis a set of individual, household and work attributes. These encompassed: individual characteristics, specifically, women's (age) maturity; women's household circumstances, such as running water in the home and living with a husband/boyfriend at home; and women's working conditions, particularly, working in a single venue (whether agricultural fields, brothels, their own homes, lodges/hotels, or streets/highways) in contrast to multiple venues.

We used multinomial logistic regression analysis to predict women's odds of "membership" in the various categories of condom use practice in terms of the effects of the community empowerment elements of CMI, targeted interventions, and individual-household-work factors as measured by our independent variables. This technique is useful with a categorical dependent variable having more than two categories and categorical and/or ratio independent variables. The coefficients may be compared across groups to determine the extent to which independent variables are associated with group membership. The 435 cases constitute a sufficiently large sample for this analysis, and review of standard errors revealed no violations of assumptions.

Results

Among the findings from the bivariate analysis (Table 2), two measures of community empowerment stand out. Women who convey higher expectations for social cohesion among sex workers are more likely to be in the group practicing consistent condom use—with both clients and partners (mean = 2.30, $p < 0.01$). Similarly, women who recount acts of collective efficacy are much more likely to be in the group practicing consistent condom use, which is in sharp contrast to women in the group practicing separate condom use—consistent with clients but *not* with partners—who are much less likely to recount challenging powerful others (47.80 and 28.70%, respectively, $p < 0.001$). Measures of targeted interventions and their relationships to condom use practice bring into focus patterns of less safe sexual practices (with both clients and partners). Women overwhelmingly affirm they know where to go for HIV testing (85%); however, those practicing inconsistent condom use are significantly less likely to affirm having that knowledge (23.50%, $p < 0.01$). Finally, women who report getting condoms through the intervention are much more likely to be in the group practicing consistent condom use, and much less likely to be in the group practicing inconsistent condom use (35.30 and 21.6%, respectively, $p < 0.05$).

Three of four measures of individual-household-work attributes also connect to differences in women's condom use practice. Women who acknowledge intimate partners living in their households are significantly more likely to be in the group practicing condom use consistently with clients but *not* with partners (separate condom use) (49.60%, $p < 0.001$). A similar pattern holds for living in a home with running water, which comprises only about a third of the sample: that is, women who confirm living in a household with that amenity are significantly more likely to be in the group practicing separate condom use, and significantly less likely to be in the group practicing inconsistent condom use (49.70 and 19.50%, respectively, $p < 0.05$). Finally, the average age is highest among women practicing consistent condom use with clients and partners (mean = 34.3, $p < 0.01$).

We tested a multinomial logistic regression model to analyze the relative strength of the association between (four) community empowerment measures, (four) targeted intervention measures, and (four) individual-household-work measures with women's capacity to challenge gender power relations that constrain health-enhancing practices. Table 3 presents the adjusted odds ratios, confidence intervals, and significance levels for associations between the 12 measures in the model and respondents being in the two groups of interest—practicing consistent or inconsistent condom use—compared to the reference group practicing separate condom use. The choice of women who practice separate condom use as our reference category is based on the "typical" pattern of this health-enhancing sexual practice among women in this social group; that is, women in sex work practice condom use consistently with clients but not with intimate partners [4]. The odds ratios are interpreted as a one-unit change in a variable on the odds of being in the dependent variable

Table 2 Descriptive statistics and tests of difference: consistency in condom use by independent variables: structural intervention, targeted intervention, and IHW attributes (N = 435)

