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Health and life satisfaction for Chinese gay men in Guangzhou, China

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ABSTRACT

Objective: To understand Chinese gay men's health and life satisfaction in Guangzhou, and to analyze the main factors for life satisfaction.

Methods: Male gay participants were recruited through respondent-driven sampling and face-to-face investigations with self-administered questionnaires, including a general demographic questionnaire, a suicide questionnaire, the Depression-Anxiety Stress Scale, the Self-Stigma Scale, the Perceived Social Support Scale, the Rosenberg Self-Esteem Scale, and the Satisfaction with Life Scale.

Results: Surveys were successfully conducted for 420 gay men. High levels of depression, anxiety, and stress were observed among the respondents. A total of 29.3% had suicidal tendency in the past year, 36.5% experienced dating violence, 39.2% had homosexual sex without protection in the past 6 months, and 14.0% were infected with at least one type of infection of sexually transmitted diseases. Multiple linear regression analysis showed that gay men who felt highly satisfied with life exhibited low levels of self-stigma, high self-esteem, and low levels of depression. Moreover, they did not suffer dating violence and playing passive sex roles.

Conclusion: The survey confirmed that gay men in Guangzhou, China, have poor health and lower life satisfaction levels. Self-stigma, self-esteem, sex roles, depression, and dating violence are the main factors that influence the life satisfaction of them.

KEY WORDS

gay men; health; life satisfaction

中国广州男同性恋人群健康状况和生活满意度

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[摘要] **目的:** 了解中国广州男同性恋人群健康状况和生活满意度并分析其影响因素。**方法:** 采用同伴推动抽样方法(respondent-driven sampling, RDS)来收集男同性恋样本, 调查采用一对一的方式进行, 问卷由被试自填。采用自编一般情况调查表、自杀情况问卷、抑郁-焦虑-应激自评量表、自我耻辱感量表、自尊量表、生活满意度量表、领悟社会支持量表对男同性恋样本进行调查。**结果:** 在420名男同性恋有效样本中, 抑郁、焦虑、应激水平较高, 29.3%在过去1年内有过自杀意念, 36.5%遭遇过亲密关系暴力, 39.2%在过去6个月内有若无保护性行为, 14.0%至少得过一种性病。多元回归分析显示自我耻辱感较低、自尊感较高、性关系中主动角色、抑郁水平较低、无亲密关系暴力的男同性恋者生活满意度较高。**结论:** 中国广州男同性恋人群健康状况较差、生活满意度较低, 自我耻辱感、性关系中的性角色、抑郁情绪、亲密关系暴力是影响男同性恋人群生活满意度的主要因素。

[关键词] 男同性恋; 健康; 生活满意度

Homosexuality in the Chinese society was previously regarded as a mental illness, criminal offence, and violation of traditional cultural values. With rapid social changes and westernization, gradual changes in concept on homosexuality have occurred among gay people in Chinese society^[1]. Zhang, et al^[2] estimated that China has 20 million male and 10 million female homosexuals between the ages of 15 and 65. The Ministry of Health estimated that sexually active gay men account for approximately 2%–4% (5–10 million) of all sexually active men in China^[3]. However, although such a large population, public understanding of homosexuals is still not objective, and most Chinese people hold one-sided opinions and extreme negative attitudes toward homosexuals. Many Chinese people still regard homosexuality as a perversion or a mental disease, and some of them equate gay men with AIDS. Moreover, traditional Chinese ethics emphasize the combination of yin and yang, the concept of procreation, and so on. Consequently, people's tolerance for homosexuality is limited, which has resulted in a miniscule living space for homosexuals. Homosexuals face predicaments in every habitat. Therefore, many gay men demonstrate various deviant behaviors, and their health suffers. This scenario is a threat to social harmony and stability as well as personal health.

