Prevalence and correlates of alcohol use among a sample of general MSM and money boys in Shanghai, China

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Abstract

The use and misuse of alcohol and their relation to risky sex have received modest scholarly attention in China. This type of research in high HIV/STI groups such as men who have sex with men (general MSM) and men who sell sex to other men ("money boys") (MB) in China is essentially absent. Therefore, the primary purpose of this exploratory study was to describe the types of alcohol consumed and levels of daily alcohol consumption among Chinese general MSM and MB in Shanghai, China. A secondary purpose was to explore demographic, lifetime sexual behavior, and psychosocial correlates of daily consumption levels. The sample consisted of 404 MSM (200 MB) who live in Shanghai, China. Participants were recruited using respondent-driven sampling and filled out a cross-sectional behavioral survey. Where appropriate, comparisons were made between MB and general MSM. Over 73% of participants reported drinking at least moderately every day. MB reported drinking Western red wine and other Western hard liquors (e.g., vodka) more frequently than general MSM. Conversely, general MSM consumed Chinese white wine more frequently than MB. Results from the regression analyses showed that MSM having higher lifetime sexual risks were more likely to drink in excess; though MB with greater social provisions were less likely to drink in excess. These results begin to highlight high levels of drinking and drinking-sexual risk relationships among groups of general MSM and MB and are useful for guiding intervention efforts among high-risk groups in China.

Keywords

alcohol; MSM; China

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Introduction

The use and misuse of alcohol as a major public health issue and its relations to sexual risk behaviors have been studied extensively in many countries. One country where this has not been the case is China. Of further concern is that few studies have focused on specific populations that may be at increased risk of alcohol use, abuse, sexual risk behaviors, and HIV/STIs. Two such populations are men who have sex with men (MSM) and those who sell sex to other men "money boys" (MB) (a term coined by those who practice the trade) (He, Wong, Huang, Thompson, & Fu, 2007). There is an emerging literature documenting that a sizeable segment of the MSM population in China is engaging in same-sex commercial sex and that MSM are of concern for HIV/STIs and other health outcomes (Wong et al., 2009).

A recent review of alcohol use and sexual behavior studies conducted in China identified only two small studies that focused on alcohol and MSM (Li, Li, & Stanton, 2010). One, by Jiang et al. (2006) found high levels (18.2%) of binge drinking among 144 MSM. He, Wong, Huang, Thompson, & Fu (2007) in their qualitative study of 15 general MSM migrants and MBs found that both groups reported high levels of alcohol use, most often after work in social settings. A study not included in this review is that of Wong et al. (2008). MBs were shown to be at high risk for alcohol dependence using the CAGE assessment tool (Wong et al., 2008). Although there is little evidence of alcohol–sexual behavior links in these studies, this finding is inconclusive as it is from three small empirical studies and is not consistent with research in other countries (Woolf & Maisto, 2009). Additionally, it should be noted that these studies have consistently shown high levels of alcohol use and dependence.

Focusing more intensely among these populations is a new and important area of study that may shed light on high risk in an underserved group. Therefore, since there is very little information regarding the issue, the primary purpose of this study was an exploratory description of the types of alcohol consumed and levels of daily consumption among Chinese general MSM and MBs in Shanghai, China. A secondary purpose was to explore demographic, lifetime sexual behavior risk, and psychosocial correlates of daily consumption levels.

Methods

Procedure and participants

This study was part of a larger program of research examining prevalence and characteristics of HIV/STIs, sexual risks, and risk factors among MSM in Shanghai. Data were collected between February and April 2009 using a cross-sectional survey. Participants must have: (1) self-identified as a male; (2) been aged 18 and above; (3) been able to give verbal and written (in Mandarin) consent; (4) ever had sex with men (oral, anal, or both); and (5) had ever had sex with men in the last 12 months (oral, anal, or both).

