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Social Support and Amphetamine-type Stimulant Use among Female Sex Workers in China

Qun Zhao, Ph.D.¹, Yuchen Mao, Ph.D.², Xiaoming Li, Ph.D.¹, Yuejiao Zhou, M.D.², and Zhiyong Shen, M.D.³

¹School of Public Administration, Nanjing University of Information Science & Technology, Nanjing, 210044, China

²Department of Health Promotion, Education, and Behavior, University of South Carolina, Columbia, 29208, USA

³Institute of HIV/AIDS Control and Prevention, Guangxi CDC, Nanning, 530021, China

Abstract

Background—Existing research has suggested a positive role of social support in reducing drug use among female sex workers (FSWs). However, there is limited research on the role of social support in amphetamine-type stimulant (ATS) use among FSWs in China. This study explored the present situation of ATS use among FSWs in Guangxi, China and examined the associations of different types of social support from different sources with ATS use.

Method—A sample of 1,022 FSWs was recruited from 56 commercial sex venues in Guangxi Autonomous Region in China. Bivariate comparison was used to compare demographic characteristics and source of emotional or tangible social support across frequency of ATS use among FSWs. The relationship between social support and ATS use was examined using multiple ordinal logistic regression models controlling for the potential confounding effects of demographic variables.

Results—The multiple ordinal logistic regression indicated that FSWs who were from younger age groups (aOR = 10.88 for age group < 20; aOR = 2.80 for age group 20–23), and from all higher-income venues (aOR = 1.96 for venue level 1; aOR = 2.28 for venue level 2; aOR = 1.81 for venue level 3) tended to use ATS more frequently. They also tended to use ATS more frequently when they depended on their boyfriends (aOR = 1.08) for emotional support or on their co-workers for tangible support (aOR = 1.17).

Conclusions—Different types of social support from different sources can be either positively or negatively associated with ATS use among FSWs, therefore, the future intervention efforts should differentiate and target different types and different sources of social support in response to the living and work conditions of FSWs.

Corresponding author: Xiaoming Li, Ph.D., Professor and Endowed Chair, Health Promotion, Education, and Behavior, Director, South Carolina SmartState Center for Healthcare Quality (CHQ), University of South Carolina Arnold School of Public Health, Editor-in-Chief, Health Psychology and Behavioral Medicine: An Open Access Journal, Phone: 803-777-8874, Fax: 803-777-6290, xiaoming@mailbox.sc.edu.

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Keywords

Amphetamine-type stimulants; female sex workers; social support; China

Introduction

The 2014 World Drug Report (UNODC, 2014) indicated that amphetamine-type stimulants (ATS), excluding “ecstasy”, constitutes the second most commonly used group of illicit substances in the world following cannabis, with up to 54.8 million estimated users. In China, as of 2014, there were 1,459,000 synthetic drug users accounting for 49.4% of all registered drug users nationwide, which was higher than opiate-type drug users (49.3%). Of the synthetic drug users, there were 1,190,000 ATS users, representing a 40.5% increase over previous year (China Anti-drug Report, 2015).

Existing studies have shown positive associations of use of ATS and other synthetic drugs with sexual risk behaviors, and HIV and other sexually transmitted infections (STIs) (Cheng et al., 2009; Colfax et al., 2010; Couture et al., 2012; Hail-Jares et al., 2016). ATS can enable FSWs to engage in sex work longer and have larger number of sex partners in order to earn more income (Carrico et al., 2016; Dixon et al., 2015; Maher et al., 2011b); meanwhile, ATS use can have a disinhibiting effect on sexual decision-making (Halkitis & Jerome, 2008), and be associated with unprotected sex, which might lead to an increase in HIV infection and other STIs (Couture et al., 2011, 2012; Ho, Le, & Dinh, 2013).

Decades of research have demonstrated both positive and negative influence of social support on health behaviors and outcomes (Latkin & Knowlton, 2015; Miyamoto & Sono, 2012). A variety of studies have suggested that social support can be helpful in reducing the high rates of drug use among polydrug users (Wasserman, Stewart, & Delucchi, 2001; Ostaszewski & Zimmerman, 2006; Buckman, Bates, & Morgenstern, 2008). However, the effects of social support on health behaviors, mental health status, and treatment outcomes among drug users might be conflicting depending on different sources of social support including family, friends, peers, teachers, partners, and neighbors (Knowlton, Hua, & Latkin, 2005; Carl & Aaron, 2003; De La Rosa & White, 2001; Christakis & Fowler, 2008). For example, in one study conducted among Mexican FSWs who injected drugs, participants reported that the instrumental and emotional support by intimate partners could have both positive and negative effects during their recovery attempts, which means that different types of social support from different sources might either facilitate or impede FSWs’ drug-related behaviors due to the particularity of their working and living environment (Hiller et al., 2013).