The infection of sexually transmitted diseases (STDs) and human immunodeficiency virus (HIV) among Chinese gay men is not optimistic. Gay men are a high risk group for HIV infection in China. A total of 87 000 new HIV cases were reported from January to October, 2014, and one quarter of them infected HIV through male homosexual transmission. Of all new cases reported in the capital cities of 31 Chinese provinces,

male homosexual transmission accounted for about 51% in northern cities, such as Beijing, Harbin, and Changchun. Gay men accounted for nearly 80% or more in small cities (homosexual transmission accounted for a third), and in rural areas of Guizhou and Guangxi, gay men accounted for 10%^[4]. Several studies^[5-7] in China have revealed that compared with the heterosexual population, the homosexual population exhibits more behavioral and psychological problems. The scores of gay men on somatization, obsessiveness–compulsiveness, interpersonal sensitivity, social adjustment, hostility, anxiety, terror, and paranoia are statistically higher than those straight men^[8]. Yu^[9] investigated 418 gay men in Changsha and found that the living conditions of gay men are relatively poor, and the level of their physical and psychological health is relatively low.

Studies^[10-11] have suggested that life satisfaction is reciprocally affected by the psychosocial variables of life events and social support. Only a few studies^[12-13] have conducted on the life satisfaction of gay individuals because previous research focused on psychological distress in relation to homosexual sexual identity. This study examined the health status and life satisfaction of Chinese gay men in Guangzhou, Guangdong Province, to provide a scientific basis for gay men's psychological crisis intervention in China. Information on socio-demographic indexes, dating relationships, sexual behavior features, social support, dating violence, and suicidal behaviors was collected using questionnaires, and gender roles, depression, anxiety, stress, and life satisfaction were measured by scales. The correlation between these factors and gay men's life satisfaction was analyzed.

I Subjects and methods

I.1 Subjects

The subjects were gay men who were more than 16 years old living in Guangzhou, China. The inclusion criteria were as follows: aged 16 or older, permanent resident of Guangzhou, and not registered in the census for Guangzhou but had lived in the area continuously for more than 3 months. The following individuals were excluded that had lived in Guangzhou for less than 3 months and had registered in the census for Guangzhou but had moved to other cities to settle for more than 3 months. According to the definition of homosexuality in the Chinese Classification of Mental Disorders and Diagnostic Criteria, 3rd Edition (CCMD-3), homosexuality refers to the “continuous expression of homosexual eroticism under normal living conditions, including thoughts, feelings, and sexual behavior; normal sexual behavior with a heterosexual partner with reduced or lacking eroticism is also possible”^[14]. In principle, a subject must be unanimously identified by researchers and the subject himself as homosexual, rather than heterosexuals, bisexuals, or transsexuals. However, many “self-discord” gay men exist. These gay men are likely to have psychological and mental problems.

The responding-driven sampling was used to recruit participants. Five administrators were selected from an online social networking group for gay men called QQ as the seeds and they were diverse in terms of occupation. After being interviewed, participants were provided 5 responding-driven sampling coupons to recruit their peers. Our phone numbers, addresses, and appointment time are printed on the cards, and we asked them to help us give out these cards to others. With this method, a new sample was investigated at appointed time. Each participant was also given 100 yuan as transportation subsidy. The remaining samples were addressed in the same manner. In reference to the sampling volume standard (generally 250 to 400) of groups at a high risk for sexually transmitted infections^[15] recommended by the World Health Organization and the Chinese Center for Disease Control and Prevention, we issued 500 cards in Guangzhou. Among those who received the cards, 48 did not participate in the investigation or refused the investigation; 32 people believed themselves to be men who merely have sex with men and are not gay. Ultimately, we obtained an effective

sample of 420 gay men, and the response rate was 84.0%.

I.2 Survey instrument

The participants were asked to indicate their age, ethnicity, marital status, original domicile, being an only child or not, educational attainment, occupation, monthly income, current romantic relationships, and current sexual relationships (long-term or casual sex partners), roles in sex relationships, whether they intend to come out or not, and STDs (including crab louse, nonspecific urethritis, syphilis, gonorrhea, non-specific genital ulcers, anal or genital warts, and genital herpes).