Similar to past studies in this "hidden population" (MSM), recruitment was done using respondent-driven sampling (RDS) (Heckathorn, 1997, 2002; He, Wong, Huang, Thompson, & Fu, 2007; He, Wong, Huang, Ding, et al., 2007; Wong et al., 2008, Wong et al., 2010). Unlike traditional sampling methodologies that draw from a definite population (e.g., adults

aged 18–24), RDS uses a social network to infer the sample and characteristics of the population. The supposition is that each wave of recruits taps deeper into a specific group and eventually will level off per the population size and characteristics measured (Ramirez-Valles, et al., 2005). Specifically, eight seeds based on their self-identification as being MB ($n = 4$) or general MSM ($n = 4$), hu-kuo ("legal residence" vs. other), and age (18–35) were selected in consultation with a well-known nongovernmental organization (NGO), which provides HIV and sexual risk prevention targeting MSM, MBs, and those identifying as gay men. Each seed was then asked to recruit up to three peers and received US$10 for each successful recruit. Participants were verbally informed of the nature and purpose of the study, survey procedures, the sensitive nature of the questions, confidentiality parameters, and payment for participation (US$40 for the survey). While $40 is sufficient for recruitment, it does not represent an undue amount by standards in China and is in line with comparable efforts with these populations. Participants were also explained the risks and benefits (including referrals for other services), and the freedom to cease participation at any time without penalty. Upon agreement, they signed a consent form and were given a copy of the Research Subject's Bill of Rights. All protocols, consent, human subject forms and procedures underwent standard and rigorous translation and back-translation (Chinese–English–Chinese) and were approved by appropriate academic institutional review boards in the US and China. All participants, seeds and those who presented themselves at the study center, agreed to take part in the study without any expressed reservations.

Measures

For this paper, we included four types of measures: (1) socio-demographic characteristics such as date of birth, legal residency or "hu-kuo" (Shanghai vs. other), sexual orientation (openly gay, closeted gay, openly bisexual, closeted bisexual, heterosexual or other), and so on; (2) six types of alcohol use (lifetime, daily use over the past three months, and daily use over the past week) and their respective dosage; (3) four psychosocial scales (depressive symptoms as assessed by a modified Center for Epidemiologic Studies Depression Scale – short form [CESD-12] ($\alpha = 0.85$) (Nord, et al., 2005; Radloff, 1977); social support as assessed by the Weiss Social Provisions scale ($\alpha = 0.84$) (Weiss, 1974); attitudes toward sex as assessed by the Sexual Attitudes Scale (MSA) ($\alpha = 0.79$) (Hendrick & Hendrick, 1987); gay identify as assessed by the Lesbian and Gay Identity Scale [LGBIS] ($\alpha = 0.62$) (Mohr & Fassinger, 2000) (Cronbach's alpha for scales were found to be similar between general MSM and MB groups); and (4) a 16 items assessing lifetime sexual behaviors (e.g., ever had sex with a prostitute).[1]

Statistical analysis

The primary aims of this study were to describe alcohol use in this sample and preliminarily explore potential alcohol use correlates such as sexual behaviors. First, descriptive statistics were used to characterize personal demographics and alcohol use patterns. Second, the degree to which participants in the study were over/under sampled based on the RDS method was assessed for the demographics considered during the selection of recruitment seeds. Similar to comparable recommendations and research, demographics related to

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participation were included, but not weighted, in the final analyses (Winship and Radbill, 1994; Ramirez-Valles et al., 2008). Third, one-way ANOVAs with participant type (general MSM or MB) as the between-subjects factor for continuous variables and chi-squares for categorical variables were used to compare participant groups. Last, similar analyses were used to explore the associations between alcohol use, demographics, and psychosocial scales and to determine their suitability for entry into multivariate analyses, using a selection criterion of $p < 0.05$.

