Published in final edited form as:
J Prev Interv Community. 2010 April ; 38(2): 104–117. doi:10.1080/10852351003640674.

Reducing Alcohol Use, Sex Risk Behaviors, and Sexually Transmitted Infections Among Filipina Female Bar Workers: Effects of an Ecological Intervention

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Abstract

This article presents the outcomes of a quasi-experimental community-based research intervention initiative targeting sexually transmitted infections (STIs) testing and condom use among Filipina female bar workers (FBWs). Established at the peer, organizational, and policy levels, bar managers and peer educators from 110 different establishments, in 4 southern Philippines regions, were trained. Only FBWs in the combination peer educator and manager training intervention condition significantly increased STI testing from baseline to follow-up. STI testing was significantly associated with higher HIV/AIDS knowledge, lower probability of contracting HIV, and increased condom use. Based on the findings, future research on the adaptability of this intervention to FBWs residing in HIV epicenters is warranted.

Keywords

community-based participatory research; condom use; ecological interventions; female bar workers; social influence modeling; social reinforcement theory intervention; STI testing; the Philippines

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Global research in Asia and Africa (Cohen, Wu, & Farley, 2006; Vuttanont, Greenhalgh, Griffin, & Boynton, 2006) suggests that social norms and institutional/organizational policy within commercial sex establishments influence alcohol use and sex risk behavior among female sex workers (FSWs) and/or female bar workers (FBWs). Substantial global literature (Bryant, 2006) links alcohol use to HIV risk behavior. Commercial sex workers (CSWs), including FSWs and FBWs, who drink alcohol with their customers are at particularly high HIV risk (Akarro, 2008).

Sexually transmitted infections (STIs; e.g., gonorrhea, herpes simplex virus, chlamydia, syphilis, and trichomoniasis) can enhance HIV transmission by compromising genital tissue to facilitate HIV entry by increasing the viral concentration in genital secretions of HIV-positive persons, thereby increasing infectiousness. Thus, untreated STIs represent missed opportunities to prevent new HIV infections (Semaan, Des Jarlais, & Malow, 2006; 2007).

The widespread global use of alcohol in both legal (e.g., bars) and illegal drinking settings coupled with alcohol's specific biobehavioral effects may increase STI/HIV transmission between CSWs and their clients. For example, alcohol can impair judgment about negotiating or using condoms. Recently, Akarro (2008) reported that Tanzanian girls aged 10 to 14 who drink alcohol were 6.6 times less likely to use condoms than nondrinkers.

While most research on FSWs in developing countries has focused on visible street-based CSWs (Remple, Johnson, Patrick, Tyndall, & Jolly, 2007), this study investigated FBWs working in beer gardens, disco houses, night clubs, and karaoke centers. Because the link between alcohol use and risky sex behavior depends on individual attributes of the FBWs (e.g., personal knowledge, attitudes, and skills) as well as ecological factors (e.g., situational/environmental, normative of the “sex” establishments [Shahmanesh, Patel, Mabey, & Cowan, 2008]), the study targeted both of these factors in a four-condition study (i.e., peer education, manager training, a combination of peer education and manager training, and no intervention) in the Philippines.

METHODS

Interventions

The primary objective of the intervention was to integrate successful components of an educational program into the health care processes of Social Hygiene Clinics (SHCs) and establishments employing FBWs. Another objective was to generate recommendations to the National AIDS Prevention Control Program for training and developing community-based AIDS prevention education in the Philippines.

Managers and peers from 110 establishments employing Filipina FBWs were recruited for a 3-year longitudinal, quasi-experimental study in four regions in the southern Philippines. The study evolved in two phases: the preintervention phase (social preparation of the community and a baseline interview) and the implementation phase (establishing an Advisory Committee, Owners/Managers Association, and FBW Peer Counselors Association) (Tiglao, Morisky, Tempongko, Baltazar, & Detels, 1996). Members from these committees and associations, including the local City Health Office, assisted in implementing three client-centered interventions for FBWs and their establishment-based managers (Morisky, Stein, Chiao, Ksobiech, & Malow, 2006). In the first region (Legaspi), FBWs received peer counseling; in the second region (Cagayan de Oro), FBWs were trained by managers; and in the third region (Cebu), FBWs were instructed by a combination of peers and managers. In a fourth region (Ilo-Ilo), a group of FBWs served as the control and only received “usual care” from peers and managers.