A translated, shortened six-item version of suicide questionnaire designed by Kessler, et al^[16] was used to survey participants' suicide behaviors in the past 12 months. The first question was “in the past 12 months, have you ever seriously thought about killing yourself?” Respondents who reported suicidal ideations were asked if they made a suicide plan in the past 12 months. Regardless of the answer to the question about having a plan, respondents who reported suicidal ideations were asked whether they had ever treated for suicide. Respondents who had suicidal ideations and suicidal plans were then asked what means they had thought of to kill themselves and whether they had prepared for such a plan.

Questions on life experiences involving dating violence were adopted from Freedner's community survey related to lesbian, gay, bisexual, and transsexual (LGBT) adolescents and were assessed with the following items^[17]: 1) “has a date or partner ever tried to control most or all of your daily activities, for example, controlling who you can talk to and where you can go?” 2) “has a date or partner repeatedly put you down, embarrassed you in front of other people, or made you feel bad about yourself?” 3) “have you ever been scared for your physical safety because of the anger or threats of a date or partner?” 4) “has a date or partner ever hurt you physically? This would include being shoved, slapped, hit, kicked, bit, choked, burned, stabbed, or shot” 5) “has a date or partner ever hurt you sexually or made you do something sexual that you did not want to do?” and 6) “has a date or partner ever threatened to ‘out’ you to others?”

The Depression Anxiety Stress Scale (DASS) was used to measure gay men's depression, anxiety, and stress, with 7 items for each^[18]. Studies^[19-22] have shown that DASS-21 and the full version of DASS have the same

stable factor structures and the same good reliability and validity; and they are suitable for rapid screening in scientific research and clinical diagnosis.

The Self-Stigma Scale (SSS)^[23] was used to assess gay men's self-stigma. The scale includes 9 items belonging to cognitive, affective, and behavioral spheres. The respondents were asked to rate the extent to which they agreed with the statements on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree); scores ranged from 9 to 45 points, and a high score indicates intense self-stigma. A total of 175 mental health cases (MHC) (51% were female) and 110 immigrant women (IW) were investigated. The results revealed that SSS has good internal consistency, Cronbach's alpha of MHC was 0.91, and Cronbach's alpha of IW was 0.84. All 9 items were open-ended questions.

The 10-item Rosenberg Self-Esteem Scale^[24] was also used. The participants rated the extent to which they endorsed each item on a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). One item ("I wish I could have more respect for myself") was discarded because the item-total correlation was negative after it was scored reversely along the direction of the other items. This pattern was consistent with previous research on Chinese adults^[25], which found that the Chinese tend to interpret this item in the opposite direction of what is intended. In the present study, the internal consistencies of the 9 items were 0.83 in Sample 1 and 0.78 in Sample 2.

The original form of the Multidimensional Perceived Social Support Scale was developed by Zimet in the US and was revised and translated into Chinese^[26-27]. The Chinese version of the scale emphasizes individual self-understanding and self-perception of social support, and all 12 items are divided into 2 types of support through factor analysis (support from families and support outside of the family).

The five-item Satisfaction with Life Scale (SWLS) was used to survey gay men's life satisfaction. The participants rated the extent to which they endorsed each item on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The total scores were between 5 and 25, and the higher the score is, the higher life satisfaction is. Several studies^[28-30] have proven that SWLS has good reliability and validity.

We explored the reliability and validity of these questionnaires and scales. They showed good reliability

and validity and met the needs of psychometric properties, which can be used in measurement in China.

1.3 Quality control

We implemented strict quality control from the beginning of the research to the end. In the preparation stage, we read a number of studies, consulted with experts, and designed the research program and questionnaires according to our research objectives. After completing the first draft of the questionnaires, we invited several experts in epidemiology, statistics, and sociology to discuss with us and provide guidance and advice. We then revised the questionnaires repeatedly to ensure that respondents can understand every question. In the next stage, we conducted a pilot study to further improve the survey instrument.

