Sexual activity and condom use among Eastern European adolescents—the Study of Hungarian Adolescent Risk Behaviours

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Summary

While rates of HIV and STD infection in Eastern Europe are increasing rapidly, little is known about sexual behaviour, including condom use, among Eastern European youths. The Study of Hungarian Adolescent Risk Behaviours was designed to assess the knowledge, attitudes, and behaviours of adolescents studying in secondary schools in Budapest, Hungary. Students (n=3486) in a random sample of public secondary schools completed a self-administered questionnaire, including measures of sexual activity and condom use. Thirty-eight percent of students reported ever having had vaginal intercourse. Condom use by those reporting having had sex in the past five weeks was classified as consistent/every time (40%); irregular (25.6%); and none (34.3%). Multivariate analysis revealed positive opinions about condoms, fear of AIDS, and initiation of condom use by both partners to predict more frequent condom use. Implications for targeted AIDS/STD education and prevention among adolescents are discussed.

Keywords

AIDS; STDs; condoms; adolescence; Eastern Europe

INTRODUCTION

Hungary has a population of 10.2 million, 1.9 million of whom live in the capital, Budapest1. The rate of human immunodeficiency virus (HIV) infection in Hungary is low, but growing. As of December 1999, there were 350 registered cases of acquired immunodeficiency syndrome (AIDS), and 2500 people were estimated to live with HIV in the country2. The majority of HIV infections (46.4%) have been detected among residents of the capital, Budapest3. Most of the AIDS cases in Hungary have been reported to be a result of homosexual contacts between men (71.7%), followed by heterosexual mode of transmission (11.7%)2. Haemophiliacs or transfusion recipients (8.9%) and injecting drug users (IDUs) (0.9%) have been affected by the AIDS epidemic to a lesser extent.

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Although the number of AIDS cases among the heterosexual population is currently low, several factors indicate increased high-risk behaviours among this population that may expose them to infection with HIV and other sexually transmitted diseases (STDs). Since the fall of communism, during the late 1980s, Eastern and Central European youths have undergone a change in sexual norms as they have been presented with more personal freedom, Western influences, and the widespread availability of pornographic material. These changes in social and cultural norms are presumed to have resulted in an earlier initiation of sexual activity and an increase in the number of sexual partners per year among adolescents, which may lead to higher risk for sexually transmitted infections, including HIV.

Studies in former communist countries show an increased rate of STDs, which not only is a risk factor for HIV infection itself, but also mirrors an increase in high-risk HIV behaviours. Syphilis rates have increased in Hungary between 1989 and 1996 by almost two-fold[4]. In the Czech Republic, the incidence of new cases of syphilis increased by 232% in 1991 and 330% in 1992 in comparison to 1990, and the population group between the ages of 15 and 24 represents about 60% of all new syphilis cases[5]. In the Russian Federation, the annual notification rate for syphilis in the population was 277 per 100,000 in 1997—a 43-fold increase since 1989[6].

Condom use not only prevents unintended pregnancies but also greatly reduces the chances of acquiring sexually transmitted infections, including HIV. Condom use among teenagers is therefore an important health concern. Little is known about sexual behaviour, including condom use, among Eastern European youths. The Study of Hungarian Adolescent Risk Behaviours is one of the first studies in the region to address concerns about risky behaviours of teenagers.

MATERIALS AND METHODS

Survey

The Study of Hungarian Adolescent Risk Behaviours was designed to assess the knowledge, attitudes, and behaviours of adolescents studying in Hungarian secondary schools, to train teachers to become AIDS educators, and to evaluate educational methods for their effectiveness in AIDS prevention. Children in Hungary learn in primary school for eight years starting at the age of six. After primary school, they may enter any one of three types of secondary school systems. In high schools they receive four years of academic training and a high school diploma, which enables them to apply for university study. In trade high schools they both learn a trade and earn a high school diploma, whereas three-year trade schools train students for a trade but do not award high school diplomas. This classical school system is still predominant, although there are more and more alternative schools in which the course of study follows different patterns.

As part of the Study of Hungarian Adolescent Risk Behaviours, we assessed the level of sexual activity and correlates and predictors of consistent condom use among secondary school students in Budapest. The study was ethically reviewed and approved by the Hungarian National AIDS Committee and conducted in collaboration with the Hungarian

Ministry of Education. The study was also reviewed by the Institutional Review Board of the authors' university.

The survey was conducted between December 1996 and May 1997 in public high schools, trade high schools, and trade schools. Schools were selected randomly from the official list of Hungarian secondary schools. Headmasters of the randomly selected schools selected one class from each grade to participate in the study (usually a class with available time as reported by the teacher). No data were available about non-participating classes, so there was no opportunity to assess whether there were any differences between participating and non-participating classes within the same school.