In the present study, the preintervention phase established community support. Meetings were held with city health officers, STI coordinators, nurses and midwives, sanitation inspectors, medical technologists, and recording clerks at the four regional study sites. Unobtrusive observations were also conducted at the SHCs to assess clinic flow, amount of educational counseling, and opportunities for education during waiting periods, as well as observations at the various establishments where FBWs were employed.

Although sex work is illegal in the Philippines, the government requires sex establishment (e.g., beer gardens, bars, disco clubs, karaoke TV) workers to be registered in the local SHC, which is funded through the City Health Department. In the Philippines, a network of SHCs provide STI screening and prescriptions for registered female “entertainment workers” in over 140 cities, with some sites screening over 1,000 women per week (Wi et al., 2006).

Using interviews, data were collected regarding (1) cognitive variables (e.g., AIDS knowledge and self-esteem), (2) intervention process-related variables (e.g., regular meeting attendance or participation in regular discussions of the rules and regulations of the establishment), (3) manager influence-related variables (e.g., offering an AIDS prevention class to encourage SHC registration or encouraging attendance at community AIDS meetings sponsored by local health officials to improve communication/negotiation skills), and (4) sociodemographic variables.

Sample

Only FBWs who reported engaging in commercial sex work at establishments were included in this study. Women who failed to provide key information about their condom use behaviors and daily alcohol consumption were excluded from the current analyses. This procedure yielded a total of 911 FBWs at posttest interviews. Behavioral data were collected through a structured face-to-face interview administered by trained field workers.

Outcome Measures

Three sexual and protective behaviors were assessed: (1) STI examination, (2) consistent condom use, and (3) daily alcohol consumption. Information about STI examination was collected by SHC records to ascertain whether FBWs had been examined for STIs in the past 6 months (yes–no). Consistent condom use was assessed via posttest self-report using a validated six-item scale (Morisky, Ang, & Sneed, 2002) with an alpha of 0.82. The higher the score, the more consistently FBWs used condoms. Information about daily alcohol consumption was collected by self-report from FBWs regarding whether they consumed alcohol every day (yes–no).

Demographics

The 911 FBW study participants averaged 23.5 years of age (range 15–54), 8.96 years of education, and 12.47 months of commercial sex work employment at the bar in question. Among the FBWs, 8% were married, with 55.3% having at least one child. Average weekly income was 1,372.5 pesos (approximately US$50).

RESULTS

Table 1 presents the distributions of three major behavioral outcomes by intervention group. Among the four groups, over 90% of FBWs in the combined (peers and managers) group had an STI examination in the past 6 months, compared with about 85% of FBWs in the peer education group, 85% in the manager training group, and 51% in the control group. FBWs in the combined group were significantly more likely to use condoms consistently

than any of the other three groups. Only about one-fifth of FBWs in the combined group consumed alcohol every day.

Interventions

Table 2 presents the group differences by (1) individual cognitive variables, (2) intervention process-related variables, and (3) manager influence-related variables. Among the four groups, FBWs in the intervention groups had higher levels of AIDS knowledge than those in the control group. FBWs in the manager training group and the combined group were more likely to lower their chances of contracting AIDS (measured by positive responses to awareness, attitudes, beliefs, and knowledge regarding transmission) than FBWs in the control group. FBWs in these two intervention groups also had higher levels of self-esteem than those in the control group.

A greater proportion of FBWs in the combined group attended regular meetings and were more likely to discuss rules and regulations in these meetings compared with the control group. FBWs in the combined group were found to be most likely to attend an AIDS prevention class (46%) and reported that the class increased their safer sex practices (42%). Over 70% of FBWs in the manager training group and the combined group reported being taught to use condoms properly and over 60% had been taught by medical professionals.

