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Early Sexual Intercourse and Risk Factors in Croatian Adolescents

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ABSTRACT

Sexual behaviour in adolescence is a sensitive issue and has possible immediate and long term medical and psychical consequences. The aim of the study was to examine whether early sexual intercourse varies by gender and how is associated with unhealthy behaviour and factors of psycho-social well-being. 773 boys and 857 girls of 15.5 years old, included in a representative national school-based survey, conducted in Croatia in 2006, were invited to fill in anonymous questionnaires. Sexual experience before the age of 16 years was reported by 28.6% of the boys and 16.5% of the girls. Early sexual experience in boys was associated with smoking, drinking of alcohol, marijuana taking, physical fighting, and bullying other. The odds ratio was highest for smoking. (OR:8.1; CI:5.4–12.1). For girls the same variables were associated with the early sexual intercourse, marijuana use being the strongest independent predictor (OR:8.0; CI:5.0–12.6). While controlled for other behaviours, daily smoking remained the strongest predictor for both genders. Girls who had early sexual experience were more prone to be dissatisfied with their health (OR:2.9; CI:2.0–4.2), with their life (OR:2.1; CI:1.4–3.0), communication with father and mother (OR:1.9; CI:1.2–2.8 and OR:1.7; CI:1.1–2.6) and reported more psychosomatic symptoms (OR:2.9; CI:2.0–4.3). For both genders odds were higher if they had good communication with the friend of the opposite gender. Evenings spent out with friends were associated to early sexual experience in boys and girls as well as poorer school achievement. Early menarche was associated with the probability of being engaged in the early sexual intercourse and with smoking, marijuana use and psychosomatic symptoms. Early sexual intercourse is associated with unhealthy behaviour such as smoking, substance abuse, aggressiveness and lower psychosocial well-being. Preventive educational programmes should follow multi-facet approaches and recognize differences between boys and girls. Human papillomavirus (HPV) vaccination could be part of a comprehensive approach and is not to be viewed as an isolated activity.

***Key words:** early sexual intercourse, risk factors, menarche, Croatia*

Introduction

Human sexuality includes complexity of physical characteristics and capacities for specific sex behaviours, determined by psychosocial values, norms, attitudes, and contextual factors that influence these behaviours. The major risks associated with teenage sexual behaviour include pregnancy, with physical and psychological consequences; cervical dysplasia, in which early onset of sexual activity is an important risk factor; and sexually transmitted disease, where rates, when adjusted for sexual activity, are greater for adolescents than for any other group[1]. Adolescent sexuality is a sensitive issue, teenage sexual health outgrows the previously mentioned health risks and the factors influencing risk sexual behaviour, particularly sexual intercourse and its consequences are the matter of the permanent adults' concern[2]. Sexual behaviour in adolescence can pose the immediate health risk but is also an important factor of reproductive health in later life[3]. Major concerns related to teenage sexual activity as listed above are far more important from female prospective. However, sexual behaviour of teenage boys shouldn't be neglect, as teenage boys are not only more susceptible to initiating intercourse[4], but also are becoming fully sexually active at a younger age than the girls[5,6,7], and are taking risks in doing so[8].

Different researchers show that sexual activity in adolescents is not an isolated experience and is connected to other risk behaviours, leading to variety of short term and long term consequences. Thus, it was shown that alcohol misuse and use of other substances may place teen-

Received for publication October 1, 2006

agers at greater risk of initiating early and unprotected sexual intercourse[9,10]. In addition to early (< age 13) experimentation with cigarettes and alcohol, and being involved in fighting was associated with early initiation of sexual activity independent of race or gender[11]. In other study health compromising behaviours (early initiation of sexual intercourse, cigarette smoking, alcohol and marijuana use, involvement in violence and delinquency) clustered among young people with associations being stronger for females[12]. That having tried smoking was associated with early sexual activity in both genders, while having tried drinking was associated with early sexual activity only for girls, was found for Canadian students[13].

Sexual behaviour of the young person is not only reflection of his or her personal characteristics, but is also determined by the broader surroundings in which young person lives, emphasising importance of family, peers, and school[14]. It was argued that decisions about initiation were strongly bound to social context with peers playing an important role in creating a sense of normative behavior[15]. Furthermore, among identified predictors for intimate sexual behaviours were time alone with groups of peers, and time alone with a member of the opposite sex[16]. Earlier age at first intercourse and deviant activities of peers each predicted a significantly higher risk of subsequently developing of substance use disorders[17]. Identified protective factors for early initiation of sexual activity included family and school connectedness[18]. The adolescents' relationship with their mothers was underlined, as well[19]. Reporting high academic achievement was significantly correlated with virginity and appeared to be protective for boys[20]. In another study, higher school achievement was associated with not having sexual intercourse for both sexes[21]. Several studies focused on early maturation in girls, showing that early menarche was associated to early initiation of the sexual intercourse[22,23,13]. Mellanby found that teenagers who start with sexual activity before the age of 16 take more risks than those do who wait until after that age[24].

Although sexual risk-taking behaviours during adolescence embrace different risks as well (multiple partners, unprotected intercourse, intercourse under the influence of drugs[6]), in this article we concentrated on early onset of sexual activity and associated factors. The early onset of sexual activity was defined as having had the sexual intercourse at the age of 16 or earlier. In Croatia, according to available data, the mean age of first sexual intercourse has been 17[5,25,26], and at the age before 16 minority of young people has been found as sexually active (9.7% of girls, and 23.2% of boys)[27].

