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Urban Adolescents and Sexual Risk Taking

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A B S T R A C T

The paper analyzes socio-cultural and psychosocial factors affecting sexual activities and related risk-taking behaviors in Croatian high-school students. It attempts to determine the correlates of sexual activity, early sexual initiation, the number of sexual partners, and the use of contraceptives and condoms. Due to the gender-specific trajectories of sexual socialization and initiation, all the analyses were carried out separately for female and male students. The results point out gender-specific structure of adolescent sexual risk-taking, clustering of risk-taking activities, and the habitual character of sexual risk-taking. These findings should be instrumental for the development of a comprehensive school-based sex education curriculum that Croatia lacks.

Introduction

Over the past few decades the sexual activity of adolescents has attracted a great deal of attention from experts in a variety of professions. The reason for this is mainly the fact that early sexual activity, combined with other risky behavior characteristic for the adolescent period, exposes young people to greater risks of unplanned pregnancies and infection with sexually transmitted diseases (STDs), including HIV/AIDS[1,2].

Bearing in mind that the adolescent period is one of experimentation – trying out new experiences – but as a rule with a lack of the knowledge or skills necessary to make the right choices, it is not surprising that most research into risky behavior is focussed precisely on the behavior of adolescents.

Sexual activity normally begins in adolescence, but the age of sexual initiation varies according to several characteristics: regional, ethnic, social, psychological. Over the past century, social and cultural changes and changes in behavior resulting from the biological and psychological changes in the developmental aspects of the adolescent period, have led to

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a trend of increasingly early sexual initiation throughout the world. Biologically, mean age for menarche has decreased. At the same time, social changes have resulted in an increase in the age when young people get married. As a result the time between sexual maturity and marriage has become significantly longer. The increase in pre-marital sexual activity in young people is a logical outcome of this situation.

Studies into the sexual behavior of adolescents show that over the past few decades the proportion of adolescents with sexual experience is increasing, and the age of sexual initiation is decreasing. (The latest figures however, indicate that this trend is changing in most post-industrial countries). In all age groups, there are more male students with sexual experience than female students. In general the proportion of young men with sexual experience is equal to the proportion of young women when they are a year older[3,4,5].

Changes in adolescent sexual behavior have brought about a significant increase in the risk of STDs transmission and unplanned pregnancy in the adolescent population. Behaviors especially relevant to this problem are: early sexual debut, unprotected sexual contact, as well as other risky behavior such as the use of cigarettes (tobacco), alcohol and drugs.(1) Many predictors of sexual activity in early adolescence have already been described, including early puberty, and of these the following are particularly emphasized: sexual maturation, sexual abuse, poverty, lack of dedicated parenting, failure in school, or abandonment of schooling, and the influence of the peer subculture. Factors linked to a postponement of sexual initiation are living with both parents in a stable family situation, regular involvement in religious or social activities and a higher family income[6].

Sexual risks are a serious public health problem amongst adolescents in many areas. Teenage pregnancy, regardless of its outcome – a birth or an abortion – bears greater health, social and psycho-emotional risks. Abortions performed by untrained persons, high risk pregnancies and births, maternal, perinatal and infant mortality, abandonment of education, unemployment or low paid work and a poor social and economic status are the well-known results of teenage pregnancy[7]. The risks of STDs infection, including HIV/AIDS are at least as dramatic. It is estimated that half of all new HIV infections occur in young people up to 25 years of age. At least 10–20% of sexually active adolescents are infected with sexually transmitted *chlamydia trachomatis* and 10–30% with *human papilloma virus* (HPV). These diseases are a serious threat to the general and reproductive health of young people, as they have serious consequences, including pelvic inflammatory disease, ectopic pregnancy, infertility, cervical cancer and an increased susceptibility to HIV infection[8].

Although sexual health is a basic component of general health, many studies throughout the world and several in Croatia show that adolescents lack knowledge of contraception and disease prevention, and often have an inadequate (fragmentary) understanding of sexuality and reproductive health. Of course, several other factors also influence the behavior of adolescents – demographic, socio-cultural and psychosocial – both directly and indirectly, through their influence on adolescent knowledge and attitudes.

(1) The former is correlated with a higher number of sexual partners, which is an important determinant of the risk of STD infection.

Risky behavior in adolescence, considered from a psychosocial perspective, is linked to the psychological development of adolescents and their social environment (family, peer group, school, community, and mass media). Gender can also influence risky behavior, as may age and level of biological development. On a macro level, cultural codes organize socially (un)acceptable sexual behaviors, usually also prescribing normative age range requirements[3,9,10,11].

The age of initial sexual activity is a very variable social phenomenon. The age of sexual »debut« in most European countries is similar to the age in the USA – although there are variations between the north and south of Europe. In Africa initiation begins earlier and in Asia it is later. These differences are a combination of social and cultural and bio-psychological factors[12,13].

