International Journal of Environmental Sciences
ISSN: 2229-7359
Vol. 10 No. 4, 2024
https://theaspd.com/index.php

Understanding HIV Testing Behavior Among Construction Workers in Guangxi, China: The Role of Knowledge and Risk Perception

Jiang Xingming[1], Thanawat Imsomboon[2], Siriluck Jittrabiab[3], Qiu Xiaoqiang[4]
[1]Public Health Program, Suan Sunandha Rajabhat University, linda4009@163.com
[2]Public Health Program, Suan Sunandha Rajabhat University, thanawat2011@yahoo.co.th
[3]Public Health Program, Suan Sunandha Rajabhat University, siriluck.ji@ssru.ac.th
[4]Guangxi Medical University, China, xqqiu9999@163.com
corresponding author：Jiang Xingming，Suan Sunandha Rajabhat University
linda4009@163.com

Abstract
This study examined HIV/AIDS knowledge, attitudes, and testing behaviors among construction workers in Guangxi province, China, with a focus on factors influencing testing uptake. Using a cross-sectional survey design, 1,050 workers were approached through randomized sampling at selected construction sites, yielding 916 valid responses (87%). Data were collected via structured, self-administered questionnaires covering demographics, HIV/AIDS knowledge, risk perception and testing history. Descriptive statistics and multivariate logistic regression were used for analysis. Results showed moderate overall HIV/AIDS knowledge, with misconceptions persisting regarding transmission routes. While 78% of participants expressed willingness to undergo HIV testing, only 38% had ever been tested. Higher HIV knowledge scores, greater perceived risk, and lower stigma were significantly associated with previous testing ($p < 0.05$). Workplace health promotion and exposure to HIV information through community health services were also positively correlated with testing uptake. Gender differences emerged, with male workers more likely to report previous testing than female workers. Findings suggest the need for targeted, stigma-reducing HIV education tailored to construction workers, increased accessibility of on-site testing, and integration of HIV awareness into occupational health programs. The results provide evidence to guide public health interventions aimed at improving HIV testing rates in high-risk, mobile labor populations.
Keywords: *Health Education; Construction Workers; HIV Testing; Knowledge and attitudes; Guangxi, China*

1.0INTRODUCTION

Acquired Immune Deficiency Syndrome (AIDS) has emerged as a major global public health challenge, and globally the situation becoming increasingly severe (Cai et al., 2024). As one of the most populous countries, China is also facing significant challenges in addressing this crisis. The number of people living with human immunodeficiency virus (HIV) in China reached approximately 1.29 million by the end of 2023, with over 450,000 cumulative AIDS-related deaths (Zhang et al., 2024). The epidemic's primary mode of transmission has shifted from initial cases involving intravenous drug use and contaminated blood collection to a new phase where sexual transmission is the dominant factor. By 2023, heterosexual transmission accounted for roughly 72.8% of new cases, while homosexual transmission represented 25.7%. Despite major governmental efforts to control the spread, challenges persist, including pervasive social stigma and discrimination, geographic disparities in infection rates, and high rates of late diagnosis, which particularly affects older individuals and hinders effective treatment and prevention efforts (Chinese Center for Disease Control and Prevention, 2024).

As a booming country, China has a rapid economic development and a huge scale of construction. The construction industry is one of the pillar industries of the national economy. With the acceleration of the urbanization process and the development of the economy, more and more people choose to go out to work, which has made great contributions to the national economic construction (Zou et al., 2014). Meanwhile, construction workers in Guangxi province of China are among those at high risk for AIDS infection. Long-term separation from partners and changes in living environment and style may lead to unsafe sexual behavior and increase the risk of HIV infection. Therefore, understanding AIDS knowledge-attitude-practice in this population, and their willingness to undergo HIV testing, is important for preventing and controlling the spread of AIDS (Zhang et al., 2013; Chen et al., 2020).