The aim of the study was to examine whether selected risk factors are gender specific for the early sexual intercourse and to emphasize the implications for prevention.

Subjects, Material and Methods

Study Sample

In the article the results of the Health Behaviour in School-aged Children survey carried out in Croatia in 2006 were used. The survey involved students aged 11.5, 13.5 and 15.5 years, which in Croatia means fifth and seventh grades in the primary and the first grades in the secondary schools. In total 4,968 of the respondents were embraced, out of the 2,442 boys and 2,526 girls. In the sampling procedure the sampling unit was class, using the list of classes at the national level classes were randomly selected. For the first grades of secondary schools stratification was done, so to preserve the structure of the secondary schooling (gymnasiums, 4-year technical and 3-year vocational schools). For this specific article only the answers from the 15 years old students were used, as only for the questions about sexual experience were asked. The used sub-sample consists of 1,601 students, 773 boys and 857 girls.

Data collection

Participating students completed anonymous, structured questionnaire in a regularly scheduled classroom period under the supervision of a school counsellor. The participation was voluntary, confidentiality guaranteed completely. All filled-in questionnaires were put in the sealed envelopes, packed together and delivered to the Croatian National Institute of Public Health.

Measurement Instrument

The questionnaire had 53 questions in total. For this analysis 17 questions were used. The sexual experience was assessed as the »yes« answer to the question »Have you ever had sexual intercourse«. For the girls additional question about menstruation and the age of the menarche was asked. As the other risk behaviours the experimentation with the other substances and aggressive behaviour was assessed. For smoking the measurement was daily smoking, risky drinking was rated as drinking any sort of alcoholic beverage every week and drunkenness as being drunk twice or more. Marijuana use was measured as any use in the lifetime. Being involved in physical fight in the past 12 months, being bullied or bullied others in the past couple of months was rated as »no« or »yes« regardless the frequency in the respected period. Life satisfaction measured at the Cantril ladder was rated as positive if scored 6 or more. Satisfaction with own health measured at the 4-point scale was rated as satisfying for the »excellent« and »very good categories«. Psychosomatic symptoms were assessed using 5 point scale for 8 symptoms (headache, stomach-ache, back-ache, feeling low, being irritated or in bad temper, being nervous, difficulties in getting to sleep and dizziness), as two or more symptoms being present more that once a week. Communication was rated using 5 point scale and answers to question »How easy is for you to talk about the things that really bother you« to mother, father, best friend, friend of the same/opposite gender, and answers »easy/very easy« were used as a good communication measure. Number of close friends was subdivided as having up to three and three or more close friends. Number of evenings spent out with friends was used as a mean value of the evenings in the week. School environment

was assessed using answers to the question »How do you feel about school« and likeness as answers »I like it a lot/a bit«. The academic achievement was measured as answer to the question »In your opinion, what does your class teacher think about you school performance compared to your classmates«, at the four-point scale and the answers »very good/good« were rated as good school achievement.

Statistical analysis

Binary logistic regression analysis was used to produce unadjusted and adjusted odds ratios with 95% confidence intervals and asymptotic, two-sided, statistical significance, which indicate the likelihood of having early sexual experience for boys and girls who reported other risk behaviours like smoking, drinking, etc. Through the article statistical significance was defined by the conventional level of $p<0.05$. Two-by-two contingency tables were analysed by Fisher's Exact test. Three by two and larger contingency tables like in analysis of prevalence of early sexual experience by the age of first menarche were analysed by χ^2 test with Monte Carlo testing of statistical significance. Correlation of early sexual experience and the average number of evenings spent with friends were analysed by Man-Whitney U test and Monte Carlo test of statistical significance. Homogeneity of variance was assessed by Levene's test. Association of ordinal variables like academic achievement and nominal variables like gender, when ordinal was treated as dependent, was analysed by Somers' d test. All the analyses were carried out using SPSS 13.0 (SPSS Inc., Chicago, IL, USA) statistical software package.

Results

Early sexual experience reported 28.6% of the boys and 16.5% of the girls with statistically significant gender difference (OR:0.5, CI:.3–0.6). Boys were more often engaged in the experimentation with alcohol and in the aggressive behaviour. Although girls smoke more and

TABLE 1
EARLY SEXUAL EXPERIENCE, RISK BEHAVIOUR, SATISFACTION WITH HEALTH, FAMILY, FRIENDS AND SCHOOL DETERMINANTS BY GENDER

