Published in final edited form as:

Psychol Health Med. 2015 ; 20(8): 889–895. doi:10.1080/13548506.2014.966727.

Social-Context Factors, Refusal Self-Efficacy, and Alcohol Use Among Female Sex Workers in China

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Abstract

Excessive alcohol use is considered as a health risk behavior that may produce negative health outcomes. Examining predictors of alcohol use in a social or individual context can advance understanding of why people indulge in alcohol use. Our research on female sex workers (FSWs) examined associations among several social-context factors (alcohol use by family members, alcohol use by peers, and client-perpetrated pressure or violence), refusal self-efficacy, and alcohol use. Seven hundred FSWs were recruited from two cities in Southern China. Structural equation modeling (SEM) was used to analyze the direct effects of alcohol use by family members, alcohol use by peers, and client-perpetrated pressure or violence on FSWs' alcohol use. In addition, the mediation effects of refusal self-efficacy were also examined in the SEM model. Results showed that alcohol use by family members and alcohol use by peers significantly predicted FSWs' alcohol use; the prediction effect of alcohol use by peers on FSWs' alcohol use was stronger than that of alcohol use by family members; client-perpetrated pressure or violence directly predicted FSWs' alcohol use and indirectly influenced FSWs' alcohol use through refusal self-efficacy; refusal self-efficacy directly predicted FSWs' alcohol use. Administrators of effective intervention programs focused on alcohol use in China should adopt a multilevel approach to reduce negative social influences, particularly the influence from peer, and sex work establishments on FSWs' alcohol use. Meanwhile, training to improve refusal self-efficacy should also be included in intervention programs to reduce FSWs' alcohol use.

Global studies have demonstrated that alcohol use is highly prevalent among female sex workers (FSWs) and may increase the risk of HIV and other sexually transmitted diseases (STD) infections (Chen et al., 2013; Chersich et al., 2007; De Graaf, Vanwesenbeeck, Van Zessen, Straver, & Visser, 1995; Rajaram et al., 2010; S. J. Rogers, Ying, Xin, Fung, & Kaufman, 2002; Wang, Li, Stanton, Zhang, & Fang, 2010). Examining social-context and

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individual factors that are associated with alcohol use among FSWs would be important for reduction of alcohol consumption and health promotion for FSWs.

Several social-context factors, including alcohol use by family members, alcohol use by peers, and client-perpetrated pressure or violence are potential predictors of alcohol use among FSWs (Ary, Tildesley, Hops, & Andrews, 1993; Chassin & Handley, 2006; Li, Li, & Stanton, 2010; Panchanadeswaran et al., 2008; Samet et al., 2010; Wang et al., 2010; White, Johnson, & Buyske, 2000). However, studies examining and comparing the effects of family members, peers, and clients on alcohol use among FSWs are either limited or unclear.

Drinking refusal self-efficacy, one's ability or confidence to resist or reduce alcohol use, has been demonstrated as a protective individual predictor of alcohol use in various populations (Oei & Jardim, 2007; Su, Huang, Zhang, & Lin, 2011; Young, Connor, Ricciardelli, & Saunders, 2006). In addition, previous researchers also explored the important mediation effect of drinking refusal self-efficacy between some social-context factors (e.g., parental practices) and alcohol use (Watkins, Howard-Barr, Moore, & Werch, 2006). However, little is known about the direct effect and mediation effect of drinking refusal self-efficacy in the predictive model of alcohol use among FSWs.

The purpose of this paper was to examine the prediction effects of several social-context factors (i.e., alcohol use by family members, alcohol use by peers, and client-perpetrated pressure or violence) and the mediation effect of drinking refusal self-efficacy with a mediation model for alcohol use among FSW in China, a country with a firmly entrenched drinking culture (Wang et al., 2010; Yang et al., 2005).

Method

Sampling and Participants

The data in the current study were derived from 76 entertainment establishments (e.g. night clubs, saunas, karaoke venues, bars, hair salons, massage parlors, mini hotels, and restaurants) in two cities in southern China through ethnographic mapping.

Several procedures were used to recruit study participants. First, the research team contacted the gatekeepers or managers at sampling units and asked for their permission to conduct the survey on their premises. Females who were at least 18 years old and engaged in sexual relations for payment in these entertainment establishments were invited to participate in the current study. The number of FSWs that we recruited from each establishment varied by the size of the establishment and the number of gate keepers in that establishment. FSWs managed by the same manager/gate keeper were recruited as a unit. Second, interviewers provided FSWs with a detailed description of the survey and asked them to provide written informed consent before they participated in the survey. Third, participants completed a survey questionnaire independently in a private space in the establishment. The study was approved by the Institutional Review Boards at Wayne State University in the USA and the Center for Disease Control and Prevention (CDC) in the two cities in southern China.

