

An Investigation into HIV Risk Behaviors among University Students in Local Colleges and Suggested Interventions

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Abstract

This study investigates the prevalence of HIV high-risk behaviors among university students in S City, Sichuan Province. Using a sampling survey method, a total of 3262 valid questionnaires were collected. Data analysis revealed ten significant issues related to HIV risk behaviors among university students, leading to suggested intervention strategies to address these behaviors.

Keywords

University Students, HIV Risk Behaviors, AIDS Prevention and Control

1. Introduction

AIDS is a major infectious disease that poses a serious threat to human health. According to the latest report by UNAIDS, released on July 22, 2024, approximately 39.9 million people worldwide were living with HIV by the end of 2023. At present, 1.04 million cases of AIDS are reported nationwide, and the AIDS epidemic in China is generally controlled at a low prevalence level. However, because people are generally susceptible to AIDS, and the spread of AIDS has a certain particularity, the key groups of prevention and treatment are hidden and sensitive, and it is difficult for the relevant government health departments to intervene directly [1]. S City, located in Sichuan Province, is one of the high-prevalence areas for AIDS, with over 4000 people currently living with HIV. The city hosts three colleges with over 40,000 students, many of whom are at a sexually active age and come from rural areas, where knowledge about HIV and sexual health is often limited. These students are considered a high-risk group for HIV infection. Studying HIV high-risk behaviors among university students in S City can provide

valuable insights for developing effective AIDS prevention strategies in local colleges.

2. Research Content

The survey questionnaire was designed based on indicators used in the World Health Organization (WHO)-funded project No. 98200, along with relevant literature. It covered three main areas—individual factors, social and family influences, and behavioral and psychological factors—and was structured into 20 modules. The content included the following aspects:

- Sociodemographic characteristics: Family background, individual lifestyle and behavior.
- General sexual behavior: Heterosexual and male-to-male sexual behaviors, casual sexual encounters, and information on regular heterosexual partners among MSM.
- Substance use and sexual toys: Usage of special drugs and sexual toys.
- Attitudes toward sexual behavior and intentions.
- Variables related to behavioral maintenance theories: Behavioral experiences, self-efficacy, outcome expectations, social norms, social capital, and self-identity (especially for those with a gender identity different from their biological sex).
- HIV testing willingness, awareness of HIV prevention policies (specifically the National Youth HIV Prevention Guidelines).
- Impulse control, the provision of school intervention services, and participants' suggestions and attitudes regarding sexual education in schools.

3. Sample Characteristics

A simple random sampling method was used to select two general universities in the city for the survey. A total of 3262 valid questionnaires were collected, comprising 2504 females and 758 males, from various academic disciplines such as the humanities, sciences, engineering, medicine, arts, agriculture, and teacher education.

The average age of respondents was 19.53 years (± 1.54).

- Educational background: 1369 (41.97%) were from undergraduate programs, and 1893 (58.03%) from vocational colleges.
- Academic year distribution: 1506 (46.17%) were first-year students, 991 (30.38%) were second-year students, 631 (19.34%) were third-year students, and 134 (4.11%) were in their fourth year.
- Ethnicity: 2591 (90.47%) were Han Chinese, while 311 (9.53%) were from ethnic minority groups.
- Family structure: 804 (24.65%) were only children, while 2458 (75.35%) were non-only children.
- Pre-university residence: 2336 (71.61%) lived in rural areas, and 926 (28.39%) lived in urban areas.

4. Survey Findings and Analysis of Causes

4.1. Survey Findings

Using EpiData 3.1 and SPSS 21.0 for statistical analysis, and employing logistic regression to analyze influencing factors, ten critical issues related to high-risk HIV behaviors were identified among university students in City S, requiring urgent attention.

4.1.1. High Incidence of Sexual Behavior and Low Condom Use

Among respondents, 277 (8.49%) had sexual experience: 153 males (20.24% of males) and 124 females (4.95% of females). Excluding freshmen, 16.65% of respondents reported sexual experience. Only 54.51% (151 individuals) reported using condoms during their first sexual encounter. In heterosexual encounters, consistent condom use was low—27 individuals (9.74%) had never used condoms. For casual male-to-male sexual encounters, consistent condom use was even lower at 35.14%. Overall, consistent condom use in high-risk sexual behavior was alarmingly low.