Protected sexual contacts are less frequent amongst teenagers than in the adult population, although over the past two decades the use of contraceptives has grown amongst adolescents. More precisely, studies show that the use of condoms amongst young people is growing, but that it is not consistent[14, 15]. When an adolescent relationship lasts and becomes stable, condoms are used less and a change is made to use of the contraceptive pill, which does not offer protection against sexually transmitted diseases. This pattern of contraceptive use has been noted in most post-industrial countries[15,16,17]. Unfortunately, the combined effect of serial monogamy and infrequent condom use in longer-term relationships increases the risk of exposure to and the transmission of sexually transmitted diseases, especially viral ones (HSV, HPV and HIV), which are linked to chronic and frequently asymptomatic infections(2).

According to research into the sexual behavior of adolescents in Croatia carried out from 1971 to the present, the proportion of adolescents who have sexual experience is increasing and the age of sexual debut has somewhat decreased. In 1971, 16.0% of female students and 30.0% of male students between the ages of 15-19 had had sexual experience[18]. Twenty years later the proportion of adolescents with sexual experience had increased to 22.1% of female students and 48.9% of male students of the same age[19]. The latest studies show that 24.3% of young women and 46.3% of young men, high school students between 15 and 19 years of age are sexually experienced. On average, young people in Croatia have their sexual debut at 17, but more than a third of sexually active adolescents have their sexual debut at the age of 15 or earlier. About 20% of adolescents (10% of female students and 27% of male students) have had 4 or more sexual partners[20,21].

The goal of this study is to analyze sexual behavior of urban adolescents and determine the factors that affect sexual activity and risk-taking behavior in young people in Croatia. The study attempts to determine the predictors of sexual activity, early sexual initiation, the number of sexual partners, the use of contraceptives and condoms, and the relationship between sexual behavior and other risky behaviors common in adolescence. These results should be instrumental for the development of efficient sexual health programs targeting adolescents.

(2) Condom use is determined by the assessment of the risk of HIV infection, the assumed level of support from the partner and the assumption that other peers use them too[16,17].

Materials and Methods

Sample

Our research into the sexual behavior of adolescents was carried out during 1997 in high schools in Zagreb. We have surveyed 2,070 students between 15 and 19 years of age, from 1st to 4th graders in 10 high schools with a variety of specialization; 1,236 female students (59.7%) and 834 male students (40.3%) took part in the research. By age groups, 12.4% of our respondents were 15 years old, 20.6% 16, 25.2% 17, 22.8% 18 and 19.0% 19 or more (up to 21). Students who took part in the survey were from four technical schools with an equal number of male and female students, two medical (nurse) schools with mostly female students, the police high school with mostly male students, and two grammar schools with an equal number of young women and men[3].

The survey was carried out in the form of a self-administered questionnaire. Students were surveyed collectively in the chosen schools, in class groups, over a school period of 45 minutes following a short explanation of the reasons for and purpose of the study. The explanation also included reassurance regarding anonymity and the confidentiality of the data collected. The questionnaires were pre-tested during November 1996 on 150 students from 4 grades (one each from a grammar school, a technical high school, a medical and a police high school) after which some minor changes were made. The questionnaire contained a total of 64 questions divided into 4 sections. In the first section, there were 13 questions regarding socio-demographic characteristics of the sample. The second group consisted of 15 questions measuring students' knowledge of human reproduction, contraception, and sexually transmitted diseases including HIV/AIDS. The third group of questions focused on sexual behavior: sexual experience, age of sexual debut, number of sexual partners, use of contraception etc. The final group of 18 questions measured attitudes toward responsible sexuality, gender roles, etc.

Measures

Parental education was assessed in three levels including primary school, high school and college/university.

An indicator of parental control, living with both parents, was obtained by dichotomization of the variable describing the living situation of the subjects at the time of the survey (1 = lives with both parents; 0 = other possibilities).

Type of school is a dichotomized variable where 1 indicates students at the grammar school and 0 the others (technical, medical and police schools). The grammar school students are separated since their education gives them the greatest chance of continuing education (college/ /university) and because their parents' level of education is generally higher.

The variable smoking has two values: 1 indicates subjects who smoke regularly (regardless of the number of cigarettes) and 0 indicates those who smoke occasionally or not at all. Bivariant analyses have shown that these two groups are significantly different in relation to the age of sexual debut and the number of sexual partners.

The variable school attainment represents the grade with which the respon-

[3] In terms of school achievement 3.8% students had completed the previous grade with »satisfactory« mark or had had to repeat the grade, 33.0% had passed with »good«, 46.4% with »very good«, and 16.3% with »excellent«. As for parental education, 20.0% mothers and 9.9% fathers had completed primary school, 53.6% mothers and 56.7% fathers had high school education, and 26.2% mothers and 32.0% fathers had college or university education.

dent completed her/his previous year's schooling.

Length of intimate relationship is measured by the question »How long was your longest sexual relationship?« and a six--item scale ranging from »one week« to »more than a year«.

Early sexual debut is a dichotomized variable, where 1 indicates subjects who had their first sexual experience at age 15 or younger and 0 all the others. The reason why we took 15 years as the cut--off point was that recent research studies carried out in the US and Western Europe have shown that adolescents with coitarche at 14 or earlier experience a significantly higher levels of sexual risk--taking[22,23]. Since Croatian adolescents on average enter sexual relationships a year later than their peers in Western European countries and the USA, we adapted the age level accordingly.

