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Outcomes of the "STEPS" HIV prevention training program for young males in the penitentiary institution, Ukraine

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Abstract

Purpose—Ukraine has one of the fastest growing HIV epidemics globally. Due to their engagement in high-risk behaviors, adolescents and emerging adults involved with the penitentiary system are at a particularly high risk of HIV-acquisition. To address the epidemic, young males (aged 14 to 20 years) in penitentiary institutions across Ukraine participated in a ten-week, group-based HIV-prevention intervention (STEPS). The paper aims to discuss these issues.

Design/methodology/approach—The authors analyzed clinical and programmatic services data collected as part of an evaluation of the STEPS intervention. Paired t-tests and χ^2 were used to examine pre- and post-intervention differences in HIV knowledge, attitudes, and risk behaviors and alcohol and other drug use knowledge.

Findings—In total, 105 male youths participated in the ten-session STEPS intervention. At baseline, males reported high frequencies of risk behaviors (e.g. unprotected sexual activity, injection drug use), moderate levels of HIV-related knowledge, and negative attitudes toward HIV and people living with HIV. At follow-up (immediately following the last STEPS session), participants' HIV-related knowledge substantially improved and participants tended to have more favorable attitudes toward HIV.

Research limitations/implications—Outcomes suggest that knowledge and attitudes about HIV among Ukrainian incarcerated youth can improve as a result of group-based HIV-prevention intervention.

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Originality/value—In Ukraine, individuals involved with the criminal justice system are one of the populations most-at-risk for HIV; criminal justice-involved adolescents and young adults are disproportionately affected by the HIV epidemic. Research among this sub-population is limited. This study aims to address this gap by evaluating an on-going group-based HIV-prevention program designed to reduce adolescent risk of HIV.

Keywords

Incarceration; HIV/AIDS; Ukraine; Quantitative research; Adolescents; Intervention research; HIV prevention

Introduction

Ukraine has one of the fastest growing HIV epidemics in the world (Kaiser Family Foundation, 2015). The prevalence of HIV (among individuals aged 15–49 years) has increased from 0.1 in 1990 to 0.9 in 2015; representing a nearly ten-fold increase (UNAIDS, 2015b; The World Bank, 2015). In 2015, there were 18,808 new reported cases of HIV (UNAIDS, 2015a; Elena Pinchuk Foundation, 2016). Despite surveillance data suggesting that the epidemic was expanding to the general population (Ministry of Health of Ukraine, 2012), recent estimates confirm that several key populations remain at the highest risk (Cakalo *et al.*, 2015). Individuals involved with the criminal justice system are one of the populations most-at-risk for HIV (Avert, 2015; Kruglov *et al.*, 2008; UNAIDS, 2014).

Among individuals involved in the criminal justice system, adolescents and emerging adults (individuals between the ages of 14 and 24 years) are at a particularly high risk of HIV-acquisition. Individuals in this age group are likely to engage in behaviors that increase their risk of seroconverting (e.g. report having multiple sex partners), and have little HIV-prevention knowledge (UNAIDS, 2013). Further, individuals from other subpopulations most-at-risk for HIV (e.g. injection drug users, transactional sex workers) both globally, and in Ukraine, are overrepresented in prisons and frequently interact with the criminal justice system (UNAIDS, 2013; UNAIDS, 2014; Busza *et al.*, 2011; UNAIDS, 2016). Current estimates of HIV prevalence and risk behaviors among youth involved in the criminal justice system in Ukraine are unknown. HIV prevalence and risk behaviors among young people within other key populations, such as homeless youth often in contact with the justice system, can provide some understanding of the scope of the epidemic among this most-at-risk population (Robbins *et al.*, 2010).