Limited data are available regarding ATS use among FSWs in China and the roles of social support in their ATS use. Given the potentially conflicting roles of social support in FSWs’ drug-related behaviors, the current study aims at identifying the present situation of ATS use among FSWs in China, and examining the role of the types and sources of social support in their ATS use.

Method

Study Site

The data were collected from two tourist cities of Guangxi Zhuang Autonomous Region (“Guangxi”) in southwest China. Both cities are famous for tourism and attract millions of tourists each year. Accompanied with tourism industry is the demand for commercial sex. It is estimated by local CDC that more than 2,000 FSWs worked in more than 150 commercial sex venues in each city (Hong et al., 2012).

Participant Recruitment and Data Collection Procedure

Because of high mobility of the target population, we recruited our participants through ethnographic-targeted sampling strategy that has been used in our previous studies of FSWs in China (Yang et al., 2005). Participants were recruited from nine different types of commercial sex venues that represent different levels of commercial sex hierarchy, including night clubs, saunas, karaoke (KTV), bars, hair salons, massage parlours, mini-hotels, restaurants, and streets. The local research team and local CDC health workers identified commercial sex venues in study sites through ethnographic mapping. The owners or other gatekeepers of these venues were contacted for their permission to conduct research in their premises. FSWs from a total of 56 venues participated in the study.

Once we obtained permission from the gatekeepers, trained outreach health workers from the local anti-epidemic stations approached the female sex workers in the venues to ask for their participation. Those who agreed to participate in this study provided written informed consent, and completed a self-administered questionnaire, which took about 45 minutes to complete. Each participant received a small gift with a value equivalent to US \$4.5. The study protocol was approved by the Institutional Review Boards at Wayne State University in the US and the Guangxi Center for Disease Control and Prevention (CDC) in China.

Measures

Background characteristics—Participants were asked to provide their demographic information including age, ethnicity, residency, educational attainment, marital status, monthly income (in Chinese currency yuan), and working venues. For the purpose of data analysis in the current study, we divided participants into four age groups (<20, 20–23, 24–28, 29) based on the quartile points, and dichotomized ethnicity into Han and non-Han, residency into rural and urban, educational attainment into no more than middle school and at least high school based on its median value, and marital status into married and unmarried. The working venues were classified into four categories based on the average monthly income of FSWs: level 1 with a monthly income more than 3,000 yuan (in this study, only FSWs working in saunas had mean income higher than 3,000 yuan); level 2 with a monthly income between 2,000–3,000 yuan (night clubs, KTV, bars, and dancing halls); level 3 with a monthly income between 1,000–2,000 yuan (massage parlors, hair salons); and level 4 with a monthly income less than 1,000 yuan (restaurants, mini hotels, and streets).

Social support—Measurement of perceived social support was developed based on existing literature on social support among FSWs and qualitative data we collected during the formative phase of the study. The detailed descriptive information was available elsewhere (Qiao et al., 2015). Participants were asked to reply to 12 items reflecting social support to be sought when they encounter some emotional or economic issues. Emotional support was measured using 10 items (e.g., “ask others for opinions whenever something happens”, “need a person to chat with”), and tangible support was measured using 2 items indicating financial and other material support. Participants were also asked about the source of each social support item from a list including gatekeepers, boyfriend, casual sex partners/clients, co-workers, family members/relatives, and friends/acquaintance. Sum scores were computed for each source under each type of social support with a higher score indicating a higher level of support perceived by the participants.

ATS use—Participants were asked about frequency of using ATS, and the response options included “at least once a week”, “at least once a month”, “several times a year”, “used ATS at least a year ago”, and “never used”. Due to a relatively small number of participants who ever used ATS, We grouped participants into three groups: “high frequency” (at least once a month), “low frequency” (not more than once a month), and “never”.