	Boys N	(%)	Girls N	(%)	$OR_{girls\ versus\ boys}$ (95% CI) p*
Total	744	(100.0)	852	(100.0)	
Early sexual experience (< 16 years)	213	(28.6)	141	(16.5)	0.5 (0.3–0.6) **
Other risk behaviour					
Smoking daily	138	(18.5)	181	(21.2)	1.2 (0.9–1.5)
Drinking weekly	324	(43.4)	236	(27.7)	0.5 (0.4–0.6) **
Been drunk two times or more	354	(47.5)	247	(29.0)	0.5 (0.4–0.6)**
Marijuana in the lifetime	124	(16.7)	94	(11.1)	0.6 (0.5–0.8)*
Physical fight in the last year	385	(51.7)	183	(21.5)	0.3 (0.2–0.3)**
Being bullied in the last couple of months	109	(14.7)	104	(12.3)	0.8 (0.6–1.1)
Bullied others in the last couple of months	221	(29.7)	124	(14.6)	0.4 (0.3–0.5) **
Health					
Satisfied with own health	666	(89.5)	644	(75.8)	0.4 (0.3–0.5)**
Satisfied with life	604	(81.4)	604	(70.9)	0.6 (0.4–0.7) **
Psychosomatic symptoms	185	(25.5)	388	(46.0)	2.5 (2.0–3.1)**
Family					
Easy talk to father	456	(68.3)	376	(48.5)	0.4 (0.4–0.5)**
Easy talk to mother	585	(81.9)	669	(81.3)	1.0 (0.7–1.2)
Friends					
Three or more close male friends	644	(86.7)	444	(52.2)	0.2 (0.1–0.2)**
Three or more close female friends	515	(70.2)	620	(73.1)	1.2 (0.9–1.4)
Easy talk to the best friend	572	(85.4)	786	(94.9)	3.2 (2.2–4.7) **
Easy talk to the friend of the opposite gender	445	(66.7)	491	(60.5)	0.8 (0.6–0.9)
Easy talk to the friend of the same gender	525	(77.5)	731	(88.6)	2.3 (1.7–3.0)**
Four or more evenings spent out with friends	209	(28.1)	184	(21.6)	0.7 (0.6–0.9)
School					
Liking school	345	(46.2)	428	(49.8)	1.1 (1.0–1.4)
Good academic achievement	537	(72.0)	627	(73.7)	1.1 (0.9–1.4)

OR – odds ratio for girls; CI – confidence interval; p – asymptotic 2-sided statistical significance, ** $p<0.001$, *$p<0.05$

boys have more experience with marijuana, the differences are not statistically significant (Table 1).

Girls rated their life satisfaction lower (OR:0.6, CI: 0.4–0.7), were less satisfied with their health (OR:0.4, CI:0.3–0.5), and were more inclined to report psychosomatic symptoms (two or more symptoms more than once a week; OR:2.5, CI:2.0–3.1). Girls expressed more difficulties in talking to the father (OR:0.4, CI:0.4–0.5). Although girls as well as boys had more friends of the same gender, the probability for girls to have better communication to the best friend was three times as high as for the boys (OR:3.2, CI:2.2–4.7).

Risk behaviours

Independent associations of other risk behaviours with the early onset of sexual life were assessed by binary logistic regression for the boys and for the girls separately. Odds of having early sexual experience were in boys statistically significantly higher in case of smoking, drinking, marijuana taking, and engagement in the physical fight and bullying others, while no statistically significant independent influence was noticed for being bullied (Table 2). The highest probability, independent from the other included indicators, was detected for smoking. Odds to have an early sexual experience are eight times higher (OR: 8.1, CI: 5.4–12.1) for daily smokers than for the pupils who smoke less often or who do not smoke at all. On this particular sample level, smoking is followed by marijuana use and weekly drinking. Boys who have engaged into such activity have four times larger odds (OR:4.8 and 4.6, CI:3.2–7.2 and 3.2–6.5) for having had an early sexual experience than boys who didn't report these behaviours.

Multivariate analysis revealed that even controlled for the other risk behaviour daily smoking remains the most influencing factor – boys who were daily smokers had three times higher probability to have early sexual experience (OR:3.8; CI:2.4–6.1). Next to daily smoking is weekly drinking followed by the involvement in the physical fight in the last year. Getting drunk and taking marijuana in the lifetime had no significant influence on odds of having early sexual intercourse while other behaviours have been taken into account.

Girls who used marijuana had eight times higher probability to experience early sexual intercourse than their peers who did not try marijuana at the time of being questioned (OR:8.0; CI:5.0–12.6). In the independent analysis girls who were daily smokers had 7.9 times higher probability of being engaged in the early sexual intercourse, and higher probability if they reported drunkenness, weekly drinking, involvement in the physical fight or bullying others (5.5 time, 3.9 times, 3.2 times and 2.5 times respectively). Being bullied in the past couple of months did not show statistically significant influence on the early sexual behaviour (Table 3). While controlled for other behaviours, daily smoking had the strongest influence to odds of early sexual experience – girls who smoke every day had three times higher probability for having had early sexual intercourse (OR:3.6; CI:2.2–5.8). The probability was higher for drunkenness and marijuana use (2.2 and 2.0 times)

Psychosocial factors

The probability for the early sexual intercourse was higher for those boys with lower academic achievement (OR:2.2; CI:1.6–3.1), for those who had more female friends (OR:1.5; CI:1.0–2.1) and had better communica-