4.1.2. Early Onset of Sexual Behavior and Separation of Sex from Relationships

The age of first sexual experience among respondents was low, especially among men who have sex with men (MSM). Nearly 10% of respondents had their first sexual experience with a non-romantic partner, and casual sexual encounters were prevalent. Among 137 males who had sexual experiences within the past six months, 125 (91.27%) did not have a girlfriend, indicating a high rate of sexual activity outside of committed relationships and significant detachment of sex from romantic connections.

4.1.3. Elevated Rates of Diverse Sexual Orientations and Identity Ambiguity, alongside Diminished Self-Acceptance among Men Who Have Sex with Men (MSM)

Among the respondents, 33 reported exclusively same-sex orientations (1.01%), 168 indicated attraction to multiple genders (5.15%), and 145 expressed uncertainty regarding their orientation (4.45%). Many MSM participants exhibited low self-acceptance, with some feeling depressed about their sexual orientation and fearing social alienation if their identity was exposed.

4.1.4. Low Awareness of HIV Risks and Limited Negotiation Skills

The majority of respondents did not perceive themselves as at risk for HIV infection, even after engaging in unprotected sexual activities. More than half believed they would not contract HIV, regardless of their behaviors.

Regarding negotiation skills, only slightly over half could ensure proper condom use during sexual encounters. Nearly 10% reported being unable to persuade their partners to use condoms, indicating a need to enhance students' abilities to negotiate safer sexual practices.

4.1.5. Low HIV Testing Rate, with Confirmed Student Infections

Only 6.74% (220/3262) of respondents had undergone HIV testing, highlighting

a lack of awareness that testing is a preventive measure. Among those tested, some students admitted to being HIV-positive.

4.1.6. Low Awareness of the National Youth HIV Prevention Guidelines

Awareness of the guidelines was only 45.05% (1468/3262), showing a significant gap between the student population's knowledge and the national expectations. Specifically, many students remained unaware of the heightened risk of HIV infection through male-to-male sexual activity.

4.1.7. Inadequate Understanding of Condoms and Low Trust in Their Efficacy

Many respondents misunderstood condoms, associating them solely with contraception and overlooking their role in disease prevention. There was widespread skepticism about condoms' effectiveness in preventing HIV and other sexually transmitted infections (STIs). Among students who had experienced unintended pregnancies, abortions, or STI/HIV infections, condom use was even lower.

4.1.8. High Tolerance for Unconventional Sexual Behaviors, with Insufficient Recognition of Associated Risks

Most respondents supported premarital sex and were open to cohabitation with their partners. They also showed high tolerance for multiple sexual partners, commercial sex, and casual sexual encounters, yet underestimated the risks of contracting HIV through such behaviors.

4.1.9. Low Willingness to Undergo HIV Testing and Limited Understanding of Self-Testing

Only 1.75% (57/3262) of respondents expressed intent to undergo HIV testing within the next six months, while 14.44% (471/3262) indicated a possibility of getting tested. The majority were unwilling to engage in self-testing, doubting the accuracy of self-administered tests and their results.

4.1.10. Limited Variety in School-Based HIV Education Programs

While the coverage of sex education at universities in City S exceeded national and provincial levels, the modes of HIV education remained limited, mainly relying on lectures and pamphlets, resulting in a relatively monotonous approach to awareness campaigns.

4.2. Analysis of Causes

High-risk sexual behaviors among university students in City S are influenced by multiple social, cultural, and personal factors:

4.2.1. Peer Influence among Young People

University life is highly communal, making students susceptible to peer influence. Young people today often seek individuality, embrace trends, and enjoy trying new things, which includes a more open attitude toward sex compared to previous generations. Young people like to express their emotions on the Internet. The

research results of heterosexual dating software also show that there is widespread false personal information on dating software, and the phenomenon of “one-night stand” is prominent [2]. The prevalence of premarital sex among peers sets a norm that influences others. Additionally, casual relationships and frequent breakups further increase the likelihood of students engaging in sexual activity with multiple partners during their time in university, making them more vulnerable to HIV infection.

