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Who's that SMARTgirl? Reaching Cambodian Female Entertainment and Sex Workers with HIV Prevention Services

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Abstract

Engagement in prevention services is crucial to reducing HIV risk among female entertainment and sex workers (FESW), and SMARTgirl is the national social marketing HIV prevention program for Cambodian women engaged in sex and entertainment work. Informed by the Behavioral Model of Vulnerable Populations, three multivariate logistic regression analyses examined correlates of three indices of engagement along the SMARTgirl HIV prevention continuum: 1) receipt of outreach services (past three months); 2) being registered as a SMARTgirl member; and 3) SMARTgirl club attendance (past year). Among the 1,077 FESW enrolled in nine Cambodian provinces, women working in a brothel or freelance (adjusted odds ratio [aOR] = 2.48; 95% CI = 1.44 – 4.26) and those exchanging sex for drugs during the past three months (aOR = 0.45; 95% CI = 0.25 – 0.81) had significantly lower odds of contact with a SMARTgirl outreach worker. Women who reported having more than 10 sexual partners in the past three months (aOR = 0.54; 95% CI = 0.32 – 0.89) and those who reported binge alcohol use (aOR = 0.53; 95% CI = 0.29 – 0.98) had significantly lower odds of being registered as

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SMARTgirl members. Exchanging sex for drugs was also associated with increased odds of attending a SMARTgirl club (aOR = 2.03; 95% CI = 1.04 – 3.98). Novel methods to deliver HIV prevention services are warranted to more effectively reach FESW who exchange sex for drugs, engage in binge alcohol use, report a greater number of sexual partners, and those not working in established work venues.

Keywords

Amphetamine-type stimulants; HIV prevention; Sex Work

INTRODUCTION

In Cambodia and other low income settings, key populations such as female sex workers remain at elevated risk for HIV (1, 2). In Cambodia, HIV prevalence among young women (15–29 years) engaged in sex and entertainment work (known as female entertainment and sex workers or FESW) has been estimated at 15 – 23% (3, 4). Despite declines in HIV prevalence, Cambodia faces challenges to HIV prevention and elimination goals among FESW. In part, these challenges are due to anti-trafficking legislation implemented in 2008 that criminalized sex work and paradoxically amplified HIV risk. Many FESW who had previously been accessible for HIV prevention efforts in brothels and other sex venues became more difficult to reach given fear of arrest or intimidation (5, 6, 7). As a result, a vibrant sex work industry emerged with women working in entertainment venues (e.g., beer halls, karaoke clubs) that provide indirect opportunities for engagement in transactional sex. Although these entertainment venues provided opportunities for FESW to continue to discretely engage in sex work, some FESW continue to work in illegal brothels or engage in street-based sex work where risk of HIV and other sexually transmitted infections is higher than in entertainment venues (3).

FESW experience synergistic interactions between substance use, homelessness, poverty, violence, stigma, and discrimination that not only contribute to adverse health outcomes (e.g., amplified HIV risk), but may also serve as barriers to seeking health services (8, 9, 16). Amphetamine-type stimulant (ATS) use in particular has emerged as a major driver of HIV risk among FESW in Cambodia, with more than one-in-four reporting recent ATS use (3, 4). Studies have shown that FESW initiate ATS use occupationally as a means to work more hours (i.e., to obviate the need for food and rest), increase energy and endurance, lower sexual inhibitions, and thus see more clients (5, 6). Exposure to violence is also highly prevalent and has been shown to independently predict subsequent ATS use and sexual risk (10).

During the last decade of structural change in the sex work landscape in Cambodia, intensive programmatic efforts aimed at preventing HIV in this population were developed and implemented throughout the country, funded almost exclusively by international donors. Launched in 2008 to reduce HIV risk among FESW, the SMARTgirl provided peer outreach services with targeted social marketing communication tools to promote condom use and to make referrals for HIV and STI testing as well as reproductive health services for

Cambodian FESW. Supported by the United States President's Emergency Plan for AIDS Relief (PEPFAR), the United States Agency for International Development (USAID), and the United Nations Fund for Population Activities (UNFPA), SMARTgirl was implemented by local non-governmental organizations (LNGOs) in 11 cities throughout Cambodia (11). Drop-in SMARTgirl clubs were established to facilitate social activities (e.g., makeup, hair styling, nail polish, etc.) and peer outreach workers offered prevention education, service referrals, and the opportunity to register as a SMARTgirl member to FESW.