The estimated size of the street youth population in Ukraine is between 40,000 and 100,000 (Teltschik, 2006). Homeless and street-based adolescents and emerging adults are particularly vulnerable to HIV, and often have frequent contact with the criminal justice system. Estimates of HIV prevalence among street-based youth in Ukraine range from 17 percent to as high as 49 percent (for street-based youth who also report a history of injection drug use) (Robbins *et al.*, 2010; Busza *et al.*, 2011; Hillis *et al.*, 2012). In their cross-sectional behavioral survey of 805 street-based adolescents in Ukraine (50.1 percent of whom reported previous incarceration or detention in contact with the criminal justice system), Busza *et al.* (2011) found these youth engaged in behaviors that significantly

increased their risk of HIV. Specifically, street-based adolescents reported early sexual initiation (i.e. sexual debut prior to 15 years of age), inconsistent condom use, and engaging in transactional sex relationships (56.7 percent of girls and 16.5 percent of boys). Further compounding their risk of HIV was a lack of access to HIV prevention and other health services and low levels of HIV knowledge (Busza *et al.*, 2011). Additionally, structural-level factors including the persecution of drug users by law enforcement and the limited access to harm reduction services (e.g. opioid substitution therapy, needle exchange services) for IDU adolescents and young adults, shapes HIV risk in this population (Open Society Institute, 2007).

Given the alarming rate of HIV among high-risk youth in Ukraine, and their likelihood of having some contact with the criminal justice system, criminal justice settings (including juvenile justice detention centers) may represent a critical location to implement HIV-prevention interventions. In the present study, we analyze existing local program evaluation data collected as part of clinical and programmatic services from an HIV-prevention program (“STEPS”) designed to improve outcomes of HIV knowledge and attitudes, and knowledge of HIV-related substance use behaviors among young men in youth penitentiary systems across Ukraine.

Methods

Setting and participants

In 2015, roughly 4,350 juveniles were incarcerated in Ukraine (0.7 percent of the total prison population) (Institute for Criminal Policy Research, 2016). Adolescent and young adult males (14 to 20 years old) from four penitentiary institutions in Ukraine, located in the cities of Kovel, Kharkiv, Kyiv, and Kremenchug (The World Bank, 2014) voluntarily participated in the STEPS program. The STEPS program was initially only available in penitentiary institutions that served males.

STEPS HIV prevention intervention

In 2007, HealthRight International, a global health and human rights non-profit organization working to build lasting access to health for excluded communities, developed the STEPS education and HIV-prevention program for use in Russia. Beginning in 2009, in response to the emerging HIV epidemic, HealthRight adapted the program for the Ukrainian culture and context. Since that time, HealthRight International has adapted the program with several groups at risk of acquiring HIV, including street-involved or homeless youth. In 2012, HealthRight International partnered with Ukraine’s penitentiary system to expand the STEPS program to include youth in the penitentiary system. The current study evaluates the outcomes of the STEPS Intervention program implemented with male youth in Ukraine’s penitentiary system between 2012 and 2013. The present analysis uses data collected as part of the STEPS program evaluation; data were not collected for research purposes.

The STEPS HIV prevention program curriculum consists of ten 45-minute group sessions, focused on the following topics: life values, hygiene, reproductive health, sexually transmitted infections (STIs), HIV/AIDS, alcohol and other substance use and dependence,

and violence. Each session in the intervention program is designed as a “step,” transitioning participants from foundational-level health knowledge (e.g. hygiene) to sessions focused on building knowledge around more complex risk behaviors (e.g. HIV/STIs, substance use). Participants were referred to the STEPS program via an on-site psychologist, who also facilitated the STEPS groups. Given that the study was not conducted for the purposes of research, there were no standardized eligibility criteria, or screening and enrollment procedures. All individuals referred to the program were encouraged to participate. The average length of time between pre- and post-intervention assessment completion was three weeks, with an average of three sessions completed weekly. Participants in the STEPS HIV-intervention program completed in-person, confidential paper and pencil assessments before the first intervention session (baseline) and immediately after the last intervention session (post-intervention). A unique participant identification number was used on each of the paper and pencil assessments to protect participant’s confidentiality. Consent for intervention participation was not needed or obtained given that the STEPS intervention was offered as part of clinical and programmatic services at the designated penitentiary institutions. Participants were not compensated for completing the pre- or post-assessments. HealthRight International program staff administered assessments. All participants received at least 50 percent of the intervention (i.e. five of the ten intervention sessions); over three-quarters of the participants attended nine or more intervention sessions (90 percent of the STEPS intervention). Data were collected from participants for the purpose of program evaluation. Deidentified program evaluation data were shared with the study team for analysis. Institutional Review Board approval of these clinical and programmatic data and publication was obtained from the academic institution affiliated with the first author.