Results

Preliminary analyses

Among the 404 participants, the average age was 29.6 (SD = 10.4), 96.0% were Han ethnicity, 20.3% reported Shanghai to be their hometown (hu-kuo), 76.8% had a high school education or less, 15% were married, and only 12.1% were openly gay or bisexual. Participants were most likely recruited by friends (71.4%), co-workers (21.6%), friend/coworkers (4.0%), and lover/partners (3.0%) and reported their social network sizes to be 16.2 people for MB and 13.1 people for general MSM.

Using the program RDSAT, homophily (similarity) and heterophily (social distance) were examined to explore patterns of recruitment resulting from the RDS methodology (e.g., seeds are more likely to recruit participants similar to themselves) (Heckathorn, 1997, 2002; Volz et al., 2007). Results indicated that MBs (Aww = 0.967) and general MSM (Aww = 0.955) had high recruitment homophily and heterophily. Almost 97% of the time MBs recruited other MBs and over 95% of general MSM were recruited fellow general MSM, with only seven participants being cross-recruited in the sample. Based on these results, in-group analyses for MBs and general MSM on the other selection criteria were undertaken to determine patterns of within group recruitment. Results showed less substantial social distance within these groups and that alcohol use was found not to be strongly related to recruitment, indicating that MB/general MSM to be the driving recruitment factor.

One-way ANOVAs and Chi-square analyses were performed to test for demographic differences between general MSM and MBs. Although assumed to be separate groups based on occupation and recruitment patterns, as can be seen from Table 1, analyses revealed MBs to be younger ($p < 0.001$), have their first sexual experience with a male at an earlier age ($p < 0.001$), be more likely to be a migrant to Shanghai (p < 0.001), of a minority ethnicity ($p < 0.01$), and not be married ($p < 0.001$). MBs were also less educated ($p < 0.001$), but were less likely to be have their sexual orientation closeted ($p < 0.01$) and made more money than general MSM ($p < 0.001$). Follow-up correlations showed that the only demographic characteristic, other than a statistically significant relationship by participant type (MB vs. general MSM) ($p < 0.05$), that was significantly related to total alcohol use per day for either MBs or general MSM was hu-kuo ($p < 0.05$). Therefore, hu-kuo was included in the main regression analyses. Finally, descriptive statistics and zero-order correlations among the participant demographics, the scale scores, and dependent variables were calculated. As can be seen from Table 1, MBs had higher CES-D scores ($p < 0.001$), had more open attitudes about sex ($p < 0.01$), and higher lifetime sexual risks ($p < 0.05$), compared with general MSM. Correlations were also used to examine relationships between the scales and total

alcohol use per day in the past three months. Results indicated that current attitudes toward sex ($p < 0.05$), social provisions ($p < 0.05$), and lifetime sexual risks ($p < 0.01$) were significantly related to alcohol use and were included in the main regression analyses. Depression and gay identity were not significantly related to alcohol use so they were not retained for further analyses.

Alcohol use: lifetime, past week, and daily consumption in the last 3 months

Over 90% of participants reporting ever drinking and this was slightly higher for MBs (95.0% vs. 87.7%) x^2 (1) = 6.72, $p < .05$. As can be seen from Table 2, across time periods, the majority reported drinking beer, followed in popularity by Western red wine, Chinese white and yellow wines, and Western hard liquors and white wine. Overall, drinking was relatively consistent for beer and Western white wine between general MSM and MBs. However, while MBs were more likely to consume Western red wine and Western hard liquors, general MSM were more likely to drink Chinese white wine daily in the past week and the past three months. Categorizing participants into levels of daily consumption based on their number of drinks per day in the past three months resulted in 10.6% high drinkers (two or more per day), 62.9% moderate drinkers, and 26.5% nondrinkers. General MSM (31.9%) were found more likely to be nondrinkers than MBs (21.0%) x^2 (1) = 6.20, $p < 0.05$.