Statistical Analysis—SAS 9.4 was used for statistical analyses. We first conducted bivariate analyses for associations of ATS use with key sociodemographic characteristics and social support. Specifically, single-predictor ordinal logistic regressions were conducted to examine the bivariate association between each potential predictor and ATS use. Because the participants were nested in venues, generalized estimating equation (GEE) approach was used to account for the clustering effect among participants from the same site, and performed with SAS GENMOD procedure with a “clogit” link function, a “repeated” statement and an “independent” correlation structure. Crude odds ratio (cOR), its 95% confidence interval (95% CI) were used to depict the bivariate associations. We then built multiple ordinal logistic regression models with the afore-mentioned GEE approach to identify potential predicting factors of ATS use. Specifically, those variables with a p-value of less than 0.2 in the bivariate analyses were selected and entered into the multiple ordinal logistic regression models, from which we found the best one by stepwise model selection based on the criterion QIC. Adjust odds ratio (aOR) and 95% confidence interval (95% CI) were used to depict the relationship between the dependent and independent variables.

Results

Demographic Characteristics and ATS use

Similar to our previous studies of FSWs in China, about 70% of FSWs approached agreed to participate in this study (Hong et al., 2012). The sample in the current analysis included 1,022 participants. The average age of the participants was 24.9 years (range 15–50 years, SD = 6.7). A majority of them were of Han ethnicity (84.4%), from rural areas (77.1%), currently unmarried (64.4%), and completed no more than middle school education (63.4%). A majority of the participants (81.0%) reported having never used ATS. An examination of the differences in the sociodemographic characteristics across ATS use groups indicates that

participants who were more likely to use ATS frequently were from younger age groups (age group < 20: cOR = 15.10, 95% CI = 8.07, 28.23; age group 20–23: cOR = 3.89, 95% CI = 2.09, 7.22), from rural areas (cOR = 1.56, 95% CI = 1.02, 2.40), and from higher-income venues (venue level 1: cOR = 2.49, 95% CI = 1.30, 4.75; Venue level 2: cOR = 2.68, 95% CI = 1.55, 4.64; Venue level 3: cOR = 1.89, 95% CI = 1.21, 2.96). There were no significant differences by ethnicity, marital status, and education attainment (Table 1).

Social support and ATS use

Table 2 indicates that some sources of emotional or tangible support may play a role in ATS use among FSWs. Emotional support from boyfriend (cOR = 1.12, 95% CI = 1.07, 1.17), clients (cOR = 1.24, 95% CI = 1.08, 1.43), co-workers (cOR = 1.10, 95% CI = 1.05, 1.16) and friends (cOR = 1.06, 95% CI = 1.02, 1.11) potentially facilitated ATS use. Meanwhile, tangible support from clients (cOR = 1.47, 95% CI = 1.05, 2.05) and co-workers (cOR = 1.46, 95% CI = 1.26, 1.69) also potentially facilitated ATS use.

Multiple ordinal logistic regressions

In the best multiple ordinal logistic regression model with the lowest QIC value remained the variables including age groups, residency, working venues, emotional support from boyfriend and tangible support from co-workers (Table 3). Higher frequency of ATS use was associated with younger age (age group < 20: aOR = 10.88, 95% CI = 5.59, 21.16; age group 20–23: aOR = 2.80, 95% CI = 1.49, 5.27) and higher-income venues (venue level 1: aOR = 1.96, 95% CI = 1.18, 3.25; Venue level 2: aOR = 2.28, 95% CI = 1.57, 3.30; Venue level3: aOR = 1.81, 95% CI = 1.13, 2.89). Moreover, participants tended to use ATS more frequently when they perceived emotional support received from boyfriend (aOR = 1.08, 95% CI = 1.01, 1.15) or tangible support received from co-workers (aOR = 1.17, 95% CI = 1.00, 1.38).

Discussion

One of the findings of this study is that participants in the youngest age group (< 20) showed the highest frequency of using ATS, which indicated that many ATS users began to try ATS at an early age. Therefore, the preventive education against drug use should be earlier targeting adolescents through developing a middle school curriculum (6th, 7th, and 8th grades) to prevent drug use which is similar to many drug intervention programs for adolescents aged between 12 and 16 (Kumpfer, Xie, & O'Driscoll, 2012; Helm & Okamoto, 2013).