They are the "builders" of the city, but also the "vulnerable people" of AIDS (Chen et al., 2020). Construction workers' health also caused widespread concern, the construction workers mostly from rural areas, increasingly frequent population flow between different regions, mainly young adults, in sexually active but because of their cultural level is limited, the lack of necessary AIDS knowledge, safety awareness and various reasons, in the family, alone, it is easy to occur high-risk of sexual behavior and HIV, they often become susceptible to AIDS (Zou et al., 2014; Santoso et al., 2022).

Therefore, improve their HIV detection cognition and willingness to individual means early detection, treatment of HIV infection, to society to block transmission chain, reduce the medical burden, for the country can achieve AIDS prevention and control, promote the sustainable development of public health; to realize the United Nations UNAIDS proposed the realization of “three 95%” goal is of great significance. AIDS is not only a physical disease, but also a social problem (Lichtenstein, 2004). It not only threatens the physical health of the patients, but also brings great economic and mental burden to the family and the society (Amosun, 2011).
At present, research exploring the relationship between HIV awareness and testing intention remains limited, particularly among construction workers. While some studies have examined general knowledge and willingness to test, there are clear gaps in comprehensive analysis for this high-risk group. Understanding their knowledge, attitudes, and behaviors towards Acquired Immune Deficiency Syndrome (AIDS) is critical to assessing the effectiveness of current prevention efforts and developing targeted interventions. Such insights can reveal real challenges, misconceptions, and needs, thereby improving both their willingness to undergo HIV testing and the effectiveness of public health strategies. By studying construction workers’ attitudes towards HIV testing, this research aims to develop more engaging and culturally relevant measures to encourage voluntary testing. Specifically, the study seeks to assess the current level of HIV/AIDS knowledge, beliefs, and behaviors among construction workers in Guangxi Province, China, with a particular focus on HIV testing awareness and willingness; examine the relationship between workers’ AIDS knowledge and demographic factors such as age, education, and income; and provide evidence-based recommendations for targeted education, testing promotion, and prevention strategies to reduce HIV transmission risk in this population.

2. 0 LITERATURE REVIEW

As an infectious disease with a serious threat to human health, its knowledge, belief and behaviour play an important role in the control and prevention of the epidemic. Social support has had an impact on the willingness of construction workers to undergo HIV testing. Lack of social support may lead to increased resistance to HIV testing among construction workers and reducing their willingness to initiate testing. With the popularization of AIDS prevention and control knowledge in the public, at the same time into the school education to all grades, age students’ publicity. The data of AIDS sentinel surveillance in China show that the awareness rate of AIDS prevention and control among different groups has increased over time (Chen et al., 2017).

Sheng-han et al., (2019) shows that knowledge rate of HIV among the elderly in Guangzhou was 61.76%, and the total knowledge rate of the elderly in Luzhou in the survey was 30.9%. Attitudes towards AIDS include perceptions and evaluations of the AIDS disease itself, HIV-infected and AIDS patients, assessment of risk identification of the likelihood of contracting HIV and prevention awareness of taking measures to prevent AIDS. Domestic studies have found that the majority of college students are afraid of AIDS, and some students have estranged and deliberate distancing attitudes towards HIV infected people, so the general psychological situation needs to be improved.
According to a survey by Guiying & Bao-fa, (2011) 41.4 (%) of 878 college students at a university have a "sympathetic but distant" attitude towards AIDS patients, and nearly half of them are reluctant to study, work and eat with people infected with HIV. A survey study conducted by Zhang et al., (2013), among the 506 college students in Huai'an city, 68.77% expressed fear and fear of AIDS, and only 18.77% were willing to be in the same class or at the same table with those infected with AIDS. Most students are able to identify the risk of HIV infection, but some students think they are almost impossible to get HIV infection. College students' awareness of prevention has been improved than before, especially the awareness of using condoms to prevent AIDS is increasing. In terms of risk identification, the survey by

Fang et al., (2017) shows that the risk identification rate of "eating with infected people or patients", "sharing razors", "ear piercing in irregular clinics / hospitals" and "tooth extraction / tattoo / eyebrow tattoo" was 70%-80%.