The study was done after agreement from the local ethics committee and with the gay men's informed consent. In consideration of the privacy of the gay samples, consent and confidentiality were guaranteed by the researcher personally involved in the investigation of the samples. All respondents received a self-administered questionnaire, and each questionnaire was completed in a quiet environment without interference. Each questionnaire was verified on site immediately after the survey to ensure that any unanswered or indefinitely answered questions could be confirmed or re-asked based on ethical principles. In addition, a part-time quality controller was hired to collect, examine, and document the data daily.

1.4 Statistical analysis

The database was established with EpiData 3.0, and a statistical analysis was conducted with SPSS 20.0. Logistic regression was performed to examine the influence of gay men's life satisfaction. $P < 0.05$ was considered as a significant difference.

2 Results

2.1 Study population

Through respondent-driven sampling, we surveyed gay men from September 10 to December 31, 2014 and collected 420 subjects successfully. The age ranged from 18 to 38 years old. The median age was 26 ($P_{25}=24.0$, $P_{75}=28.0$). Ninety-five percent were Han Chinese, and 5.0% were from ethnic minorities. Among the participants, 94.6% were single, 4.5% were married, and 1.0% were

divorced. A total of 73.4% had their original domicile in urban areas and 26.6% in rural areas; 45.0% were the only child in their families. There were 25.2% of students of them, 22.5% had a college degree or below, 44.6% had a bachelor's degree, and 32.9% had a master's degree or above. Additionally, 50.5% of the gay men's monthly incomes were above 4 000 Yuan.

2.2 Coming out

Coming out refers to the publication of sexual orientation by LGBT people in their life or work circles. We investigated whether the respondents had come out to their fathers, mothers, wives, brothers and sisters, classmates, colleagues, and friends. In this study, 72.1% (303/420) of gay men had come out. Among them, 10.6% had told their father and mother, 25.6% had come out to their relatives (e.g., siblings, grandparents, uncles, and aunts), 14.4% had come out to their work leaders, and 81.3% of the 303 subjects had told their classmates, colleagues, and friends. Only 3 of the 19 married gay men disclosed their sexual orientation to their wives.

2.3 Sex roles

In China, gay men often present their roles in homosexual relations with 11 equal-interval points ranging from pure 0 to pure 1. Pure 0 refers to those who only play the receptive role in homosexual anal sex, and pure 1 refers to those who only play the inserted role in anal sex between gay men. This study defined pure 0, 0.1, 0.2, 0.3, 0.4, and 0.5 as the "passive group", which included 235 subjects (55.9%); 0.6, 0.7, 0.8, 0.9, and pure 1 were defined as the "active group", which included 185 (44.1%) subjects.

After controlling age, education, and marital status in logistic regression models, those who play passive sex roles were still at risk for depression (OR=7.686, 95%CI 2.973 to 19.872), anxiety (OR=3.628, 95%CI 1.674 to 7.863), stress (OR=2.337, 95%CI 1.100 to 4.965), dating violence (OR=2.961, 95%CI 1.347 to 6.506), and suicidal ideas (OR=3.329, 95%CI 1.444 to 7.674).

2.4 Romantic relationships and sexual behaviors

The results showed that 79.5% of the 401 unmarried gay men currently lived alone, and 20.5% lived together with a stable boyfriend (refers to a relationship involving same-sex lovers). In the past 6 months, 43.1% (181/420)

respondents had a fixed sex partner (in this study, this means no romantic relationship was involved, only sex between 2 men for 3 months or more), and 56.9% (239/420) had one or more sex partners. Furthermore, 77.4% (185/239) respondents reported they had 1–2 fixed sex partners in the past 6 months, 15.1% (36/239) had 3–4 fixed sex partners, and 7.5% (18/239) had 5–6 partners or more.

