

成都市主城区务工人员 AIDS/STDs 知信行调查及作用机制研究

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摘要 **目的** 分析成都市主城区务工人员艾滋病/性传播疾病(AIDS/STDs)知识-态度-行为(KAP)现状、影响因素及作用机制,为该类人群制定有效的防控方针提供依据。**方法** 采用方便抽样和系统抽样结合的方法收集研究对象的人口学特征、AIDS/STDs 认知、态度和性行为信息,采用 EpiData 3.1 和 SPSS 26.0 软件对数据进行整理和统计分析,并用 AMOS 24.0 构建 KAP 路径分析模型。**结果** 有效问卷 257 份,AIDS 知晓率为 55.6%,平均得分(5.59 ± 1.61)分。STDs 知晓率为 37.4%,平均得分(9.05 ± 3.00)分。有 58 人(22.6%)和 44 人(17.1%)对 AIDS 和 STDs 持歧视态度。高危性行为的发生率为 3.50%。男性($OR = 0.500, 95\% CI: 0.279 \sim 0.897$)是 AIDS 知晓的阻碍因素。无子女是 AIDS($OR = 2.748, 95\% CI: 1.385 \sim 5.451$)和 STDs($OR = 2.287, 95\% CI: 1.084 \sim 4.825$)歧视态度的促进因素。年龄越大($OR = 0.854, 95\% CI: 0.785 \sim 0.929$),高危性行为发生的可能性越低。发生高危性行为分别受到 AIDS 态度及其知识的直接和间接影响,AIDS 和 STDs 分别的知识对其态度($r = 0.15, 0.24$, 均 $P < 0.05$)、AIDS 态度对 STDs 态度($r = 0.57, P < 0.05$)均为正相关。即得分越高,越不会产生歧视态度,故提升知识知晓率可减少 AIDS/STDs 歧视和高危性行为发生。**结论** 成都市主城区务工人员 AIDS/STDs 知晓情况不容乐观,应加大对重点地区和人群的创新型干预力度。

关键词 艾滋病;性传播疾病;成都市;务工人员;知信行;路径分析

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艾滋病(acquired immune deficiency syndrome, AIDS)是由人类免疫缺陷病毒(human immunodeficiency virus, HIV)感染引起的疾病^[1]。性传播疾病(sexually transmitted diseases, STDs)是主要通过性接触传播的一类疾病,是 AIDS 感染的重要促进因素。近年来 STDs 感染者数量在国内不断上升,成为严重的公共卫生问题^[2]。研究^[3-4]发现,流动人口受文化和社会环境影响,在传染病认知和自我保护上存在问题,易成该病的易感群体。四川省是全国已发现且存活的 AIDS 病人和 HIV 感染者数量最多的省份^[5]。2020 年全国流动人口规模达 3.76 亿,成都市为 845.96 万人^[6]。因该市经济增长和城市化建设迅速,吸引了众多外地务工人员,故人口流

动性大。过去众多学者独立研究了流动人口 AIDS 或 STDs 的知信行状况,但针对成都市主城区务工人员人群的知信行作用机制研究较少,AIDS 与多种 STDs 的综合研究也不足。考虑到 STDs 是 AIDS 传播的关键因素,深入分析两者的知信行模式的相互作用对预防工作具有实际意义。

1 材料与方法

1.1 调查对象 于 2023 年 10 月期间,选择成都市三大劳务市场的外来务工人员为调查对象,在其知情同意的前提下填写问卷。纳入标准:① 年龄 ≥ 18 周岁;② 非成都市本地户籍;③ 在成都市居住/工作时间 ≥ 3 个月。

1.2 方法 在方便抽样的基础上,结合系统抽样方法。下班时间段中,在调查对象工作场所的出口观察并记录,每隔 5 人就抽取 1 位务工人员作为样本,提高样本代表性和减少抽样误差。经过文献^[4,7] 查阅和专家咨询自行设计问卷,并通过预调研修订成具有可行性的调查表。问卷内容涉及 4 个方面:一般人口学特征、AIDS/STDs 相关知识、态度(对感染、安全套使用、血液检测、求医的态度)、性行为情