Multivariate analyses

Table 3 shows results from an ordinal logistic regression comparing increasing levels of daily alcohol consumption (zero, moderate, and high). Results indicate that those who participated in lifetime riskier sex behaviors were more likely to also drink consume more alcohol per day (OR = 1.49, 95%CI 1.13–1.97; $p < 0.01$). Conversely, a statistically significant interaction between MBs and social provisions (OR = 0.55, 95%CI 0.36, 0.84; $p < 0.01$) indicates that those with greater social provisions were less likely to be in the moderate or high drinking categories. Interestingly, main effects and interactions for MB vs. general MSM and hu-kuo were not statistically significant, indicating no differences in daily alcohol consumption levels by these classifications.

Discussion

The primary purpose of this study was to begin to describe types of alcohol used and levels of daily consumption in Chinese general MSM and MBs in Shanghai, China. A secondary purpose was to preliminarily explore demographics, sex behavior risk, and psychosocial correlates of consumption levels. These questions were posed in a sample that was collected over two months using RDS, an appropriate and accepted methodology for sampling hard-to-reach and marginalized populations in both domestic and international research (He, Wong, Huang, Ding, et al., (2007); Ramirez-Valles et al., 2008).

This study provides important and novel information, as very limited research has investigated types of alcohol consumed, daily consumption levels, and sexual risk in Chinese MSM. The findings indicate higher alcohol use prevalence among MSM than the general male population in China; over 70% reported moderate or high drinking amounts over the past three months. Hao et al. (2004) had found that 63.8% of Chinese men had at least one

drink in the past three months). Thus, this study provides important information of the prevalence of alcohol use in an underserved population that is at high-risk for alcohol use and STIs and has received little attention in public health.

Results also showed that consistent with other studies in China, beer was the most often chosen drink (Hao & Young, 2000; Hao et al., 2004). However, results also indicated a large portion of the sample regularly chose the traditional drinks of Chinese white wine and yellow wine. This highlights the continued importance of drinks associated with Chinese culture and customs. As such, their continued measurement and exploration in research is important. Last, it may be no surprise that as China accepts an increase in Western cultural influences there will be a translation to beverage choice. Our results show that a sizeable portion of our sample reported drinking western liquors and red/white wine. Therefore, these drinks should also be included in future studies of Chinese drinking.

With respect to the second aim of the study, lifetime sexual behavior and psychosocial variables were used to predict increasing levels of drinking and moderation by MB/general MSM status. Meaningful predictors included increasing sexual risks for both MBs and general MSM. This may not be a novel finding, as sexual risk has been found related to alcohol use in other settings (e.g., coastal and rural areas) and with other high risk groups (e.g., female sex workers, drug users) in China (Li et al., 2010). However, there is limited research on alcohol use among Chinese MSM. Research in Western countries has consistently shown that gay men tend to use more alcohol than their respective heterosexual counter-parts, leading some to argue that alcohol may be a key part of a "syndemic" process of alcohol use, increased sexual risks, and increased HIV/STI risks (Stall, et al., 2001; Mayer, et al., 2008; Singer, 2009). Thus, our findings from China, a middle income country, are significant contribution to international literature. Results also indicated that social provisions had a significant effect on their level of drinking and this effect was moderated between MBs and general MSM. For MBs, those who had higher levels of social provisions were less likely to be in the higher drinking categories.

The current findings have implications for research and practice. This research highlights the lack of attention provided sexual minority populations in public health research, particularly in the area of alcohol use and sexual risk (Wong et al., 2009). It also highlights the need for researchers to include behavioral and psychosocial assessments specific to the target population and for programmatic groups such as NGOs to implement those findings. For this paper, indicators were chosen based on hypothesized importance to general MSM and MBs (e.g., sexual risks and sexual attitudes). Future efforts should build on these preliminary results and advance the implementation and refinement of common alcohol use measures such as the alcohol use disorders identification test (AUDIT) and the AUDA-DIS-IV drink volume flashcards to extend the description of drinking practices in China (Grant, et al., 2003; Li, Babor, Hao, & Chen, 2011). Continued research and conversations with Chinese NGOs will also be important to determine additional culture, personal and social factors (such as social network characteristics) that may play a role in alcohol use in China. In policy and practice, we must lessen barriers to care, education, and foster better health decisions. We must also determine how to develop culturally (Chinese & MSM) specific messages for the Chinese MSM community and how to make interventions applicable to this

group. Useful intervention messages might include the negative health consequences of hazardous alcohol use. In the clinical setting, identifying problem drinkers and those at risk for development or transmission of STIs may be extended to identification of those, at risk for initiation of heavy drinking and/or sexual risk behaviors.