A sample of 700 FSWs participated in the survey. Removing 12 participants who left more than 30% of data blank were removed from the analysis, we got a final sample comprising 688 surveys retained for the current study.

Measures

Table 1 presents measurements that were included in this study.

Analysis

First, descriptive statistics, frequency analysis, correlation analysis, and structural equation modeling (SEM) were used. In the SEM, alcohol use was treated as a latent variable, which was measured by four observed variables (drinking frequency, drinking quantity, frequency of binge drinking, and frequency of intoxication). Statistical analyses were performed using SPSS for Windows 10.0 or Amos 18.0.

Results

The socio-demographic characteristics of participants, obtained from participant self-report, are shown in Table 2.

Figure 1 depicts a model testing hypothesized structural relationships among social-context factors, refusal self-efficacy, and FSWs' alcohol use. Results suggest that alcohol use by family members ($\beta=0.08$, $p<0.05$) and alcohol use by peers ($\beta=0.31$, $p<0.001$) directly and significantly predicted alcohol use. Client-perpetrated pressure or violence directly influenced FSWs' alcohol use ($\beta=-0.28$, $p<0.001$) and indirectly through refusal self-efficacy. Refusal self-efficacy also directly predicted alcohol use ($\beta=-0.12$, $p<0.001$). Client-perpetrated pressure or violence was significantly associated with alcohol use by peers ($r=-0.18$). Model fit was good [$\chi^2/df=2.95$, AGFI=0.96, NFI=0.94, CFI=0.96, RMSEA=0.053].

Discussion

The results of this study suggest that alcohol use of FSW is associated with some important social-context and individual factors. Additional intervention efforts are needed to reduce FSWs' involvement of alcohol use by improving their refusal self-efficacy and reducing the impacts from family, peers and clients.

Consistent with previous studies (Ary et al., 1993; Borsari & Carey, 2001; Chuang, Ennett, Bauman, & Foshee, 2009), our study suggests that FSWs' alcohol use is associated with alcohol use by family members and peers, highlighting the importance of family and peer factors in an individual's behavioral formation and change. However, we found that experience of client-perpetrated pressure or violence was associated with less alcohol use among FSWs. This finding differs from existing studies (Panchanadeswaran et al., 2008; Zhang et al., 2012). This inconsistency could be explained by protective motivation theory (PMT), which illustrates that people might improve their protective motivation of stopping or reducing involvement in risk behaviors if they perceive serious threats from this behavior (R. W. Rogers & Prentice-Dunn, 1997). It makes sense that FSWs may try to avoid or reduce

engaging in alcohol use if they had experienced threats or harm perpetrated by their clients while drinking. Additional empirical studies, especially those yielding longitudinal data, are needed to demonstrate the dynamic associations between client-perpetrated pressure or violence and alcohol use by FSWs as well as to provide more effective suggestions for future intervention.

In addition, the current study suggests that refusal self-efficacy plays a direct and protective role in alcohol use in FSWs' alcohol use behavior, consistent with numerous studies, in which refusal self-efficacy was demonstrated to be one of the most important individual factors that could protect people from indulging in risk behaviors (Su et al., 2011; Wu, Stanton, Li, Galbraith, & Cole, 2005; Young et al., 2006). However, the mediation analysis of refusal self-efficacy show that refusal self-efficacy could mediate the effect of client-perpetrated pressure or violence on FSWs' alcohol use, indicating that experience with client-perpetrated pressure or violence might increase refusal self-efficacy and in turn reduce FSWs' alcohol use. The possible explanation is that FSWs having experience with violence would have developed skills to avoid threats or harms (Okal et al., 2011). In this process, their refusal self-efficacy may be strengthened as they acquire skills. However, to verify this possibility, additional studies are still needed to examine the influence of client-perpetrated pressure or violence and refusal self-efficacy on FSWs' alcohol use and to explore the role of coping strategies or skills in this process.

Several issues limit this study. First, despite efforts to recruit participants from a variety of entertainment venues from two cities, the sample in our study may not be representative of FSWs in other areas of China. Second, the cross-sectional data precludes a causal interpretation of the findings. Additional studies employing longitudinal study design are needed to examine causal relationships. Third, some scales that we used in this study have not been validated in local area. Validation of these scales locally may be needed in further studies. Finally, this study used self-report measures, thereby limiting the accuracy and reliability of the results; however, several studies have shown the reliability and validity of self-report measurements on substance use (Milne et al., 2009). Given that the relationship between client-perpetrated pressure or violence and alcohol use is inconsistent with previous findings, further studies using the longitudinal research approach are needed to explore the dynamic associations between these two variables.