The Cambodia Integrated HIV and Drug-use Prevention Intervention (CIPI) trial was a cluster randomized, stepped-wedge trial that leveraged the SMARTgirl program as a platform for delivering two evidence-based HIV prevention interventions (12, 13). Using baseline data from CIPI, the goal of the present study to examine theory-based correlates of increasing levels of FESW engagement in SMARTgirl HIV prevention continuum, using the Behavioral Model of Vulnerable Populations (14, 15). In this model, vulnerable populations are disproportionately affected by social and structural inequalities such as poverty, homelessness, and violence, which may serve as barriers to healthcare utilization (16). Specifically, the model posits that health care utilization is a function of three domains: 1) Predisposing - factors that predispose one to utilize services; 2) Enabling - factors that enable one to utilize services, and 3) Urgency (Need) - factors to utilize services (14). We hypothesized that predisposing, enabling, and need factors would be associated with success along the HIV prevention engagement continuum in Cambodian FESW.

METHODS

Parent study description

The CIPI trial was implemented in 10 Cambodian provinces with active SMARTgirl services, and high numbers of FESW and HIV prevalence. Between 2013 to 2016, CIPI enrolled a baseline sample of 1,200 FESW 18 years of age who reported 2 different sexual partners and/or transactional sex within the last month. Participants completed an interviewer-administered survey assessing demographics, self-reported risk behaviors (e.g., substance use), psychological factors, and economic well-being. The study protocol was reviewed and approved by the Cambodian National Ethics Committee, and the Institutional Review Boards (IRBs) of the [BLINDED] institutions.

Measures

The present study used baseline data from FESW enrolled in CIPI. At the baseline visit, participants completed interviewer-administered surveys assessing demographics, self-reported risk behaviors (e.g., substance use), psychological factors, and economic well-being. Trained staff administered surveys in a private room for approximately one hour. Each participant received HIV risk reduction counseling, and referrals were provided to SMARTgirl and other reproductive health services. Primary independent variables are summarized below in three domains consistent with the Behavioral Model of Vulnerable Populations.

Predisposing factors.—Age, marital status, any food insecurity (in the past three months), and any housing instability (in the past three months) were assessed. Participants completed a single question to assess any housing instability as well as any food insecurity. With the exception of age, all other measures included categorical responses. Those who reported any housing instability and/or food insecurity (i.e., rarely, sometimes, often, always = 1) were compared to those who reported none (i.e., never = 0).

Enabling factors.—Income and type of work venue in the past month were assessed. Those who worked in an entertainment venue (1) were compared to participants who were freelance or brothel workers (0).

Need factors.—Number of sexual partners (i.e., paying and non-paying partners) in the past three months, any physical violence (i.e., slapped, pushed, shoved, or had something thrown at you), any sexual violence (i.e., physically forced to have unwanted sex), binge ATS use (> 48 hours continuously without sleep) in the past three months, binge alcohol use (> 5 drinks on one day or night) in the past three months, having had sexual relations in exchange for drugs in the past three months were assessed. Clinically significant distress was assessed using the Kessler-10 (K-10), a 10-item screening measure for mild, moderate, or severe distress that has been validated for identifying depressive and anxiety disorders (17). Those with moderate/severe risk (1) were compared to participants with low or no risk/mild risk (0). With the exception of number of sexual partners, all other measures had categorical responses.

SMARTgirl HIV prevention engagement continuum.—The engagement continuum is defined as three separate levels of increasing involvement in the SMARTgirl program: 1) having been contacted by a SMARTgirl outreach worker in the past three months; 2) having ever registered as a SMARTgirl club member; and 3) having attended a SMARTgirl club in the past year. Full engagement along the SMARTgirl engagement continuum was defined as registered members who received outreach services in the past three months and attended a SMARTgirl club in the past year.