Except for fixed sex partners, in the past 6 months, 51.9% (218) respondents had casual sex partners. In 420 respondents, 40.0% (168) reported that they had sex with 1–4 casual sex partners, 6.7% (28) had 5–8 sex partners, and 4.5% (19) had 9–12 sex partners.

2.5 STDs, drugs, and addictive substance abuse

In the past 6 months, 39.2% of the 420 gay men had unprotected anal sex. The specific frequencies of STDs and HIV are listed in Table 1. Of all respondents, 14.0% (59) of the subjects reported having at least one type of STDs, 5.5% (23) reported being HIV-positive, 40.0% (168) had taken an HIV antibody test in the past year, and 42.9% (180) planned to take this test in the next 6 months.

In the past 6 months, during their anal sex, 14.3% (60/420) respondents used rush poppers to increase sexual pleasure, and 7.1% (30/420) used Viagra. Thirty-four (8.1%) respondents had a history of taking drugs, such as ecstasy, methamphetamine, and ketamine, and 4.5% (19/420) used other drugs.

Table 1 STDs and HIV in Chinese gay men in Guangzhou (*n*=420)

Indexes	Yes/[No.(%)]
1. Crab louse	30(7.2)
2. Syphilis	10(2.4)
3. Gonorrhea	13(3.1)
4. Genital herpes	11(2.6)
5. Non-specific genital ulcers	6(1.4)
6. Anal or genital warts	17(4.0)
7. Nonspecific urethritis	21(5.0)
8. Did you ever take an HIV antibody test in the past year?	168(40.1)
9. Will you want to take an HIV antibody test in the next 6 months?	240(57.2)
10. Have you ever received a test result of HIV positive?	23(5.5)

2.6 Dating violence, depression, anxiety, and stress

Table 2 shows the prevalence and types of abuse reported by the respondents. Up to 36.5% respondents reported they had experienced at least one of the 5 types of abuse.

The mean scores of depression, anxiety, and stress for all subjects were 6.03 ± 4.76 , 5.26 ± 3.94 , and 7.14 ± 4.04 , respectively.

2.7 Suicidal behaviors and social support

The results showed that 29.3% (123) of the subjects had suicidal ideations in the past year, 6.2% (26) had a suicide plan, 1.9% (8) were ready to commit suicide, 1.2% (5) attempted suicide in the past year, and 3.2% (13) were treated for suicide once. The social support from the family and outside the family were 17.65 ± 4.67 and 37.97 ± 8.75 , respectively. The total scores of social support was 55.62 ± 12.54 .

2.8 Self-stigma and self-esteem

The score of the 420 gay men's self-stigma was 21.06 ± 7.19 , and the score of self-esteem was 27.57 ± 4.04 . The specific frequencies are listed in Tables 3 and 4.

Table 2 Reported disclosure of abuse among gay men who have been abused by a date or partner (n=420)

Abuse	n	Proportion/%
Experienced abuse *	153	36.5
Type of abuse		
Control	93	60.5
Emotional	30	19.8
Scared for safety	62	40.5
Physical	59	38.6
Sexual	45	29.4
Threatened to be outed	19	12.4

*Experienced abuse represents one or more of the 5 types of abuse in reported experience (control, emotional, scared for safety, physical, and sexual)

Table 3 Frequency of gay men's scores on the Self-Stigma Scale (n=420)