Questionnaire

Participants were asked to fill out a voluntary, anonymous, self-administered eight-page questionnaire consisting of 75 multiple-choice questions, which took about 30–45 minutes to complete. The questionnaire was developed and field-tested to be linguistically appropriate for both high-school students with a broad vocabulary and trade school students with a potentially more limited vocabulary.

Sexual activity—Two questions assessed sexual activity in the past five weeks: 'What type of sex have you had in the past five weeks?' and 'How often have you "gone to bed" with your partner in the past five weeks?'. Response options for the first question were 'nothing', 'just petting', 'petting and "going to bed" ', and 'just "going to bed" '. A footnote under the question specified the meaning of petting, while 'going to bed' in Hungarian is a generally and widely accepted term for penetrative sex. Response options for the second question included 'I don't have sex', 'once or twice', 'once or twice a week', 'several times a week', and 'several times a day'. Respondents were identified as sexually active if they selected any 'going to bed' answer to the first question or if they reported any sexual activity at least once in the past five weeks in response to the second question.

Condom use—*Condom use* was assessed with the question 'How often have you used condoms with your partner in the past five weeks?'. Answers included 'every time', 'at least 75% of the time', 'at least 50% of the time', 'at least 25% of the time', less than 25% of the time', and 'never'. Three categories of condom use were defined based on the answers. Students indicating that they always used condoms were identified as consistent users. Those indicating some condom use but not 'every time' were defined as irregular users. The third category, non-users, included students indicating that they had never used condoms in the past five weeks.

Possible predictors of condom use included *opinion about condoms*, including agreement to the statements 'Condoms are unnoticeable', 'Finally a contraception method with no side effects', 'Condoms decrease sexual pleasure', 'Condoms are too tight', 'Condoms fall off easily', 'Condoms are complicated to use' and 'Condoms are safe contraception'.

Attitudes and feelings about AIDS were evaluated by the responses on a five-point Likert scale, to the questions 'Is AIDS a dangerous disease?' (perceived severity), 'Are you afraid of AIDS?', 'What are your chances of getting infected with the virus that causes AIDS?'

(perceived susceptibility) and 'Is AIDS a preventable disease?' The *perception of condom initiation behaviour was assessed* with the question 'Who initiates condom use?' and agreement to the statements 'I would use condoms but my partner won't' and 'My partner would use condoms but I won't'.

Knowledge about proper condom use was assessed with answers to eight true and false questions. The questions included 'What do you need to check when buying condoms?: (1) the packaging should be intact, (2) the expiration date should not have elapsed, (3) the condom should never be ribbed; What do you need to know when using condoms?: (4) put the condom on when the penis is erect, and take it off when the penis is still erect, (5) squeeze the air out from the tip of the condom, (6) condoms can be used only once, (7) after ejaculation, the penis should be pulled out with a very fast and assertive motion, (8) use only oil based lubricants, such as Nivea® hand cream'. Scoring at or above the median score was coded as 'high' and scoring under the median score was coded as 'low' knowledge.

Statistical analysis

The data were entered into the computer using EPI INFO version 6.0. All analyses were performed with SAS (SAS Institute Inc. Cary, NC, USA), release 6.12.

To assess the representativeness of our study results, characteristics of the participating and the non-participating schools were compared using the Fisher's exact test. Due to the limited availability of data on schools, this analysis was limited to variation in geographic location and type of school.

The statistical analysis comprised two sequential steps and was performed by dividing sexually active students into three groups based on their condom use. The first step compared non-users with users, that is, students who indicated never using condoms with students saying they sometimes or always used condoms. The second step excluded students who said they never used condoms and compared students indicating they always used condoms with students who said they sometimes used condoms.

First, χ^2 analyses and odds ratios with corresponding significance levels were used to assess the association between condom use and potential correlates. Variables associated with condom use (*P*<0.25) were then entered into multivariate logistic regression models[7]. Using backward elimination, we identified the predictors of each variable with condom use while adjusting for the effect of other variables in the model. The backward elimination process required the use of dummy variables for type of school (two dummy variables for the three school types), date of birth (three dummy variables for four groups of ages), and the perceived severity and perceived susceptibility items (four dummy variables for the five categories of the Likert scale). Thus the cutoff points of non-binary variables was determined by which dummy variables stayed in the regression model after backward elimination. In the final logistic regression model, control variables when necessary included age and gender.