The number of sexual partners, the variable that never displays a bell shaped curve distribution, was dichotomized in our analysis such that 0 indicates subjects who have had only one sexual partner and 1 those who have had two or more.

Sexual abuse was assessed with the question »Have you ever had an experience of a forced/unwanted sexual intercourse?«; the values were 1 = yes, 0 = no.

Attitude towards the use of condoms is a cumulative index composed of the following variables: »Correct use of condoms is very important in the prevention of AIDS and other sexually transmitted diseases«; »The use of condoms destroys intimacy and spontaneity in sexual relationships« (inversely recoded); »Condom use provides safety from unwanted pregnancy and sexually transmitted diseases«; and »It is necessary to use a condom in every penetrative sexual contact (oral, anal or vaginal) for protection against AIDS«. The responses were recorded on a three-item scale where –1 indicated disagreement, 0 neither disagreement nor agreement, and 1 agreement[(4)]. The theoretical range of the values of index was therefore from –4 to 4, where a positive value indicates a positive attitude towards condom use. The mean in our sample was 1.9 showing a moderately positive attitude[(5)].

Statistical analysis

The statistical analysis was carried out using the SPSS/PC version 10. The t-test was used to compare differences between groups. Multivariate analysis was carried out with logistic regression.

Results

In view of the proven differences in the structure of predicting variables of the sexual behavior of teenage boys and girls[22,24,25,26], all the analyses were calculated separately for female and male students (Table 1). We believe that this kind of approach is not only methodologically correct, but also necessary bearing in mind that research into sexual risk-taking behavior has practical implications, providing guidelines and suggestions for prevention programs.

Predictors of sexual debut

The age at coitarche and risk-taking behavior are related phenomena[27]. Early experience assumes greater sexual risk,

(4) All four variables had asymmetric distribution of responses.

(5) As expected, female students have a more positive attitude towards the use of condoms than their male peers ($t = 5.64$, $DF = 1717.49$, $p < 0.001$). We found no difference in the attitudes towards condoms between sexually experienced and inexperienced students ($p < 0.9$).

TABLE 1
SEXUAL EXPERIENCE, AGE AT FIRST INTERCOURSE, NUMBER OF SEXUAL PARTNERS, AND CONTRACEPTIVE USE AMONGST FEMALE AND MALE HIGH SCHOOL STUDENTS IN ZAGREB

	Female students		Male students	
	No	%	No	%
	1236	59.7	834	40.3
Coital experience (by age)				
15 years	5	2.7	4	5.6
16 years	34	11.3	25	19.8
17 years	72	21.6	77	40.5
18 years	97	36.3	111	54.1
19 years	92	60.9	169	69.8
Coitally experienced	300	24.3	386	46.3
Age at first intercourse				
15 years	102	34.0	143	37.0
16 years	198	66.0	243	63.0
Number of lifetime sexual partners				
1 person	182	60.7	135	35.0
2 + more	118	39.3	251	65.0
Contraceptive use at first				
None	54	18.4	115	31.3
Coitus interruptus/natural method	82	27.9	43	11.7
Condom	137	46.6	174	47.4
Hormone pill	2	0.8	2	3.5
Other	19	6.5	19	6.0
Contraceptive use at last intercourse				
None	66	22.0	83	21.5
Coitus interruptus/natural method	70	23.3	43	11.1
Condom	128	42.7	202	52.3
Hormone pill	22	7.3	20	5.2
Other	10	3.3	21	5.4
Frequency of contraceptive use				
Always	143	47.7	154	39.9

regardless of the type of possible negative outcome (unwanted pregnancy, infection with STDs or sexual victimization). The reasons for this are to be found primarily in the fact that understanding of sexual responsibility and communication skills are positively correlated with age. It is also known that the age difference between partners is greater in cases of early sexual debut[28,29], which often translates into the significant differences in the power of decision-making (the older partner is usually dominant). This imbalance of power can additionally increase sexual risks for younger partner.

Table 2 shows the correlates of adolescent sexual experience. The first coital experience is determined by mother's education, living with both parents (in case of male students), attendance of grammar school, and smoking. Living with both parents, which is an indicator of pa-

TABLE 2
SOCIO-CULTURAL AND PSYCHOSOCIAL CORRELATES (PREDICTORS) OF THE ADOLESCENT EXPERIENCE OF SEXUAL INTERCOURSE; LR (LOGISTIC REGRESSION)

	Female students (N = 1212)	Male students (N = 817)
	Odds ratio (95% Confidence interval) $R^2_{logit} = 0.10$	Odds ratio (95% Confidence interval) $R^2_{logit} = 0.18$
Mother's education	1.05 (0.81–1.37)	1.15 (0.87–1.52)
Father's education	0.94 (0.71–1.23)	1.09 (0.78–1.52)
Living with both parents (1 = yes)	0.79 (0.56–1.13)	0.55 (0.38–0.78)
Grammar school student (1 = yes)	0.38 (0.28–0.53)	0.28 (0.19–0.41
School success	0.96 (0.81–1.15)	0.97 (0.79–1.18)
Smoking (1 = yes)	3.56 (2.64–4.8)	4.69 (3.25–6.75)

rental control, and grammar school attendance, an indicator of the family socioeconomic status(6), reduce the probability of sexual experience for both male and female students.