Items	Strongly disagree/%	Disagree/%	Neither agree nor disagree/%	Agree/%	Strongly agree/%
1. I fear that others would know that I am a gay.	14.4	19.4	31.1	22.5	12.6
2. I feel like I cannot do anything about my gay status.	14.9	26.6	29.7	18.9	9.9
3. I feel uncomfortable because I am a gay.	19.8	35.1	27.0	10.8	7.2
4. I am afraid to make new friends lest they find out that I am a gay.	29.3	49.1	12.6	7.2	1.8
5. I estrange myself from others because I am a gay.	34.2	41.4	16.2	6.3	1.8
6. I avoid interacting with others because I am a gay.	37.4	43.7	11.7	4.5	2.7
7. The identity of being a gay taints my life.	42.3	35.1	18.0	2.7	1.8
8. My identity as a gay incurs inconvenience in my daily life.	23.4	28.4	30.2	14.4	3.6
9. My identity as a gay is a burden to me.	25.2	26.1	29.3	15.8	3.6

Table 4 Frequency of gay men's scores on the Self-Esteem Scale (n=420)

Items	Strongly disagree/%	Disagree/%	Agree/%	Strongly agree/%
1. On the whole, I am satisfied with my life.	0.9	18.5	64.9	15.8
2. At times I think I am no good at all.	4.5	42.8	47.3	5.4
3. I feel that I have a number of good qualities.	0.9	16.7	70.7	11.7
4. I am able to do things as well as most other people.	0.0	6.3	65.3	28.4
5. I feel I do not have much to be proud of.	9.9	32.9	49.1	8.1
6. I certainly feel useless at times.	10.4	35.6	51.4	2.7
7. I feel that I'm a person of worth.	0.0	10.4	69.8	19.8
8. I wish I could have more respect for myself.	1.4	6.8	73.0	18.9
9. All in all, I am inclined to think that I am a failure.	20.7	53.6	23.9	1.8
10. I take a positive attitude toward myself.	0.0	14.1	63.5	22.5

2.9 Life satisfaction

The score of the 420 gay men's life satisfaction was 14.05 ± 3.53 . With regard to specific frequency, except for item 5 (3.2%), the other 4 questions were answered as "strongly agree" and were all less than 3% (Table 5).

A multiple linear regression analysis was performed to analyze the factors correlated to gay men's life satisfaction. The dependent variable (Y) was the scores of life satisfaction, and the independent variables were self-

stigma (X_1), self-esteem (X_2), social support (X_3), sex roles (X_4), depression (X_5), anxiety (X_6), stress (X_7), and dating violence (X_8).

$$Y = 12.469 - 0.086X_1 + 0.219X_2 + 0.638X_4 - 0.281X_5 - 0.271X_8$$

Table 6 shows that self-stigma, self-esteem, sex roles, depression, and dating violence were the main factors that influence gay men's life satisfaction.

Table 5 Gay men's life satisfaction ($n=420$)

Items	Strongly disagree/%	Disagree/%	Slightly agree/%	Agree/%	Strongly agree/%
1. In most ways, my life is close to my ideal.	9.0	26.1	41.0	22.1	1.8
2. The conditions of my life are excellent.	4.5	15.8	51.8	27.0	0.9
3. I am satisfied with my life.	6.3	20.7	33.8	37.4	1.8
4. So far, I have obtained the important things I want in life.	14.4	32.9	35.6	14.4	2.7
5. If I could live my life over, I would change almost nothing.	18.0	27.9	39.6	11.3	3.2

Table 6 Coefficients of the multiple regression model ($n=420$)

Variables	B	Std	Beta	t	P
Self-stigma (X_1)	-0.086	0.034	-0.159	-2.503	<0.05
Self-esteem (X_2)	0.219	0.075	-0.641	-2.922	<0.05
Sex roles (X_4)	0.638	0.243	0.398	2.623	<0.05
Depression (X_5)	-0.281	0.138	0.285	2.039	<0.05
Dating violence (X_8)	-0.271	0.121	-0.339	-2.229	<0.05

3 Discussion

The findings of this study confirm previous reports that Chinese gay men have poor health and low life satisfaction levels. Self-stigma, self-esteem, sex roles, depression, and dating violence are the main factors that influence gay men's life satisfaction. Although several risk factors exist, we still believe that discrimination and prejudice under the Chinese traditional culture background influence gay men's life satisfaction.