4.2.2. Impact of Family Education

The majority of students in this survey come from rural areas (71.61%), and about 80% of their parents have an education level of junior high or below. Traditional values, combined with limited parental education, mean that topics around sex are often avoided or not discussed openly in families. Furthermore, 40% of students were raised without close parental supervision, leading to a lack of proper guidance on safe sexual practices. Once in university, away from parental control, students are more likely to engage in risky behaviors, increasing their vulnerability to HIV.

4.2.3. Economic Factors

The survey reveals that over 70% of students have a monthly allowance below 1000 yuan, with 10.33% receiving less than 500 yuan. The economic situation of college students makes them have many typical problems at the emotional and behavioral levels, such as low self-esteem, excessive negative emotions, excessive stress, etc. [3]. Financial hardships can push students toward risky behaviors. The pressure of materialism, along with societal influences, drives some students to seek financial rewards through sexual services. Commercial sex or transactional sexual relationships for financial gain increase their risk of HIV infection. Some students may even engage in sex work for higher compensation, significantly raising the potential for HIV transmission.

4.2.4. Ineffective Sex Education and Students' Lack of Attention

While most students in City S reportedly received some form of sex and HIV education starting in middle school, nearly 300 said they had never received any education on these topics. Furthermore, the HIV knowledge rate was only 45.05%, indicating that current sex education programs in universities are not as effective as they should be. It may be because the dissemination of new media information has the characteristics of wide coverage, small amount of information and relatively shallow, so that young students lack an in-depth understanding of the relevance of the knowledge and their own behavior while acquiring some knowledge [4]. Students' increasingly liberal attitudes toward sex, combined with insufficient education on safe practices, contribute to higher HIV risks. Many male students, driven by curiosity, experiment with male-to-male sexual encounters, often without protection. These “individuals” are troubled by various mental health problems to varying degrees, such as depression, anxiety, etc. [5], and the psychological problems of high-risk groups are related to the occurrence of their high-risk

sexual behavior and the risk of HIV infection [6]. Additionally, some of these individuals have relationships with both men and women, creating a potentially risky transmission chain for HIV. This chain could lead to the infection of female partners, who may unknowingly transmit the virus to future partners, posing a serious health risk.

These factors collectively increase the likelihood of HIV infection among university students in City S, highlighting the urgent need for improved sex education, better awareness of safe sexual practices, and support systems for at-risk students.

5. Recommendations for Addressing the Issue

5.1. Establish a Government-Led, University-Centered, Multi-Departmental HIV Prevention Mechanism

HIV prevention is a government responsibility, and strengthening HIV prevention in universities is essential. A leadership and coordination mechanism should be established, led by the government and supported by universities, health departments, education departments, public security, and cyber-monitoring agencies. The government should continue implementing the “AIDS Prevention and Control Regulations” and relevant measures, actively supporting HIV prevention in universities through financial and policy means. Health authorities should prioritize HIV prevention efforts among men who have sex with men (MSM), Network intervention models can improve the awareness of AIDS knowledge to a certain extent, thus promoting the formation of a more positive attitude towards safety behavior [7], while educational authorities should enhance oversight to ensure HIV education is effectively integrated into university curricula. Carry out AIDS prevention performance and propaganda competitions and AIDS prevention galas, and use administrative force and popular recreational activities of students to jointly promote the continuous development of school AIDS prevention and control work [8]. Law enforcement agencies should strengthen efforts to combat prostitution, drug use, and other illegal activities near campuses and online.

5.2. Create a Comprehensive HIV Prevention Education Model Integrating Family, School, and Society

5.2.1. Family Education as the Foundation

Early sex education at home is crucial in preventing risky behaviors like early sexual initiation. Parents should overcome taboos around discussing sex and integrate sex education into daily life. This education should include topics like proper hygiene, sexual health, safe sex practices, and awareness of HIV and sexually transmitted diseases (STDs). A proactive approach to sex education in the family can prepare students to enter university with a healthy understanding of sexuality, reducing risky behaviors.