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况(初次性行为年龄和对象、安全套使用频率、近3个月是否发生高危性行为、是否能做出安全套使用的决定等)。AIDS部分采用《中国艾滋病防治督导与评估框架》中的“国八条”。STDs知识参考2012年原卫生部颁布的《性病防治管理办法》^[8]和同类研究问卷,包括梅毒、淋病、生殖道沙眼衣原体感染、尖锐湿疣和生殖器疱疹等7种常见STDs、传播途径和预防等15个问题。被调查者回答正确计1分,错误和不知道计0分。AIDS问题能正确回答其中6项及以上者为知晓。将正确回答STDs相关问题70%及以上(回答正确数 ≥ 11)者定义为知晓。

1.3 样本量估计 根据公式 $N = Z_{\alpha/2}^2 \times P(1-P)/d^2$ 计算样本含量。以之前同类型研究^[3](相似的研究目的、地区、样本特征等)提供的数据为依据, $P = 62.9\%$; 设允许相对误差为10%, 容许误差 $d = 0.1P$; $\alpha = 0.05$, $Z_{\alpha/2} = 1.96$, 预期样本量为227人。考虑无应答情况, 增加10%, 则至少应纳入研究对象252人。

1.4 质量控制 调查人员均经过专业调研培训。当场发放问卷, 被调查者匿名填写后立即收回, 由督导员复核。共发放266份调查表, 回收266份, 剔除无效和逻辑错误的问卷后回收有效问卷257份, 有效率为96.62%。

1.5 统计学处理 采用EpiData 3.1和SPSS 26.0软件对问卷进行数据双录入和统计分析。符合正态分布的计量资料用均数 $\pm$ 标准差进行统计描述, 计数资料采用率和比值比等指标描述。用 χ^2 检验进行计数资料的组间比较, 多因素Logistic回归模型分析其影响因素。运用AMOS 24.0软件构建路径分析模型, 以 $\chi^2/df \leq 2$, $GFI \geq 0.9$, $AGFI \geq 0.8$, $CFI \geq 0.9$, $NFI \geq 0.9$, $RMSEA \leq 0.05$ 为模型拟合标准^[9]。检验水准 $\alpha = 0.05$ (双侧)。

2 结果

2.1 一般情况 共调查257人, 男性144(56%)人, 女性113(44%)人, 男女性别比为1.27。平均年龄(52.6 ± 9.31)岁。该群体的医疗保险参加率为85.2%, 其中新型农村合作医疗保险占71.6%。见表1。

2.2 AIDS/STDs相关知识知晓情况 AIDS知识平均得分(5.59 ± 1.61)分, 总体知晓率为55.6%。仅有27人(10.5%)能全部正确回答“国八条”问题。AIDS三大传播途径均知晓者占51.36%。见

表1。STDs知识平均得分(9.05 ± 3.00)分, 知晓率为37.4%。7种常见STDs中, 梅毒(88.7%)和淋病(76.7%)的知晓率最高, 非淋菌性尿道炎知晓最低(17.1%)。STDs三大传播途径均知晓者占57.20%。见表2。

2.3 AIDS/STDs相关信念态度和求医行为 有22.6%的调查对象表示对AIDS患者“偏见歧视”。若感染HIV, 绝大多数选择正规医院就诊(89.1%)。77.4%的人认为应隔离AIDS患者。17.1%的务工人员对STDs患者持“偏见歧视”态度。若患上STDs, 85.2%的人选择正规医院就医, 其次为私人诊所或自行购药。68.1%的调查对象认为应隔离STDs患者。所有人都愿意在可能感染AIDS/STDs时主动进行血液检测。

2.4 性行为特征和相关信息来源 所有调查对象均有过性行为史, 首次性行为对象是婚配对象的占75.9%。若不确定性伴是否安全, 90.3%的人拒绝性行为。有9人承认近3个月内发生过高危性行为。AIDS/STDs知识主要通过电视/网络/广播(82.1%)获取, 其次是工友间聚众谈论(63.8%)。