Measures—All measures were completed at baseline and immediate post-intervention unless otherwise noted. These measures included items commonly used in international HIV-prevention work conducted by HealthRight International.

Demographics (baseline only). Demographic information included age.

Study outcomes

HIV risk behaviors (baseline only)—Self-reported risk behaviors included lifetime condom use, injection drug use, receipt of a homemade tattoo, and receipt of an HIV test.

HIV knowledge—HIV knowledge was assessed using 15-items; items were developed by STEPS program staff. Items assessed participants’ knowledge of several characteristics related to HIV, including routes of transmission, presence of HIV in bodily fluids, treatment of STIs including HIV, and consequences of HIV on quality of life. Responses to individual items were summed to create a total HIV knowledge score; higher scores on the HIV knowledge scale indicated greater knowledge about HIV (possible range 0.0–15.0).

Alcohol and other drug (AOD) use knowledge—Knowledge of AOD use was assessed using five-items; items were developed by STEPS program staff. Items assessed participants’ knowledge of several characteristics related to AOD, including health consequences of AOD use and the relationship between AOD use and addiction. A total

AOD knowledge score was calculated by summing responses to each item; higher scores on the AOD knowledge scale indicated greater knowledge of AOD (possible range 0.0–5.0).

HIV attitudes—Attitudes toward HIV were assessed using 21-statements; items were developed by the STEPS program staff. Individual statements assessed participants' attitudes toward: HIV-related risk behaviors (e.g. condom use negotiation, acceptability of condomless sex, the impact of AOD on sexual decision making), people living with HIV/AIDS, STI and HIV testing, and personal risk of STI (including HIV) infection. Sample items include: "A person can always tell whether they have a STI," "I could be friends with an HIV-positive person," and "If I really like a guy/girl and (s)he looks healthy, I will have intercourse with him/her even if I can't use a condom." The total HIV attitudes score was calculated by summing participant responses to individual items; higher scores on the HIV attitudes scale indicated attitudes that may be more protective against HIV and other STIs (possible range 0.0–21.0).

Analysis

Basic descriptive statistics were calculated to describe the study sample. Bivariate analyses (i.e. paired *t*-tests for continuous variables; χ^2 tests or Fisher's exact test for dichotomous or categorical variables) were used to examine pre- and post-intervention differences in HIV knowledge, AOD knowledge, and attitudes toward HIV individual items and total scores. We used Pearson correlation to examine the association between participant age and continuous study outcomes (i.e. HIV knowledge scale, AOD knowledge scale, and attitudes toward HIV scale). Analyses were conducted using SPSS for Windows 22.0 (IBM Corp., 2013).

Results

At baseline, juvenile males in the penitentiary system were an average age of 17.01 years (SD: 0.88; range: 14 to 20) and reported engaging in several risk behaviors that may have increased their risk of HIV-acquisition (Table I). Approximately 13 percent reported ever using injectable drugs, and 63.6 percent reported ever having sex without a condom. Roughly one-quarter of the STEPS participants reported having been tested for HIV ($n = 23$) and nearly half of the sample (46.7 percent, $n = 42$) reported previously participating in HIV-prevention programming prior to attending the STEPS HIV-prevention program. There were no significant differences on previous risk behavior based on age of participant or site (four total penitentiary institutions participated; (results not shown). Age-specific differences related to injection drug use, approached statistical significance ($\chi^2 (1, N = 95) = 3.58, p = 0.06$); roughly 57 percent of male juveniles who reported injection drug use, were between the ages of 14 and 17 years of age.