The proportion of ATS users among FSWs was larger at working venues where they could earn a higher income, which is consistent with a previous study conducted in China (Kang et al., 2011). There are several possible explanations. First, the night clubs, bars, sauna, and hotels might be the major venues of drug trade for being considered to provide a “safer” environment that facilitates ATS use. Second, due to ATS being often regarded as a higher-class symbol among drug users and its relatively high cost, some people can be enticed into ATS use by considering it to be a symbol of high social status or richness (Ho et al., 2013). Therefore, FSWs at some high-income entertainment venues (night clubs or bars) which

might feature frequent alcohol and drug use are likely to use ATS while serving higher-income clients who can afford ATS. There are some FSWs specifically serving ATS users at these venues, who are called “ice lady” and earn a relatively high income. In contrast, some research suggests that street-based sex workers may refrain themselves from alcohol and ATS as a protective strategy and a way of maintaining some self-control (Maher, et al., 2011a). Moreover, the street-based FSWs usually serve low-income clients who often cannot afford ATS. The finding of this study suggests the high-class entertainment venues are where drug prevention and monitoring should be greatly enhanced.

Regression analysis verified that FSWs were more likely to use ATS when they highly depended on emotional support from their boyfriends, which might be because of the particularity of FSWs’ daily life circle. FSWs who often keep their work secret to their family are in contact mostly with a close circle of friends among whom boyfriends are often regarded as the best ones, and meanwhile their boyfriends might also engage in drug use behaviors (Hail-Jares et al., 2016). Sometimes, FSWs have to use drugs in order to show their affinity and trust with boyfriends. Meanwhile, those who were supported tangibly by their co-workers to a high degree were also more likely to use ATS. Illegality of offering sexual services in China and accompanying social discrimination can lead to social withdrawal of FSWs and thus make them increasingly dependent on support from friends in the same work environments. Particularly, due to economic pressure, most of the FSWs cannot get away from the work, and on many occasions their ATS use was encouraged by gatekeepers and co-workers (Brecht et al., 2004; Cheng et al., 2009; Couture et al., 2012; Latkin, Hua, & Forman, 2003; Maher et al., 2011b; Shannon et al., 2008, 2010). The reason that their co-workers and gatekeepers encourage their ATS use is partly because ATS use can help heighten sexual arousal, which in turn satisfies clients from whom gatekeepers and themselves can charge or be paid more (Couture et al., 2011; Dixon et al., 2015; Hail-Jares et al., 2016).

There are several potential limitations of this study. First, all of the data were self-reported and might be subject to recall bias or socially desirability bias. Notwithstanding, one study conducted in Asia showed that in a safe and non-punitive setting, self-report could be a reliable data collection method of drug use (Kab et al., 2012). Second, we might have oversampled venue-based FSWs. Our sampling scheme was based on a mapping of commercial sex venues maintained by the local centers for disease control and prevention. While the mapping was updated during the formative phase of the project, women in lower levels of the commercial sex hierarchy were still less visible (most did not have regular venues) and mostly not identified from our ethnographic mapping. However, the demographic characteristics of the current sample were consistent with studies of FSWs in other areas of China (Hong & Li, 2008).

Despite these potential limitations, the current study is one of the first efforts to examine the associations of both types and sources of social support with ATS use among FSWs in China. Due to the particularity of their work and living environment, exploring different types of social support from different sources can help deepen the understanding of correlates or factors for their ATS use and formulate corresponding interventions. Interventions targeting this population should be geared towards correcting misperceptions

regarding ATS use, promoting emotional self-reliance and effective communication with friends, strengthening their ties with drug-free friends, and providing them with sustainable income-generating alternatives, which is proven effective in reducing ATS use and facilitating HIV prevention by some study in a resource-limited setting (Carrico, et al., 2016).

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Table 1

Bivariate comparison of ATS use on background characteristics

Variable N(%)	Total 1022(100%)	ATS use			cOR(95% CI)
		High frequency 86(8.4%)	Low frequency 108(10.6%)	Never 828(81.0%)	
Age group (years)					
< 20	194(19.0%)	55(64.0%)	35(32.4%)	104(12.6%)	15.10(8.07, 28.23)
20–23	341(33.4%)	22(25.6%)	46(42.6%)	273(33.0%)	3.89(2.09, 7.22)
24–28	269(26.3%)	6(7.0%)	17(15.7%)	246(29.7%)	1.47(0.73, 2.98)
≥ 29	218(21.3%)	3(3.5%)	10(9.3%)	205(24.8%)	
Ethnicity					
Han	853 (84.4%)	65 (77.4%)	89 (84.0%)	699 (85.1%)	
Non-Han	158 (15.6%)	19 (22.6%)	17 (16.0%)	122 (14.9%)	1.37(0.99, 1.92)
Residency					
Rural	773 (77.1%)	75 (89.3%)	81 (77.1%)	617 (75.8%)	1.56(1.02, 2.40)
Urban	230 (22.9%)	9 (10.7%)	24 (22.9%)	197 (24.2%)	
Education level					
Middle school	640 (63.4%)	55 (64.7%)	60 (56.6%)	525 (64.2%)	
> Middle school	369 (36.6%)	30 (35.3%)	46 (43.4%)	293 (35.8%)	0.86(0.57, 1.30)
Marital status					
Currently married	360 (35.6%)	22 (25.6%)	34 (32.1%)	304 (37.1%)	0.69(0.46, 1.03)
Currently unmarried	651 (64.4%)	64 (74.4%)	72 (67.9%)	515 (62.9%)	
Venue level [†]					
Level 1	211 (20.9%)	18 (21.2%)	33 (31.4%)	160 (19.5%)	2.49(1.30, 4.75)
Level 2	198 (19.6%)	21 (24.7%)	29 (27.6%)	148 (18.0%)	2.68(1.55, 4.64)
Level 3	296 (29.3%)	26 (30.6%)	30 (28.6%)	240 (29.3%)	1.89(1.21, 2.96)
Level 4	305 (30.2%)	20 (23.5%)	13 (12.4%)	272 (33.2%)	