5.2.2. School Education as the Focus

Universities must take responsibility for comprehensive HIV prevention education.

It is necessary to establish a sense of social responsibility and correct sexual morality, cultivate a civilized and healthy lifestyle, promote the healthy development of college students, and effectively put the AIDS prevention publicity and education activities for college students into practice [9]. The current awareness of HIV knowledge among students is below 50%, which is far from the national target of 90%. To bridge this gap, universities should expand the scope and frequency of HIV education. In addition to traditional media such as posters, broadcasts, and lectures, schools should leverage modern technology, including social media and online platforms, to reach more students effectively. In AIDS education, colleges and universities should focus on lower-grade and non-medical students, carry out diversified health education methods, and strengthen classroom education [10]. Medical departments at all levels should carry out differentiated health education for HIV susceptible groups according to the actual situation of MSM groups with different characteristics, strengthen the attention and intervention of this group, carry out AIDS prevention and education for them, regularly carry out HIV testing, and timely grasp the status of HIV infection [11]. Special focus should be placed on raising awareness about the importance of condoms and HIV testing. Universities should also provide free access to condoms in dormitories and health centers. Promote and implement the application of positive psychological group counseling in AIDS prevention and control, and strengthen the mental health of this group through active psychological group counseling and other ways [12].

5.2.3. Social Education as a Supplement

HIV prevention is a societal issue that requires comprehensive societal engagement. Social control of AIDS is not only the control of HIV, but also the control of fear [13]. Adhere to the dual policies of disease prevention and control and social governance, and adopt a three pronged approach of identifying and managing infectious sources, blocking transmission routes, and protecting susceptible populations. Starting from comprehensive governance, we should do a good job in group prevention and control, providing a clean and healthy environment for the growth of young people. Social institutions should focus on creating a healthy information environment by regulating and monitoring the dissemination of explicit and harmful content. On the one hand, through community work methods, that is, through structured and macro-intervention strategies, community mobilization, community education and community care for AIDS patients are carried out [14]. They should also use books, newspapers, television, and internet platforms to strengthen HIV awareness, especially targeting high-risk groups with specific guidance.

5.3. Promote Individual Responsibility for Education and Reduce High-Risk Behaviors

Ultimately, students themselves must take responsibility for preventing HIV infection. The individual is the first person responsible for their own health. College

students should be aware of risk and deeply realize that AIDS is not far away from us. As long as there is a high-risk behavior that is prone to AIDS infection, they may be infected. They should self-love themselves, maintain a healthy lifestyle, avoid unprotected sex with people whose infection status is unknown, avoid sex under drunkenness and unconsciousness, refuse drugs, and avoid abuse of psychoactive substances. Universities should encourage students to take an active role in learning about HIV prevention and make responsible personal choices. This includes avoiding risky behaviors such as unprotected sex, using drugs, or engaging with sex toys, and consistently using condoms during sexual activities. Students should also be educated on the importance of regular HIV testing and how to seek medical help if they test positive. The AIDS self-service testing package is an anonymous testing method that can not only protect personal privacy but also understand their infection status, which is of great significance to the early detection and early treatment of AIDS [15].

By implementing these recommendations, it is possible to create a comprehensive, multi-faceted approach to HIV prevention in university settings that involves government, family, school, and societal efforts.