According to our expectations based on high levels of various risk-taking behaviors in adolescence[27,30,31,32], smoking was found to be positively linked to sexual experience. The probability that the subject is coitally experienced is about 4.5 (male students) to 3.5 times (female students) greater among smokers than among non-smokers. This does not mean, of course, that there is a causal relationship between smoking and sexual experience. Most probably it is a combination of psychophysiological and psychosocial factors – as, for example, postulated by the sensation seeking model[33] – which determines both sexual debut and the tendency to smoke.

The analysis shown in Table 3 was carried out in order to pinpoint the factors that influence early sexual debut (first coitus at age 15 or younger). In contrast to another report[28], living with both parents does not seem to have an effect on early sexual debut. Bearing in mind the findings in the previous analysis, one possible explanation is that parental control does not have a linear effect. It is possible that there is a (negative) threshold effect, a point after which further increase in parental control either produces zero impact on sexual initiation or some sort of a backlash (a further pointer for this is that when regression analysis is carried out exclusively on coitally experienced adolescents, living with both parents has a significant *positive* effect on male students' early sexual debut).

As we have already pointed out, attending a grammar school and smoking have significant impact on sexual experience. While grammar school attendance reduces the likelihood of early sexual debut (before the age of 16), smoking is posi-

(6) In comparison with students at other schools, grammar school students' families have higher socioeconomic status. The finding confirms the importance of family status for adolescent sexual behavior[28].

TABLE 3
SOCIO-CULTURAL AND PSYCHOSOCIAL CORRELATES OF EARLY SEXUAL DEBUT; LR (1 = 15 OR YOUNGER)

	Female students (N = 1236)	Male students (N = 834)
	Odds ratio (95% Confidence interval)	Odds ratio (95% Confidence interval)
Mother's education	0.75 (0.49–1.14)	1.26 (0.9–1.77)
Father's education	1.3 (0.84–2.01)	0.86 (0.57–1.3)
Living with both parents (1 = yes)	0.89 (0.52–1.51)	1.46 (0.94–2.27)
Grammar school student (1 = yes)	0.37 (0.22–.063)	0.49 (0.3–0.8)
Smoking (1 = yes)	4.22 (2.73–6.54)	2.65 (1.78–3.95)
Experience of sexual victimization (1 = yes)	5.83 (2.5–13.6)	6.76 (3.03–15.11)

tively correlated with early coital experience. Of particular importance is the finding that experience of sexual abuse is correlated with early sexual debut. Although the causal link is unclear, since it is possible that it was precisely the early debut that was forced, our findings corroborate current research conclusions[28,34] stating that sexual abuse often causes non-discriminative sexual behavior by affecting the victim's self-esteem.

Without underestimating limitations of the instruments measuring socio-cultural, socioeconomic, and psychosocial factors used in this study, the small percentage of the explained variance[(7)] of early sexual initiation[(8)] seems to confirm the importance of the inclusion of psychological and biological factors[24].

Number of sexual partners

As a rule, an increase in the number of sexual partners increases sexual risks[35]. An earlier sexual debut, later marriage and a trend towards permissiveness – all cross-cultural phenomena, at least when talking about complex societies – have resulted in growing sexual experience amongst adolescents. In comparison with their parents' cohort, the period of adolescent sexual experimentation lasts longer and includes more partners. An understanding of the factors encouraging partner change is therefore an important condition of successful prevention of sexual risk-taking.

Table 4 shows the four correlates of the number of sexual partners: respondent's age, smoking, sexual victimization[(9)] (in case of male students), and early

(7) The percentage of explained variance was calculated according to the following formula: $R^2_{L(logit)} =$ -2LLnull – (-2LLmodel) / -2Llnull

(8) Early sexual debut was reported by 11.8% respondents (35.7% of those with coital experience).

(9) In the female subsample it borders with significance.

TABLE 4
SOCIO-CULTURAL AND PSYCHOSOCIAL CORRELATES OF THE NUMBER OF SEXUAL PARTNERS IN ADOLESCENCE; LR (1 = TWO OR MORE SEXUAL PARTNERS)

	Female students (N = 290)	Male students (N = 372)
	$R^2_{logit} = 0.16$	$R^2_{logit} = 0.15$
	Odds ratio (95% Confidence interval)	Odds ratio (95% Confidence interval)
Respondent's age	1.92 (1.27–2.9)	1.51 (1.15–1.97)
Mother's education	0.8 (0.48–1.34)	1.23 (0.82–1.87)
Father's education	1.58 (0.9–2.73)	0.9 (0.54–1.95)
Living with both parents (1 = yes)	1.24 (0.64–2.4)	1.08 (0.64–1.82)
Grammar school student (1 = yes)	1.1 (0.62–1.97)	1.03 (0.54–1.99)
School success	0.81 (0.58–1.13)	1.08 (0.8–1.47)
Smoking (1 = yes)	2.76 (1.13–6.78)	2.03 (1.27–3.26)
Sexual victimization (1 = yes)	1.93 (0.51–7.39)	5.55 (1.98–15.51)
Early sexual debut (1 = 15 or younger)	3.1 (1.31–7.3)	6.2 (3.43–11.2)

sexual debut. Logically, age increases the likelihood that a respondent has had more than one sexual partner. Though equally commonsensical, the finding that earlier sexual initiation affects the number of lifetime sexual partners requires further analysis that should focus on possible age-specific patterns of sexual socialization.