2.5 AIDS/STDs知晓率、态度和性行为影响因素分析 运用多因素Logistic回归模型分析可能影响务工人员AIDS/STDs知信行的因素。多分类变量以哑变量的形式引入模型。采用LR向前逐步法筛选。结果显示, 男性($OR = 0.500, 95\% CI: 0.279 \sim 0.897$)是AIDS知晓的阻碍因素。有子女($OR = 3.245, 95\% CI: 1.206 \sim 8.727$)、参加医疗保险($OR = 2.398, 95\% CI: 1.020 \sim 5.639$)、全职($OR = 2.826, 95\% CI: 1.379 \sim 5.792$)和30~39年龄组($OR = 5.580, 95\% CI: 1.569 \sim 19.848$)的务工人员分别比无子女、未参加医疗保险、零工和50~59岁的AIDS知晓率高。全职($OR = 3.249, 95\% CI: 1.655 \sim 6.376$)、高中及以上学历($OR = 4.980, 95\% CI: 2.330 \sim 10.643$)及初中学历($OR = 3.147, 95\% CI: 1.573 \sim 6.299$)的务工人员的STDs知识掌握情况均比零工、小学文化水平的好。无子女是AIDS($OR = 2.748, 95\% CI: 1.385 \sim 5.451$)和STDs($OR = 2.287, 95\% CI: 1.084 \sim 4.825$)歧视的促进因素。年龄越大($OR = 0.854, 95\% CI: 0.785 \sim 0.929$), 高危性行为发生的可能性越低。见表3。

高危性行为: 指近1年发生过临时性行为、商业性行为、男男性行为中任意1种或几种性行为, 且偶尔使用或从不使用安全套^[10]。

表 1 成都市主城区务工人员 AIDS/STDs 知晓率
Tab. 1 AIDS/STDs awareness rate among migrant workers in the main urban areas of Chengdu

Characteristics	Number of Respondents(%)	AIDS		STDs	
		Number of Awareness(%)	$\chi^2(P)$	Number of Awareness(%)	$\chi^2(P)$
Gender					
Male	144(56.0)	84(58.3)	0.961(0.327)	61(42.4)	3.509(0.061)
Female	113(44.0)	59(52.2)		35(31.0)	
Age					
30 ~	30(11.7)	23(76.7)	11.636(0.009)	23(76.7)	33.276(<0.001)
40 ~	54(21.0)	22(40.7)		27(50.0)	
50 ~	114(44.4)	61(53.5)		27(23.7)	
60 ~	59(23.0)	37(62.7)		19(32.2)	
Household Registration					
Rural	228(88.7)	115(50.4)	22.165(<0.001)	80(35.1)	4.435(0.035)
Urban	29(11.3)	28(96.6)		16(55.2)	
Education Level					
Illiterate	24(9.3)	8(33.3)	69.852(<0.001)	7(29.2)	31.049(<0.001)
Primary School	100(38.9)	29(29.0)		19(19.0)	
Junior High School	77(30.0)	55(71.4)		36(46.8)	
Senior High School and above	56(21.8)	51(91.1)		34(60.7)	
Marital Status					
Unmarried	29(11.3)	11(37.9)	6.453(0.040)	19(65.5)	14.067(<0.001)
Married/Cohabiting	199(77.4)	119(59.8)		63(31.7)	
Divorced/Widowed	29(11.3)	13(44.8)		14(48.3)	
Occupations					
Construction Workers	129(50.2)	63(48.8)	21.053(<0.001)	43(33.3)	19.713(<0.001)
Domestic Workers	63(24.5)	41(65.1)		21(33.3)	
Self-Employed Entrepreneurs	32(12.5)	27(84.4)		22(68.8)	
Factory Workers	17(6.6)	5(29.4)		8(47.1)	
Sanitation Workers	16(6.2)	7(43.8)		2(12.5)	
Current Housing					
Renting	147(57.2)	75(51.0)	33.617(<0.001)	49(33.3)	7.728(0.021)
Construction Site Dormitory	65(25.3)	26(40.0)		22(33.8)	
Owned Home	45(17.5)	42(93.3)		25(55.6)	
Participation in Health Insurance					
Yes	219(85.2)	129(58.9)	6.386(0.012)	84(38.4)	0.636(0.425)
No	38(14.8)	14(36.8)		12(31.6)	
Employment Status in the Past Year					
Part-time	197(76.7)	98(49.7)	11.884(<0.001)	60(30.5)	17.154(<0.001)
Full-time	60(23.3)	45(75.0)		36(60.0)	
Child					
Yes	211(82.1)	122(57.8)	2.265(0.132)	65(30.8)	21.602(<0.001)
No	46(17.9)	21(45.7)		31(67.4)	