Independent variable (% of Sample)	Consistent with client and partner (Consistent)	Consistent with client inconsistent with partner (Separate)	Inconsistent with client and with partner (Inconsistent)	Chi-Sq or F	Sig
	N = 138 (31.7% of sample)	N = 182 (41.8% of sample)	N = 115 (26.4% of sample)		
	% of category				
Structural intervention					
Social cohesion					
Expects help from other women in sex work (range = 0–3)				5.56	**
Mean (2.09)	2.30	1.99	1.99		
Std. Dev (0.90)	0.84	0.87	0.99		
Collective agency					
CBO member/participant (50%)	35.60	41.20	23.10	3.88	
Collective action					
Attended public event (62%)	34.90	37.90	27.10	5.03	
Collective efficacy					
Engaged powerful others (26%)	47.80	28.70	23.50	19.75	***
Targeted intervention					
Information/knowledge					
STI/HIV prevention information from intervention (66%)	35.10	41.00	24.00	5.14	
Knowledge of HIV-testing location (85%)	32.60	43.90	23.50	11.79	**
Intervention utilization					
Gets condoms from intervention (59%)	35.30	43.10	21.60	8.25	*
STI treatment/HIV test at intervention (31%)	32.40	38.20	29.40	1.30	
Individual, household, work (IHW) attributes					
Age (range = 19–55)				5.78	**
Mean (32.49)	34.30	31.19	32.39		
Std. Dev (8.22)	8.36	7.89	8.24		
Cohabiting intimate partner (56%)	26.60	49.60	23.80	14.00	***
Running water in home (34%)	30.90	49.70	19.50	7.54	*
Single venue sex work (60%)	32.80	43.60	23.60	2.75	

*p < 0.05, **p < 0.01, ***p < 0.001

category—the group—analyzed while controlling for the influence of other variables in the model [31, 32]. Variables with odds ratios over one (1.00) are linked to *higher* odds of being in the dependent category under consideration compared to the reference category; whereas variables with odds ratios under one are linked to *lower* odds of being in the relevant dependent category.

Among the measures of CMI empowerment elements, women's collective efficacy in engaging powerful others links strongly to consistent condom use practice. Confronting police or local officials on behalf of sex workers is associated with a nearly 200% increase in the likelihood of women practicing consistent condom use (AOR 2.89, p < 0.001, CI 1.61–5.17). In addition, women's sense of social cohesion also links to higher odds of consistent condom use practice: each additional area of assistance from others (out of three total) is associated with a 43% increase in the likelihood of practicing consistent rather than separate condom use (AOR 1.43, p < 0.01, CI 1.08–1.89) Neither attending public events where one could be identified as a sex worker nor involvement in intervention-initiated CBOs appears to differentiate either group from the typical pattern of condom use practice by women in the reference group.

Table 3 Adjusted odds ratios for consistency in condom use and measures of structural intervention, targeted intervention, and IHW attributes

	As compared to consistent condom use with client and inconsistent with partner (Separate)					
	Consistent with client and with partner (Consistent)			Inconsistent with client and with partner (Inconsistent)		
	Adj. odds ratio	Sig	95% CI	Adj. odds ratio	Sig	95% CI
Structural intervention						
Social cohesion						
Expects help from other women in sex work	1.43	**	1.08–1.89	1.02		0.77–1.34
Collective agency						
CBO member/participant	0.77		0.40–1.47	0.52		0.24–1.11
Collective action						
Attended public event	1.24		0.69–2.14	1.79		0.98–3.29
Collective efficacy						
Engaged powerful others	2.89	***	1.61–5.17	1.68		0.88–3.23
Targeted intervention						
Information/knowledge						
STI/HIV prevention information from intervention	2.00	*	1.00–3.95	1.41		0.70–2.86
Knowledge of HIV-testing location	0.47		0.21–1.08	0.28	***	0.13–0.60
Intervention utilization						
Gets condoms from intervention	0.76		0.39–1.45	0.44	**	0.22–0.87
STI treatment/HIV testing at intervention	1.07		0.60–1.91	2.07	*	1.10–3.91
Individual, household, work (IHW) attributes						
Age	1.04	**	1.01–1.07	1.02		0.99–1.06
Cohabiting intimate partner	0.39	***	0.24–0.64	0.46	**	0.27–0.78
Running water in home	0.60	*	0.36–1.00	0.42	**	0.24–0.74
Single venue sex work	1.16		0.70–1.92	0.68		0.41–1.15