6. Conclusion

The study investigated the HIV high risk behavior of local college students by questionnaire. After comprehensive analysis of the data, the status quo and characteristics of HIV related cognition, attitude and behavior of local college students were clearly presented, and many problems were found. It also proposed a series of effective countermeasures on a targeted basis, providing a scientific basis for local colleges to formulate anti-HIV prevention strategies, helping to promote the in-depth development of colleges' anti-HIV work, enhance college students' health literacy and anti-HIV capabilities, and create a healthy and safe campus environment for college students. At the same time, it is necessary to strengthen the interaction between colleges and universities, families and society. Families should provide correct sex education guidance, and society should offer resources for AIDS prevention. Together, they should build a comprehensive AIDS prevention network.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Yan, X.Y., Li, Y.J., Xiao, D., *et al.* (2021) Survey on the Relevant Work of Social organizations Participating in AIDS Prevention and Control in China. *AIDS Sexually Transmitted Diseases in China*, **27**, 1000-1003.
- [2] Yang, S.F., Li, J.C., Zhang, J.Q., *et al.* (2018) The Current Situation and Influencing Factors of Male Sexual Actors in Chengdu Students Looking for Sexual Partners Based on Dating Software. *AIDS Sexually Transmitted Diseases in China*, **24**, 66-69.
- [3] Zhang, X.W. (2014) Application of Positive Psychology Group Counseling in AIDS

- Prevention and Control. *Health Education and Health Promotion*, **2**, Article No. 3.
- [4] Ge, Z.J., Ruan, L.Q., Zhuang, X., *et al.* (2015) Current Situation of Health Education on Sexually Transmitted Diseases and AIDS among Chinese College Students. *Jiangsu Preventive Medicine*, **26**, 138-139.
- [5] Yang, J., Zhu, C.D., Ma, J., *et al.* (2014) Research Progress on the Mental Health of Male Contacts and Its Relationship with High-Risk Sexual Behavior. *Journal of Shanghai Jiaotong University (Medical Edition)*, **34**, Article 1410.
- [6] Stall, R., Mills, T.C., Williamson, J., Hart, T., Greenwood, G., Paul, J., *et al.* (2003) Association of Co-Occurring Psychosocial Health Problems and Increased Vulnerability to HIV/AIDS among Urban Men Who Have Sex with Men. *American Journal of Public Health*, **93**, 939-942. <https://doi.org/10.2105/ajph.93.6.939>
- [7] Liu, G.W., Lu, H.Y., Wang, J., *et al.* (2012) Evaluation of the Effect of Online Intervention in the Prevention and Treatment of AIDS in Male and Male Behavioral Groups. *AIDS Sexually Transmitted Diseases in China*, **18**, Article No. 3.
- [8] Yang, M. and Xu, X.Z. (2022) Investigation of the Current Situation of Health Literacy of College Students in Local Colleges and Universities under the Background of Major Epidemics and Research on Countermeasures. *Journal of Sichuan University of Arts and Sciences*, **32**, 91-98.
- [9] Office of the AIDS Prevention and Control Working Committee of the State Council (2007) Notice on the Issuance of the Publicity and Education Activity Plan for College Students to Prevent AIDS. *Bulletin of the Ministry of Health of the People's Republic of China*, **4**, 54-56.
- [10] Xie, J. and Xu, Z.S. (2024) Investigation on AIDS Knowledge, Attitude and Practice among College Students in a Medical College in Fujian Province. *China Higher Medical Education*, **1**, 26-27.
- [11] Ma, J.Y. (2023) Research on the Identity of Male Actors to High-Risk Sexual Behavior—Take Z City as an Example. Nanjing University of Posts and Telecommunications.
- [12] Wang, Y., Zhang, M.H. and Shi, C.R. (2009) Research on the Impact of Group Psychological Intervention on HIV-Infected/AIDS Patients. *Chinese Journal of Health Psychology*, **17**, Article 1316.
- [13] Su, C.Y. and Wu, Y. (2019) Networked Patients: Research on the Impact of the Internet on Sick Behavior. *Journal of International Communication*, **41**, Article 18.
- [14] Liu, B.Z. (2015) On the Concept and Model of Group Work Involved in AIDS Prevention and Control. *Journal of Chongqing Normal University (Philosophy and Social Science Edition)*, **4**, 7.
- [15] Lv, Y., He, X.X., Cheng, H.Y., *et al.* (2019) Awareness and Acceptability of AIDS Urine Transmission Test among College Students. *Chinese AIDS Sexually Transmitted Diseases*, **25**, 247-250.