Managers of FBWs in the intervention groups were more likely to participate in AIDS prevention–related activities than those in the control group. Approximately 80% of the managers in the combined group attended a community AIDS meeting or an AIDS prevention class. Only about 60% of the managers in the control group attended a community AIDS meeting and less than 45% attended an AIDS prevention class.

Sexual and Protective Practices

Tables 3 through 5 present intervention-related variables separately for each group with regard to having an STI examination, consistent condom use, and daily alcohol consumption, respectively. Adjusting for individual sociodemographic characteristics (age, education, work duration, weekly wage, and partner status), most cognitive variables did not significantly increase the likelihood of having an STI exam, except for lowering the chance of getting AIDS (Table 3). Several intervention process-related variables were found to be significantly associated with an STI exam. FBWs in the control group were more likely to have an STI exam if they attended a prevention class and were taught to use condoms properly, particularly by medical professionals. The managers seemed to positively influence having an STI exam but not at a significant level.

Consistent condom use was positively associated with individual cognitive characteristics, intervention process–related variables, and factors related to manager influence (Table 4). For FBWs in the combined group, the significant factors were higher levels of AIDS knowledge, attendance at an AIDS prevention class, and knowledge of proper condom use. Managers of FBWs in the control group who offered an AIDS prevention class for FBWs significantly increased consistent condom use among FBWs.

Surprisingly, no cognitive variables were found to significantly decrease daily alcohol consumption (Table 5). However, several variables with regard to intervention process and manager influence had significant influence on decreasing daily alcohol consumption. Managers who had an AIDS prevention class for FBWs significantly decreased the likelihood of daily alcohol consumption (Adjusted Odds Ratio [aOR]=0.22). FBWs who reported that the prevention class increased safer sex practices also decreased their likelihood of daily alcohol consumption (aOR=0.58).

In examining the specific intervention effects on consistent condom use among FBWs, the results indicate that participants assigned to the combined group (Cebu site) were significantly more likely to consistently use condoms than those in the control group (Ilo-Ilo site), after adjusting for individual sociodemographic characteristics.

DISCUSSION

Overall, the results from the 5-week intervention program suggest that structured peer and manager interventions can positively impact FBWs attitudes and behaviors toward condom use and the use of STI clinics. More importantly, the data demonstrate that both individual and ecological factors played a role in that success. For example, when establishments offered classes on AIDS prevention, the FBWs in attendance demonstrated greater knowledge regarding HIV/AIDS, were more likely to report consistent condom use, and were more likely to reduce their level of alcohol consumption. It is clear that the efforts of bar managers played a role in encouraging FBWs to change attitudes and behaviors in the desired direction with respect to condom use and STI exams. One such effort initiated by the bar managers involved establishing an association that coordinated a loan program to enable FBWs to purchase STI treatments when necessary.

Several years later, there is still evidence of the impact of this program and the interventions on FBWs. Throughout Southeast Asia, other health agencies and commercial establishments reference the success of this program and use it as a model to inform their policies and practices (Foss, Hossain, Vickerman, & Watts, 2007; Ortega, Bicaldo, Sobritchea, & Tan, 2005).

In an earlier study, with findings consistent with those of the present study, Levine et al. (1998) implemented an HIV prevention intervention among 508 female CSWs who worked at one of 25 brothels in Bolivia and attended a public STI clinic. The intervention consisted of improved STI clinical care, supported by periodic laboratory testing, and behavioral interventions performed by a local nongovernmental organization (NGO). STI prevalence among the CSWs declined significantly during the 3-year study period, supporting the use of NGOs as coordinators of HIV prevention interventions and implementers of public health services, particularly in areas where HIV rates are still low.