Final model statistical significance = 0.000

*p < 0.05, **p < 0.01, ***p < 0.001

All four of the targeted intervention measures are associated with significant changes in the odds of being in one or the other of the two groups of interest. Turning first to women's HIV knowledge/information: receiving a visit from intervention staff providing information on STI/HIV prevention is associated with 100% higher odds of consistent condom use practice (AOR 2.00, p < 0.05, CI 1.00–3.95). Knowing where to go for HIV testing links to changes in the odds of *in*consistent condom use practice. That is, having this information is associated with 72% lower odds of women being in the group practicing inconsistent condom use (AOR 0.28, p < 0.001, CI 0.13–0.60), reflecting the pattern of condom use practice of women in the reference group—with clients but not with partners. Likewise, one of the program-use measures—women getting condoms from intervention staff—is associated with 56% lower odds of their being in the group whose members' condom use practice is fully inconsistent (AOR 0.44, p < 0.01, CI 0.22–0.87). However, women going to an intervention clinic for services, such as STI treatment or HIV testing, is associated with higher odds of being in the group practicing inconsistent condom use in all heterosexual encounters (AOR 2.07, p < 0.05, CI 1.10–3.91). Going for treatment and testing likely follows from women's inconsistent condom use practice, but the study design and analysis technique used here do not allow us to determine the causal direction of the effect.

Considering individual-household-work attributes extends the analysis of women's safer sexual practice. For consistent condom use, women's maturity matters: each additional year of life is associated with greater odds of women practicing condom use in all heterosexual encounters (AOR 1.04, p < 0.01, CI 1.01–1.07). In contrast, lower odds of practicing consistent condom use are linked to attributes of women's households. Sharing a home with an intimate partner is associated with 61% lower odds of women's consistent condom use practice (AOR 0.39, p < 0.001, CI 0.24–0.64). In addition, access to running water at home is associated with 49% lower odds of practicing consistent condom use in all heterosexual encounters (AOR 0.60, p < 0.05, CI 0.36–1.00). Both findings reflect the pattern of condom

use practice of women in the reference group—consistent with clients but not with partners. These same household attributes are also associated with lower odds of women practicing condom use *in*consistently in all heterosexual encounters, again reflecting the pattern of condom use practice of women in the reference group. A partner at home is associated with better than 50% lower odds of inconsistent condom use practice (AOR 0.46, $p < 0.01$, CI 0.27–0.78), as is running water in the home (AOR 0.42, $p < 0.01$, CI 0.24–0.74). Finally, conducting sex work in a single venue as opposed to multiple venues does not appear to differentiate either group from the reference group in terms of their safer sexual practice.

The results of the regression analysis reveal a configuration of factors linked to women's health-enhancing sexual practice in all (hetero)sexual encounters. Collective—actively challenging others who have power over sex workers (police and local officials)—links with women practicing safer sex with partners not just with clients; social cohesion—being able to count on help from other women in sex work when they need it (for childcare, for food or money for food, and when arrested)—also links to consistent safer sexual practice. Connecting directly with the intervention—receiving visits and information on sexual health from intervention staff—connects to consistent safer sexual practice as does women's greater (age) maturity. In contrast, living with an intimate partner and living in a home with running water are associated with reduced likelihood of practicing consistent condom use with intimate partners, mirroring the condom use practice of the reference group—consistent with clients but not with partners.

The regression results also show a configuration of factors related to women moving away from *in*consistent condom use to health-enhancing sexual practice with clients. Both knowing where to get tested for HIV and getting condoms through the intervention connect to reduced likelihood of inconsistent condom use practice. Likewise, living with an intimate partner at home and having running water in the home are associated with lower odds of inconsistent condom use practice. The associated pattern of condom use practice mirrors that of the reference group. However, going to the intervention for STI treatment and/or HIV testing is strongly related to women's higher odds of fully inconsistent condom use practice. This finding likely reflects limitations of cross-sectional research rather than shortcomings of the intervention.

Discussion and Conclusion

Collective mobilization interventions that address structural contexts in which women sex workers live and work have contributed to the global success of HIV prevention, including in south Asia [20, 22, 25]. Our study of health-enhancing sexual practice among women in sex work responds to the need for understanding *how* CMI foster health-enabling social relations and reduce vulnerability to HIV in marginalized groups [26]. We situate the interactional practice of condom use in the context of health-constraining gender relations in communities, and we draw on a theoretical account of the interconnections between contesting gender power relations at the institutional level and transforming gender norms at the interpersonal level [5]. Our analysis augments understanding of women sex workers' capacity for consistent condom use as a health-enhancing practice, revealing the connection between community empowerment elements of CMI—collective efficacy and social cohesion—and shifting gender power relations in this interaction with intimate partners. Our analysis also uncovers empowering aspects of certain targeted-intervention interactions—peer education and condom distribution—related to women sex workers' health-enhancing sexual practice with intimate partners and/or with paying clients. In addition, our analysis adds context for women sex workers' practice of "compensatory" condom use [4]—with commercial clients but not with intimate partners—implying that gender power relations in households remain a crucial site for intervention to advance health-enabling social environments [6].