Pre-intervention

HIV knowledge—At baseline, the average score on the HIV knowledge scale was 9.99 (SD: 2.6; range: 3.0–14.0) (Table II). Participants were most informed about the HIV-risks associated with sharing needles during injection drug use (96.2 percent answered correctly), and the inability to acquire HIV while swimming in a pool with a person living with HIV/AIDS (94.2 percent answered correctly). Participants were less informed about the impact of

an HIV test on an individual's quality of life (42.3 percent answered correctly), the treatment of STIs and HIV (42.6 percent answered correctly), and the presence of the HIV virus in breast milk (55.9 percent answered correctly). A greater proportion of younger participants (14–17 years of age) responded correctly to HIV knowledge items compared to participants who were 18 years or older (67.4 percent vs 32.6 percent respectively; $\chi^2(1, N=101)=5.10, p=0.024$).

AOD knowledge—At baseline, the average score on the AOD knowledge scale was 2.70 (SD: 1.22; range: 0.0–5.0) (Table II). Participants were most knowledgeable about whether alcohol is a drug (78.8 percent responded correctly) and were least knowledgeable about the health consequences of smoking cigarettes (39.4 percent responded correctly). There were no differences on individual AOD knowledge items by age or lifetime HIV risk behaviors.

Attitudes toward HIV—At baseline, the average score on the attitudes toward HIV scale was 12.85 (SD: 3.75; range: 4.0–19.0) (Table III). Participants had more protective attitudes regarding peer pressure (92.4 percent), confidence in asking their partner about their injection drug use history (82.9 percent), and importance of consistent condom use during sexual activity (78.1 percent). In contrast, participants had less HIV protective attitudes related to whether they plan on abstaining from sex until marriage (16.3 percent) and negative perceptions of PLWHA (41.6 percent). There was a statistically significant difference based on a participant's age regarding delaying initiation for condomless sex ($\chi^2(1, N=104)=10.09, p<0.01$), such that a higher percentage of individuals who would not wait to have protected sex were 14–17 years old as compared to participants aged 18 year or older (64.7 percent vs 35.3 percent).

Post-intervention

HIV knowledge—At follow-up, the average score on the HIV knowledge scale was 11.58 (SD: 2.2; range: 3.0–15.0), representing a statistically significant improvement in HIV knowledge from baseline ($t(89)=-5.71, p<0.001$) (Table II). Improvement in the level of HIV knowledge was evident in 7 of the 15 scale items related to presence of HIV in bodily fluids (i.e. semen ($\chi^2(1, N=105)=13.33, p<0.001$), vaginal fluid ($\chi^2(1, N=105)=8.04, p<0.05$), and breast milk ($\chi^2(1, N=102)=4.51, p<0.05$), and correctly identifying HIV-risks associated with condomless oral ($\chi^2(1, N=104)=5.09, p<0.05$) and anal ($\chi^2(1, N=105)=16.04, p<0.001$) sexual activity.

AOD knowledge—At follow-up, the average score on the AOD knowledge scale was 3.14 (SD: 1.5; range: 0.0–15.0), representing a statistically significant difference in AOD knowledge from baseline ($t(100)=-2.78, p<0.01$) (Table II). Improvement in the level of AOD knowledge was evident in 3 of the 5 scale items related to the negative health consequences of cigarettes ($\chi^2(1, N=104)=15.95, p<0.001$) and alcohol ($\chi^2(1, N=104)=12.05, p<0.01$) and alcoholism ($\chi^2(1, N=104)=8.29, p<0.01$).