TABLE 2
ASSOCIATION BETWEEN EARLY SEXUAL EXPERIENCE AND OTHER RISK BEHAVIOR IN BOYS

		Early sexual experience N (%) of pupils				OR (95% CI) p*	
		no		yes		Univariate	Multivariate
Smoking daily	no	487	(80.1)	121	(19.9)	1	1
	yes	46	(33.3)	92	(66.7)	8.1 (5.4–12.1) **	3.8 (2.4–6.1) **
Drinking weekly	no	357	(84.6)	65	(15.4)	1	1
	yes	176	(54.3)	148	(45.7)	4.6 (3.2–6.5) **1	2.6 (1.7–4.0) **
Been drunk two times or more	no	326	(83.4)	65	(16.6)	1	1
	yes	207	(58.5)	147	(41.5)	3.6 (2.5–5.0) **	1.1 (0.7–1.7)
Marijuana in the lifetime	no	480	(77.7)	138	(22.3)	1	1
	yes	52	(41.9)	72	(58.1)	4.8 (3.2–7.2)**	1.8 (1.1–2.9) *
Physical fight in the last year	no	303	(84.4)	56	(15.6)	1	1
	yes	228	(59.2)	157	(40.8)	3.7 (2.6–5.2)**	2.5 (1.6–3.6)**
Being bullied in the past couple of months	no	456	(72.4)	174	(27.6)	1	
	yes	73	(67.0)	36	(33.0)	1.3 (0.8–2.0)	
Bullied others in the past couple of months	no	399	(76.3)	124	(23.7)	1	1
	yes	132	(59.7)	89	(40.3)	2.1 (1.6–3.0) **	1.9 (1.3–2.7) *

OR – odds ratio for girls, CI – confidence interval, p – asymptotic 2-sided statistical significance, ** $p<0.001$, *$p<0.05$

TABLE 3
EARLY SEXUAL EXPERIENCE IN GIRLS REPORTING OTHER RISK BEHAVIOR

		Early sexual experience N (%) of pupils				OR (95% CI) p*	
		no		yes		Univariate	Multivariate
Smoking daily	no	610	(90.9)	61	(9.1)	1	1
	yes	101	(55.8)	80	(44.2)	7.9 (5.3–11.8) **	3.6 (2.2–5.8) **
Drinking weekly	no	550	(89.3)	66	(10.7)	1	1
	yes	161	(68.2)	75	(31.8)	3.9 (2.7–5.6)**	1.5 (0.9–2.4) *
Been drunk two times or more	no	551	(91.1)	54	(8.9)	1	1
	yes	160	(64.8)	87	(35.2)	5.5 (3.8–8.1) **	2.2 (1.4–3.6)*
Marijuana in the lifetime	no	664	(87.9)	91	(12.1)	1	1
	yes	45	(47.9)	49	(52.1)	8.0 (5.0–12.6) **	2.0 (1.1–3.6) *
Physical fight in the last year	no	584	(87.6)	83	(12.4)	1	1
	yes	126	(68.9)	57	(31.1)	3.2 (2.2–4.7) **	1.4 (0.9–2.3)
Being bullied in the past couple of months	no	626	(84.4)	116	(15.6)	1	
	yes	81	(77.9)	23	(22.1)	1.5 (0.9–2.5)	
Bullied others in the past couple of months	no	623	(85.7)	104	(14.3)	1	1
	yes	87	(70.2)	37	(29.8)	2.5 (1.6–3.9) **	1.6 (0.9–2.7)

OR – odds ratio for girls, CI – confidence interval, p – asymptotic 2-sided statistical significance, ** p<0.001, *p<0.05

tion with the friend of the opposite gender (OR:2.1; CI:1.4–3.1). For the boys who liked school more the probability of being engaged in early sexual intercourse was lower (OR:0.7; CI:0.5–1.0) (Table 4). The same variables remained statistically significant while controlled in multivariate analysis, the easy talk to friend of the opposite gender being the strongest predictor (OR2.1; CI:1.4–3.2).

The independent analysis revealed that girls who had early sexual experience were more prone to be dissatisfied with their health (OR:2.9; CI:2.0–4.2), with their life (OR:2.1; CI:1.4–3.0) and reported more psychosomatic symptoms (OR:2.9; CI:2.0–4.2). For the girls who had poorer communication with father and mother the probability of having had early sexual intercourse was higher (OR:1.9; CI:1.2–2.8 and OR:1.7; CI:1.1–2.6), as well as for those with lower academic achievement (OR:2.4; CI: 1.6–3.5). Girls who had good communication with friend of the opposite gender had higher probability of being engaged in the early sexual experience (OR:3.0; CI:1.9–4.7) (Table 5).

While controlled for the other psychosocial factors, communication to friend of the opposite gender was the strongest predictor (OR:2.7; CI:1.6–4.4), and other factors increasing probability for early sexual intercourse were poor academic achievement (OR:2.1; CI:1.4–3.4), health dissatisfaction (OR:1.9; CI:1.1–3.1) and psychosomatic symptoms (OR:1.7; CI:1.1–2.8).

In analysing the evenings spent out with friends and early sexual experience the mean values were used, while the gender differences in going out were too high for determine exact common cut-offs. Mean number of evenings spent out with friend was 2.82 for boys and 2.48 for girls, with statistically significant gender difference (p<0.001).

As Levene's test indicated statistically significantly heterogeneous variances, mean number of nights was analysed by non-parametric Man-Whitney U test and Monte Carlo test of statistical significance. Mean number of nights spent with friends was statistically significantly higher for students who had early sexual experience (p<0.001) (Table 6). When evenings spent out with friends were treated as interval scale variable, the odds for both genders were higher for those students who spent out more evenings (boys: OR:1.3; CI:1.3–1.4; girls OR:1.3; CI:1.2–1.5).