Analyses

Analyses included proportions and frequencies (median and interquartile range [IQR]) to describe participant characteristics, exposures, and outcomes. Because there were outreach services but no SMARTgirl club in Kampong Spueu, this province was taken out of the analyses, resulting in nine provinces. Three separate multivariate logistic regression analyses were performed to assess theory-based correlates of the SMARTgirl engagement continuum among participants. Because data collection for this project was conducted sequentially by province, models were controlled for clustering by province as a key structural determinant of variation in the outcomes. Due to the often sequential nature of progress along the engagement continuum, analyses controlled for prior steps. Three separate logistic models each used a different outcome along the continuum (i.e., SMARTgirl outreach, registration, and attendance). The model examining correlates of SMARTgirl registration controlled for receipt of SMARTgirl outreach. The model examining correlates of SMARTgirl club attendance controlled for receipt of SMARTgirl outreach and SMARTgirl registration.

Multivariate logistic regression analyses were performed to obtain adjusted odds ratios (aORs) with corresponding 95% confidence intervals. All predisposing, enabling, and need factors were included in the multivariate models. All statistical analyses were performed using SAS 9.4.

RESULTS

Sample characteristics

As shown in Table 1, the median age of participants (n=1077) was 26 (IQR: 22 – 30) years. Most had completed primary school (52%). Marital status was fairly evenly distributed, with more than one-third of women being separated/divorced/widowed (39%). Self-reported HIV prevalence was 5%. The majority of women had worked in an entertainment venue in the past month (79%), and reported currently working for an employer (73%). The median number of sex partners in the past three months was 7 (Interquartile Range [IQR] = 4 – 17). About a third of women reported experiencing any food insecurity in the past three months (32%), and over half reported any housing instability in the past three months (57%). One-in-five participants reported any illicit drug use with one or more sex partners (18%) and binge ATS use in the past three months (19%). The majority of women reported binge alcohol use in the past three months (83%). Most women were at low or no risk for clinically significant distress using the K-10 (81%).

Figure 1 depicts sequential levels of engagement along the SMARTgirl prevention engagement continuum. Beginning with the total number of women in the sample enrolled, each successive bar represents a step in the HIV prevention engagement continuum indicator that is conditional to the preceding bar (i.e., the same FESW are in each step along the continuum with some drop-outs along the continuum). Three-fourths of participants (79%) reported contact with a SMARTgirl outreach worker in the past three months; two-thirds (69%) were registered SMARTgirl club members; and 60% reported attending a SMARTgirl club in the past year. Of all women enrolled, 40% were fully engaged in SMARTgirl having met all three levels of the engagement continuum (i.e., outreached, registered, and attended).

Theory-based correlates of the HIV prevention continuum

As shown in Table 1, participants who were older (aOR = 1.03, 95% CI = 1.00 – 1.07), had a monthly income greater than \$USD100 (aOR = 2.22; 95% CI = 1.50 – 3.31), and worked in an entertainment venue (aOR = 2.48; 95% CI = 1.44 – 4.26) had significantly greater odds of recent contact with a SMARTgirl outreach worker. On the other hand, exchanging sex for drugs during the past three months (aOR = 0.45, 95% CI = 0.25 – 0.81) was associated with 55% lower odds of recent contact with a SMARTgirl outreach worker.

Adjusting for receipt of SMARTgirl outreach contact, a second model examined correlates of registration as a SMARTgirl member. Participants who were married (aOR = 0.56; 95% CI = 0.33 – 0.96) and those who were separated, widowed, or divorced (aOR = 0.57; 95% CI = 0.33 – 0.99) had lower odds of being registered as a SMARTgirl. Similarly, FESW reporting more than 10 sexual partners during the past three months (aOR = 0.54; 95% CI =

0.32 – 0.89), and those who reported binge alcohol use in the past three months (aOR = 0.53; 95% CI = 0.29 – 0.98) had almost 50% lower odds of being a registered SMARTgirl.

Adjusting for receipt of SMARTgirl outreach contact and SMARTgirl membership, a third model examined the correlates of SMARTgirl club attendance in the past year. Those who reported sex in exchange for drugs in the past three months had more than 2-fold greater odds of reporting attendance at a SMARTgirl club in the past year (aOR = 2.03; 95% CI = 1.04 – 3.98).