Despite the promising findings presented here, several limitations need to be addressed. First, this study used self-reported drinking behaviors. This is further complicated by nonstandard drink sizes in the Chinese market and the custom of sharing drinks. Therefore, future studies should continue to refine and attempt to standardize the concepts of drink sizes. Second, this study was based in Shanghai, an urban city of roughly 19 million people. There are indications that drinking types and amounts are different across the diverse Chinese country (Wu, Mao, Rockett, & Yue, 2008), society, and possibly even by type of MSM community (nascent vs. well-established). Therefore, future studies should be extended other settings such as rural and smaller cities. Third, several measures in this exploratory study were not temporally similar to each other (e.g., alcohol use and lifetime sexual risks), which limited comparisons. Future studies should use comparable time points to better document correlates within and across behaviors. Finally, the cross-sectional nature of this study was appropriate given the exploratory nature of the study. Future studies should include repeated measurements to predict drinking behavior over time.

In light of the limitations, this study found that drinking was prevalent among a sample of MBs and general MSM in Shanghai, China. Future research and programmatic efforts should substantiate and extend these findings and begin to focus on strategies that can address both alcohol use and sexual risk.

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Table 1.

Chi-squares comparing personal demographics and scale scores among money boys and general MSM.

Variable	Overall (N = 404) M (SD)	Money Boy (n = 200) M (SD)	General MSM (n = 204) M (SD)	Significance
Age	29.6 (10.4)	24.27 (4.98)	34.91 (11.6)	$F = 143.20, p < .001$
Age 1st MSM experience	19.9 (6.1)	18.87 (4.71)	20.85 (7.06)	$F = 10.87, p < .001$
	n (%)	n (%)	n (%)	
Hu-kuo				$x^2 (1) = 77.55, p < 0.001$
Shanghai	82 (20.3)	5 (2.5)	77 (37.7)	
Other	322 (79.7)	195 (97.5)	127 (62.3)	
Sexual orientation				$x^2 (2) = 14.18, p < 0.01$
Openly gay/bisexual	49 (12.1)	26 (13.2)	23 (11.1)	
Closeted gay/bisexual	321 (79.5)	147 (73.5)	174 (85.3)	
Other	34 (8.4)	27 (13.5)	7 (3.4)	
Ethnicity				$x^2 (1) = 6.61, p < 0.01$
Han	386 (96.0)	187 (93.5)	199 (98.5)	
Other ethnicities	16 (4.0)	13 (6.5)	3 (1.5)	
Education				$x^2 (3) = 19.58, p < 0.001$
Illiterate/primary school	22 (5.5)	8 (4.0)	14 (6.9)	
Middle school	126 (31.3)	72 (36.2)	54 (26.6)	
High school or equal	161 (40.0)	90 (45.2)	71 (35.0)	
College or above	93 (23.1)	29 (14.6)	64 (31.5)	
Marital status				$x^2 (2) = 53.31, p < 0.001$
Never married	301 (75.1)	181 (91.0)	120 (59.4)	
Currently married	60 (15.0)	11 (5.5)	49 (24.3)	
Divorced/widowed	40 (10.0)	7 (3.5)	33 (16.3)	
Income				$x^2 (3) = 17.18, p = 0.001$
< 1000	25 (6.2)	6 (3.0)	19 (9.3)	
1000–2999	204 (50.6)	89 (44.7)	115 (56.4)	
3000–4999	115 (28.5)	71 (35.7)	44 (21.6)	
5000	59 (14.6)	33 (16.6)	26 (12.7)	