Wi et al. (2006) administered a similar intervention in the Philippines aimed at reducing STIs among FSWs via presumptive treatment for the intervention group and improved prevention and screening services for the standard care group. The results indicated significant declines of STIs for all groups. At 6-month follow-up, STI prevalence remained low for the intervention group but reverted to preintervention levels for the standard care groups, reinforcing a common theme: positive service delivery system effects are short-lived and longer term STI control requires ongoing access to effective preventive modalities (e.g., access to condoms) coupled with HIV risk-reduction structural intervention goals. Shahmanesh et al. (2008) reviewed 28 HIV-prevention interventions and found strong evidence supporting the creation of workshops addressing sex risk reduction and condom promotion, along with improved access to STI treatment to reduce HIV and other STI acquisition among participating CSWs.

LIMITATIONS

The use of self-reports to measure sensitive outcome behavior, such as condom use, may be subject to error through a social desirability bias. However, no significant differences in social desirability were found among individuals reporting always or very often using condoms and those reporting using condoms less frequently (Morisky et al., 2002). Individuals who reported high condom use behavior were also found to have lower

incidence of STIs. Further research is recommended on quantifying this behavior to provide more reliable and valid measures. Another potential bias is the possibility of preexisting site differences. However, considerable care was taken to select representative and comparable communities in the southern Philippines and randomly assign intervention approaches to each community.

CONCLUSION

To effectively implement structural interventions targeted at FBWs, a major commitment from establishment managers is typically necessary. Simply providing peer education and clinical counseling may be insufficient to sustain desired outcomes. The results from a recent randomized clinical trial (Hoke et al., 2007) support the present findings, which suggest that organizational policy changes (e.g., consistent condom use) within the establishments are best achieved when implemented and reinforced by management and supervisors. This view is also supported by Kerrigan et al. (2006), whose results indicate the importance of structural interventions that combine both endogenous as well as exogenous approaches.

While further rigorous research would be helpful, multiple studies document the value of going beyond individual-level interventions to incorporate institutional, organizational, and governmental support systems to reduce STI/HIV (Chiao & Morisky, 2007; Chiao, Morisky, Ksobiech, Rosenberg, & Malow, 2006; Kerrigan et al., 2006; Morisky, Ang, Coly, & Tiglao, 2004; Morisky, Chiao, Stein, & Malow, 2005; Morisky et al., 1998, 2002). As Fang et al. (2007) suggest, including friends, family, employers, and community and other organizations and institutions in future intervention designs may well improve the likelihood of achieving desired outcomes.

Acknowledgments

The study was funded by the National Institutes of Allergy and Infectious Diseases (R01-AI33845), UCLA AIDS (AI-28697), and University-wide AIDS Research (D04-LA-400).

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J Prev Interv Community. Author manuscript; available in PMC 2011 May 17.

TABLE 1

Mean (Standard Deviation) or Percentage of Ever Having Sexually Transmitted Infection Examination, Consistent Condom Use, and Daily Alcohol Consumption by Intervention Group, a Community Intervention Study of FBWs

Behavioral outcomes	**Legaspi:peer education (*n* = 150)**	**Cagayan de Oro:manager training (*n* = 202)**	**Cebu:combined (*n* = 418)**	**Ilo-Ilo:control (*n* = 141)**	**Statistic test**
Ever had an examination for sexually transmitted infection in past 6 months (%)	85.33	84.65	93.78	51.06	$\chi^2(3) = 120.04$; $p < .000$
Consistent condom use [never (0)–always (5)]	1.61 (1.24)	1.79 (1.26)	3.04 (1.87)	1.70 (0.97)	$F = 51.07$; $p < .000$
Daily alcohol consumption (%)	55.33	39.60	20.81	44.68	$\chi^2(3) = 73.31$; $p < .000$

Note. Tests for difference conducted using χ^2 tests for categorical variables and *F*-tests for continuous variables.

FBWs = female bar workers.