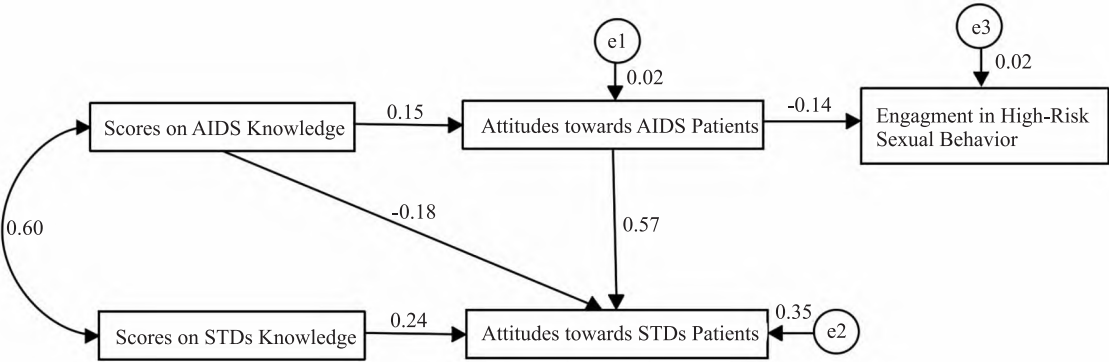


图 1 AIDS/STDs 知信行路径分析模型
Fig. 1 AIDS/STDs KAP path analysis model

表 2 成都市主城区务工人员 AIDS/STDs 知识知晓情况
Tab.2 Awareness of AIDS/STDs among migrant workers
in the main urban areas of Chengdu

Questions	Number of Awareness(%)
Can a person infected with HIV be identified by their appearance?	209(81.3)
Can mosquito bites transmit AIDS?	95(37.0)
Can eating with a person infected with HIV or AIDS lead to infection?	145(56.4)
Can receiving a blood transfusion with HIV-positive blood cause AIDS?	213(82.9)
Is it possible to get AIDS by sharing needles with a person infected with HIV?	210(81.7)
Is it possible for children born to women infected with HIV to have AIDS?	203(79.0)
Can the correct use of condoms reduce the transmission of AIDS?	173(67.3)
Can having sex with only one partner reduce the transmission of AIDS?	189(73.5)
Can the correct use of condoms reduce the risk of transmitting STDs?	207(80.5)
Can receiving a blood transfusion from an STDs patient infect you with STDs?	222(86.4)
Can children born to women with STDs also be infected with STDs?	207(80.5)
Can shaking hands and hugging transmit STDs?	183(71.2)
Can eating with a person with STDs transmit STDs?	158(61.5)
Can reducing the number of sexual partners reduce the risk of STDs?	207(80.5)
Can douching prevent STDs?	84(32.7)
Can STDs lead to infertility?	166(64.6)

2.6 AIDS/STDs 知识 - 态度 - 行为的作用路径

根据相关专业知识和先前研究文献构建 AIDS/STDs 知识 - 态度 - 行为路径分析模型,见图 1。各变量及赋值见表 4。外生变量:AIDS/STDs 知识得分,内生变量:AIDS/STDs 态度、高危性行为。采用极大似然法(maximum likelihood)进行参数估计,对假设模型进行拟合,经过多次修正,最终模型中各项拟合指标良好。 $\chi^2/df = 0.885$, $GFI = 0.995$, $AGFI = 0.980$, $CFI = 1.000$, $NFI = 0.985$, $RMSEA < 0.001$, 所有路径的 P 值均 < 0.05 。AIDS 与 STDs 知识得分显著正相关($r = 0.60$, $P < 0.001$)。发生高危性行为不仅受到 AIDS 态度的直接影响,还受到 AIDS 知识通过态度的间接抑制作用。AIDS/STDs 知识对其态度、AIDS 态度对 STDs 态度均为正相关。即得分越高,越不会产生歧视态度。提示可以加大科普宣传力度,提高对疾病本身的认知来达到反歧视和减少高危性行为发生的目的。两条间接影响路径经 5000 次 Bootstrap 抽样后得到的 95% CI 均不包含

0,提示两个中介效应差异均有统计学意义。见表 5。

3 讨论

结合方便抽样和系统抽样方法,并考虑了年龄、工种、地域等多样化特征,具有可行性和实用性。劳务市场一是该市大型外来务工人员就业咨询场所,人员波动大;劳务市场二是最大的日结临时工聚集地之一;劳务市场三聚集了众多女性保姆、护工等,可平衡调研对象男女比例。但也存在不足:第一,基于知情同意原则,调查结果不能完全客观反映该群体的真实状况。第二,回答某些敏感题目时可能会隐瞒真实情况,导致报告偏倚。第三,问卷 STDs 部分为自行设计,可能无法准确判断其 STDs 知识掌握程度,影响测量结果的敏感性。结果显示,成都市主城区务工人员 AIDS 知晓率为 55.6%,高于省外甘肃省定西市^[4],低于北京市昌平区^[11]的情况,与西部地区重庆市^[12]相似。相较于 2007 年鲁斌等^[3]人的研究结果有下降趋势。可能原因为问卷设计、抽样和分析方法的差异,以及针对该类群体的 AIDS/STDs 宣传教育资源可能不足。调查显示 96.5% 的务工人员近 1 年未接受相关教育服务。STDs 知晓率为 37.4%。这与《中国遏制与防治艾滋病“十三五”行动计划》提出的要求相距甚远。

