



Published in final edited form as:

*Sex Health*. 2014 July ; 11(3): 285–287. doi:10.1071/SH14017.

## Social support and depressive symptoms among ‘money’ boys and general men who have sex with men in Shanghai, China

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### Abstract

The primary objective was to examine prevalence and correlates of social support and depressive symptoms among male sex workers (known as ‘money boys’ (MBs)) and general men who have sex with men (MSM) in Shanghai. The Social Provision Scale (SPS), which consists of 24 items, scored out of 4 for social provision, was used to evaluate the functions of social relationships. The score for each item ranges from 1 to 4, with a higher score indicating more social provision. The overall mean SPS score was 68.1 (s.d. = 6.53) for MBs and 69.3 (s.d. = 6.99) for general MSM. Depression was measured with a 12-item version of the Center for Epidemiological Studies Depression Scale (CES-D), where a score of 9 has been recommended as the cutoff score to indicate possible depressive symptoms. The prevalence of depressive symptoms was 57.9%, with MBs having a higher level of depressive symptoms than general MSM (70.0% *v.* 46.1%) (odds ratio = 1.86, 95% confidence interval = 1.07–3.24). Social support was a protective factor for depressive symptoms (odds ratio = 0.92, 95% confidence interval = 0.89–0.96). MSM in China, particularly MBs, are vulnerable to low social support and high depressive symptoms, highlighting the need for tailored psychological programs targeting this population.

### Keywords

emotional health; gay men; male sex workers

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Conflicts of interest

None declared.

## Introduction

Men who have sex with men (MSM) have been identified as a higher risk group for depression as compared with general populations.<sup>1</sup> Gay and bisexual men have higher odds of any lifetime mood or anxiety disorder than their heterosexual counterparts.<sup>2</sup> They are constantly exposed to ‘minority stress’ such as overt and covert discrimination, which compromises their emotional wellbeing.<sup>3–5</sup> Nonetheless, social support has been shown to act as a ‘stress buffer’ to mitigate depression.<sup>6,7</sup>

Little research has examined social support and depression among MSM in China. The primary objective was to examine prevalence and correlates of social support and depressive symptoms among male sex workers, who are known as ‘money boys’ (MBs), and general MSM in Shanghai.

## Methods

A total of 200 MBs and 204 general MSM were recruited via respondent-driven sampling.<sup>8</sup> Participants completed a self-administered questionnaire that explored demographics, the 24-item version of the social provision scale (SPS)<sup>9</sup> ( $\alpha = 0.84$ ) and the 12-item version of the Center for Epidemiologic Studies Depression Scale (CES-D)<sup>10</sup> ( $\alpha = 0.85$ ). The SPS score ranges from 24 to 96, with a higher score indicating more social support. The 12-item CES-D score ranges from 0 to 36, with a score higher than 9 indicating possible depressive symptoms. Multiple linear regression and binary logistic regression analysis were performed to examine the factors associated with social support and depression.

## Results

The prevalence and correlates of depression among study participants are shown in Table 1. The overall mean SPS score was 68.1 (s.d. = 6.5) for MBs and 69.3 (s.d. = 7.0) for general MSM. Multiple linear regression analysis indicated that MBs ( $b = -1.79$ ,  $P = 0.026$ ) and older participants ( $b = -0.12$ ,  $P = 0.009$ ) had lower social support than general MSM and younger participants. Those who were Shanghai residents ( $b = 3.24$ ,  $P = 0.002$ ), had a college degree or above ( $b = 2.18$ ,  $P = 0.021$ ) and had a monthly income  $\geq 5000$  RMB ( $b = 3.54$ ,  $P < 0.001$ ) were more likely to receive a higher level of social support.

The overall prevalence of depressive symptoms was 57.9%. MBs were more likely to experience depressive symptoms than general MSM (70% *v.* 46.1%) (odds ratio (OR) = 1.86, 95% confidence interval (CI) = 1.07–3.24). Participants aged 18–24 years were more likely to have depressive symptoms than those aged 35 and above (66.5% *v.* 42.0%) (OR = 2.36, 95% CI = 1.12–4.96). Higher SPS scores were associated with lower depression (OR = 0.92, 95% CI = 0.89–0.96).

## Discussion

The prevalence of depressive symptoms among MSM in Shanghai is considerably higher than that in the general Chinese population.<sup>11–14</sup> Age was an independent predictor of

depressive symptoms: younger MSM were more likely to experience depressive symptoms. This is consistent with findings in the United States, where MSM aged 16–25 years are more likely to report a higher level of depressive symptoms (OR= 1.55) and less likely to use counselling (OR=0.39) or medication (OR = 0.20) for psychiatric conditions.<sup>15</sup> Our findings showed that MBs have a higher prevalence of depressive symptoms than general MSM. MBs are at greater risk of sexual violence, substance abuse, HIV or other sexually transmissible infections and stigmatisation than general MSM,<sup>8,16–20</sup> which may account for the higher level of depressive symptoms.