No statistically significant confounding effect of gender on early sexual experience correlation with number of evenings spent with friends was found. This research has not found the indication that the relationship of number of evenings spent with friends and early sexual experience are affected by gender.

Maturity and menarche

Odds that 15 years old girls who had the first menstruation on time (Table 7) will engage in early sexual intercourse are 50% (OR:0.5; CI: 0.3–0.9) less than the odds for the same behaviour for girls who had the first menstruation early that is at the age of 11 or earlier. These with late first menstruation have 70% smaller odds (OR:0.3; CI: 0.2–0.6) for early sexual experience than these with the early first menstruation.

For the girls who had their first menstruation early (≤11 yrs.) marijuana trial (OR:6.4;CI:1.5–28.4) and daily smoking (OR:3.8; CI:1.2–12.2) were statistically significant predictors of early sexual experience. For the girls who had their first menstruation on time, the strongest predictors were daily smoking (OR:4.5; CI:2.5–8.2),

TABLE 4
EARLY SEXUAL EXPERIENCE IN BOYS ACCORDING TO PSYCHOSOCIAL FACTORS

		Early sexual experience N (%) of pupils				OR (95% CI) p*	
		no		yes		Univariate	Multivariate
Health satisfaction	yes	477	(71.6)	189	(28.4)	1	
	no	55	(70.5)	23	(29.5)	1.1 (0.6–1.8)	
Life satisfaction	high	434	(71.9)	170	(28.1)	1	
	low	95	(68.8)	43	(31.2)	1.2 (0.8–1.7)	
Psychosomatic symptoms*	no	394	(73.0)	146	(27.0)	1	
	yes	127	(68.6)	58	(31.4)	1.2 (0.9–1.8)	
Talk to father‡	easy	326	(71.5)	130	(28.5)	1	
	difficult	153	(72.2)	59	(27.8)	1.0 (0.7–1.4)	
Talk to mother	easy	416	(71.1)	169	(28.9)	1	
	difficult	94	(72.9)	35	(27.1)	0.9 (0.6–1.4)	
Talk to best friend	easy	410	(71.7)	162	(28.3)	1	
	difficult	73	(74.5)	25	(25.5)	0.9 (0.5–1.4)	
Talk to friend of the same gender	easy	374	(71.2)	151	(28.8)	1	
	difficult	114	(75.0)	38	(25.0)	0.8 (0.6–1.2)	
Talk to friend of the opposite gender	difficult	180	(81.1)	42	(18.9)	1	1
	easy	297	(66.7)	148	(33.3)	2.1 (1.4–3.1)**	2.1 (1.4–3.2) **
Close male friends	none to two	68	(68.7)	31	(31.3)	1	1
	three or more	465	(72.2)	179	(27.8)	0.8 (0.5–1.3)	0.8 (0.4–1.2)
Close female friends	none to two	168	(76.7)	51	(23.3)	1	1
	three or more	357	(69.3)	158	(30.7)	1.5 (1.0–2.1) *	1.5 (0.9–2.3)
Liking school	dislike	273	(68.1)	128	(31.9)	1	1
	like	260	(75.4)	85	(24.6)	0.7 (0.5–1) *	0.8 (0.5–1.1) *
Academic achievement	good	409	(76.2)	128	(23.8)	1	1
	not good	124	(59.3)	85	(40.7)	2.2 (1.6–3.1)**	2.3 (1.6–3.4)**

OR – odds ratio for girls, CI – confidence interval, p – asymptotic 2-sided statistical significance, ** $p<0.001$, *$p<0.05$, ‡ Independent variables that were not shown univariate statistically significant influence were omitted from multivariate analysis

drunkenness two times or more (OR:2.2; CI:1.2–3.9) and bullying others in the past couple of months (OR:2.1; CI:1.1–4.2). For the girls who had their first menstruation late, that is in the age of 14 or later, the strongest predictor of an early sexual experience was being drunk two times or more (OR:4.6; CI:1.3–16.7).

Regarding psychosocial factors the only statistically significant predictor for the early sexual intercourse among early menstruating girls (≤11 yrs.), was having had more psychosomatic symptoms (OR:4.4; CI:1.6–12.3). Within the sample of those with the first menstruation on time (12–13 yrs.) dissatisfaction with health (OR:2.7, CI:1.5–4.9), psychosomatic symptoms (OR:3.0, CI:1.9–4–8), and easy talk to the friend of the opposite gender (OR:3.4, CI:1.9–6.0) contributed statistically significantly to the prediction of early sexual intercourse. In the sample of girls with late onset of menstruation (14+ yrs.) statistically significant predictor of early sexual behaviour was difficult communication with father (OR:8.3, CI:1.5–47.3).