Structural conditions marked by unequal power relations shape women sex workers' vulnerability to HIV [22], and the gender power dynamics in relationships with men who are their intimate partners figure crucially in this vulnerability [3]. Elements of CMI promoting collective efficacy and social cohesion among women in sex work emerged in our study as strongly linked to women's capacity to engage in health-enhancing sexual practice with intimate partners. Both measures reflect a social process of empowerment which enables women to contest and transform the structure of power relations, even in their most intimate interactions, in order to foster their health and well-being [19]. The measure of collective efficacy we used, that is, community members intervening for the common good by confronting police or political leaders on behalf of women sex workers, indicates how CMI galvanizing women's challenges to health-constraining gender power relations at the institutional level supports their changing gendered power imbalances at the interpersonal level. In addition, social cohesion among women sex workers, that is, their connectedness and trust manifested in reliable material assistance from other women, mitigates their dependency on husbands/boyfriends, empowering them to alter gender norms of sexual practice in intimate partnerships—as they have done in commercial exchanges [25]. Community empowerment, a health-enabling social environment indicated by social cohesion and

collective efficacy, thus, links to women sex workers' health-enhancing practice in all (hetero)sexual encounters.

Aspects of CMI not generally considered *structural* interventions, such as peer education and condom distribution, also emerged in our study as elements of a health-enabling environment empowering women's health-enhancing sexual practice. Interacting with peers affiliated with the intervention in the process of learning about sexual health draws women into a community of shared norms, developed through critical consciousness of intersecting power relations in which women in sex work are positioned. Shared social norms about condom use practice, widely recognized as related to safer sexual practice with clients [33, 34], also empower women sex workers to contest entrenched norms of health-constraining relations with intimate partners. Similarly, women gaining access to condoms through intervention staff members provides "access" to women sex workers like themselves, who interact as social change agents. These social connections—over-and-above the number of condoms distributed—constitute health-enabling relations empowering women sex workers' health-enhancing sexual practice with clients [35]. Women knowing where to get tested for HIV also relates to consistent condom use with clients. Because this knowledge has meaning in the context of a health-enabling environment [12], we interpret this finding as indicative of women sex workers' empowerment as they rework gender power imbalances in commercial sexual exchanges to enact health-enhancing practices.

Finally, our analysis provides social-structural context for what has been conceptualized as women sex workers' "compensatory" condom use, wherein "risk reduction behavior with one [commercial] partner is balanced against increased risk-taking with another [private] partner, decreasing CCU [consistent condom use] overall to maximize rewards or minimize losses" [4] (p 4027). Women sex workers' household arrangements, in this case, cohabiting with intimate partners and living in housing with running water, structure the gender power relations that enable—and constrain—their capacity to enact health-enhancing sexual practice with clients and with partners. Cohabiting with partners (to whom women may not have disclosed their sex work) connects strongly to women's consistent condom use practice with clients. This health-enhancing practice with clients may indicate women's interest in separating the instrumentality of sex work from the mutuality of partnerships involving trust and pleasure [11]. Safer sex practice with clients also protects intimate partners from the risks of sex work. Sharing a household with a husband/boyfriend can provide women in sex work with a degree of social standing and economic support [4] which, in turn, buttresses their power for health-enhancing practice with clients. Likewise, living in housing with vital infrastructure like running water, a sign of economic resources, links strongly to practicing consistent condom use with clients. That is, material as well as social conditions in which women live can constitute health-enabling environments, reinforcing women's power to enact health-enhancing practices in sexual exchanges with clients [24].