According to surveys conducted by (Sheng-han et al., 2019), without intervention, 56.20% of college students had the attitude of "it is impossible to infect AIDS". According to Zuokai et al., (2018) 95.99% of students thought they were unlikely or unlikely to be infected with AIDS. According to Kaixing et al., (2017) found that 62.46% of the elderly surveyed considered that they might be infected with AIDS. Through continuous HIV health promotion, MSM people generally pay more attention to about their physical conditions (Okojie, Ogbeide, & Nwulia, 1995).However, there are also deviations between knowledge and practice, such as less use of condom, refusal of AIDS test (Wei & yuexin, 2014).

In conclusion, public AIDS knowledge, perception of HIV testing and willingness to test are influenced by various factors including gender, age, household registration, family source, education level, marital status, income status, and occupational work. Therefore, the independent variables in this study were sociodemographic characteristics, including gender, age, ethnicity, household registration, family source, education level, marital status, income status, occupational work, etc., considering construction workers' cognition of AIDS, cognition of HIV testing and HIV testing willingness as dependent variables.

Since there is no effective vaccine prevention and antiviral cure for AIDS, pre-infection prevention is the main way to control the spread of AIDS, one of the successful experiences of controlling the AIDS epidemic is AIDS education for the public and behavioural intervention (Yi, 2003). Knowledge, attitude, behavior (knowledge-attitude-practice, KAP, Chinese or letter) theory model is a widely used a knowledge behavior theory, in the 1980s KAP model theory was introduced into the (Carol-Ann Emmons et al., 1986) in AIDS prevention and control, then KAP in the global AIDS prevention and control especially increase condom use and reduce high-risk behavior is widely used. KAP theory model that people's knowledge of related health knowledge, beliefs and attitudes to disease or behavior change, to the final behavior change is a continuous process, by improving knowledge of related diseases and behavior, can change people's beliefs and attitudes towards health behavior, and eventually guide people's behavior change.

A survey of Chinese and American college students found that the self-protection awareness of Chinese college students in the process of sexual behavior is significantly lower than that of American college students. For example, the proportion of Chinese college students first having sex using condoms 39.40% is far lower than that of American college students 75.8 (Liu et al., 2022). Domestic research shows that Chinese college students have diversified sexual behaviors and objects, but the condom use rate is low.

Past studies have shown that some people in China have a low willingness to test for AIDS. This includes some high-risk groups, such as MSM, sex workers, etc. Some studies have found that these populations often have low levels of AIDS awareness, insufficient awareness of HIV risk, and ignorance of the accessibility and convenience of testing services. However, HIV testing willingness may improve in some specific populations. For example, some better-known activities, policies or initiatives can encourage people to focus more about their AIDS testing. In addition, some social support and educational activities can also increase the willingness to test for HIV. HIV testing willingness was also low among construction workers. This study found that only a few construction workers in a western Chinese province were willing to be tested for AIDS. This may be related to factors such as their knowledge of AIDS, sexual safety, perceived risk of infection and social support.

Therefore, to address the HIV testing willingness of construction workers, it is necessary to publicize and educate AIDS knowledge at construction sites, strengthen HIV testing services for workers, and provide necessary social support. By improving workers 'awareness of AIDS and strengthening the safety of sexual behavior, workers' willingness to accept AIDS testing can be improved, so as to find HIV positive patients in time, intervention and treatment, and effectively control the spread of AIDS. To sum up, there are some problems in the current situation of the HIV testing willingness in China. According to the characteristics and needs of different groups of people, it is necessary to carry out more accurate publicity, education and service work, improve people's awareness and awareness of AIDS, promote the improvement of AIDS willingness to test, so as to reduce the risk of transmission of the virus, and protect people's life and health and social stability.