DISCUSSION

The present study examined theory-based correlates of engagement in the SMARTgirl HIV prevention program among Cambodian FESW using the Behavioral Model of Vulnerable Populations (14, 15). Given that health care utilization in this model is a function of social, psychological, and structural factors (i.e., predisposing, enabling, and need factors), findings from this study can inform expanded efforts to reach and engage FESW in HIV prevention services. Results indicated that approximately 40% of FESW were fully engaged in SMARTgirl (i.e., outreached, registered and attended), and distinct barriers and facilitators to engagement were observed. Although exchanging sex for drugs was associated with lower odds of receiving SMARTgirl outreach, FESW who reported sex in exchange for drugs had two-fold greater odds of attending a SMARTgirl club. FESW who were not single (i.e., married, cohabitating, etc.), those with the highest numbers of sexual partners (i.e., paying and non-paying), and women who reported binge alcohol use in the past three months also had lower odds of being registered SMARTgirl members.

Our findings indicate that women who were generally thought to be at the highest risk for HIV were less likely to receive outreach services. Most notably, women who reported exchanging sex for drugs had 55% lower odds of having received outreach services. These FESW may be more difficult to reach because they may fear legal consequences regarding discovery of their substance use. On the other hand, those working in established entertainment venues had substantially greater odds of receiving SMARTgirl outreach services, which underscores the challenges of reaching freelance and brothel-based FESW who may be at greatest risk for HIV. A number of studies throughout Southeast Asia have indicated that HIV risk behaviors vary by sex work venue with freelance and brothel-based sex workers reporting the highest rates of sexual risk (18, 19, 20). Taken together, findings from this study highlight the need for expanded efforts to reach FESW at greatest risk for HIV including those who exchange sex for drugs as well as women who are freelance or brothel-based. Moreover, these significant findings within the Behavioral Model of Vulnerable populations' enabling and need variables underscore the specific characteristics and needs reflecting the vulnerability of FESW. Further research is needed to examine comprehensive approaches that may include partnerships with police and local authorities to alleviate FESW's fear of legal consequences and ensure the safety of the most marginalized groups of FESW in accessing HIV prevention services.

Findings from this study also provide evidence that higher risk FESW had lower odds of registering as SMARTgirl members. FESW who reported the highest levels of sexual risk

(i.e., more than 10 sexual partners during the past three months) had 46% lower odds of being registered as SMARTgirl members. Similarly, those who engaged in recent binge alcohol use had 47% lower odds of being registered as SMARTgirls. Many Cambodian FESW face difficult economic circumstances that exacerbate pressures to work longer hours and see more clients (21). Many FESW also work in establishments which sell alcohol (e.g., beer halls) where they are encouraged to drink with patrons prior to engaging in sex at off-site venues (3, 21, 22). FESW with higher numbers of sexual partners and those who engage in binge alcohol use may not consider SMARTgirl a priority, particularly if their client turnover or drug use places additional constraints on their time. Our findings speak to the need factor in the Behavioral Model of Vulnerable populations, such that competing needs lead to significant barriers in accessing health services. Future studies should examine the benefits of leveraging peer educator networks and peer outreach interventions that have been efficacious in reducing HIV risk globally among hard-to-reach populations, such as people who inject drugs, to better reach less engaged Cambodian FESW (23, 24, 25, 26).

Findings also indicated that FESW who reported exchanging sex for drugs had two-fold greater odds of attending a SMARTgirl club. This underscores the benefits of maintaining brick and mortar spaces for higher risk women to discretely access HIV prevention services. Although FESW who exchanged sex for drugs were more difficult to access with outreach services, these women were more likely to seek out HIV prevention services at SMARTgirl clubs. FESW who exchanged sex for drugs may have been more likely to attend and utilize the services in SMARTgirl clubs because of the perceived absence of stigma in a separate location where they could also socialize with other FESW. Taken together, these findings underscore that maintaining SMARTgirl clubs is an important component of the successful delivery of HIV prevention services to higher risk FESW. Further research is needed to understand whether there are different preferences for utilizing distinct components of HIV prevention services among subgroups of FESW in Cambodia.