As reported[34], sexual victimization seems to be a substantial factor affecting the number of sexual partners. In our sample, the odds of having four or more sexual partners is over 5.5 times greater among male students who claim to be victims of sexual abuse[(10)].

Contraceptive use

Having in mind the current epidemiological situation[(11)], correct and consistent use of contraception is the only realistic way to reduce sexual risks in the population of sexually active adolescents. An overview of research into adolescent sexuality in Croatia shows a rise in the use of contraceptives, especially condoms[26]. However, the use of contraceptives, as shown by this study, is far from

(10) It should be noted here that previous studies and research experience of both authors suggest that some male students provide false answers about sexual victimisation – joking about »being sexually seduced by women«.

(11) The situation is characterized by increasingly widespread »new sexually transmitted diseases« (chlamydia and HPV) with the constant threat of HIV/AIDS[20].

TABLE 5
SOCIO-CULTURAL AND PSYCHOSOCIAL CORRELATES OF THE USE OF CONTRACEPTIVES AT THE MOST RECENT INTERCOURSE; LR

	Female students (N = 287)	Male students (N = 370)
	R^2_{logit} = 0.22	R^2_{logit} = 0.20
	Odds ratio (95% Confidence interval)	Odds ratio (95% Confidence interval)
Respondent's age	1.08 (0.82–1.42)	0.96 (0.74–1.23)
Mother's education	1.92 (1.1–3.35)	0.66 (0.44–1.07)
Father's education	0.76 (0.43–1.32)	1.18 (0.69–2.01)
Living with both parents (1 = yes)	1.48 (0.73–2.99)	1.62 (0.93–2.83)
Grammar school student (1 = yes)	1.08 (0.58–2.01)	1.65 (0.8–3.38)
School success	1.15 (0.81–1.64)	0.92 (0.67–1.26)
Smoking (1 = yes)	1.07 (0.61–1.9)	0.62 (0.38–1.02)
Sexual victimization (1 = yes)	0.62 (0.21–1.84)	1.18 (0.43–3.26)
Duration of the longest sexual relation	0.87 (0.63–1.01)	0.99 (0.84–1.16)
Early sexual debut (1 = 15 or younger)	0.94 (0.5–1.77)	1.05 (0.57–1.94)
Number of sex partners 1 = 2 or more	0.13 (0.04–0.4)	0.76 (0.42–1.38)
Contraception used at first intercourse (1 = yes)	7.55 (4.22–13.49)	8.73 (5.3–14.39)

satisfactory: less than half the subjects (43.5%) regularly use contraceptive means/methods[12].

As Table 5 shows, the use of contraceptives may be best described as a *habit* or a behavioral pattern that is initiated at the beginning of sexual life[13]. The *use of contraceptives at the first sexual intercourse* is the most robust predictor of the contraceptive use at the last sexual intercourse for both male and female respondents. The odds of having used contracep-

[12] If we rule out *coitus interruptus* (13.7%) and so-called natural methods (2.8%), as we have in the analysis presented in table 5, 58.7% of respondents used some form of contraception at their most recent intercourse.

[13] In order to avoid the possibility that for certain number of respondents the first and the most recent intercourse might be the same event, we have filtered out all the respondents whose »longest sexual relation« lasted less than eight days. The procedure has been applied to analyses presented in Tables 5–7.

TABLE 6
SOCIO-CULTURAL AND PSYCHOSOCIAL CORRELATES OF CONSISTENT USE OF CONTRACEPTIVES; LR (1 = »ALWAYS USES CONTRACEPTIVES«)

	Female students (N = 286)	Male students (N = 370)
	$R^2_{logit} = 0.12$	$R^2_{logit} = 0.20$
	Odds ratio (95% Confidence interval)	Odds ratio (95% Confidence interval)
Respondent's age	1.0 (0.77–1.29)	0.94 (0.73–1.22)
Mother's education	1.46 (0.88–2.43)	1.22 (0.79–1.88)
Father's education	1.05 (0.62–1.78)	0.69 (0.41–1.18)
Living with both parents (1 = yes)	1.24 (0.65–2.37)	0.74 (0.42–1.29)
Grammar school student (1 = yes)	1.0 (0.56–1.77)	1.39 (0.69–2.78)
School success	1.02 (0.74–1.42)	0.99 (0.72–1.37)
Smoking (1 = yes)	0.45 (0.26–0.76)	0.55 (0.33–0.9)
Sexual victimization (1 = yes)	0.62 (0.22–1.72)	1.86 (0.64–5.4)
Duration of the longest sexual relation	1.08 (0.9–1.28)	1.03 (0.88–1.2)
Early sexual debut (1 = 15 or younger)	1.11 (0.62–2.0)	1.0 (0.54–1.83)
Number of sex partners (1 = 2 or more)	0.35 (0.25–0.81)	0.75 (0.41– 1.38)
Contraception used at first intercourse (1 = yes)	3.32 (1.95–5.64)	9.62 (5.64–16.4)

tives at the most recent intercourse is about 7.5 times greater among female students and more than 8 times greater among male students who had also used it at their first intercourse. This finding emphasizes the importance of the timing of sexual education. Clearly, in order to have an impact, preventive programs must precede the first coital experience.