However, these household arrangements—particularly, cohabiting with a husband/boyfriend—also connect powerfully to women's diminished enactment of health-enhancing sexual practice with intimate partners. As noted, women's intimate partnerships may have positive features, but cultural and emotional patterns based in gendered constructions of marriage/marriage-like relations can also constitute a health-constraining environment impeding consistent safer sexual practice in these relationships [3]. Gender power imbalances in heterosexual relations constrain women's agency, and masculine domination routinely extends to violence, which can arise around condom use in intimate relationships [4]. Moreover, even intimate relationships based on mutuality, love and trust still position women in health-constraining structural relations of dependency on partners, which may be crucial to having decent household infrastructure like running water. Insisting on condom use as part of private sexual practice may jeopardize intimate partnerships, arousing feelings of mistrust and exposing women to withdrawal of support—social, emotional or economic [11]. Conceptualizing condom use as a social practice, constrained by social structure, highlights the importance of women engaging in a social process of empowerment for consistent condom use practice, that is, expanding their capacity to contest and transform gender power relations from constraining to enabling health-enhancing sexual practices [5].

We acknowledge three limitations of the analysis. First are the limits of cross-sectional designs (such as the study that produced that data we use) for addressing questions of processes or mechanisms through which interventions influence outcomes—particularly in terms of creating structural change. While measures of linking constructs represent a partial response to this problem, we note a second limitation in that the measures we developed (from existing data) rely on face validity and three of four measures of structural CMI used in the analysis are single item measures whereas multi-item scales typically improve measurement quality [30]. Like other analysis focused on women sex workers' consistent condom use with both intimate partners and commercial clients in southern India [4], we employ data collected more

than ten years ago. Regarding this third limitation, we assert the persistence of the patterns and dynamics of relationships between women in sex work and their clients and partners since the survey was completed [4] (p 4045).

Evidence for this assertion emerged in a recent study of gender relations in India [36]. Led by a social scientist widely known for international policy research on gender and poverty (and motivated, in part, by widely-covered acts of brutal violence against women), a team of investigators conducted qualitative interviews with some 600 "modern" Indian women (age 17 to 35, living in urban areas, from the middle and upper classes, who were well-educated and typically professionally employed). The research uncovered pervasive cultural practices which are normalized as "habits" maintaining profound and persistent gender inequalities despite apparent advances in Indian women's education, employment and rights. The conclusion—that this collective problem requires collective action to change systems of gender inequality—underlines for us the value of CMI promoting structural change in marginalized communities, such as women in sex work.

Our analysis speaks to a timely issue in this regard. The data we analyzed to understand how aspects of CMI connect to sex workers' capacity to enact health-enhancing practices were collected prior to the full transition of Avahan program work to the Government of India. Our findings underscore a concern raised by others; that is, the government-led shift in focus to monitoring clinical service uptake may diminish emphasis on vital elements of interventions that link to building health-enabling social relations and social environments [35, 37].

Some potential directions for research on CMI emanate from our study. One path entails further investigation of how CMI foster the social process of empowerment among women in sex work to develop health-enabling environments [6]. Certainly, women's knowledge of and access to HIV-prevention services moves them toward health-enhancing sexual practice with clients. But our analysis suggests that women gaining this knowledge and access through social change agents in and from the community makes a positive difference. That is, the impact on HIV prevention may derive at least as much from the intervention promoting health-enabling social relations as from targeted dissemination of information and condoms [9, 35, 37]. Similarly, CMI programming intended to foster women's capabilities for promoting structural change is crucial to reducing vulnerability to HIV. Women "speaking truth to power," in this case, powerful men in the local context, appears to facilitate their capacity to challenge health-constraining power relations not only in the community but also their intimate partnerships. These relationships persist as sites of vulnerability for women engaged in sex work. How the deliberate development of women's agency to effect change in the structure of gender relations at both the institutional and the interactional levels, and thereby, constitute comprehensive health-enabling environments warrants additional research [5].