Attitudes toward HIV—At follow-up, the average score on the attitudes toward HIV scale was 13.69 (SD: 3.60; range: 4.0–21.0) (Table III). Improvement in attitudes toward HIV from baseline was evident in 12 of the 21 scale items. The largest pre- and post-intervention

change (from 41.7 to 67.0 percent) in attitudes protective against HIV was for the statement “I could be friends with an HIV-infected person” ($\chi^2 (1, N= 103)= 6.93, p < 0.01$). Decline in attitudes toward HIV from baseline was evident in 4 of the 12 scale items. The largest reduction (by 4.8 percent) was evident for two statements “I will never use injectable drugs” ($\chi^2 (1, N= 105)= 8.23, p < 0.01$) and “I will not have sex if there is a likelihood that my partner might HIV” ($\chi^2 (1, N= 105)= 9.51, p < 0.01$).

Discussion

Implementing a group-based HIV prevention intervention within incarcerated facilities for youth throughout Ukraine is both feasible and acceptable. In addition, it is possible through group-based intervention to improve these high-risk youth’s knowledge about HIV, attitudes toward HIV and PLWHA and knowledge about alcohol, other drug use and associated risks. This finding is particularly important because the baseline behavioral risks in this population were significant, HIV knowledge was limited, and HIV-related attitudes were risky; close to two-thirds of these youth reported not using condoms during sex and 13 percent reported a history of injection drug use. Younger participants were more likely to have accurate knowledge about HIV but also demonstrated less ability to delay condomless sex. The inability to delay condomless sex may represent the less developed frontal cortex and accompanying disinhibition and impulsivity that is developmentally characteristic of younger adolescents. More accurate knowledge about HIV may be reflective of Ukraine’s efforts to combat the HIV epidemic and more widespread HIV education delivered through schools and other settings that their older counterparts may have received less exposure to. Unfortunately data that would allow us to test direct relationships between contextual factors and outcomes, such as whether these youth received an HIV prevention intervention prior to incarceration and whether that differed by age, were unavailable in the current existing program evaluation dataset.

Limitations

Despite the novel use of pre-existing data to present HIV prevention outcomes for a high-risk international youth sample, there are some additional limitations to the study worth noting. We could not assess recent behavioral risk and were limited to studying intervention effects on knowledge and attitudes because all youth were incarcerated for varying amounts of time when they received the STEPS intervention. Importantly, we should not presume that incarcerated youth are not participating in risky activities or have exposure to risk within institutional confines, institutional (penitentiary) officials in Ukraine would not allow the evaluators to ask about risk behaviors, such as recent sexual activity or drug use. Institutional penitentiary officials’ requests also precluded the evaluators asking youth more details about their history of risk behaviors as well as certain important participant demographics. These system or structural-level barriers to obtaining more detailed information on participants in the STEPS program precluded our ability to understand more about pre/post differences in shifts in knowledge and attitudes to inform future intervention development. Furthermore, this intervention did not include the distribution of condoms or clean needles, so it is unclear how improvements in HIV knowledge will contribute to risk behaviors in community settings. Our study design was limited to the evaluation data at-

hand, which included a within group pre/post design and data that were not collected with research questions in mind. Thus, although there was no comparison group to test intervention effects, these data allow us to examine preliminary HIV prevention-related outcomes of an existing HIV prevention intervention currently implemented in children or youth? prison settings in Ukraine.

Future directions and conclusions

Future research must consider a pilot efficacy trial of the STEPS intervention to include a comparison condition in order to fully ascertain a signal of effect related to HIV knowledge and attitude changes. System and organizational readiness of Ukrainian as above prisons to participate in controlled research trials requires assessment as the current data were collected as part of routine program evaluation and not a clinical research trial. Future research and HIV prevention program development with Ukrainian young offenders would also benefit from longitudinal follow-up as well as inclusion of behavioral risk assessment, particularly upon community re-entry. Ultimately, as is well-demonstrated in the behavioral risk literature, knowledge is necessary for behavioral change but not sufficient. Therefore, evidence-based interventions including medication assisted therapies for alcohol and opioid use disorders, condom distribution, needle exchange programs, and the availability of pre-exposure prophylaxis to prevent HIV and post-exposure prophylaxis administered immediately following high risk sexual behavior and injection drug use, are key strategies to reduce HIV transmission in this population. Nevertheless, these findings are the first step to demonstrating that a group-based HIV prevention intervention tailored uniquely to the needs of Ukrainian incarcerated youth is associated with improvement in HIV knowledge and safer HIV-related attitudes that in turn might lead to HIV prevention for these vulnerable youth.