Limitations

This study has limitations. First, our data are cross-sectional and as such, causal inferences were not possible. Further longitudinal studies are needed to examine trajectories of engagement of FESW along the HIV prevention continuum. Second, our results were based on self-reported measures and are potentially subject to bias (e.g., recall bias, social desirability bias). However, collection of biomarkers for ATS use and sexual risk at the assessment visit may have enhanced the reliability and validity of self-reported measures (12, 27). Moreover, because one of the CIPI interventions focused on reducing ATS use, expanded recruitment efforts (i.e., convenience sampling) were made to expand beyond the sampling frame of women enrolled in SMARTgirl to reach marginalized, underserved FESW. This likely yielded a more representative sample of FESW than if we chose to sample from FESW already engaged in SMARTgirl. Finally, preferences for accessing distinct components of SMARTgirl HIV prevention services were not measured. As such, more mixed methods research is warranted to understand FESW's acceptability and utilization of different service delivery models to optimize engagement of FESW along the HIV prevention continuum. Despite these limitations, ours is the first study to assess theory-based correlates of engagement of Cambodian FESW in HIV prevention services.

CONCLUSION

Our study provides important insights into the complex, multi-level factors that influence engagement along the HIV prevention continuum among Cambodian FESW. Enhanced HIV prevention should include efforts to expand SMARTgirl outreach services to engage sub-populations of FESW at the highest risk with tailored strategies, such as approaches that are tailored based on work volume (i.e., number of clients/sex partners), work venue, or current ATS use to maximize the efficiency of HIV prevention services.

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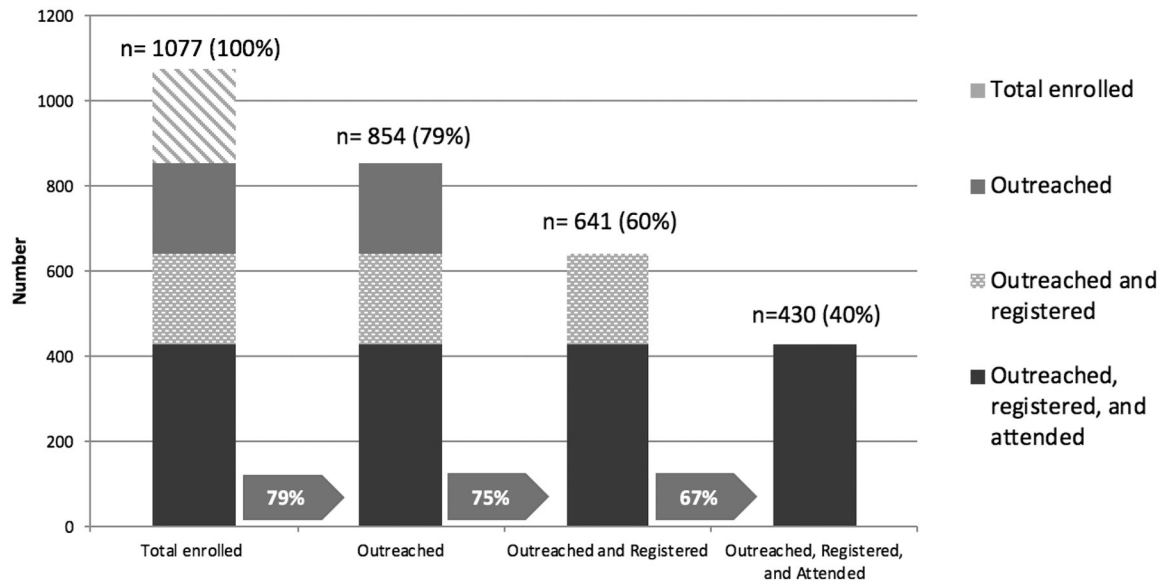


Figure 1. Engagement along the SMARTgirl prevention continuum for Cambodian female entertainment and sex workers (N = 1,077)

Table 1.

Theory-based correlates of the HIV prevention continuum among Cambodian female entertainment and sex workers.