Social support was significantly associated with the type of MSM (MBs *v.* general MSM), age, legal residency, education and monthly income. Those who were MBs, older, migrants, and who had lower education and income had lower social support. Higher SPS scores were significantly associated with lower depression. The ‘stress-buffering’ hypothesis states that social support is a potential moderator between stress and depressive symptoms.<sup>6,7</sup> These findings suggest the importance of social support in mental health programs, and the need for psychological intervention efforts targeting MSM, particularly MBs, in China.

Some of the limitations in this study include the cross-sectional study design and its limited generalisability to the larger Chinese MSM population. The use of the 12-item CES-D scale is another limitation, since there is no established cutoff value for clinically relevant depressive symptoms for the scale.<sup>21</sup> Nonetheless, the 12-item CES-D scale retains most relevant and reliable indicator of the 20-item scale ( $\alpha = 0.83$ ).<sup>22</sup> The Cronbach’s  $\alpha$  for the 12-item CES-D scale in this study was 0.85, which was considered reliable.

## Acknowledgements

The study was supported by a grant from the US National Institute of Child Health and Human Development (grant no. R01HD056956). Preparation of this manuscript was supported by grants from the Emory Center for AIDS Research (P30 AI050409) to FYW and EJN, as well as by grants from the Shanghai Municipal Health Bureau (grant no. XBR2011043) and the Chinese National Major Science & Technology Project of Infectious Diseases (grant no. 2012ZX10001007–006) to NH.

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**Table 1.**  
**Prevalence and correlates of depression among study participants**

Bold text indicates significance at  $P < 0.05$  in the multiple logistic regression analysis. MSM, men who have sex with men; MB, 'money' boy; CES-D, Center for Epidemiological Studies Depression Scale; OR, odds ratio; CI, confidence interval; SPS, social provision scale

Variables	Depression (CES-D score 9) n out of N	%	Univariate logistic regression analysis		Multiple logistic regression analysis	
			OR (95% CI) <sup>A</sup>	P-value <sup>A</sup>	OR (95% CI) <sup>B</sup>	P-value <sup>B</sup>
Type of MSM						
MB	140 out of 200	70.0	2.73 (1.81–4.11)	<0.001	1.86 (1.07–3.24)	<b>0.029</b>
General MSM	94 out of 204	46.1	1.00		1.00	
Age (years)						
18–24	113 out of 170	66.5	2.74 (1.65–4.55)	<0.001	2.36 (1.12–4.96)	<b>0.023</b>
25–34	79 out of 134	59.0	1.98 (1.17–3.36)	0.011	1.85 (0.94–3.65)	0.076
35–71	42 out of 100	42.0	1.00		1.00	
Permanent legal residency						
Shanghai	31 out of 82	38.7	0.36 (0.22–0.59)	<0.001	0.80 (0.41–1.53)	0.494
Other provinces	203 out of 322	63.0	1.00		1.00	
Education						
Middle school or below	88 out of 148	59.5	1.00		1.00	
High school	102 out of 161	63.4	1.18 (0.75–1.87)	0.482	1.37 (0.82–2.26)	0.229
College or above	42 out of 93	45.2	0.56 (0.33–0.95)	0.031	0.95 (0.50–1.81)	0.883
Marital status						
Never married	181 out of 302	60.0	1.00		1.00	
Currently married	30 out of 59	50.8	0.69 (0.40–1.21)	0.197	1.13 (0.58–2.21)	0.722
Divorced or widowed	21 out of 40	52.5	0.74 (0.38–1.43)	0.370	1.36 (0.61–3.03)	0.455
Monthly income (RMB)						
<3000	139 out of 229	60.7	1.00		1.00	
3000–4999	62 out of 115	53.9	0.76 (0.48–1.19)	0.275	0.68 (0.40–1.16)	0.161
5000	32 out of 59	54.2	0.77 (0.43–1.37)	0.709	0.93 (0.47–1.84)	0.837
Sexual orientation						
Gay	145 out of 252	57.5	0.97 (0.65–1.46)	0.884	1.19 (0.74–1.89)	0.474
Not gay	88 out of 151	58.3	1.00		1.00	

Variables	Depression (CES-D score n out of N)	9)	Univariate logistic regression analysis OR (95% CI) <sup>A</sup>	P-value <sup>A</sup>	Multiple logistic regression analysis OR (95% CI) <sup>B</sup>	P-value <sup>B</sup>
Social support (SPS score)						
Mean score (s.d.)	67.2 (6.62)	–	0.92 (0.89–0.95)	<0.001	0.92 (0.89–0.96)	<0.001

<sup>A</sup>OR, CI and P-value were obtained from univariate logistic regression analysis.

<sup>B</sup>OR, 95% CI and P-value were obtained from multiple logistic regression analysis by adjusting for other potential confounding variables listed in the table.