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References

- Avert (2015), "HIV and AIDS in Eastern Europe and Central Asia", available at: www.avert.org/professionals/hiv-around-world/eastern-europe-central-asia.
- Busza JR, Balakireva OM, Teltschik A, Bondar TV, Sereda JV, Meynell C and Sakovych O (2011), "Street-based adolescents at high risk of HIV in Ukraine", *Journal of Epidemiology Community Health*, Vol. 65 No. 12, pp. 1166–70. [PubMed: 20864455]
- Cakalo JI, Bozicevic I, Vitek C, Mandel JS, Salyuk T and Rutherford GW (2015), "Misclassification of men with reported HIV infection in Ukraine", *AIDS Behavior*, Vol. 19 No. 10, pp. 1938–40. [PubMed: 26070886]
- Elena Pinchuk Foundation (2016), "AIDS in Ukraine: statistics", available: www.antiids.org/eng/news/aids_stat/statistics-on-hiv-aids-in-ukraine-on-01012016-10757.html
- Hillis SD, Zapata L, Robbins CL, Kissin DM, Skipalska H, Yorick R, Finnerty E, Marchbanks PA and Jamieson DJ (2012), "HIV seroprevalence among orphaned and homeless youth: no place like home", *AIDS*, Vol. 26 No. 1, pp. 105–10. [PubMed: 21881479]

- IBM Corp. (2013), IBM SPSS Statistics for Windows, Version 22.0, IBM Corp., Armonk, New York, NY.
- Institute for Criminal Policy Research (2016), “World prison brief: Ukraine”, available at: www.prisonstudies.org/country/ukraine.
- Kaiser Family Foundation (2015), “The global HIV/AIDS epidemic”, available at: <http://kff.org/global-healthpolicy/fact-sheet/the-global-hivaids-epidemic/>
- Kruglov YV, Kobyshcha YV, Salyuk T, Varetska O, Shakarishvili A and Saldanha VP (2008), “The most severe HIV epidemic in Europe: Ukraine’s national HIV prevalence estimates for 2007”, *Sexuality Transmitted Infections*, Vol. 84 No. 1, pp. i37–i41.
- Ministry of Health of Ukraine (2012), “Ukraine harmonised AIDS response progress report”, Ministry of Health of Ukraine, Kyiv.
- Open Society Institute (2007), *HIV/AIDS Policy in Ukraine: A Civil Society Perspective*, Open Society Institute, New York, NY.
- Robbins CL, Zapata L, Kissin DM, Shevchenko N, Yorick R, Skipalska H, Finnerty E, Ornstein T, Marchbanks PA, Jamieson DJ and Hillis SD (2010), “Multicity HIV seroprevalence in street youth, Ukraine”, *International Journal of STD & AIDS*, Vol. 21 No. 7, pp. 489–96. [PubMed: 20852199]
- Teltschik A (2006), *Children and Young People Living or Working in the Streets: The Missing Face of the HIV Epidemic in Ukraine*, United Nations Children’s Funds, AIDS Foundation East-West, Kyiv.
- The World Bank (2014), “Prevalence of HIV, total (% of population ages 15–49)”, available at: <http://data.worldbank.org/indicator/SH.DYN.AIDS.ZS>
- The World Bank (2015), “Prevalence of HIV, total (% of population ages 15–49)”, available at: <http://data.worldbank.org/indicator/SH.DYN.AIDS.ZS?locations=UA>.
- UNAIDS (2013), “Ukraine: HIV and AIDS estimates”, available at: www.unaids.org/en/regionscountries/countries/ukraine.
- UNAIDS (2014), “The gap report”, Joint United Nations Program on HIV/AIDS, Geneva.
- UNAIDS (2015a), “Religious leaders and faith-based organizations reinforce their role in the AIDS response amid Ukraine’s humanitarian crisis”, available at: www.unaids.org/en/resources/presscentre/featurestories/2015/february/20150212_ukraine.
- UNAIDS (2015b), “Ukraine: HIV and AIDS estimates (2015)”, available at: www.unaids.org/en/regionscountries/countries/ukraine.
- UNAIDS (2016), “Global AIDS update”, Joint United Nations Programme on HIV/AIDS, Geneva.