	Total (N = 1,077)	Outreach (N = 1,055)		Registered (N= 1,054)		Attended (N = 1,051)		
Predisposing Factors	aOR (95% CI)^a		p-value	aOR (95% CI)^a		p-value	aOR (95% CI)^a	
	n (%)							
Age, per year (Median, IQR)	26, 23–30	1.03 (1.00, 1.07)	<0.05	1.03 (1.00, 1.07)	0.10	1.01 (0.97, 1.04)	0.78	
Marital status								
Single (ref)	281 (26%)							
Married/living together	373 (35%)		0.62		<0.05	1.13 (0.71, 1.80)	0.62	
Separated/Divorced/Widowed	423 (39%)	0.89 (0.56, 1.42) 1.18 (0.74, 1.91)	0.49	0.56 (0.33, 0.96) 0.57 (0.33, 0.99)	<0.05	1.11 (0.69, 1.76)	0.67	
Any food insecurity								
No (ref)	722 (68%)							
Yes	345 (32%)	1.29 (0.86, 1.94)	0.22	0.80 (0.51, 1.25)	0.32	1.04 (0.70, 1.55)	0.84	
Any housing instability								
No (ref)	457 (43%)							
Yes	610 (57%)	0.87 (0.58, 1.31)	0.51	1.42 (0.90, 2.24)	0.13	1.09 (0.74, 1.60)	0.68	
Ever received outreach								
No (ref)	223 (21%)							
Yes	854 (79%)	----	----	7.12 (4.32, 11.73)	<0.001	4.59 (2.81, 7.50)	<0.001	
Ever registered								
No (ref)	336 (31%)							
Yes	739 (69%)	----	----	----	----	3.06 (1.85, 5.08)	<0.001	
Ever attended								
No (ref)	431 (40%)							
Yes	642 (60%)	----	----	----	----	----	----	
	Total (N = 1,077)	Outreach (N = 1,055)		Registered (N= 1,054)		Attended (N = 1,051)		
Enabling Factors	aOR (95% CI)^a		p-value	aOR (95% CI)^a		p-value	aOR (95% CI)^a	
	n (%)							
Income								
<\$100 (ref)	248 (23%)							
>\$100	829 (77%)	2.22 (1.50, 3.31)	<0.001	1.06 (0.66, 1.70)	0.82	1.18 (0.78, 1.77)	0.44	
Work venue								
Freelance/brothel (ref)	225 (21%)							
Entertainment-based	852 (79%)	2.48 (1.44, 4.26)	<0.01	1.32 (0.70, 2.47)	0.39	0.75 (0.44, 1.30)	0.31	
Need Factors	aOR (95% CI)^a		p-value	aOR (95% CI)^a		p-value	aOR (95% CI)^a	
	n (%)							

	Total (N = 1,077)	Outreach (N = 1,055)		Registered (N = 1,054)		Attended (N = 1,051)	
Predisposing Factors		aOR (95% CI) ^a	p-value	aOR (95% CI) ^a	p-value	aOR (95% CI) ^a	p-value
Number of sexual partners							
<5 (ref)	349 (38%)						
5–9	143 (15%)	1.42 (0.84, 2.41)	0.19	1.08 (0.60, 1.95)	0.79	0.90 (0.55, 1.47)	0.67
>10	433 (47%)	1.47 (0.95, 2.28)	0.08	0.54 (0.32, 0.89)	<0.05	1.02 (0.66, 1.58)	0.92
Any moderate physical violence							
No (ref)	917 (85%)						
Yes	160 (15%)	0.74 (0.47, 1.16)	0.19	0.71 (0.42, 1.19)	0.19	1.52 (0.93, 2.48)	0.10
Any sexual violence							
No (ref)	972 (90%)						
Yes	105 (10%)	0.88 (0.51, 1.51)	0.63	0.95 (0.50, 1.79)	0.87	0.69 (0.37, 1.29)	0.24
ATS Binge							
No (ref)	868 (81%)						
Yes	208 (19%)	0.99 (0.62, 1.58)	0.97	1.47 (0.87, 2.48)	0.15	1.54 (0.96, 2.48)	0.08
Alcohol Binge							
No (ref)	161 (17%)						
Yes	807 (83%)	1.11 (0.65, 1.92)	0.70	0.53 (0.29, 0.98)	<0.05	0.74 (0.42, 1.31)	0.31
Sex in exchange for drugs							
No (ref)	975 (91%)						
Yes	100 (9%)	0.45 (0.25, 0.81)	<0.01	1.63 (0.78, 3.40)	0.19	2.03 (1.04, 3.98)	<0.05
Kessler (K10) Distress Scale							
Low or no risk/mild risk (ref)	863 (81%)						
Moderate/severe risk	203 (19%)	1.50 (0.92, 2.44)	0.11	1.36(0.82, 2.48)	0.24	0.71 (0.44, 1.15)	0.16

^aaOR = adjusted for province level variation