With the gradual increase in age, gay men feel the pressure from 2 main aspects. The first one is that their parents and relatives constantly force them marry to heterosexual women^[14]. Common beliefs in traditional Confucian ideology focus on producing offspring; such beliefs include "grown men and women should get married" "the more sons, the more blessings", and

"among the 3 forms of unfilial conduct, the worst is to have no descendants". All these notions have inevitably influenced social attitudes toward homosexuality. Chinese parents generally regard their children's marriages as their responsibility and actively urge, help, and even force their children to be married. Many gay men engage in heterosexual marriage because, on one hand, they are eager to have children; on the other hand, they wish to meet their parents' expectations.

The second source of pressure is the working and living environment. As LI^[31] pointed out in his book titled *The Subculture of Homosexuality*, "if a man is not yet married by the age of thirty, people will think he has problems, suspect that he is a gay, or suspect that he is a player. He will never reach a high level in the military, corporations, political organizations or any associations." With the Chinese reform and opening up,

the public's attitudes toward homosexuality have changed gradually, but serious discrimination still exists in many circumstances^[32]. Yu^[9] once investigated the attitudes of 2 391 heterosexuals toward homosexuality with the Attitude Toward Lesbians and Gay Men Scale^[14]. The results showed that public attitudes toward gay men are more severe than those toward lesbians, with only 17.6% of the public holding positive attitudes toward lesbians and gay men. Therefore, gay men in China often feel panic, confused, and self-stigmatized about their sexual behaviors, which leads to several gay men experiencing high-level depression, stress, and suicidal ideations directly or indirectly^[9]. Several gay men do not even dare to ask for help after they have suffered violence^[33].

Faced with these pressures, an increasing number of differences are observed between active and passive gay men. In this study, after controlling other factors, those who play passive sex roles were still at risk for depression, anxiety, stress (OR=2.337, 95% CI 1.100 to 4.965), dating violence, and suicidal ideas. The gender belief system perspective can be used to explain this result. Amy, et al^[34] defined the gender belief system as "a set of beliefs and opinions about males and females and about the purported qualities of masculinity and femininity". Undoubtedly, gender belief systems also exist in Chinese culture. Heterosexuals' attitudes toward lesbians and gay men are linked to their beliefs about the characteristics that heterosexual women and men should exhibit.

The idea that "man is superior to woman" has been instilled deeply into Chinese culture^[14]. Male stereotypes, such as confidence, strength, directness, and courage, are common in Chinese society. Consequently, dislike for lesbians and gay men is particularly strong among people who hold traditional gender-role attitudes because homosexuality poses a particularly strong threat to the system of gender beliefs^[35]. Gay men who play the passive role tend to be sensitive in mind, delicate in emotion, and unmanly. They do not meet public expectations and demands on men, and without a doubt, passive gay men are likely to be perceived and suffer from discrimination and violence.

This study has 3 main limitations. Firstly, this study was based on a non-random sample of Chinese gay men recruited through respondent-driven sampling in Guangzhou. Owing to cultural diversity across regions, the results may not be generalized to gay men

elsewhere in China. Secondly, this study relied solely on the participants' self-reports, which might be subject to self-selection, social desirability, and recall bias. Thirdly, the results of the cross-sectional study merely showed statistical links between the factors and life satisfaction, not causality. Despite these limitations, the present findings have significant implications for enhancing the level of life satisfaction of Chinese gay men. Chinese gay men should be equipped with active problem-solving and coping strategies instead of relying on their primitive defenses to ward off stress or negative emotions.