Under the implementation of various AIDS prevention and control strategies and measures, China's

AIDS prevention and control work has achieved remarkable results, and better achieved the prevention and control goals. AIDS knowledge level as an important factor affecting the AIDS epidemic, but at present our country AIDS knowledge awareness remains to improve, discrimination against AIDS is more common, condom utilization rate is low, high-risk sexual behavior also has a rising trend, and insufficient awareness of its harm, cognition of HIV detection, detection will be low, so for the public AIDS health education work needs to be further strengthened. Figure 1 shows the conceptual model.

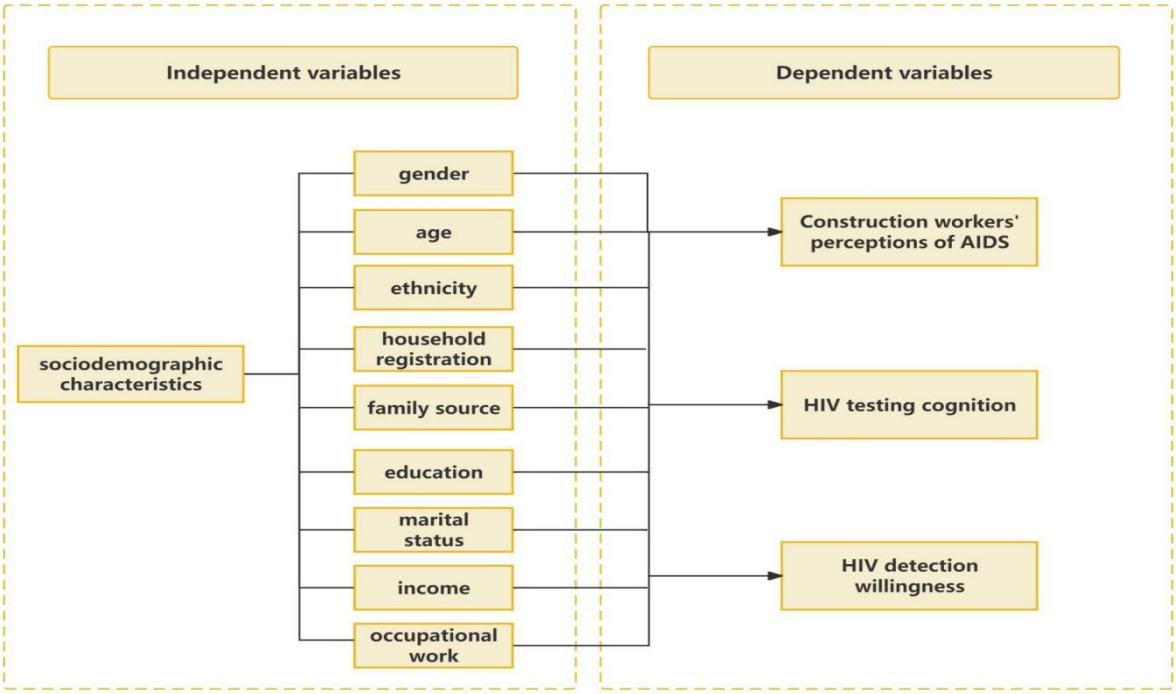

Figure 1: Conceptual Model

3.0 METHODOLOGY

3.1 Research Design

This cross-sectional study was conducted to assess HIV/AIDS knowledge, beliefs, behaviors, and HIV testing awareness and willingness among construction workers in a selected province within Guangxi, China. A structured questionnaire collected data on:

- Sociodemographic characteristics
- HIV/AIDS knowledge and beliefs
- Sexual behaviors
- HIV testing awareness, attitudes, and willingness

Multifactor statistical analysis, including regression and stepwise regression, was used to identify factors influencing HIV testing willingness.

3.2 Study Area and Population

The study targeted front-line construction workers at large construction sites in Guangxi province, a group considered at high risk for HIV infection.

Sample Selection and Size

A total of 1050 workers were recruited using random sampling from multiple large construction sites. The sample size was determined based on time, manpower, and funding constraints while maintaining representativeness. Sample collection criteria are age ≥18 years and has history sexual activity lastly willing to voluntary participation.