RESULTS

Of the 54 eligible secondary schools, 32 (59.3%) agreed to participate. Three schools expressed their disagreement concerning the private nature of the questions in the survey and withdrew after an initial agreement to participate. Comparisons of participating and non-participating schools yielded no significant differences concerning geographic location (*P*=0.346) or school type (*P*=0.226).

Demographic and risk characteristics

Of the 3486 participating secondary school students, 1302 (37.3%) studied in high schools, 1404 (40.3%) in trade high schools, and 780 (2.4%) in trade schools; 2098 (60.2%) were male, and 1388 (39.8%) were female. About half the students in high schools were females (58.4% of high school students), while a higher percentage of students in trade high schools and trade schools were males (66.7% and 79.4%, respectively). Of all the students, 1326 (38.0%) reported ever having had vaginal intercourse, and a total of 708 (20.3% of all students) reported having had penetrative intercourse in the last five weeks (sexually active subsample). Of the sexually active subsample, 679 (95.9%) provided information about their condom use behaviour.

Predictors of consistent condom use

About two out of five students in the sexually active subsample reported they always used condoms when they had penetrative sex in the past five weeks, while about one-third of them never used condoms at all (Table 1). On bivariate analysis, higher levels of condom use were associated with positive opinions about condoms, fear of AIDS, and initiation of condom use by both partners (Table 2). Condom use was further associated with male gender and younger age, but did not vary by type of school.

Multivariate analysis showed that different levels of condom use have different predictors (Table 3). When comparing consistent with irregular users, positive opinions about condoms, fear of AIDS and initiation of condom use by both partners predicted consistent condom use. Some predictors showed different strength of association at different levels of condom use. For example, the perception that condoms were difficult to use predicted condom use when comparing non-users with those reporting any use, but did not play a significant role when comparing irregular users with consistent users. Females and older students were less likely to use condoms, whereas differences in type of school, gender or age were not statistically significant when comparing consistent with irregular users.

DISCUSSION

The Study of Hungarian Adolescent Risk Behaviours is one of the first studies in Eastern Europe to assess risky and preventive behaviour of adolescents. The data show that 38% of Hungarian teenagers living in Budapest were sexually experienced. This prevalence is lower than the prevalence of sexual experience reported among teenagers living in Western Europe and in the United States, but higher than that among Russian teenagers (data on other neighbouring countries are unavailable). In Switzerland, England and the United States about half of the responding high school students reported ever having sexual

intercourse8-12. On the other hand, a study conducted among tenth-grade students in Saint Petersburg found that 20% of females and 31% of males were sexually experienced13. In our study, the rate of sexual experience among tenth-graders was 32% among females and 37% among males (35% overall).

About 40% of sexually active Hungarian teenagers living in Budapest reported using condoms every time they had vaginal sex in the past five weeks. A study among African American adolescents residing in urban areas in the US showed a similar rate of condom use, as 41.4% of sexually active adolescents used condoms every time they had vaginal intercourse in the past five weeks14. Results from the 1999 'Youth Risk Behavior Survey' for the United States show that 58% of currently sexually active students reported condom use during last sexual intercourse15. A study from Russia found that 12.2% of males and 1.9% of females aged 18–55 reported using condoms consistently16. Teenagers report a much higher rate of condom use in Australia, where 71.5% of boys and 53.3% of girls reported that they used condoms the last time they had sex17. Similarly to the findings of other studies, we also found that females were less likely than males to report using condoms consistently, and that younger age was associated with more consistent condom use14,16-19.

In addition to providing behavioural surveillance data on Hungarian adolescents, this study identified cognitive, attitudinal and behavioural correlates of different levels of condom use (consistent use, irregular use, and no use at all). These data suggest that some attitudes (e.g. not agreeing that condoms decrease sexual pleasure) may be a key turning point in starting to use condoms at all. AIDS education and prevention should include encouraging participants to reevaluate the notion that condoms decrease sexual pleasure (quoting one participant 'If I can get your *thing* hard in your jeans don't tell me that you cannot feel anything in a condom'). Also, educators need to be knowledgeable about different types of condoms, so that they can make their audience familiar with the range of options available.

Studies among American teenagers show no association between fear of AIDS and consistent condom use11. Experience among gay men in the US in the 1980s suggests that the fear of AIDS acts only as a short-term behaviour modifier. Still, other populations, such as young people, prostitutes, and drug users, have reduced risky behaviours as a result of fear of AIDS20-22. Hungarian teenagers were more likely to use condoms at all and to use them every time when they were afraid of AIDS. As the prevalence of HIV/AIDS is low in Hungary, adolescents may perceive AIDS as a mysterious disease, a perception that may have a stronger effect on their condom use behaviour. A recent metaanalysis of the research on fear appeals suggests that strong fear appeals coupled with high-efficacy messages produce the greatest behaviour change23. AIDS prevention in Hungary may be improved if education programmes include a focus on the fear of AIDS and perceived severity—including emphasizing the consequences of unprotected sex in terms of AIDS and other sexually transmitted diseases—along with the benefit of being able to prevent these diseases with condoms.