与文献^[12-13]结果一致,调查对象对 AIDS/STDs 通过血液传播的掌握度优于非传播途径,如蚊虫叮咬和共餐。然而,大多数调查对象并不了解该病的具体传播方式,但知道血液携带病原体,故认为蚊虫叮咬是其传播途径。因此,缺乏了解可能导致对疾病的误解、恐惧及对患者的歧视。AIDS 告知率(35.4%)高于 STDs 的(33.9%),被调查者表示前者是“绝症”,不应隐瞒,STDs 可被治愈,故不告知。因为对 AIDS 的恐惧和 STDs 的侥幸心理导致性传播疾病的隐匿性和传播风险增加,提示需加强医学科普和创新宣教方式。

Logistic 回归显示男性是 AIDS 知晓的阻碍因素,可能因女性通过生殖健康医疗访问而更多地接触相关知识。随着 AIDS 防治被纳入教育规划,各地中小学校提供性生理和性道德健康教育^[14]。调查对象表明,参与学校活动和与子女交流有助于了解疾病信息,受现代多元和反歧视教育影响,有该务工人员更包容 AIDS/STDs 患者。与零工相比,全职劳务工人通过入职体检和系统培训会更了解该病的传播和预防。年龄越小,高危性行为发生率越高,

表 3 影响 AIDS/STDs 的 KAP 的多因素 Logistics 回归分析
Tab. 3 Logistics regression analysis of multiple factors affecting AIDS/STDs KAP

Variables	β	S. E.	Wald 2	<i>P</i>	<i>OR</i>	95% <i>CI</i>
Awareness of AIDS Knowledge						
Gender(Ref;Male)	-0.693	0.298	5.396	0.020	0.500	0.279 ~ 0.897
Child(Ref;No)	1.177	0.505	5.437	0.020	3.245	1.206 ~ 8.727
Participation in Health Insurance(Ref;No)	0.875	0.436	4.022	0.045	2.398	1.020 ~ 5.639
Employment Status in the Past Year(Ref;Part-time)						
Full-time	1.039	0.366	8.051	0.005	2.826	1.379 ~ 5.792
Age(Ref;50 ~)						
60 ~	0.125	0.348	0.130	0.719	1.133	0.573 ~ 2.242
40 ~	-0.490	0.374	1.715	0.190	0.613	0.294 ~ 1.275
30 ~	1.719	0.647	7.052	0.008	5.580	1.569 ~ 19.848
Awareness of STDs Knowledge						
Gender(Ref;Male)	-0.590	0.302	3.813	0.051	0.554	0.306 ~ 1.002
Employment Status in the Past Year(Ref;Part-time)						
Full-time	1.178	0.344	11.727	0.001	3.249	1.655 ~ 6.376
Education Level(Ref;Primary School)						
Senior High						
School and above	1.605	0.387	17.166	<0.001	4.980	2.330 ~ 10.643
Junior High						
School	1.147	0.354	10.489	0.001	3.147	1.573 ~ 6.299
Illiterate	0.414	0.525	0.622	0.430	1.513	0.541 ~ 4.233
Discrimination Attitudes towards AIDS Patients						
Child(Ref;Yes)	1.011	0.349	8.369	0.004	2.748	1.385 ~ 5.451
Discrimination Attitudes towards STDs Patients						
Child(Ref;Yes)	0.827	0.381	4.720	0.030	2.287	1.084 ~ 4.825
Engagement in High-Risk Sexual Behavior in the Past 3 Months						
Age(continuous variable)	-0.158	0.043	13.431	<0.001	0.854	0.785 ~ 0.929