Venue level: level 1 means a monthly income more than 3,000 yuan; level 2 means a monthly income between 2,000–3,000 yuan; level 3 means a monthly income between 1,000–2,000 yuan; level 4 means a monthly income less than 1,000 yuan.

Table 2

Bivariate comparison of ATS use on social support characteristics

	Total Mean(SD)	ATS use			eOR(95% CI)
		High frequency Mean(SD)	Low frequency Mean(SD)	Never Mean(SD)	
Source of emotional support					
Gatekeepers	0.92(1.50)	0.99 (1.44)	0.97(1.42)	0.91 (1.52)	1.03(0.95, 1.12)
Boyfriend	2.24(2.53)	2.88 (2.72)	2.87(2.64)	2.09 (2.48)	1.12(1.07, 1.17)
Casual sex partners/clients	0.20(0.68)	0.27 (0.62)	0.35(1.00)	0.17 (0.64)	1.24(1.08, 1.43)
Co-workers	3.85(3.01)	4.62 (3.13)	4.58(3.17)	3.68 (2.96)	1.10(1.05, 1.16)
Family members/relatives	2.16(2.24)	2.21 (2.28)	2.31(2.52)	2.13 (2.19)	1.03(0.95, 1.10)
Friends/acquaintance	4.17(3.07)	4.63 (3.18)	4.61(3.06)	4.06 (3.05)	1.06(1.02, 1.11)
Source of tangible support					
Gatekeepers	0.12(0.40)	0.20 (0.46)	0.13(0.39)	0.11 (0.39)	1.36(0.96, 1.94)
Boyfriend	0.62(0.82)	0.66 (0.79)	0.73(0.85)	0.60 (0.81)	1.14(0.90, 1.45)
Casual sex partners/clients	0.09(0.37)	0.12 (0.45)	0.18(0.49)	0.08 (0.34)	1.47(1.05, 2.05)
Co-workers	0.38(0.67)	0.59 (0.79)	0.47(0.72)	0.35 (0.65)	1.46(1.26, 1.69)
Family members/relatives	0.60(0.77)	0.67 (0.77)	0.58(0.75)	0.59 (0.77)	1.06(0.86, 1.32)
Friends/acquaintance	0.59(0.76)	0.70 (0.78)	0.61(0.77)	0.58 (0.75)	1.15(0.94, 1.39)

Table 3

Multiple ordinal logistic regression predicting ATS use

Predictors	aOR(95% CI)
Age	
<20	10.88(5.59, 21.16) ***
20–23	2.80(1.49, 5.27) ***
24–28	1.14(0.53, 2.44)
29	Reference
Residency	
Rural	1.35(0.96, 1.90)
Urban	Reference
Venue level ¹	
Level 1	1.96(1.18, 3.25) ***
Level 2	2.28(1.57, 3.30) ***
Level 3	1.81(1.13, 2.89) **
Level 4	Reference
Source of emotional support	
Boyfriend	1.08(1.01, 1.15) *
Source of tangible support	
Co-workers	1.17(1.00, 1.38) *

¹Venue level: level 1 means a monthly income more than 3,000 yuan; level 2 means a monthly income between 2,000–3,000 yuan; level 3 means a monthly income between 1,000–2,000 yuan; level 4 means a monthly income less than 1,000 yuan.

²The best model with the lowest QIC using stepwise selection

³* $p < .05$, ** $p < .01$, *** $p < .001$