TABLE 2

Mean (Standard Deviation) or Percentage of Individual Cognitive Variables, Process-Related Variables, and Manager Influence–Related Variables by Intervention Group, A Community Intervention Study of FBWs

	Legaspi:peer education (n = 150)	Cagayan de Oro:manager training (n = 202)	Cebu:combined (n = 418)	Ilo-Ilo:control (n = 141)	Statistic test
Cognitive variables					
AIDS knowledge index (0–9)	6.98 (1.29)	6.31 (1.45)	6.80 (1.39)	5.90 (1.43)	F = 21.21; $p < 0.000$
To lower chance of getting AIDS (%)	40.40	61.88	88.28	53.19	$\chi^2_{(3)} = 159.94;\ p < 0.000$
Self-esteem (10–50)	32.79 (4.68)	34.68 (3.47)	34.57 (4.08)	32.60 (3.91)	F = 14.83; $p < 0.000$
Intervention process–related variables					
Regular meeting					
Have a regular meeting (%)	71.33	85.15	94.74	85.11	$\chi^2_{(3)} = 54.17;\ p < 0.000$
Discuss rules/regulations in the meeting (%)	5.33	31.19	55.74	36.17	$\chi^2_{(3)} = 146.53;\ p < 0.000$
AIDS prevention class					
Attend a prevention class (%)	42.67	28.22	45.69	27.66	$\chi^2_{(3)} = 26.79;\ p < .000$
Feel useful of the prevention class (%)	98.00	96.04	92.58	76.60	$\chi^2_{(3)} = 47.08;\ p < .000$
The prevention class increasing safer sex (%)	6.67	24.26	42.11	14.89	$\chi^2_{(3)} = 97.10;\ p < .000$
Proper condom use					
Ever been taught to use condoms properly (%)	64.00	78.71	75.36	58.87	$\chi^2_{(3)} = 22.84;\ p < .000$
Proper condom usage taught by medical professionals (%)	40.67	65.35	61.00	41.13	$\chi^2_{(3)} = 38.24;\ p < .000$
Manager influence–related variables					
The manager ever					
Attended a community AIDS meeting (%)	60.67	65.35	82.30	59.57	$\chi^2_{(3)} = 47.20;\ p < .000$
Attended an AIDS prevention class (%)	72.67	63.86	88.76	43.97	$\chi^2_{(3)} = 123.02;\ p < .000$
Had an AIDS prevention class for workers (%)	57.33	85.15	79.67	12.06	$\chi^2_{(3)} = 258.39;\ p < .000$

Note. Tests for difference conducted using χ^2 tests for categorical variables and *F*-tests for continuous variables.

FBWs = female bar workers.

TABLE 3

Predicting Odds of Having an STI Examination of FBWs by Intervention Group

	Legaspi:peer education (*n* = 150) aOR	**Cagayan de Oro:manager training (*n* = 202) aOR**	**Cebu:combined (*n* = 418) aOR**	**Ilo-Ilo:control (*n* = 141) aOR**
Cognitive variables				
AIDS knowledge index	1.14	1.32	1.07	1.51
To lower chance of getting AIDS (ref = no)	2.17	2.50	0.89	14.32**
Self-esteem	1.06	1.07	0.99	1.08
Intervention process–related variables				
Regular meeting				
Have a regular meeting (ref = no)	3.96**	2.89**	0.51	0.84
Discuss rules/regulations in the meeting (ref = no)	1.05	2.17	1.50	1.64
AIDS prevention class				
Attend a prevention class (ref = no)	4.32	2.07	1.24	20.42**
Feel useful of the prevention class (ref = no)	3.31	1.02	2.77	0.82
The prevention class increasing safer sex (ref = no)	1.60	0.92	2.16*	2.88*
Proper condom use				
Ever been taught to use condoms properly (ref = no)	1.65	3.43*	2.33	12.03***
Proper condom use taught by medical professionals (ref = no)	2.63	2.09	1.55	44.53**
Manager influence–related variables				
The manager ever				
Attended a community AIDS meeting (ref = no)	2.58	1.61	1.23	2.94
Attended an AIDS prevention class (ref = no)	0.44	1.11	0.34	5.65
Had an AIDS prevention class for workers (ref = no)	1.95	0.84	0.45	1.41

Note.