In the female subsample, use of contraceptives at the most recent intercourse is additionally correlated with mother's education[14].

[14] In order to detect possible collinearity, we checked the correlation coefficients between age, early sexual debut, and number of sexual partners in the analyses presented in tables 5–7. Although this method is not absolutely reliable, the range of coefficient values (0.27–0.47) suggests that collinearity problem is highly unlikely.

As we have already stated, consistent use of contraceptives is a key element in the prevention of sexual risk[15]. The results shown in Table 6 provide additional arguments in favor of the habitual character of contraceptive use. The most powerful predicting variable for the consistent use of contraceptives is contraceptive use at the first intercourse. The finding is especially robust in the male subsample. The odds of using contraceptives consistently are more than 9.5 times greater amongst male students who used some contraceptive method at their first intercourse.

In the male subsample, consistent use of contraceptives is additionally correlated with smoking. In the case of female students, smoking and the number of sexual partners decrease the frequency of contraceptive use. There are at least two possible explanations for this. On the one hand, a higher number of sexual partners *may* indicate greater sexual excitability, problems in management of emotions, and/or poor personal integrity. All of these factors lead to a deficit of negotiation power and thus to infrequent use of contraceptives. On the other hand, it is possible that a higher number of partners is simply an expression of a general risk-seeking propensity responsible both for a systematic novelty seeking and underestimation of risks.

Condom use

Finally, we wanted to look at the structure of social, cultural, and psychosocial influences on the use of condoms in the adolescent population. Although condoms are the only means that simultaneously protect from unwanted pregnancy and from STDs, their consistent use is rare[36]. The reasons for such a situation are to be found in a combination of factors, ranging from widespread myths (e.g. that only promiscuous people use condoms) to the price and potentially disruptive elements regarding sexual pleasure and spontaneity.

Since condom use is one of the major goals of sex education and the prevention of sexual risk-taking, we wanted to determine the factors influencing condom use in adolescence[16]. In the female subsample we found three factors that increase the odds of condom use, and two with the opposite effect (Table 7). Whilst mother's education[17], positive attitudes toward condom use[18], and the use of condoms at the first sexual intercourse increase the likelihood of their use at the last intercourse, the number of sexual partners and the length of intimate relationships[19] work in the opposite direction[37,38].

In the male subsample there are three significant correlates of condom use. All three – living with both parents, pro-condom attitudes, and condom use at the first sexual intercourse – have a positive effect on condom use. The odds of having used a condom at the most recent intercourse is almost 11 times greater among male students (and over 9 times greater amongst female students) who also used it at their first intercourse.

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[15] In our sample 43.5 of respondents (47.7% of female and 39.9% of male students) use contraceptives on regular basis.

[16] Slightly more than half of our respondents (53.5%) used condoms at their most recent intercourse.

[17] The effect shows the role of mothers and emphasizes the importance of communication about sexuality within the family.

[18] The influence of attitudes on the use of condoms in the young female population has also been confirmed[32].

[19] This variable was used as a proxy for the tendency to form longer intimate relationships.

TABLE 7
SOCIO-CULTURAL AND PSYCHOSOCIAL CORRELATES OF CONDOM USE AT THE MOST RECENT SEXUAL INTERCOURSE; LR

	Female students (N = 253)	Male students (N = 370)
	R^2_{logit} = 0.26	R^2_{logit} = 0.26
	Odds ratio (95% Confidence interval)	Odds ratio (95% Confidence interval)
Respondent's age	1.14 (0.86–1.51)	1.02 (0.77–1.34)
Mother's education	1.95 (1.1–3.45)	0.83 (0.52–1.32)
Father's education	0.73 (0.41–1.31)	0.97 (0.55–1.67)
Living with both parents (1 = yes)	1.73 (0.85–3.55)	1.89 (1.04–3.42)
Grammar school student (1 = yes)	1.02 (0.54–1.91)	1.47 (0.7–3.11)
School success	1.16 (0.8–1.67)	0.95 (0.68–1.31)
Smoking (1 = yes)	1.16 (0.65–2.09)	0.77 (0.46–1.3)
Sexual victimization (1 = yes)	0.44 (0.14–1.37)	1.73 (0.56–5.33)
Early sexual debut (1 = 15 or younger)	1.08 (0.56–2.08)	1.01 (0.53–1.93)
Duration of the longest sexual relationship	0.75 (0.61–0.92)	0.96 (0.81–1.14)
Number of partners (1 = 2 or more)	0.12 (0.04–0.39)	0.85 (0.46–1.6)
Attitudes toward condom use	1.52 (1.24–1.87)	1.31 (1.1–1.56)
Condom used at first intercourse (1 = yes)	9.29 (4.96–17.38)	10.98 (6.53–18.46)

Discussion

It is well known that gender identity influences the motivation, reactions, perceptions, self-confidence and sexual behavior of adolescents[39]. The basic reason for this, although not the only one, is the fact that social norms regulating sexual behavior are gender-specific. Norms regulating male sexuality are much looser than those regulating female sexuality. The range of behavioral and attitudional outcomes of this *double standard* was the main reason behind our decision to analyze adolescent sexual behavior separately for female and male students. In general, our analyses have confirmed the reality of the gender-specific social organization of adolescent sexuality.