Another avenue involves additional investigation of how synergies among components of HIV-interventions—structural, behavioral and biomedical—operate most effectively to enable women sex workers to enact health-enhancing practices. Other investigators' suggestion to focus future PrEP research on women in sex work who have "strong disincentives" for consistent condom use, like the women in this study whose intimate partners may not know about their sex work or who may be abusive, seems well-founded [4]. But, like our understanding of condom use, we assert that PrEP acceptability, uptake and adherence among women sex workers should be framed as health-enhancing social practices which are constrained (and potentially enabled) by structures of social relations in the communities in which women work and live [5]. Thus, research on advances in HIV prevention might consider how biomedical, behavioral and structural intervention components are best integrated to effect a social context that enables a range of health-enhancing practices promoting the well-being of members of marginalized communities [21, 22]. Extending these lines of research can further support the crucial role of CMI in responding to health crises, including but not limited to HIV epidemics.

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Data Availability See https://dataverse.harvard.edu/dataverse/Avahan for information on accessing data from Project Parivartan.

Declarations

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval This research was approved by the Institutional Review Boards at American University and at Duke University, the Human Investigations Committee at Yale University, and the VHS-YRG Care Medical Centre Institutional Review Board in Chennai, India.

Consent to Participate Informed consent was obtained from all individual participants in the study.