3.4 Data Collection

Participants were informed about the study's purpose, significance, and confidentiality measures, and consent was obtained. Trained investigators, following standardized guidelines, administered the survey in paper form or via an online QR code. Completed questionnaires were collected on-site or submitted online. This study targeted construction workers at large construction sites in Guangxi province, China, to assess their HIV/AIDS knowledge, beliefs, behaviors, and willingness to undergo HIV testing. Data

collection was conducted over 2–3 months.

Participants were informed of the study's purpose, significance, and confidentiality measures before providing consent. Surveys were administered either in paper form or via an online QR code, and completed questionnaires were collected on-site or submitted electronically.

3.5 Ethical Considerations

All data were collected anonymously to protect privacy. The study adhered to principles of informed consent, confidentiality, and voluntary participation.

Data Analysis

Survey responses were analyzed to describe and evaluate HIV/AIDS-related knowledge, attitudes, behaviors, and testing willingness. Statistical methods included chi-square tests, trend tests, univariate analysis, and logistic regression, with significance set at $\alpha = 0.05$. Descriptive analysis determined the overall status of HIV knowledge, beliefs, and behaviors, as well as HIV testing cognition and willingness. Multifactor analysis examined variables influencing HIV testing willingness, including HIV knowledge, sexual safety, perceived infection risk, and social support. Logistic regression identified the degree of influence of each factor. Analyses were stratified by demographic characteristics (e.g., age, marital status, education) to compare differences in testing willingness across subgroups. This approach enabled a comprehensive understanding of HIV-related factors among construction workers and informed targeted strategies for health education and testing services.

4.0 RESULTS AND DISCUSSION

4.1 Demographic Analysis

In Guangxi province, China, a total of 1,050 construction workers were surveyed using a randomized sampling approach. After data cleaning, 916 valid questionnaires were obtained, yielding a usable response rate of 87.23%. Table 1 shows the demographic analysis indicating that the average participant age was 29 ± 11.40 years, with the largest proportion aged 21–30 years (34.39%). More than half were female (58.19%), and most originated from rural areas (63.97%). Over half (55.13%) had a college-level education or above, and the highest proportion reported a monthly income below 2,000 RMB (37.88%). Most participants were unmarried (60.15%). Almost Of all participants, 40.61% reported a history of sexual intercourse, but 80.24% reported no sexual activity in the last six months. Among those sexually active in the past six months, 17.03% engaged in sex with a spouse or regular partner, with condom use rates of 32.05% every time, 27.56% often, 36.54% occasionally, and 3.85% never. Homosexual behavior was reported by 1.20% of respondents, most of whom (81.82%) reported consistent condom use. Only 9.61% (n = 88) of participants had ever been tested for HIV. Among those tested, 12.50% reported a positive result, 82.95% tested negative, and 4.55% were unaware of their result.

The most common testing sites were self-testing (20.45%), hospitals (15.91%), social organizations (15.91%), and CDC facilities (14.77%), with 32.95% tested at other locations.

Table 1 Demographic information (N=916)

Item	Frequency	Percentage (%)
General demographic information		
Sex		
Male	383	41.81
Female	533	58.19
Age		
≤20	279	30.46
21-30	315	34.39
31-40	148	16.16
＞40	174	19.00
Family origin		
Rural	586	63.97
County	194	21.18
Cities	136	14.85
Marital status		