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本刊常用词汇英文缩写表

从2012年第1期开始, 本刊对大家较熟悉的以下常用词汇, 允许直接使用缩写, 即首次出现时可不标注中文。

C-反应蛋白	CRP	甲型肝炎病毒	HAV	纤连蛋白	FN
Toll样受体	TLRs	碱性成纤维细胞转化生长因子	bFGF	心电图	ECG
氨基末端激酶	JNK	聚合酶链反应	PCR	心脏监护病房	CCU
白细胞	WBC	抗生物素蛋白-生物素酶复合物法	ABC法	血管紧张素 II	Ang II
白细胞介素	IL	辣根过氧化物酶	HRP	血管内皮生长因子	VEGF
半数抑制浓度	IC ₅₀	链霉抗生物素蛋白-生物素酶复合物法	SABC法	血管性血友病因子	vWF
变异系数	CV	磷酸盐缓冲液	PBS	血红蛋白	Hb
标记的链霉抗生物素蛋白-生物素法	SP法	绿色荧光蛋白	GFP	血肌酐	SCr
表皮生长因子	EGF	酶联免疫吸附测定	ELISA	血尿素氮	BUN
丙氨酸转氨酶	ALT	美国食品药品监督管理局	FDA	血小板	PLT
丙二醛	MDA	脑电图	EEG	血压	BP
丙型肝炎病毒	HCV	内毒素/脂多糖	LPS	血氧饱和度	SO ₂
超氧化物歧化酶	SOD	内皮型一氧化氮合酶	eNOS	烟酰胺腺嘌呤二核苷酸	NADPH
磁共振成像	MRI	内生肌酐清除率	CCr	严重急性呼吸综合征	SARS
极低密度脂蛋白胆固醇	VLDL-C	尿素氮	BUN	一氧化氮	NO
低密度脂蛋白胆固醇	LDL-C	凝血酶时间	TT	一氧化氮合酶	NOS
动脉血二氧化碳分压	PaCO ₂	凝血酶原时间	PT	乙二胺四乙酸	EDTA
动脉血氧分压	PaO ₂	牛血清白蛋白	BSA	乙酰胆碱	ACh
二甲基亚砜	DMSO	热休克蛋白	HSP	乙型肝炎病毒	HBV
反转录-聚合酶链反应	RT-PCR	人类免疫缺陷病毒	HIV	乙型肝炎病毒 e 抗体	HBeAb
辅助性 T 细胞	Th	人绒毛膜促性腺激素	HCG	乙型肝炎病毒 e 抗原	HBeAg
肝细胞生长因子	HGF	三磷酸腺苷	ATP	乙型肝炎病毒表面抗体	HBsAb
干扰素	IFN	三酰甘油	TG	乙型肝炎病毒表面抗原	HBsAg
高密度脂蛋白胆固醇	HDL-C	生理氯化钠溶液	NS	乙型肝炎病毒核心抗体	HBcAb
谷胱甘肽	GSH	世界卫生组织	WHO	乙型肝炎病毒核心抗原	HBcAg
固相 pH 梯度	IPG	双蒸水	ddH ₂ O	异硫氰酸荧光素	FLTC
核糖核酸	RNA	丝裂原活化蛋白激酶	MAPK	诱导型一氧化氮合酶	iNOS
核因子-κB	NF-κB	四甲基偶氮唑盐微量酶反应	MTT	原位末端标记法	TUNEL
红细胞	RBC	苏木精-伊红染色	HE	杂合性缺失	LOH
红细胞沉降率	ESR	胎牛血清	FBS	增强化学发光法	ECL
环氧化酶-2	COX-2	体重指数	BMI	肿瘤坏死因子	TNF
活化部分凝血活酶时间	APTT	天冬氨酸氨基转移酶	AST	重症监护病房	ICU
活性氧	ROS	脱氧核糖核酸	DNA	转化生长因子	TGF
获得性免疫缺陷综合征	AIDS	细胞间黏附分子	ICAM	自然杀伤细胞	NK 细胞
肌酐	Cr	细胞外基质	ECM	总胆固醇	TC
基质金属蛋白酶	MMP	细胞外调节蛋白激酶	ERK	总胆红素	Tbil
计算机 X 线断层照相技术	CT				