Variable	Overall ($N = 404$)	Money Boy ($n = 200$)	General MSM ($n = 204$)	Significance
	M (SD)	M (SD)	M (SD)	
Depression	10.5 (6.5)	12.2 (6.7)	8.9 (6.0)	$F = 28.30, p < 0.001$
Social provisions	68.5 (7.0)	68.0 (6.5)	69.2 (7.3)	$F = 3.19, p = 0.08$
Attitudes about sex	72.8 (17.7)	75.6 (16.4)	70.0 (18.4)	$F = 10.20, p < 0.01$
Gay identity	4.0 (0.7)	4.0 (0.7)	3.9 (0.7)	$F = 0.96, p = 0.33$
Sexual behaviors	8.6 (2.6)	8.9 (2.4)	8.3 (2.7)	$F = 4.0, p < 0.05$

Note: N varies based on missing responses.

Table 2.

Chi-squares comparing alcohol use per day over 3 months among money boys and general MSM.

Variable	Overall (*N* = 404) *n* (%)	Money Boy (*n* = 200) *n* (%)	General MSM (*n* = 204) *n* (%)	Significance
Daily alcohol consumption				
None	107 (26.5)	42 (21.0)	65 (31.9)	$x^2 (2) = 6.20, p = 0.04$
Moderate	254 (62.9)	136 (68.0)	118 (57.8)	
High	43 (10.6)	22 (11.0)	21 (10.3)	
Beer				
No	146 (36.1)	64 (32.0)	82 (40.2)	$x^2 (1) = 2.94, p = 0.09$
Yes	258 (63.9)	136 (68.0)	122 (59.8)	
Chinese white wine				
No	334 (82.7)	176 (88.0)	158 (77.5)	$x^2 (1) = 7.85, p < 0.01$
Yes	70 (17.3)	24 (12.0)	46 (22.5)	
Chinese yellow wine				
No	362 (89.6)	178 (89.0)	184 (90.2)	$x^2 (1) = .16, p = 0.69$
Yes	42 (10.4)	22 (11.0)	20 (9.8)	
Western white wine				
No	386 (95.5)	191 (95.5)	195 (95.6)	$x^2 (1) = .002, p = 0.97$
Yes	18 (4.5)	9 (4.5)	9 (4.4)	
Western red wine				
No	324 (80.2)	152 (76.0)	172 (84.3)	$x^2 (1) = 4.40, p = 0.04$
Yes	80 (19.8)	48 (24.0)	32 (15.7)	
Western hard liquor				
No	365 (90.3)	170 (85.0)	195 (95.6)	$x^2 (1) = 12.98, p < 0.001$
Yes	39 (9.7)	30 (15.0)	9 (4.4)	

Table 3.

PLUM regression predicting three levels of alcohol use.

		OR	95% confidence interval		Sig.
			Lower	Upper	
Threshold	Drinks = 0.00	0.38	0.26	0.54	< 0.001
	Drinks = 1.00	11.25	7.10	17.64	< 0.001
Predictors	Money boy	1.39	0.88	2.20	0.16
	Referent	-	-	-	-
	Hu-kuo = Shanghai	0.76	0.42	1.36	0.35
	Referent	-	-	-	-
	Sexual attitudes	0.84	0.63	1.13	0.24
	Social provisions	1.46	1.09	1.93	< 0.01
	Sex risk	1.49	1.13	1.97	< 0.01
	MB × sexual attitudes	0.76	0.50	1.16	0.21
	Referent	-	-	-	-
	MB × social provisions	0.55	0.36	0.84	< 0.01
	Referent	-	-	-	-
	MB × sex risk	0.90	0.59	1.38	0.65
	Referent	-	-	-	-

Note: MB, money boy.