



# Prevalence and associated factors of rush poppers use among men who have sex with men in Guangzhou, China

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## Objective

To investigate the prevalence and associated factors of rush poppers use among men who have sex with men (MSM) in Guangzhou, China.

## Methods

A cross-sectional study was conducted to recruit MSM using a non-probability sampling method between May and November in 2017 in Guangzhou, China. An electronic questionnaire was administered to collect information on rush poppers use before sex in the past 6 months, sociodemographic and sexual behavior characteristics. Chi-squared test and multivariate logistic regression analysis were performed to evaluate the associated factors of rush poppers use.

Table1 Comparison of characteristics among MSM in Guangzhou, China by rush poppers using status in the past 6 months

Sociodemographic characteristics	Rush poppers		Sexual behavior characteristics	Rush poppers	
	Users (%)	Nonusers (%)		Users (%)	Nonusers (%)
Age, years	Age of first homosexual anal intercourse, years				
≤29	212(32.32)	444(67.68)	<18	41(41.00)	59(59.00)
>29	128(40.00)	192(60.00)	≥18	299(34.13)	577(65.87)
Marital status	Sexual role				
Unmarried	295(34.75)	554(65.25)	Receptive only	61(38.61)	97(61.39)
Married/cohabitated/divorced/widowed	45(35.43)	82(64.57)	Receptive/insertive both	230(34.80)	431(65.20)
Household registration	Insertive only				
Guangzhou	122(35.06)	226(64.95)	Seeking homosexual partners	49(31.21)	108(68.79)
Other cities in Guangdong province	106(32.42)	221(67.58)	Internet	311(35.42)	567(64.58)
Other provinces	112(37.21)	189(62.79)	Non-internet	29(29.59)	69(70.41)
Ethnicity (n=956)	Unprotected anal intercourse in the past 6 months				
Han	321(34.59)	607(65.41)	No	166(32.68)	342(67.32)
Others	11(39.29)	17(60.71)	Yes	174(37.18)	294(62.82)
Duration in Guangzhou, years	Had multiple sex partners in the past 6 months <sup>a</sup>				
≤1	31(27.68)	81(72.32)	No	87(23.26)	287(76.74)
>1	309(35.76)	555(64.24)	Yes	253(42.03)	349(57.97)
Education	Had commercial male partners in the past 6 months				
High school and below	75(31.12)	166(68.88)	No	316(34.27)	606(65.73)
College and above	265(36.05)	470(63.95)	Yes	24(44.44)	30(55.56)
Occupation* (n=975)	Had casual male partners in the past 6 months <sup>a</sup>				
Student	37(25.34)	109(74.66)	No	91(22.58)	312(77.42)
Unemployed	13(30.95)	29(69.05)	Yes	249(43.46)	324(56.54)
Employed	290(36.85)	497(63.15)	Had regular male partners in the past 6 months		
Monthly income*, yuan	No				
≤3000	56(26.17)	158(73.83)	Yes	99(32.35)	207(67.65)
>3000	284(37.27)	478(62.72)	Had sex with females in the past 6 months		
Sexual orientation	No				
Homosexual	258(35.68)	465(64.32)	Yes	285(35.54)	517(64.46)
Bisexual	71(34.13)	137(65.87)	Drank alcohol before sex in the past 6 months <sup>a</sup>		
Homosexual/uncertain	11(24.44)	34(75.56)	No	201(30.23)	464(69.77)
			Yes	139(44.69)	172(55.31)
			Diagnosed with STIs <sup>b</sup> in the past year <sup>a</sup>		
			No	303(33.52)	601(66.48)
			Yes	37(51.39)	35(48.61)

<sup>a</sup>sex partners ≥2; <sup>b</sup>sexually transmitted infections; \*p<0.05

## Results

Among the 976 participants, approximately one-third (34.84%) reported rush poppers use before sex in the past 6 months. Multivariate logistic regression analysis showed that participants who had multiple sex partners in the past 6 months were more likely to use rush poppers (*aOR*=1.72, 95% *CI*:1.24~2.38). Individuals who had sex with casual partners were at a higher risk of rush poppers use than those who didn't have (*aOR*=2.05, 95% *CI*:1.49~2.82). Participants who drank alcohol before sex in the last 6 months and who were diagnosed with sexually transmitted infections (STIs) in the past year had a higher risk of rush poppers use (*aOR*=1.87, 95% *CI*:1.40~2.50; *aOR*=1.78, 95% *CI*:1.08~2.94, respectively).

Table2 Multivariate logistic regression of factors associated with rush poppers use among MSM in Guangzhou, China

Characteristics	β	SE	Wald χ <sup>2</sup>	aOR (95%CI)	P
Age, years					
≤29				1.00	
>29	0.18	0.15	1.32	1.19(0.88~1.62)	0.251
Occupation(n=975)					
Student				1.00	
Unemployed	0.09	0.42	0.05	1.10(0.48~2.50)	0.827
Employed	0.16	0.3	0.26	1.17(0.64~2.12)	0.609
Monthly income, yuan					
≤3000				1.00	
>3000	0.37	0.25	2.08	1.44(0.88~2.37)	0.149
Had multiple sex partners in the past 6 months <sup>a</sup>					
No				1.00	
Yes	0.54	0.17	10.7	<b>1.72(1.24~2.38)</b>	<b>0.001</b>
Had casual male partners in the past 6 months					
No				1.00	
Yes	0.72	0.16	19.31	<b>2.05(1.49~2.82)</b>	<b>&lt;0.001</b>
Drank alcohol before sex in the past 6 months					
No				1.00	
Yes				<b>1.87(1.40~2.50)</b>	<b>&lt;0.001</b>
Diagnosed STIs <sup>b</sup> in the past year					
No				1.00	
Yes				<b>1.78(1.08~2.94)</b>	<b>0.024</b>

<sup>a</sup>sex partners ≥2; <sup>b</sup>sexually transmitted infections

## Conclusions

The prevalence of rush poppers use among MSM in Guangzhou was relatively high. Targeted strategies need to be strengthened to reduce rush poppers use among those who had multiple sex partners or casual partners, drank alcohol before sex and had STIs.

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