References

1. Jana S, Basu I, Rotheram-Borus MJ, Newman P. The sonagachi project: a sustainable community intervention program. AIDS Educ Prev. 2004;16:405–14.
2. Swendeman D, Basu I, Das S, Jana S, Rotheram-Borus MJ. Empowering sex workers in India to reduce vulnerability to HIV and sexually transmitted diseases. Soc Sci Med. 2009;69(8):157–66.
3. Bhattacharjee P, Campbell L, Thalinja R, et al. Understanding the relationship between female sex workers and their intimate partners: lessons and initial findings from participatory research in North Karnataka, South India. Health Educ Behav. 2018;45(5):824–35.
4. Fehrenbacher A, Chowdhury D, Jana S, Ray P, Dey B, Ghose T, Swendeman D. Consistent condom use by married and cohabiting female sex workers in India: investigating relational norms with commercial versus intimate partners. AIDS Behav. 2018;22(7):4034–47.
5. Young G, Danner MJE, Fort L, Blankenship KM. Gender and sexual practice in structural context: condom use among women doing sex work in southern India. Gender Soc. 2018;32(6):860–88.
6. Campbell C, Cornish F. Towards a "fourth generation" of approaches to HIV/AIDS management. AIDS Care. 2010;22(S2):1569–79.
7. Shannon K, Strathdee S, Goldenberg S, et al. Global epidemiology of HIV among female sex workers: influence of structural determinants. Lancet. 2015;385(9962):55–71.
8. Wolffers I, Triyoga R, Basuki E, Yudhi D, Devillé W, Hargono R. Pacar and Tamu: Indonesian women sex workers' relationships with men. Cult Health Sex. 1999;1(1):39–53.
9. Tan S, Melendez-Torres G. A systematic review and metasynthesis of barriers and facilitators to negotiating consistent condom use among sex workers in Asia. Cult Health Sex. 2016;18(3):249–64.
10. Isac S, Prakash R, Halli S, et al. Understanding low levels of condom use between female sex workers and their regular partners: Timing of sexual initiation in relationships as a differentiating factor in Karnataka, South India. J HIV AIDS Soc Serv. 2016;16:113–26.
11. Deering K, Bhattacharjee P, Bradley J, et al. Condom use within non-commercial partnerships of female sex workers in southern India. BMC Public Health. 2011;11(Suppl 6):S11ff.
12. Evans C, Lambert H. The limits of behaviour change theory: condom use and contexts of HIV risk in the Kolkata sex industry. Cult Health Sex. 2008;10(1):27–41.
13. Sultana H. Sex worker activism, feminist discourse and HIV in Bangladesh. Cult Health Sex. 2015;17(6):777–88.
14. Campbell C. Community mobilisation in the 21st century: updating our theory of social change? J Health Psychol. 2014;19(1):46–59.
15. Connell R. Gender, health and theory: conceptualizing the issue, in local and world perspective. Soc Sci Med. 2012;74(11):1675–83.
16. Connell R, Pearse R. Gender. In: World perspective. 3rd ed. Cambridge: Polity; 2014.
17. Kippax S, Stephenson N, Parker R, Aggleton P. Between individual agency and structure in HIV prevention: understanding the middle ground of social practice. Am J Public Health. 2013;103(8):1367–75.
18. Evans C, Jana S, Lambert H. What makes a structural intervention? reducing vulnerability to HIV in community settings, with particular reference to sex work. Glob Public Health. 2010;5(5):449–61.
19. Kerrigan D, Fonner V, Stromdahl S, Kennedy C. Community empowerment among female sex workers is an effective HIV prevention intervention: a systematic review of the peer-reviewed evidence from low- and middle-income countries. AIDS Behav. 2013;17(6):1926–40.
20. Narayanan P, Sarangan G, Bharadwaj S. Charting new territory: community participation at the centre of global policy making. Community Dev J. 2015;50(4):608–23.
21. Kerrigan D, Kennedy C, Morgan-Thomas R, et al. A community empowerment approach to the HIV response among sex workers: effectiveness, challenges, and considerations for implementation and scale-up. Lancet. 2015;385(9963):172–85.
22. Cornish F, Priego-Hernandez J, Campbell C, Mburu G, McLean S. The impact of community mobilisation on HIV prevention in middle and low income countries: a systematic review and critique. AIDS Behav. 2014;18(11):2110–34.
23. Blanchard A, Mohan H, Shahmanesh M, et al. Community mobilization, empowerment and HIV prevention among female sex workers in South India. BMC Public Health. 2013;13:234ff.
24. Erausquin J, Biradavolu M, Reed E, Burroway R, Blankenship K. Trends in condom use among female sex workers in Andhra Pradesh, India: the impact of a community mobilisation intervention. J Epidemiol Commun H. 2012;66(Suppl 2):49–54.
25. Kuhlmann A, Galavotti C, Hastings P, Narayanan P, Saggurti N. Investing in communities: evaluating the added value of community mobilization on HIV prevention outcomes among FSWs in India. AIDS Behav. 2014;18(4):752–66.
26. Altman L, Kuhlmann A, Galavotti C. Understanding the black box: a systematic review of the measurement of the community mobilization process in evaluations of interventions targeting sexual, reproductive, and maternal health. Eval Program Plan. 2015;49:86–97.
27. Laga M, Galavotti C, Sundararaman S, Moodie R. The importance of sex-worker interventions: the case of Avahan in India. Sex Transm Infect. 2010;86:i6–7.
28. Kotiswaran P. Dangerous sex, invisible labor: sex work and the law in India. Princeton: Princeton University Press; 2011.
29. Salganik M, Heckathorn D. Sampling and estimation in hidden populations using respondent-driven sampling. Sociol Methodol. 2004;34(1):193–240.
30. Lippman S, Neilands T, Leslie H, et al. Development, validation, and performance of a scale to measure community mobilization. Soc Sci Med. 2016;157:127–37.
31. Long J, Freese J. Regression models for categorical dependent variables using Stata, 2e. College Station: Stata Press; 2006.
32. SPSS Data Analysis Examples: Multinomial Logistic Regression. UCLA: Institute for Digital Research & Education. https://stats.idre.ucla.edu/spss/dae/multinomial-logistic-regression/. Accessed 26 Apr 26, 2021
33. Galavotti C, Wheeler T, Kuhlmann A, et al. Navigating the swampy lowland: a framework for evaluating the effect of community mobilization in female sex workers in Avahan, the India AIDS initiative. J Epidemiol Commun H. 2012;66(Suppl 2):9–15.
34. Navani-Vazirani S, Solomon D, Gopalakrishnan, Heylen E, Srikrishnan AK, Vasudevan CK, Ekstrand ML. Mobile phones and sex work in South India: the emerging role of mobile phones

in condom use by female sex workers in two Indian states. Cult Health Sex. 2015;17(2):252–65.
35. George A, Blankenship K, Biradavolu M, Dhungana N, Tankasala N. Sex workers in HIV prevention: from social change agents to peer educators. Glob Public Health. 2015;10(1):28–40.
36. Narayan D. Chup*:* breaking the silence about women in India. New Delhi: Juggernaut Books; 2018.
37. Rodríguez D, Tripathi V, Bohren M, et al. "From me to HIV": a case study of the community experience of donor transition of health programs. BMC Infect Dis. 2015;15:349ff.