Table 1

Demographic and risk characteristics of males in the Institute of the Penitentiary in Ukraine who participated in the STEPS HIV-Prevention Program, at baseline

	Pre-intervention n (%) or M (SD)
<i>Demographic characteristics</i>	
Age	17.01(0.88)
City	
Kovel	39 (37.1%)
Kharkiv	20 (19.0%)
Kyiv	10 (9.5%)
Kremenchug	36 (34.3%)
<i>Lifetime risk and HIV testing behavior</i>	
Injection drug use	12 (13.3%)
Condomless sexual activity	56 (63.6%)
Receive a homemade tattoo	54 (56.3%)
HIV test	23 (23.5%)
Previously attended HIV programming	42 (46.7%)

Note: N= 105

Table II

Risk behaviors, and knowledge of HIV and alcohol and other drug use of males in the Institute of the Penitentiary in Ukraine who participated in the STEPS HIV-Prevention Program

	Pre-intervention n (%) or M (SD)	Post-intervention n (%) or M (SD)	Statistical test	p-value
<i>HIV knowledge (% correct)</i>				
HIV Knowledge Scale	9.99 (2.6)	11.58 (2.2)	-5.71	<0.001
HIV is present in the sperm of an HIV-positive man	77 (73.3%)	94 (89.5%)	13.30	0.001
HIV is present in the vaginal secretions of an HIV-positive woman	69 (65.7%)	92 (87.6%)	8.04	0.010
HIV is present in the breast milk of an HIV-positive woman	57 (55.9%)	84 (82.4%)	4.51	0.034
It is possible to acquire HIV via a mosquito bite	79 (77.5%)	93 (91.2%)	0.66	0.418
It is possible to contract HIV while swimming in a swimming pool. With a person living with HIV	98 (94.2%)	97 (93.3%)	1.00	0.349
It is possible to contract HIV if you share tattoo instruments with an HIV-positive individual	91 (87.5%)	97 (93.3%)	1.77	0.211
It is possible to contract HIV if you share a syringe while injecting drugs with an HIV-positive individual	100 (96.2%)	98 (94.2%)	2.83	0.214
It is possible to contract HIV after a single episode of condomless sex	86 (81.9%)	90 (85.7%)	0.43	0.733
It is possible to contract a sexually transmitted infections (STI), including HIV, during condomless oral sex	61 (58.7%)	73 (70.2%)	5.09	0.024
It is possible to contract a sexually transmitted infection, including HIV, during condomless anal sex	55 (52.4%)	65 (61.9%)	16.04	<0.001
Using a condom just before ejaculation is as effective at preventing HIV and other STIs, as using a condom for the entire during of sexual activity	59 (56.7%)	60 (57.7%)	0.62	0.432
If a person is infected with HIV, it will stay with them for the rest of their life	65 (62.5%)	84 (80.8%)	0.59	0.441
Any result of an HIV test will allow a person to preserve their life	44 (42.3%)	64 (61.5%)	4.03	0.045
All STIs (excluding HIV) can be cured if a person completes a timely and full treatment course	43 (42.6%)	32 (31.7%)	1.06	0.304
Deliberate infection of another person with HIV or another STI has criminal responsibility	46 (43.8%)	68 (64.8%)	4.60	0.32
<i>Alcohol and other drug use knowledge</i>				
Alcohol and other drug use knowledge scale	2.70 (1.22)	3.14 (1.45)	-2.78	0.007
Smoking one or two cigarettes a day is not harmful to your health	41 (39.4%)	56 (53.8%)	15.95	<0.001
Alcoholism is a serious disease that is difficult to cure	72 (69.2%)	75 (72.1%)	8.29	0.004
If you only drink beer, it is impossible to become an alcoholic	49 (47.1%)	60 (57.7%)	12.05	0.001
Alcohol is a type of drug	82 (78.8%)	81 (77.9%)	1.53	0.251
Using marijuana does not cause addiction	35 (33.7%)	55 (52.9%)	3.49	0.062