Despite these potential limitations, our findings have some significant implications for alcohol use reduction among FSWs. First, our results reveal that future health promotion and intervention studies regarding alcohol use should concern the influence of social contexts on an individual's behavioral development. It may be important to identify peers and clients who use alcohol and provide specific intervention to FSWs and their networks. Second, potential effects of client-perpetrated pressure or violence on FSWs' alcohol use highlight the importance of providing valuable knowledge and information about client-perpetrated pressure or violence to FSWs to enable them to protect themselves from potential harm or threats from their clients. Third, this study suggests that refusal self-efficacy is a protective factor for reducing alcohol use. Training to improve refusal self-efficacy should be included in future intervention programs to reduce alcohol use among FSWs. Specifically, effective

communication skills would help FSWs appropriately refuse to engage in excessive alcohol consumption and avoid victimization by client-perpetrated pressure or violence.

Acknowledgments

Funding

This research was supported by the National Institute for Alcohol Abuse and Alcoholism [grant number R01AA018090].

References

- Ary DV, Tildesley E, Hops H, Andrews J. The influence of parent, sibling, and peer modeling and attitudes on adolescent use of alcohol. *Substance use & Misuse*. 1993; 28(9):853–880.
- Borsari B, Carey KB. Peer influences on college drinking: A review of the research. *Journal of substance abuse*. 2001; 13(4):391–424. [PubMed: 11775073]
- Chassin L, Handley ED. Parents and families as contexts for the development of substance use and substance use disorders. *Psychology of addictive behaviors*. 2006; 20(2):135. [PubMed: 16784356]
- Chen Y, Li X, Zhang C, Hong Y, Zhou Y, Liu W. Alcohol use and sexual risks: Use of the Alcohol Use Disorders Identification Test (AUDIT) among female sex workers in China. *Health care for women international*. 2013; 34(2):122–138. [PubMed: 23311906]
- Chersich M, Luchters S, Malonza I, Mwarogo P, King'Ola N, Temmerman M. Heavy episodic drinking among Kenyan female sex workers is associated with unsafe sex, sexual violence and sexually transmitted infections. *International journal of STD & AIDS*. 2007; 18(11):764–769. [PubMed: 18005511]
- Chuang YC, Ennett ST, Bauman KE, Foshee VA. Relationships of adolescents' perceptions of parental and peer behaviors with cigarette and alcohol use in different neighborhood contexts. *Journal of youth and adolescence*. 2009; 38(10):1388–1398. [PubMed: 19779814]
- De Graaf R, Vanwesenbeeck I, Van Zessen G, Straver C, Visser J. Alcohol and drug use in heterosexual and homosexual prostitution, and its relation to protection behaviour. *AIDS care*. 1995; 7(1):35–48. [PubMed: 7748909]
- Li Q, Li X, Stanton B. Alcohol use among female sex workers and male clients: an integrative review of global literature. *Alcohol and alcoholism*. 2010; 45(2):188–199. [PubMed: 20089544]
- Milne BJ, Caspi A, Harrington HL, Poulton R, Rutter M, Moffitt TE. Predictive value of family history on severity of illness: the case for depression, anxiety, alcohol dependence, and drug dependence. *Archives of general psychiatry*. 2009; 66(7):738. [PubMed: 19581565]
- Oei TPS, Jardim CL. Alcohol expectancies, drinking refusal self-efficacy and drinking behaviour in Asian and Australian students. *Drug and alcohol dependence*. 2007
- Okal J, Chersich MF, Tsui S, Sutherland E, Temmerman M, Luchters S. Sexual and physical violence against female sex workers in Kenya: a qualitative enquiry. *AIDS care*. 2011; 23(5):612–618. [PubMed: 21390890]
- Panchanadeswaran S, Johnson SC, Sivaram S, Srikrishnan A, Latkin C, Bentley ME, Celentano D. Intimate partner violence is as important as client violence in increasing street-based female sex workers' vulnerability to HIV in India. *International Journal of Drug Policy*. 2008; 19(2):106–112. [PubMed: 18187314]
- Rajaram, S.; Roy, A.; Gurav, K.; Mohapatra, B.; Anthony, J.; Ramesh, B.; Bradley, J. Programme exposure, condom use, and alcohol use among female sex workers in urban Bangalore, Karnataka state. CHARME Working Paper(10).; Bangalore, India: 2010.
- Rogers RW, Prentice-Dunn S. Protection motivation theory. 1997
- Rogers SJ, Ying L, Xin YT, Fung K, Kaufman J. Reaching and identifying the STD/HIV risk of sex workers in Beijing. *AIDS Education and Prevention*. 2002; 14(3):217–227. [PubMed: 12092924]
- Samet JH, Pace CA, Cheng DM, Coleman S, Briden C, Pardesi M, Raj A. Alcohol use and sex risk behaviors among HIV-infected female sex workers (FSWs) and HIV-infected male clients of

