RISKY SEXUAL BEHAVIOUR AND CONTRACEPTIVE USE AMONG YOUNG WOMEN IN THE CZECH REPUBLIC

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SUMMARY

Objective: This study aimed to obtain sexual and reproductive behaviour data of late adolescent women in the Czech Republic and to analyse the relationships between sexual behaviour and social, demographic, and behavioural factors.

Methods: Data were obtained using the Computer-Assisted Web Interviewing method from 25 April to 2 May 2018 from a representative group of sexually active women aged 18–24 years. Results were statistically evaluated using sign schema on adjusted residuals.

Results: A total of 525 women participated (median age of coitarche – 16 years, condom use with/without hormonal contraception − 65%, unprotected sex – 9.3% in the sexual debut). Anamnestic artificial abortion and sexually transmitted disease (STD) rates were 5.3% and 3.8%, respectively. Early coitarche, number of sexual partners, history of abortion, and STDs were positively correlated with current hormonal contraceptive use; the number of sexual partners and use of hormonal contraception were negatively correlated. Hormonal contraceptive users were more likely vaccinated against human papilloma virus (HPV) in comparison with women without any contraception. There was no correlation between risky sexual behaviour, contraceptive use, and socio-demographic factors.

Conclusion: Women with early coitarche and a high cumulative number of sexual partners have more unwanted pregnancies and STDs; moreover, those with regular coital activity without contraception are less frequently vaccinated against HPV.

Key words: sexual behaviour, adolescence, contraception, coitarche, STD, HPV vaccination

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INTRODUCTION

Adolescence is a specific stage of life characterised by an increased risk of negative psychosocial and health phenomena, including premature engagement in sexual activities, unwanted pregnancies, suicidal behaviour (1, 2), depression (3), and drug abuse (4). Adolescent women may also become victims of violent behaviour (5). The risk of unwanted pregnancy and sexually transmitted diseases (STDs) also increases (6). Moreover, the sexual behaviour of the population in developed countries has changed dramatically in the second half of the 20th century, which is primarily characterised by sexual activity initiation at an early age and an increased number of sexual partners (7). Circumstances (timing, contraception, presence of coercion, etc.) surrounding sexual debut in adolescents have a strong effect on their psychological and social life and on an individual's reproductive health. However, the relationship between early commencement of coital activities and sexual behaviour risks during adolescence remains unclear (8). The prevention of negative psychosocial and health phenomena during adolescence is a health priority, and the right to sexual and reproductive health is an internationally recognised human right (9). Thus, broad knowledge of reproductive health, prevention of STDs, and safe use of contraceptive methods are vital among adolescents.

During the last decade, the overall use of hormonal contraceptives has decreased despite their demonstrable safety and benefits (10). However, between 2008 and 2016 the artificial abortion rate in the Czech Republic decreased from 10.2 abortions/1,000 fertile women to 8.5 abortions/1,000 fertile women (11). The reasons for the decreased contraceptive and abortion rates remain unclear. In addition, pregnancies are postponed to the age when fertility is physiologically reduced (12), which represents another negative trend in the Czech Republic and could lead to an increase in healthcare costs and a decrease in natality and fertility.

Recent data on the sexual behaviour of adolescent women in the Czech Republic are lacking. Thus, we conducted this study based on a questionnaire survey to determine the sexual behaviour of adolescent women and their knowledge of and attitudes towards reproductive health and to analyse the reasons for their use or rejection of contraceptive methods. Our primary objective was to

understand the relationships between socio-demographic factors and sexual and reproductive behaviours, as well as their influence on the reproductive health of women in late adolescence. We also aimed to identify the association of risky sexual behaviour with the use of contraception.

MATERIALS AND METHODS

This study was performed in cooperation with the market research agency STEM/MARK. Their pool of respondents (approximately 50,000 people) was recruited to sufficiently represent all socio-demographic categories and geographical regions in the Czech Republic. They were responsible for data evaluation and also performed statistical analysis.

The questionnaire in this study was developed by the authors who are also members of the Contraception Forum (Tables 1 and 2). Independent consultants checked the meaningfulness and logic of the questions and their sequence.

Upon our request, the company contacted women from their respondent pool (18–24 years old) who could represent the urban and rural population as well as various socioeconomic classes (ABCDE socioeconomic classification). Data were obtained between 25 April and 2 May 2018. Women aged 18–24 years who were permanent residents of the Czech Republic or who are holders of a long-time residence permit in the Czech Republic, and who were sexually active and had sexual intercourse at least once in the past 12 months were included in the study. The women who agreed to participate were first screened to determine whether they were sexually active. Subsequently, they underwent the Computer-Assisted Web Interview using a structured format with 15 specific questions (Table 1). The data collection method was designed to avoid errors in checking the logical filters when answering the questionnaire. After obtaining 525 completed questionnaires, the recruitment was stopped.

Monitored Variables

Monitored variables included demographic factors (age, education, marital status, community size) socioeconomic factors (occupation, number of household members, net personal income, net household income), sexual behaviour factors (coitarche age, cumulative number of sexual partners, contraceptive method at the time of coitarche, currently used contraceptive method), reproductive behaviour factors (number of children, history of abortions, planned pregnancies, time in which they aim to plan a pregnancy, willingness to take the risks of an unwanted pregnancy, attitude towards abortion), and other behavioural factors (alcohol abuse, nicotinism, free-time physical activity).