Note: N = 105

Table III

Attitudes toward HIV of males in the Institute of the Penitentiary in Ukraine who participated in the STEPS HIV-prevention program

	Pre-intervention n (%) or M (SD)	Post-intervention n (%) or M (SD)	Statistical test	p-value
<i>Attitudes toward HIV (% responded most protective)</i>				
Attitudes toward HIV scale	12.85 (3.75)	13.69 (3.60)	-1.94	0.055
Abstinence from intercourse before marriage is the best way to avoid STIs and HIV	52 (49.5%)	63 (60.0%)	7.34	0.007
A person can always tell if he/she has STI	53 (50.5%)	52 (49.5%)	0.47	0.494
I think I cannot acquire HIV	51 (48.6%)	59 (56.2%)	10.78	0.001
HIV-infected people are responsible (guilty) for contracting HIV themselves	42 (41.6%)	45 (44.6%)	11.33	0.001
I could be friends with an HIV-infected person	43 (41.7%)	69 (67.0%)	6.93	0.008
Using a condom during sex is always necessary	82 (78.1%)	83 (79.0%)	0.23	0.776
HIV testing is pointless since it is impossible to get cured	63 (60.6%)	70 (67.3%)	13.52	<0.001
If I really like a guy/girl and he/she looks healthy I will have intercourse with him/her even if I cannot use a condom	53 (51.0%)	51 (49.0%)	5.56	0.018
I would feel uncomfortable insisting on condom use during sexual activity	63 (60.0%)	67 (63.8%)	7.95	0.005
I will not have sex if there is a likelihood that my partner might have HIV	76 (72.4%)	71 (67.6%)	9.51	0.002
When I am under the influence of alcohol or drugs then I will probably not use a condom	51 (49.0%)	52 (50.0%)	3.11	0.078
If my boyfriend/girlfriend refuses to use a condom I will be able to convince him/her to use one	68 (65.4%)	71 (68.3%)	1.30	0.254
I will not have sex with my boyfriend/girlfriend if I do not want to, even if he/she insists	60 (57.7%)	68 (65.4%)	2.47	0.116
I can ask my boyfriend/girlfriend whether he/she has been HIV-tested	81 (77.1%)	84 (80.0%)	9.13	0.007
I can ask my boyfriend/girlfriend whether he/she has used injection drugs	87 (82.9%)	89 (84.8%)	0.03	0.853
I plan to abstain from sex before marriage	17 (16.3%)	29 (27.9%)	3.72	0.075
I will never use injectable drugs	74 (70.5%)	69 (65.7%)	8.24	0.004
I will never use any drugs (e.g. marijuana, pills)	60 (57.1%)	64 (61.0%)	9.02	0.003
If every one of my friends is drinking alcohol, I will not be able to relax or have as much fun as everyone else	66 (64.7%)	77 (75.5%)	19.54	<0.001
There is just one life to live, and you need to try everything including drugs	90 (87.4%)	87 (84.5%)	0.65	0.421
To avoid fights with my friends, I need to do everything that they want to do	97 (92.4%)	91 (86.7%)	4.38	0.071

Note: N= 105