Sexual experience

Sexual experience in adolescence is determined by family structure and socioeconomic status. Other studies have re-

ported similar findings[28,40]. In our sample, living with both parents (for male students only) and grammar school attendance, an indicator of family socioeconomic status, reduce the probability of sexual experience in both male and female students.

Adolescent sexuality, however, cannot be understood without a consideration of the psychosocial factors, such as general proneness to risk-taking. Although there is disagreement about the mechanisms and reasons for the observed clustering of risk-taking activities[41,42,43], the tendency was confirmed in our research. Smoking considerably increases the likelihood of coital experience in both female and male students[(20)]. Better understanding of the links between different forms of risky behavior in adolescence is extremely important for the development of successful preventive programs.

Early sexual debut

Regarding the age of sexual debut, Croatian adolescents appear comparable to their Western European and American peers: 34% of sexually active female students and 37% of sexually active male students had their first intercourse at age 15 or younger. In comparison with American data, where early sexual initiation in young women is related to ethnicity, early menarche, mother's education, looser religious convictions, and absence of family stability[23,28,30,32,44], our findings emphasize the effects of the social and economic status of the family, smoking, and sexual victimization. While grammar school attendance decreases the likelihood of early sexual debut, smoking and sexual victimization work in opposite direction[34,40,45].

The number of sexual partners

The number of sexual partners is directly linked to the risk of STD infection[45]. Since more than 53% of our subjects with coital experience had had 2 or more sexual partners[(21)], we searched for correlates. Four variables were found to be significant in both subsamples: age, smoking, early sexual debut, and sexual victimization. Consistent with other reports, early sexual debut is a significant predictor of the number of sexual partners[23,46]. As shown in previous studies[35,40,43,46], smoking considerably increases the likelihood of reporting higher than average number of sexual partners. Experience of sexual abuse, affecting self-esteem and consequently the sexual behaviour of victims, is also related to the number of sexual partners[34,46].

Use of contraceptives

The use of protection from STDs and unplanned pregnancy is a measure of the risk level of adolescent sexual behavior. According to our findings, almost 22% adolescents did not use any form of contraception at their last sexual intercourse, 16.5% used unreliable methods (coitus interruptus and natural methods), 48% used condoms and only 6% of adolescents used oral contraceptives (hormone pills).

Confirming the importance of the conceptualization of contraceptive use as a habit-forming behavior, the most robust predictor of the use of contraceptives in both subsamples is contraceptive use at the first intercourse. This corroborates earlier findings[15,17,37,47].

In addition, the use of contraceptives at the most recent intercourse is (positively) correlated with mother's education and (negatively) the number of sexual partners. In our analyses, both correla-

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(20) Smoking is a significant predictor of early sexual debut, the number of sexual partners, and inconsistent contraceptive use.

(21) 39.3% of female and 65.0% of male sexually experienced students had had 2 or more partners.

tions reached statistical significance only in female subsample.

The habitual character of contraceptive use is also confirmed in the analyses of the consistent use of contraception. The use of contraceptives at the first sexual intercourse proved again to be the strongest predictor. Unfortunately, our data point out that less than half of urban adolescents – 47.7% of female students, and 39.7% of male students – regularly use some form of contraception. We can only speculate about the rates of contraceptive use in smaller, rural areas, but they are most probably significantly lower due to lower standards of living and the fact that contraceptive choices are much narrower in small communities.

Inconsistent contraceptive use is not an unexpected finding, especially since Croatia lacks any systematic sex education. Adolescents rely on informal sources of information about contraceptives, STDs, and other practical issues related to sexuality[(22)]. Combined with often negative attitudes towards contraceptive use this results in widespread sexual risk -taking[26].

According to our analysis a larger number of sexual partners is negatively correlated to the use of contraceptives in female students[15(23)]. Additional research is necessary to shed more light on the causal links behind this finding. At present it is not clear whether the correlation reflects the low self-esteem in a certain number of young women. This may be the reason behind less discriminative sexual choices. Also, it may be responsible for less personal power in negotiations over contraceptives. Alternatively, the reason may be general and/or sexual sensation seeking and related risk-proneness. Or it may be a combination of both factors.

Since we hypothesize a habitual link between use of contraception at first and last intercourse, we have carried out an analysis of the socio-cultural correlates of the contraceptive use at first intercourse. Variables entered were: mother's and father's education, living with both parents, and high-school attendance into logistic regression analysis. We have found no significant predictors in case of male students and only one in case of female students – mother's education (exp.(B) = 1.63, C.I. /95%/ = 1.03–2.59). The finding confirms that educated mothers are better at providing certain type of information and, most probably, more willing to discuss sexuality matters with their daughters[40,47,48].