Discussion

The percentage of 15 year old students who reported to have had sexual experience had increased in Croatia between 2002 and 2006 for the boys 23.8% and for the girls 73.1%, indicating that the possibility of having an early sexual intercourse became higher for the girls[28]. The age of 15 was still for Croatia below the average age of the first sexual intercourse, which was found in majority of studies to be 17 for both genders[3,25,26], or for the boys a year earlier[5,6,7]. The prevalence of smoking, alcohol and marijuana use, physical fight and being bullied have been more frequent than in 2002, and the only variable decreased in the 4 year period was bullying others[28]. The other recent studies indicated that risk behaviours like smoking, alcohol drinking and marijuana use show quicker trends for girls than for boys, thus suggesting that girls are at a greater risk for being engaged in the clustered risk behaviour[29]. The gender differences indicated that girls were less satisfied with the health, life and more prone to the psychosomatic symptoms. In the

TABLE 5
EARLY SEXUAL EXPERIENCE IN GIRLS ACCORDING TO PSYCHOSOCIAL FACTORS

		Early sexual experience N (%) of pupils				OR (95% CI) p*	
		no		yes		Univariate	Multivariate
Health satisfaction	yes	564	(87.6)	80	(12.4)	1	1
	no	146	(70.9)	60	(29.1)	2.9 (2.0–4.2)**	1.9 (1.1–3.1)*
Life satisfaction	high	523	(86.6)	81	(13.4)	1	1
	low	188	(75.8)	60	(24.2)	2.1 (1.4–3.0)**	1.3 (0.8–2.1)
Psychosomatic symptoms*	no	410	(90.1)	45	(9.9)	1	1
	yes	294	(75.8)	94	(24.2)	2.9 (2.0–4.3)**	1.7 (1.1–2.8)*
Talk to father[†]	easy	333	(88.6)	43	(11.4)	1	1
	difficult	323	(80.8)	77	(19.3)	1.9 (1.2–2.8) *	1.3(0.8–2.1)
Talk to mother	easy	573	(85.7)	96	(14.3)	1	1
	difficult	120	(77.9)	34	(21.2)	1.7 (1.1–2.6)*	1.10 (0.6–1.8)
Talk to best friend	easy	657	(83.6)	129	(16.4)	1	
	difficult	37	(88.1)	5	(11.9)	0.7 (0.3–1.8)	
Talk to friend of the same gender	easy	612	(83.7)	119	(16.3)	1	
	difficult	79	(84.0)	15	(16.0)	1.0 (0.6–1.8)	
Talk to friend of the opposite gender	difficult	293	(91.6)	27	(8.4)	1	1
	easy	384	(78.2)	107	(21.8)	3.0 (1.9–4.7)**	2.7(1.6–4.4)**
Close male friends	none to two	343	(85.5)	58	(14.5)	1	
	three or more	362	(81.5)	82	(18.5)	1.3 (0.9–1.9)	
Close female friends	none to two	188	(82.5)	40	(17.5)	1	
	three or more	520	(83.9)	100	(16.1)	0.9 (0.6–1.4)	
Liking school	dislike	344	(81.1)	80	(18.9)	1	
	like	367	(85.7)	61	(14.3)	0.7 (0.5–1.0)	
Academic achievement	good	545	(86.9)	82	(13.1)	1	1
	not good	165	(73.7)	59	(26.3)	2.4 (1.6–3.5)**	2.1 (1.4–3.4)**

OR – odds ratio for girls, CI – confidence interval, p – asymptotic 2-sided statistical significance, ** p<0.001, *p<0.05, ‡ Independent variables that were not shown univariate statistically significant influence were omitted from multivariate analysis

TABLE 6
AVERAGE NUMBER OF EVENINGS SPENT OUT WITH FRIENDS WEEKLY ACCORDING TO EARLY SEXUAL EXPERIENCE

Early sexual experience	N	Mean	95% Confidence Interval for mean		Mini-mum	Maxi-mum
			Lower Bound	Upper Bound		
No	1241	2.37	2.27	2.47	0	7
Yes	354	3.59	3.37	3.82	0	7

family communication girls are less satisfied with the communication to the father, which is a finding supported by other research[30] and could be considered as a risk factor for substance abuse and being bullied. Young people had more friends of the same gender, girls being more communicative and close to their best friends and to the friends of the same gender.

Dickson[31] found that many women regretted having sexual intercourse before age of 16 and that first inter-

TABLE 7
PREVALENCE OF EARLY SEXUAL EXPERIENCE BY THE AGE OF FIRST MENSTRUATION

	Early sexual experience N (%) of pupils				Total		OR (95% CI) p*
	no		yes				
Early (≤11 yrs.)	68	(72.3)	26	(27.7)	94	(100.0)	1
On time (12–13 yrs.)	467	(83.1)	95	(16.9)	562	(100.0)	0.5 (0.3–0.9) *
Late (14+ yrs.)	170	(89.5)	20	(10.5)	190	(100.0)	0.3 (0.2–0.6) **
Total	705	(83.3)	141	(16.7)	846	(100.0)	

Abbreviations: OR – odds ratio for girls; CI – confidence interval, χ^2, p=0.001, *p<0.05, ** p<0.001

course at a younger age was associated with risks that are shared equally between men and women. Coker[11] investigated the circumstances of the first sexual intercourse and later regrets, finding that at the age of 13 more black than white adolescents of both genders were sexually active, fighting, cigarette smoking and alcohol being connected with the early initiation of the sexual activity. Burack found that 20% of 13 years old reported that they already had either full or oral sexual intercourse[8]. In Swedish study 16% of the surveyed national sample reported to have had sexual intercourse before the age of 15, with more risky sexual behaviour in early than later starters (pregnancy, number of partners, oral or anal sex)[23]. In HBSC2002 Croatian adolescents were among the less sexually active 15 year old students being 34th out of 35 countries, but substantial increase in the proportion of female students already experienced early sexual intercourse indicated that the behaviour has been changing rapidly.