Partner refusal to use condoms, but no participant's own refusal to use condoms, was associated with not using condoms. This may result either from the adolescent's perception

that his or her partner would not want to use condoms or from the inability or lack of confidence in ability to discuss the issue of condoms with the partner. Initiation of condom use by both partners was a significant predictor of use. AIDS education and prevention should thus incorporate teaching adolescents how to talk to their partners about sex and using condoms when they have sex, and consider couple-oriented in addition to individually targeted education.

Several caveats are noteworthy. One limitation of the study is the low participation rate of the schools. A factor in the low participation rate may have been that participation was linked to an offer for schools to have their teachers participate in a training session to become AIDS educators. Because many of the schools did not have the capacity to send teachers to such a training course, they may have refused to participate in the study altogether. Because of data protection laws in Hungary, no data were available concerning the social characteristics of the students in the non-participating schools and classes. Those data available revealed no differences, but the fact that 61% of the respondents were male and only 39% were female suggests that generalizability is a potential limitation of the study. Another limitation of the study is that the questionnaires were based on self-reported answers. Previous research about the reliability of sexual histories obtained from adolescents as verified by chart documentation, however, indicates that adolescents generally provide reliable sexual histories[24].

The findings of our research support the need to examine predictors of condom use. Several behavioural models, including the Health Belief model[25,26] and the Stages of Change model[27,28] and the notion of self-efficacy[29] have been proven useful for examining and understanding condom use among sexually active populations. While this study included measures for some of the above models' components (e.g. severity and susceptibility from the Health Belief model and consistency of condom use related to stages of change), we were missing other key variables, and were unable to test these theoretical models adequately with the data available. Incorporating additional variables related to these theories into the research design for a future repetition of the survey would strengthen the findings; additionally, these measures would be especially helpful for developing tailored interventions for Hungarian youth related to condom use. To reach all adolescents, AIDS prevention education needs to focus on different levels of condoms use, with a special emphasis on female teenagers.

Acknowledgements

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Table 1

Condom use among sexually active secondary school students—demographics

Characteristic	Total	Always		Sometimes		Never	
	N	n	(%)	n	(%)	n	(%)
Total	679	272	(40.1)	174	(25.6)	233	(34.3)
Demographics							
Type of school[†]							
high	241	93	(38.6)	55	(22.8)	93	(38.6)
trade-high	211	89	(42.2)	48	(22.7)	74	(35.1)
trade	227	90	(39.6)	71	(31.3)	66	(29.1)
Gender[†]							
male	365	162	(44.4)	108	(29.6)	95	(26.0)
female	314	110	(35.0)	66	(21.0)	138	(43.9)
Date of birth[†]							
1975–77	45	16	(35.5)	13	(28.9)	16	(35.5)
1978	152	58	(38.2)	36	(23.7)	58	(38.2)
1979	220	74	(33.6)	53	(24.1)	93	(42.3)
1980–82	244	117	(47.9)	70	(28.7)	57	(23.4)

No significant difference on the *P*<0.05 level was found between always and sometimes

[†]significant difference on the *P*<0.05 level between at least sometimes and never

Table 2

Condom use among sexually active secondary school students—attitudes

| Characteristic | Total | Condom use | | | | | |
| | | Always | | Sometimes | | Never | |
	N	n	(%)	n	(%)	n	(%)
Total	679	272	(40.1)	174	(25.6)	233	(34.3)
Perception of own condom use behaviour and knowledge about condom use							
Initiation of condom use [*][†]							
both	394	244	(61.9)	121	(30.7)	29	(7.4)
mostly mine	58	18	(31.0)	32	(55.2)	8	(13.8)
mostly my partner's	37	10	(27.0)	20	(54.1)	7	(18.9)
don't use condoms	186	0	(0.0)	0	(0.0)	186	(100)
I would partner won't [†][‡]							
no	661	269	(40.7)	171	(25.9)	221	(33.4)
yes	18	3	(16.7)	3	(16.7)	12	(66.7)
Partner would I won't [*]							
no	662	270	(40.8)	166	(25.1)	226	(34.1)
yes	17	2	(11.8)	8	(47.1)	7	(41.2)
Knowledge about condom use							
low	193	65	(33.7)	56	(29.0)	72	(37.3)
high	441	188	(42.6)	106	(24.0)	147	(33.3)
Attitudes and feelings about AIDS							
Is AIDS dangerous? (perceived severity)							
not at all	6	0	(0.0)	2	(33.3)	4	(66.7)
not very much	6	3	(50.0)	2	(33.3)	1	(16.7)
medium	15	5	(33.3)	3	(20.0)	7	(46.7)
pretty much	85	30	(35.3)	26	(30.6)	29	(34.1)
very much	554	228	(41.2)	139	(25.1)	187	(33.8)
Are you afraid of AIDS? [†]							