All analyses were separated for each of the explanatory variables by intervention group and adjusted for age, education, work duration, weekly wage, and partner status.

aOR = Adjusted Odds Ratio; FBWs = female bar workers; STI = sexually transmitted infection.

* $p < .05$

** $p < .01$

*** $p < .001$.

TABLE 4

Predicting Consistent Condom Use of FBWs by Intervention Group

	Legaspi:peer education (*n* = 150) coef.	Cagayan de Oro:manager training (*n* = 202) coef.	Cebu:combined (*n* = 418) coef.	Ilo-Ilo:control (*n* = 141) coef.
Cognitive variables				
AIDS knowledge index	–0.09	–0.001	0.19**	0.06
To lower chance of getting AIDS (ref = no)	0.61	0.40	0.21	0.45*
Self-esteem	–0.04	0.02	–0.06	0.02
Intervention process–related variables				
Regular meeting				
Have a regular meeting (ref = no)	0.35*	–0.72	–0.18	0.12
Discuss rules/regulations in the meeting (ref = no)	–0.54	–0.40	0.21	0.07
AIDS prevention class				
Attend a prevention class (ref = no)	0.27	0.65	0.53**	0.96***
Feel useful of the prevention class (ref = no)	0.76*	0.73*	–0.28	–0.04
The prevention class increasing safer sex (ref = no)	–0.25	0.09	1.49***	–0.10
Proper condom use				
Ever been taught to use condoms properly (ref = no)	0.72*	0.82***	1.29***	0.85**
Proper condom use taught by medical professionals (ref = no)	1.00**	0.57**	1.21***	1.02**
Manager influence–related variables				
The manager ever				
Attended a community AIDS meeting (ref = no)	0.13	0.28	0.37	0.16
Attended an AIDS prevention class (ref = no)	–0.23	–0.27	0.20	0.36
Had an AIDS prevention class for workers (ref = no)	–0.57	0.08	1.36*	–0.01

Note.

All analyses were separated for each of the explanatory variables by intervention groups and adjusted for age, education, work duration, weekly wage, and partner status.

FBWs = female bar workers.

* $p < .05$

** $p < .01$

*** $p < .001$.

TABLE 5

Predicting Odds of Consuming Alcohol Daily of FBWs by Intervention Group

	Legaspi:peer education (*n* = 150) aOR	Cagayan de Oro:manager training (*n* = 202) aOR	Cebu:combined (*n* = 418) aOR	Ilo-Ilo:control (*n* = 141) aOR
Cognitive variables				
AIDS knowledge index	1.37	0.94	0.93	1.31
To lower chance of getting AIDS (ref = no)	1.11	1.89	1.28	1.84
Self-esteem	0.96	1.00	0.97	0.98
Intervention process–related variables				
Regular meeting				
Have a regular meeting (ref = no)	0.90	0.79	1.47	2.34
Discuss rules/regulations in the meeting (ref = no)	2.39	0.74	1.51	0.95
AIDS prevention class				
Attend a prevention class (ref = no)	1.23	0.94	0.64	0.75
Feel useful of the prevention class (ref = no)	1.80	4.40	1.34	1.07
The prevention class increasing safer sex (ref = no)	0.82	0.98	0.58*	1.12
Proper condom use				
Ever been taught to use condoms properly (ref = no)	1.46	1.62	0.52	0.91
Proper condom use taught by medical professionals (ref = no)	1.48	1.74	0.52*	0.89
Manager influence–related variables				
The manager ever				
Attended a community AIDS meeting (ref = no)	1.39	2.27	0.61	0.85
Attended an AIDS prevention class (ref = no)	1.78	2.23	0.70	0.43
Had an AIDS prevention class for workers (ref = no)	1.47	1.21	0.22**	1.06

Note.

All analyses were separated for each of the explanatory variables by intervention groups and adjusted for age, education, work duration, weekly wage, and partner status.

aOR: Adjusted Odds Ratio.

* $p < .05$

** $p < .01$.