Risk behaviours

Daily smoking, weekly drinking of any alcohol beverage, getting drunk two times or more, taking marijuana, being involved in the physical fight and being bullied or bullied others were analysed for both genders. All variables increased odds for having had early sexual behaviour, smoking being the strongest predictor in univariate analysis for boys and marijuana use for girls. As girls in Croatia smoke generally more at that age than boys, and boys more often use marijuana the early sexual intercourse is strongly connected to the behaviour which is less socially common for the respective gender. When controlled for other behaviours, in boys daily smoking, weekly drinking and aggressive behaviour as being involved in physical fight remained statistically significant. In multivariate analysis for girls daily smoking was the strongest predictor, followed by drunkenness and marijuana use at the lower level of significance. When analysed separately, all risk behaviours were connected to early sexual experience, but in complex situation in the adolescent maturation the interception of the factors were different according to gender. Smoking, alcohol and drug misuse was found to be important for early sexual intercourse by other authors as well. Fergusson found that adolescents who reported misusing alcohol had odds of early onset sexual activity, multiple partners, and unprotected intercourse that were 6.1 to 23.0 times higher than for young people who did not misuse alcohol[9]. Alcohol and khat consumption was significantly and independently associated with risky sexual behaviour among Ethiopian youts[10] and Robinson found that for six-graders smoking was the highest predictor of engaging in sexual intercourse for all categories of race and gender[32]. Cornelius, using a prospective longitudinal study design, argued that early sexual intercourse predicts the development of substance abuse disorder[17]. Garriguet in a longitudinal study analysed characteristics of the 12 and 13 year olds, who at the age of 14 or 15 have been engaged in the sexual activity, stating that having tried smoking and drinking for the girls and smoking for the boys were significantly associated with early sexual intercourse[13]. Valois found that substance abuse and physical fighting were the strongest predictors for risk sexual behaviour for boys and girls respectively[33], and in Shrier's study students reporting they had ever used alcohol or marijuana and those reporting recent fighting were 2.7 and 1.6 times more likely to report sexual experience[27].

Health, family, friends and school

Health satisfaction, family and friend communication variables revealed that differences between genders in the respective behaviours remained significant when analysed in accordance to the early sexual intercourse. While girls were generally less satisfied with the life, health and reporting more psychosomatic symptoms, these factors in the independent analysis were found to be significant predictors for the early sexual experience for the girls, but not for the boys. In addition to that, in the univariate analysis difficult communication to father and mother and easy talk to the friend of the opposite gender were for the girls the additional factors relevant for the early sexual experience, while for the boys easy talk to the friend of the opposite gender was the only factor influencing probability for the higher odds. In multivariate analysis easy talk to the friend of the opposite gender remained the only significant factor for the both genders. Girls are in most European countries less satisfied with their life, health and reported more psychosomatic symptoms, so these variables could be considered as gender specific. Nevertheless, the feeling of dissatisfaction and psychosomatic symptoms seems to influence early sexual experience in girls. Thus, although not significant if controlled for other variables regarding communication in family and friends the gender differences and girls' susceptibility to psychosocial influences should be taken into account in planning the preventive programmes and activities. Poor communication with father had been found as a risk factor for girls' substance abuse and bullying[30,34,35]. That adolescents who were susceptible to early sexual intercourse had fewer positive connections with parents found L'Engle[4]. For girls association was found for having weak self concept (Guarriguet) and lacking a family member as a confidant (Liu)[13,36]. Boys and girls respectively who can easily talk to the friend of the opposite gender have after controlling for satisfaction, symptoms and family communication 2.1 and 2.7 times higher probability to be involved in the early sexual intercourse. The popularity self-concept was found by Dilorio as statistically significant predictor for intimate sexual behaviour[16]. The good communication with peers might reflect popularity but is also important because decisions about initiation are strongly bound to social context with peers playing an important role in creating sense of normative behaviour[15]. The number of evenings spent out with friends was the predictor of initiation of the sexual intercourse for boys and for girls respectively. Although boys go out more often, the same pattern was observed, meaning that more evenings spent

out meant higher probability of being engaged in the early intercourse, the very exact number of evenings depending on gender and on cultural norms. That time alone spent with group of peers was significantly associated with early sexual intercourse was found in Dilorio's study[16].

Liking school was not associated with the early sexual experience for girls, but boys who were engaged in the early sexual experience liked school less. Poorer academic achievement was a strong predictor of the probability for early sexual intercourse for both genders. That students engaged in the early sexual intercourse had lower school achievement was found by Kipke for the Croatian students[11], and relationships between intelligence and the coital status was demonstrated by Halpern[37].