Item	Frequency	Percentage (%)
Unmarried	551	60.15
Married	342	37.34
Widowed, divorced	23	2.51
Educational level		
Elementary school and below	55	6.00
Junior high school	146	15.94
High School	210	22.93
College and above	505	55.13
Average monthly income		
<2000 RMB	347	37.88
2000-3999 Yuan	239	26.09
4000-5999	220	24.02
>6000	110	12.01
Sexual behavior information		
Whether they have had sexual intercourse (referring to vaginal intercourse, anal intercourse, oral intercourse)		
Yes	372	40.61
No	544	59.39
Frequency of sexual intercourse in the last six months		
0 times	735	80.24
At least 1 time per week	42	4.59
At least once a month	76	8.30
At least 1 time every 3 months	41	4.48
At least once every six months	22	2.40
In the last six months, have you had sex with your spouse/regular sexual partner?		
Yes	156	17.03
No	760	82.97
Condom use during sex with spouse/regular partner [N=156]		
Never	6	3.85
Occasionally used	57	36.54
Often	43	27.56
Every time	50	32.05
In the last six months, have you had homosexual sex		
Yes	11	1.20
No	905	98.80
Condom use when having sex with someone of the same sex (n=11)		
Never	1	9.09
Used often	1	9.09
Every time	9	81.82
Behavioral characteristics of HIV testing		
Ever had an HIV test		
Yes	88	9.61
No	828	90.39
Result of last HIV test [N=88]		
Unknown	4	4.55
Negative	73	82.95
Positive	11	12.50

Item	Frequency	Percentage (%)
Place of last HIV test [N=88]		
Center for Disease Control and Prevention	13	14.77
Hospital	14	15.91
Social organizations	14	15.91
Self-testing	18	20.45
Other	29	32.95

4.2 Construction Workers' Hiv Testing Behavior Model Construction

Based on the literature review and Triadic Reciprocal Determinism (TRD), it was hypothesized that the relevant factors influencing HIV regular testing behavior include: willingness to test for HIV, knowledge of HIV testing, perceived risk of HIV, and expected stigma. The descriptive results of the factor scores are shown in Table 2.

Table 2 Scores on factors that associated with regular HIV testing behavior(N=916)

Variable Factor	$\bar{x}$±SD	Score Range
knowledge of HIV testing	4.23±1.59	0-6
willingness to test for HIV	1.44±0.85	0-2
perceived risk of HIV	3.09±1.14	0-6
expected stigma	2.49±1.27	0-4

4.3 Construction Workers' HIV Testing Behavior Model Hypotheses Proposed

Based on the core idea of the interaction between the individual, behavior and environment emphasized by the ternary interaction determinism, this study integrated the four key influences identified in the previous period: willingness to test for HIV, knowledge of HIV testing, HIV risk perception and expected stigma, summarized the role paths between the four possible factors related to testing behaviors and HIV regularity testing behaviors, and constructed a construction workers' HIV testing behaviors of the integrated theoretical model.

4.4 Model Construction Results and Path Analysis of The Model

HIV testing willingness is the exogenous latent variable, and the explicit variable that responds to the latent variable is the score level of entries 1-2 of the HIV testing willingness scale;

The remaining factors were exogenous explicit variables. The variables were then brought into the hypothesized model for fitting using structural equation modeling. The overall fit indices of the model after SEM test are shown in Table 4, and the standardized factor loadings of the path coefficients of the factors in the hypothetical model are presented in Table 3 and Table 4.

Table 3 Model Fit Indexes

Fit Indexes	$\chi 2/df$	RMSEA	CFI	GFI	TLI
Model Fit Indexes	5.717	0.072	0.902	0.955	0.869
Model Fit Standard	＜8.00	＜0.08	＞0.90	＞0.80	＞0.90

Table 4 Path coefficients of each factor

Fit Indexes	Estimate
expected stigma << knowledge of HIV testing	0.317
willingness to test for HIV<< expected stigma	0.653
willingness to test for HIV << perceived risk of HIV	0.430
willingness to test for HIV << knowledge of HIV testing	0.293
X8 << willingness to test for HIV	0.097
X7 << willingness to test for HIV	0.903
X6 << willingness to test for HIV	0.898
X1 << knowledge of HIV testing	0.258
X2 << knowledge of HIV testing	0.657

X3 << knowledge of HIV testing	0.664
X4 << expected stigma	0.480
X5 << expected stigma	0.503
X11 << perceived risk of HIV	0.203
X10 << perceived risk of HIV	0.026
X9 << perceived risk of HIV	-0.063

The structural equation model (SEM) demonstrated a good fit to the data, as indicated by the following fit indices: $\chi^2/df = 5.717$, RMSEA = 0.072 (90% CI. 0.063-0.081), CFI = 0.902, GFI = 0.955, and TLI = 0.869. These indices collectively suggest that the proposed model fits the data well and is suitable for further analysis of the hypotheses. suitable for further analysis of the hypothesized relationships.