- FSWs in India. *AIDS Behav.* 2010; 14(Suppl 1):S74–83. doi: 10.1007/s10461-010-9723-y. [PubMed: 20544381]
- Su S, Huang Z, Zhang J, Lin D. Adolescent drinking behavior: A mediated moderation analysis of the roles of alcohol expectancy and drinking refusal efficacy. *PSYCHOLOGICAL DEVELOPMENT AND EDUCATION.* 2011; 27(1):90–96.
- Wang B, Li X, Stanton B, Zhang L, Fang X. Alcohol use, unprotected sex, and sexually transmitted infections among female sex workers in China. *Sexually transmitted diseases.* 2010; 37(10):629. [PubMed: 20601927]
- Watkins JA, Howard-Barr EM, Moore MJ, Werch CC. The mediating role of adolescent self-efficacy in the relationship between parental practices and adolescent alcohol use. *Journal of Adolescent Health.* 2006; 38(4):448–450. [PubMed: 16549310]
- White HR, Johnson V, Buyske S. Parental modeling and parenting behavior effects on offspring alcohol and cigarette use: A growth curve analysis. *Journal of substance abuse.* 2000; 12(3):287–310. [PubMed: 11367605]
- Wu Y, Stanton BF, Li X, Galbraith J, Cole ML. Protection motivation theory and adolescent drug trafficking: relationship between health motivation and longitudinal risk involvement. *Journal of pediatric psychology.* 2005; 30(2):127–137. [PubMed: 15681308]
- Yang H, Li X, Stanton B, Chen X, Liu H, Fang X, Rong M. HIV-related risk factors associated with commercial sex among female migrants in China. *Health care for women international.* 2005; 26(2):134–148. [PubMed: 15804913]
- Young RMD, Connor JP, Ricciardelli L, Saunders JB. The role of alcohol expectancy and drinking refusal self-efficacy beliefs in university student drinking. *Alcohol and alcoholism.* 2006; 41(1): 70–75. [PubMed: 16299109]
- Zhang C, Li X, Stanton B, Hong Y, Chen Y, Shan Q, Zhou Y. Alcohol use and client-perpetrated sexual violence against female sex workers in China. *Psychol Health Med.* 2012 DOI: 10.1080/13548506.13542012.13712705.

Figure 1.

Associations among social-context factors, refusal self-efficacy and alcohol use of FSWs (N=688)

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 1

Measurements included in the current study

	Items #	Sample item	Response options	Cronbach's alpha	Scoring
1. Alcohol use of family members	1	Among your family members and relatives, who has a high level of alcohol tolerance (Does not get drunk even if he or she drinks 5 to 6 shots of spirits at one time)?	1=paternal grandfather, 2=paternal grandmother, 3=maternal grandfather, 4=maternal grandmother, 5=father, 6=mother, 7=uncle, 8=aunt, 9=brother, 10=sister	-	Sum
2. Alcohol use of peers	3	How many FSWs you know drink with their clients frequently?	1=none to 5=almost everyone	0.87	Mean
3. Client-perpetrated pressure or violence	7	Being forced to get drunk	0=no, 1=yes	0.82	Mean
4. Refusal self-efficacy	5	When I drink, I can drink little or moderately	1=strongly disagree to 4=strongly agree	0.89	Mean
5. Drinking frequency	1	In last month, how many days do you drink in a week?		-	-
6. Drinking quantity	1	In last month, how much do you drink every day? Consider beer (355ml), wine (one glass), and spirits (one shot).		-	Mean
7. Frequency of binge drinking	1	How many times did you drink at least 8 cans of beer (or 8 glasses of wine or 8 shots of spirits) during the last month?		-	-
8. Frequency of intoxication	1	How often do you get drunk?	0=never, 1=occasionally, 2=half of time, 3=most of time, 4=almost every time	-	-

Table 2

Demographic Characteristics of the Sample

Characteristics	Values M $\pm$ SD/ n(%)
Age(M$\pm$SD)	25.46 $\pm$ 6.93
20	185(26.9)
30	371(53.9)
>30	131(19.0)
Ethnic	
Han	548(79.7)
Minority	140(20.3)
Educational level (%)	
No formal schooling or primary	78(11.3)
Junior middle school	385(56.0)
High school or more	224(32.6)
Marital status	
Single(not married)	357(51.9)
Cohabited	87(12.6)
Married	164(23.8)
Married but separated	41(6.0)
Divorce/widowed	37(5.4)
Child	
Have no child	460(66.9)
Have child	227(33.0)
Incomes(M$\pm$SD)	3788.04 $\pm$ 3216.24
2000 Yuan	221(32.1)
2001~3000 Yuan	193(28.1)
3001~5000 Yuan	91(13.2)
>5000 Yuan	172(25.0)

Note: 1 US dollars= 6.8 Yuan at the time of study.

The total number of each variable is not consistent due to missing data on some variables.