Condom use

Over the past decade the use of condoms has increased in the adolescent population. Thus in 1990 46% of sexually active high school students in the USA used a condom at the last coitus, while five years later the figure was 54%. However, the condom use is inconsistent: only 35% (1990) to 45% (1995) of teenagers use it each time they have sex[4,5]. Research in Croatia shows the similar trend. While ten years ago only 10% of young women and 24% of young men, high school students, used condoms[19,49], according to more recent studies the figures are 48% and 57%, respectively[20]. As mentioned before, the majority of them do not use condoms consistently.

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(22) Croatian adolescents learn very little about sex during schooling. Since only a small number of them discuss sex with their parents, the main source of information on sexuality, according to our respondents, remain popular and teen magazines, television, and peers.

(23) The cited study also reported a negative correlation between sexual abuse and contraceptive use, which was not confirmed in our analysis.

The variable that proved to be the strongest predictor of condom use at the last intercourse was condom use at the first intercourse, confirming habitual character of condom/contraceptive use. The finding is robust in both subsamples[24].

The length of intimate relationship decreases the likelihood of the condom use at the last intercourse (in the female subsample). It seems to confirm that after a relationship has stabilized, a large number of adolescent couples who used condoms at the beginning of their intimate relationship switch to some other form or method of protection[17,37,47]. It is well established that protection from pregnancy remains the central reason for contraceptive use in stable adolescent relationships[38].

The number of sexual partners is negatively correlated to the use of condoms in female students. (The importance of the number of partners was also found in the analysis of consistent use of contraceptives.) Young women reporting 2 or more sexual partners are significantly less likely to be using condoms[15,47].

Family characteristics also influence adolescent condom use. Mother's education is correlated with the use of condoms in the case of female students, as is living with both parents in the case of male students. These findings are confirmed by other studies[48], including those which analyzed the role of parent-child communication about sexuality[50,51].

In addition, our findings confirm the cross-cultural importance of the behavioral impact of attitudes toward condom use[16,32]. Rejecting deep-rooted cultural myths, such as that condom use signals lack of trust or a »promiscuous« inclination[50,52], pro-condom attitudes seem to reduce psychological costs related to the practice of condom use.

Implications for sexual risk-taking prevention programs

Described analyses of the structure of sexual risk-taking in adolescence have several important implications for the development of comprehensive school-based sex education programs. Bearing in mind its preventive function, sex education should start several years before the onset of sexual activity in order to develop the communicative (e.g. contraceptive use negotiation) and behavioral (e.g. proper condom use) skills necessary for responsible sexual conduct[25]. Since sexual activity is a social phenomenon, sex education programs must take into consideration the teenagers' socio-cultural environment: family situation, peer influence, and related societal norms[52,53]. Messages focused on behavioral change must be based on a sex-positive concept that debunks contemporary myths about sexuality and promotes gender equality and the acceptance of different sexual choices.

Conclusion

The socio-cultural and psychosocial analysis of sexual risk-taking presented in this study focused on the dynamics of sexual behavior of urban adolescents in Croatia. We reported behavioral differences determined by gender, social and economic status of the family, and wider social factors relevant for adolescent sexual activity. As other studies have also shown, our analysis points to the clustering of

[24] One of the few prospective studies on the use of condoms in adolescence reports similar findings[37].

[25] First of all, teenagers need sexual vocabulary. Being comfortable with »sex words« is the prerequisite for discussing sensitive and often complicated topics. The next step is developing communicative skills crucial for sexual negotiations, including the ability to resist peer pressure.

risk-taking behaviors, sexual and non-sexual. It seems clear that any intervention aiming to change certain aspects of adolescent sexual behavior, such as unprotected sexual contacts, must take into consideration not only the developmental aspects and the formation of sexual habits, but also the social and cultural context of adolescent sexuality. The latter includes both risk factors and protective factors that work within the family, the peer group, school and popular youth culture.

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RIZIČNO SEKSUALNO PONAŠANJE URBANIH ADOLESCENATA

S A Ž E T A K

Rad analizira socio-kulturne i psihosocijalne faktore koji utječu na seksualnu aktivnost i povezana rizična ponašanja srednjoškolaca u Hrvatskoj. Rad pokušava utvrditi prediktore seksualne aktivnosti, rane seksualne inicijacije, broja seksualnih partnera i upotrebe kontracepcije i prezervativa u adolescenata. S obzirom na razlike u karakteristikama seksualnog ponašanja djevojaka i mladića, sve su analize provedene odvojeno za ženske i muške ispitanike. Rezultati ukazuju na različitosti u strukturi rizičnog seksualnog ponašanja djevojaka i mladića, grupiranje rizičnih ponašanja u adolescentnoj dobi i habitualni karakter rizičnog seksualnog ponašanja. Ovi nalazi bi trebali pridonijeti razvoju sveobuhvatnog programa seksualne edukacije u školama, koji Hrvatskoj nedostaje.