The reliability of the measurement scales was assessed using Cronbach's alpha. The overall reliability for all variables was 0.642, based on 11 items. This indicates moderate internal consistency, suggesting that the scales are reasonably reliable for measuring the constructs of interest.The Kaiser the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.723, indicating that the data were suitable for factor analysis. Bartlett's test of sphericity was significant (χ^2 = 20%). was significant ($\chi^2 = 2022.281$, df = 55, $p < 0.001$), confirming that the correlation matrix was appropriate for factor analysis.

5. CONCLUSION AND RECOMMENDATIONS

This study investigated demographic characteristics, sexual behaviors, and HIV testing practices among construction workers in Guangxi province, China, and explored factors influencing regular HIV testing behavior using a structural equation model (SEM) based on Triadic Reciprocal Determinism (TRD). The findings revealed that only 9.61% of participants had ever undergone HIV testing, and among them, 12.5% tested positive. HIV testing willingness was significantly influenced by knowledge of HIV testing, perceived risk of HIV, and expected stigma. Knowledge of HIV testing also had an indirect effect on testing willingness through its influence on stigma. The SEM demonstrated a good overall fit, supporting the hypothesized relationships. Despite relatively high educational attainment in this sample, HIV testing uptake remained low, suggesting the presence of behavioral and social barriers beyond knowledge alone. To improve HIV testing uptake among construction workers, targeted health education programs should be developed to provide practical testing information, increase risk perception, and reduce stigma. Accessible testing options, including self-testing kits and mobile services at construction sites, can help overcome time and logistical barriers, while workplace policies should integrate HIV prevention and testing awareness into occupational health and safety programs. Community engagement with local CDC offices, hospitals, and social organizations is essential to normalize testing and combat stigma in both rural and urban settings. Additionally, stigma reduction campaigns using peer educators and real-life testimonials can address misconceptions and fears, fostering a more supportive environment for regular HIV testing.

6.0 Limitations and Future Studies

This study has several limitations. It was limited to construction workers in Guangxi province, which may restrict the generalizability of findings to other occupations or regions. Reliance on self-reported questionnaires may have led to recall or social desirability bias, especially for sensitive topics like sexual behavior and HIV testing history. The cross-sectional design limits the ability to establish causality, and the focus on a single province restricts the generalizability of findings to other regions. Additionally, the gender imbalance, with more female participants (58.19%), may not accurately reflect the typical gender distribution in the construction industry. Future research should consider longitudinal designs to track changes in HIV testing behavior over time and assess intervention effectiveness. Qualitative methods such as interviews or focus groups could provide deeper insights into stigma, cultural barriers, and personal motivations. Comparative studies across regions, intervention trials at construction sites, and gender-specific analyses would further refine strategies to promote HIV testing in this workforce.

REFERENCES

1. Amosun, D. M. (2011). Perception of risk of HIV/AIDS among widows using the Ndlovu Medical Centre, Elandsdoorn, Limpopo Province (Doctoral dissertation, Stellenbosch: University of Stellenbosch).