表 4 路径分析主要变量赋值
Tab. 4 Assignment of main variables for path analysis

Variables	Imputation Method
Scores on AIDS Knowledge	Actual Scores on the Questionnaire
Scores on STDs Knowledge	Actual Scores on the Questionnaire
Engagement in High-Risk Sexual Behavior	0 = No, 1 = Yes
Attitudes towards AIDS Patients	1 = Discrimination; 2 = Keeping at a Distance; 3 = Treating Like Any Other Person; 4 = Understanding and Supporting
Attitudes towards STDs Patients	1 = Discrimination; 2 = Keeping at a Distance; 3 = Treating Like Any Other Person; 4 = Understanding and Supporting

综合陈黎跃 等^[15] 人的研究,提示 STDs 发病存在低龄化趋势。可能因为国内群体受传统教育影响,缺乏专业性教育;建筑工人文化水平普遍不高,青少年时期对性充满好奇,但心理成长及性知识储备与生理发育及性态度不匹配,易发生高危性行为。租房或自购房的务工人员会从社区宣传栏获取知识。建议可在劳务市场、工作场所或宿舍发放易懂的宣传资料,并设置健康教育宣传栏,以提高知晓率。

综上,成都市主城区务工人员 AIDS/STDs 知晓情况不容乐观。应加大对重点人群的创新干预,提高他们对 AIDS/STDs 的认识和自我保护意识,有效

表 5 中介效应分析结果
Tab. 5 Results of mediation effect analysis

Path	Direct Effect(95% <i>CI</i>)	Indirect Effect(95% <i>CI</i>)	Total Effect(95% <i>CI</i>)
Scores on AIDS Knowledge→Attitudes towards AIDS Patients→ Attitudes towards AIDS Patients	-	-0.021 * (-0.050 ~ -0.004)	-0.021 * (-0.050 ~ -0.004)
Scores on AIDS Knowledge→Attitudes towards AIDS Patients→ Attitudes towards STDs Patients	-0.180 * (-0.314 ~ -0.032)	0.083 * (0.018 ~ 0.158)	-0.097 (-0.248 ~ 0.071)

* *P* < 0.05

控制其传播。

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Knowledge-attitude-practice survey and mechanism on AIDS/STDs among migrant workers in the main urban area of Chengdu city

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Abstract *Objective* To analyze the current situation, influencing factors and mechanism of knowledge-attitude-practice (KAP) regarding acquired immune deficiency syndrome (AIDS) /sexually transmitted diseases (STDs) among migrant workers in Chengdu's main urban area, so as to provide a basis for the development of effective prevention and control policies for this group. *Methods* Convenience sampling and systematic sampling were used to collect demographic information and data on knowledge, attitudes, and sexual behavior characteristics of AIDS/STDs of the participants. The collected data were organized and statistically analyzed by EpiData 3.1 and SPSS 26.0 software. Additionally, a KAP path analysis model was constructed by using AMOS 24.0 software. *Results* A total of 257 valid questionnaires were obtained. The AIDS awareness rate was 55.6%, with a mean scores of (5.59 ± 1.61) . The awareness rate of STDs was 37.4%, with a mean scores of (9.05 ± 3.00) . Discrimination attitudes towards AIDS and STDs were reported by 58 participants (22.6%) and 44 participants (17.1%) respectively. The prevalence of high-risk sexual behavior was 3.50%. Men ($OR = 0.500$, 95% CI : 0.279–0.897) acted as deterrents to knowledge of AIDS. On the other hand, Childlessness facilitated discrimination against AIDS ($OR = 2.748$, 95% CI : 1.385–5.451) and STDs ($OR = 2.287$, 95% CI : 1.084–4.825). There was lower likelihood of engaging in high-risk sexual behavior among migrant workers in Chengdu's main urban area who were older ($OR = 0.854$, 95% CI : 0.785–0.929). The occurrence of high-risk sexual behaviors was influenced both directly and indirectly by attitudes towards AIDS and related knowledge. There was a positive correlation between knowledge about AIDS and STDs and attitudes towards them ($r = 0.15, 0.24$, both $P < 0.05$), as well as between attitudes towards AIDS and attitudes towards STDs ($r = 0.57, P < 0.05$). That is, the higher the scores of knowledge, the less likely one was to hold discrimination attitudes. Therefore, increasing the rate of knowledge awareness could reduce discrimination towards AIDS/STDs and the occurrence of high-risk sexual behaviors. *Conclusion* The level of AIDS/STDs knowledge among the migrant workers in Chengdu's main urban area is concerning. Innovative interventions should be intensified in key areas and populations.

Key words AIDS; STDs; Chengdu city; migrant workers; KAP; path analysis

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