Characteristic	Total N	Always n	Always (%)	Sometimes n	Sometimes (%)	Never n	Never (%)
not at all	52	13	(25.0)	10	(19.2)	29	(55.8)
not very much	105	40	(38.1)	24	(22.9)	41	(39.0)
medium	115	43	(37.4)	35	(30.4)	37	(32.2)
pretty much	169	66	(39.1)	55	(32.5)	48	(28.4)
very much	225	105	(46.7)	48	(21.3)	72	(32.0)
Chances of getting infected? (perceived susceptibility)							
not at all	232	88	(37.9)	50	(21.6)	94	(40.5)
not very much	247	96	(38.9)	78	(31.6)	73	(29.6)
medium	110	46	(41.8)	27	(24.5)	37	(33.6)
pretty much	45	19	(42.2)	12	(26.7)	14	(31.1)
very much	26	12	(46.2)	5	(19.2)	9	(34.6)
Is AIDS preventable?[†]							
not at all	21	3	(14.3)	6	(28.6)	12	(57.1)
not very much	7	1	(14.3)	2	(28.6)	4	(57.1)
medium	149	55	(36.9)	37	(24.8)	57	(38.3)
pretty much	183	73	(39.9)	48	(26.2)	62	(33.9)
very much	294	129	(43.9)	76	(25.9)	89	(30.3)
Opinion about condoms							
Condoms are unnoticeable	141	90	(63.8)	24	(17.0)	27	(19.1) [*†]
Finally no side effects	163	100	(61.3)	34	(20.9)	29	(17.8) [*†]
Condoms decrease pleasure	194	47	(24.2)	62	(32.0)	85	(43.8) [*†]
Condoms are too tight	62	13	(21.0)	21	(33.9)	28	(45.2) [*]
Condoms fall off	16	3	(18.8)	3	(18.8)	10	(62.5) [†]
Condoms are complicated	90	20	(22.2)	22	(24.4)	48	(53.3) [†]
Condoms are safe	376	189	(50.3)	113	(30.1)	74	(19.7) [†]

[*] significant difference on the *P<0.05* level between always and sometimes

[†] significant difference on the *P<0.05* level between at least sometimes and never

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Table 3

Predictors of condom use among sexually active secondary school students—multivariate analysis

Characteristic (reference group)	Condom use			
	Irregular vs. Consistent		None vs. Any?	
	OR	(95% CI)	OR	(95% CI)
Opinion about condoms				
Condoms are unnoticeable	0.4	(0.2, 0.7)	0.7	(0.4, 1.2)
Finally no side effects	0.6	(0.4, 1.0)	0.6	(0.3, 0.9)
Condoms decrease pleasure	1.5	(0.9, 2.5)	1.8	(1.2, 2.9)
Condoms are too tight	2.2	(1.0, 5.1)	2.1	(1.1, 4.0)
Condoms fall off		—		—
Condoms are complicated		—	2.3	(1.3, 4.0)
Condoms are safe		—	0.4	(0.3, 0.6)
Attitudes and feelings about AIDS				
Is AIDS dangerous?		—		—
Are you afraid of AIDS?				
(not at all to medium)			1.7	(1.1, 2.6)
(very much)	0.6	(0.4, 1.0)		—
Chances of getting infected?		—		—
Is AIDS preventable?		—		—
Perception of own condom use behaviour and knowledge about condom use				
Initiation of condom use				
(both of us)	0.3	(0.2, 0.5)		N/A
Knowledge about condom use, high	0.7	(0.4, 1.1)		—
I would partner won't		—	4.5	(1.5, 13.7)
Partner would I won't		—		—
Control variables				
Type of school		—		—
Gender (females)		—	4.1	(2.6, 6.5)
Date of Birth				
(1980)		—	0.5	(0.3, 0.8)

Condom use

Characteristic (reference group)	Irregular vs. Consistent		None vs. Any?	
	OR	(95% CI)	OR	(95% CI)
(1981)	—		0.2	(0.1, 0.4)