Menarche

The early maturation poses the important health risk for female adolescent and predicts deleterious outcomes for young girls, including substance abuse, risky sexual behaviour and pregnancy[7]. Girls who mature early are more likely not to be engaged only in the early sexual intercourse, but to be exposed to other risk behaviours. In our sample marijuana tral and daily smoking were for early maturing girls the strongest predictors for early sexual intercourse, meaning that early maturation is an added risk for earlier observed risk behaviour. For the girls who had their menarche late getting drunk was strongly associated with the early sexual intercourse, which suggesting that pattern of substance abuse might be influenced by the physical maturity. Girls who had menarche on the average age were regarding satisfaction, communication with family and friends closest to the pattern in the whole sample. Early maturing girls expressed more psychosomatic symptoms which might be of a great importance for parents and professionals, because it might reflect the uncertainty and seeking for help or advice without being able to express it. In the late maturing girls difficult talk to father was the only predictor associated with the early sexual intercourse, which might reflect that poor communication has no connection to the physical maturity but to the age and stage of adolescence. In Croatian adolescents Džepina found that the average period between menarche and first sexual intercourse was four years, meaning that earlier menarche might influence earlier sexual experience[38]. That coitarche before the age of 15 is related to early menarche and that early starters reported menarche at the age of 11 or earlier more often stated Edghardh[23], and that onset of puberty was significantly associated with early sexual activity found Guarriguet[13]. It is important that health workers as well as school counsellors are sensitive to the risk associated with the early maturation among young girls adapting education and counselling related to other risk behaviour and self concept for this group. In should be taken into account that with now available Human papillomavirus (HPV) vaccine[39] one of consequences could be prevented especially when applied in girls who had not been sexually active and that with the prevention of the early onset of sexual intercourse the possibilities of medical prevention will definitely have a better compliance and outcomes.

Conclusion

Early sexual intercourse at the age of 16 or younger is associated with the complex risk and contextual factors, some of them being gender specific. Preventing early sexual intercourse means to prevent not only possible medical consequences, like adolescent pregnancy, sexual transmitted diseases or cervical dysplasia, but to prevent psychosocial consequences originated from feeling guilty, unsatisfied or regretful. Effective preventive activities need to be multi-faceted and take into consideration other components of the risk behaviour among youth. The possibility of the prevention of the long-term consequences being offered by the HPV vaccine has to be considered taking into account optimal schedule, gender differences, costs and efficiency. It was argued that the most successful vaccination programme have to be community-wide and avoid any stigma as associated with single sex vaccination. The costs may, however, restrict HPV vaccination to the girls, especially since clinical data on efficacy in boys are still being gathered[40]. Routine vaccination before sexual debut or shortly thereafter is important to achieve optimal effectiveness[41]. However, vaccination should not be isolated activity. From a public health perspective the first stage is education. Promoting the vaccine and, at the same time, making it clear that HPV is a sexually transmitted infection will require joint efforts in the wording of policy, education and publicity materials. Comprehensive health-promoting approach including family and peers should aim at preventing complex risk behaviour rather than early sexual intercourse as an isolated event at the early age.

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RANI SEKSUALNI ODNOSI I RIZIČNI ČIMBENICI U HRVATSKIH ADOLESCENATA

S A Ž E T A K

Seksualno ponašanje adolescenata je zbog mogućih neposrednih i dugoročnih medicinskih i psiholoških posljedica vrlo osjetljivo područje. Svrha istraživanja bila je utvrditi jesu li rani seksualni odnosi spolno specifično povezani s rizičnim ponašanjima i psihococijalnim čimbenicima. U nacionalno reprezentativno istraživanje u školama korištenjem anonimnog upitnika bilo je uključeno 773 dječaka i 857 djevojčica dobi 15,5 godina. Spolno iskustvo u dobi do 16 godina imalo je 28.6% dječaka i 16.5% djevojčica. Vjerojatnost započimanja ranih spolnih odnosa bila je statistički značajno veća u dječaka koji više puše, piju, opijaju se, uzimaju marihuanu, sudjeluju u tučnjavama i zlostavljanju drugih, najveći utjecaj registriran je za svakodnevno pušenje (OR:8.1, CI:5.4–12.1). Iste su varijable s ranim seksualnim iskustvom bile povezane i u djevojaka, a najveći je nezavisni utjecaj imalo uzimanje marihuane (OR:8.0; CI:5.0–12.6). Multivarijatna analiza pokazala je da je najutjecajniji faktor za oba spola redovito pušenje. Za djevojčice koje su nezadovoljnije zdravljem (OR:2.9; CI:2.0–4.2), životom (OR:2.1; CI:1.4–3.0), odnosima s ocem i majkom (OR:1.9; CI:1.2–2.8 i OR:1.7; CI: 1.1–2.6) ili imaju više psihosomatskih simptoma (OR:2.9; CI:2.0–4.2) veća je vjerojatnost stupanja u rane seksualne odnose. Vjerojatnost ranog seksualnog iskustva veća je i u dječaka i u djevojčica za one koji imaju bolju komunikaciju s prijateljem suprotnog spola. S ranim seksualnim odnosima povezan je i veći broj večeri provođen vani s prijateljima te lošiji školski uspjeh za oba spola. Ranija dob menarhe je povezana s većom vjerojatnošću ranijeg započimanja seksualnih odnosa te s pušenjem, uzimanjem marihuane i više psihosomatskih simptoma. Rano seksualno iskustvo povezano je s rizičnim ponašanjima kao pušenje, pijenje alkohola, uzimanje marihuane, agresivnošću te psihosocijalnim čimbenicima. Preventivni programi stoga trebaju slijediti sveobuhvatni pristup uzimajući u obzir spolne specifičnosti. Cijepljenje protiv humanog papilomavirusa (HPV-a) treba biti dio cjelokupnog preventivnog programa i ne bi se smjelo smatrati samo izoliranom aktivnošću.