2. Cai, C., Tang, H., Li, D., Qin, Q., Chen, F., Jin, Y., et al. (2024). Evolution of HIV Epidemic and Emerging Challenges—China, 1989–2023. China CDC Weekly, 6(50), 1251–1256.
3. Carol-Ann Emmons, P., Jill G. Joseph, P., Ronald C. Kessler, P., Camille B. Wortman, P., Susanne B. Montgomery, M., & David G. Ostrow, M. (1986). Psychosocial predictors of reported behavior change in homosexual men at risk for AIDS. Health Education Quarterly, 13, 331-345.
4. Chen Lin, M. Q., Jiang Jianmin. (2017). Research progress on HIV-related risk behaviors among college students in China. Chin J AIDS STD, 23, 363-365.
5. Chen, D., Luo, G., Meng, X., Wang, Z., Cao, B., Yuan, T., ... & Zou, H. (2020). Efficacy of HIV interventions among factory workers in low-and middle-income countries: a systematic review. BMC Public Health, 20(1), 1310.
6. Chinese Center for Disease Control and Prevention (China CDC). (2024). China HIV/AIDS Epidemic Report 2023.
7. Fang, L., Yaying, S., Zhenhua, D., Shuangfeng, F., Rong, L., Xueqing, W., . . . Qinying, H. (2017). HIV /AIDS risk Identification and risk response Ability of College Students in Chengdu. J Prev Med Inf, 33.
8. Guiying, D., & Bao-fa, J. (2011). AIDS /HIV-related high risk sexual behavior and the infection of HIV among students of men who have sex with men(MSM). Chin J Sch Health, 32, 1312-1313.
9. Kaixing, Z., hongli, H., meizhen, X., ye, S., tianshi, W., & tinghuan, H. (2017). survey on the knowledge, attitude and behavior of HIV/AIDS among the elderly people, Guangzhou city, 2016. Prev Med Trib, 23, 431-434.
10. Lichtenstein, B. (2004). AIDS as a Social Problem. Handbook of social problems: A comparative international perspective, 316.
11. Liu, H., Zhu, Q., Pan, X., Zhang, L., Chen, X., Xu, H., . . . Han, M. (2022). HIV-Related Knowledge, Attitude, and Practices Research Among College Students — Six Chinese Cities, 2021. China CDC Weekly, 4, 1043-1050.
12. Okojie, O. H., Ogbeide, O., & Nwulia, A. (1995). Knowledge, attitude and practice towards AIDS among civil servants in Nigeria. J R Soc Health, 115(1), 19-22. doi:10.1177/146642409511500107.
13. Santoso, D., Asfia, S. K., Mello, M. B., Baggaley, R. C., Johnson, C. C., Chow, E. P., ... & Ong, J. J. (2022). HIV prevalence ratio of international migrants compared to their native-born counterparts: a systematic review and meta-analysis. EClinicalMedicine, 53.
14. Sheng-han, P., Jian, L., Chun-lin, T., Min, Z., Yu, X., Hao-yue, M., . . . Yan-feng, Z. (2019). Investigation on AIDS risk awareness and coping ability of students and evaluation on intervention effect in a medical college of Chengdu City. Occup and Health, 35. doi: 10.13329/j.cnki.zyyjk.2019.0066.
15. Wei, D., & yuexin, Z. (2014). survey on knowledge, attitude and practice about HIV/syphilis among MSM, Qingzhou city, 2013. P rev Med Tri, 20, 112-114. doi:10.16406/j.pmt.issn.1672-9153.2014.02.019.
16. Yi, Z. (2003). Health Education and Intervention Are Major Strategies for AIDS Control. Chinese Journal of Health Education, 19, 846-848.
17. Zhang, J., Zhang, Z., & Ye, M. (2024). Chinese guidelines for the diagnosis and treatment of human immunodeficiency virus infection/acquired immunodeficiency syndrome (2024 edition). Annals of Translational Medicine, 12(2), 108.
18. Zhang, L., Chow, E. P., Jahn, H. J., Kraemer, A., & Wilson, D. P. (2013). High HIV prevalence and risk of infection among rural-to-urban migrants in various migration stages in China: a systematic review and meta-analysis. Sexually transmitted diseases, 40(2), 136-147.
19. Zou, X., Chow, E. P., Zhao, P., Xu, Y., Ling, L., & Zhang, L. (2014). Rural-to-urban migrants are at high risk of sexually transmitted and viral hepatitis infections in China: a systematic review and meta-analysis. BMC infectious diseases, 14(1), 490.
20. Zuokai, y., yirong, f., qiaoling, l., & xingren, s. (2018). Investigation of AIDS-related knowledge and behavior among college students. Prev Med, 30, 916-966.