Statistical Analysis

Data were analysed using SPSS 19 software (ver. 19.0., IBM®, USA). Analysis of the variables was performed using basic descriptive statistics. To determine significant differences in categorised variables to the whole, a sign schema on adjusted residuals at 99.9% and 95% levels was used. Correlation analysis was performed for all usable variables. Newly categorised continuous variables were analysed using the Pearson correlation coefficient. Column proportion comparison z-test at 99% level was also performed.

Ethics, Consent and Authorisation

The women who participated in this study were informed of the purpose of data collection and utilisation. Before they filled the online questionnaire, the electronic informed consent had to be approved on the web-page. In this study, all data were anonymised. This study was approved by the Ethics Committee of the Institute for the Care of Mother and Child (EK UPMD 012/2018).

RESULTS

Of 754 women who were contacted, 525 completed questionnaires were obtained (return rate 69.6%). Socio-demographic characteristics of the women are shown in Table 2. Briefly, 30% of the women completed primary education, 29% studied till high school, and 42% studied till or completed college; 69% of the women were unmarried and 86.7% were childless. Behavioural factors reflecting the lifestyle of the women are shown in Table 3 (37.5% of the women smoked cigarettes and 33.4% consumed alcohol more than once a week).

Sexual and Reproductive Behaviour

The average age at coitarche was 16.3 years (range 12–24 years), the median age at coitarche was 16 years (interquartile range 13–17), and 36% of women had their first sexual intercourse at ≤15 years. At coitarche, 64.8% (n=340) used a condom. Currently, 44.8% (n=235) of women use contraceptive pills, 24.7% (n=130) use a condom, and 22.2% do not use any type of protection (Table 4). The correlation between hormonal contraception use and the variables of interest are shown Table 5. Moreover, 25.7% of women used an emergency pill and 5.3% had an abortion; 45% of women had four or more sexual partners since coitarche, and only 23.2% had one sexual partner.

Regular sexual intercourse was reported by 56% of women. In the group of women with regular coital activity (n=312), willingness to risk an unwanted pregnancy was marked as very often by 5.4%, sometimes by 13.1%, exceptionally by 23.7%, and never by 52.6% of women; 5.2% of women were undecided. In addition, 4% of women experienced STDs; the most common were chlamydia infection (1.7%), human papilloma virus (HPV) infection (1.5%), genital herpes infection (0.4%), and unclassified infection (0.2%).

The correlation between the age of the coitarche, the cumulative number of sexual partners, and a personal history of STD are shown in Table 6.

The HPV vaccination rate was 62% in women aged 18–20 years and 28% in those aged 23–24 years; 43% of the respondents have been vaccinated. The proportion of women vaccinated against HPV was 61.7% in those aged 18–20, 60.9% of women who are currently attending secondary school or college, 56.4% of those who have a partner not living in the same household, 60.9% of those with sexual activities for 0–3 years, and 48.7% of those who consider contraception as extremely important have been vaccinated. HPV vaccinations were not common or not planned most often by women aged 23–24 (52.4%), those with

Table 1. *Questionnaire data*

		Total (%)
Do you plan to become pregnant in the future?	Yes	70.9
	No	15.8
	I do not know/I am not sure	13.3
	Total	525
When do you plan to become pregnant?	I have not planned/I do not know	29.1
	In 1 year	7.0
	In 2 years	12.0
	In 5 years	36.0
	Later	15.8
	Total	525
Imagine theoretically that you find out that you are pregnant now. What would it mean to you?	Planning (up to 1 year)	7.3
	I would opt for abortion and it will not affect me significantly	6.3
	I would opt for abortion but it will affect me significantly	13.7
	I would not like to but I would have a child	16.5
	I would not mind, I would have the child	26.6
	I would like to get pregnant	7.9
	I do not know, it depends on the partner and other circumstances	21.6
	Total	504
Do you risk an unwanted pregnancy from your point of view?	Yes, very often	5.4
	Yes, sometimes	13.1
	Yes, exceptionally	23.7
	No never	52.6
	I do not know	5.1
	Total	312
Age at the first sexual intercourse	≤ 15 years	36.0
	16 years	25.3
	17 years	17.5
	≥ 18 years	21.1
	Total	525
Number of sexual partners	1	23.2
	2	16.4
	3	15.4
	≥ 4	45.0
	Total	525
What contraceptive methods do you know?	None	1.7
	Hormonal contraception – pills	95.6
	Hormonal contraception – patch	60.8
	Hormonal contraception – vaginal ring	59.0
	Intrauterine contraception	72.0
	Condom	88.4
	Coitus interruptus	62.3
	Calculation of fertile and infertile days	46.1
	Other (please specify)	3.2
	Total	489

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		Total (%)
What contraceptive method did you use during the first intercourse?	None	9.3
	Hormonal contraception – pills	36.6
	Hormonal contraception – patch	0.8
	Hormonal contraception – vaginal ring	0.2
	Intrauterine contraception	1.0
	Condom	64.8
	Coitus interruptus	9.9
	Calculation of fertile and infertile days	1.0
	Other (please specify)	0.0
	Total	525
What contraceptive method do you use nowadays?	None	22.1
	Hormonal contraception – pills	44.8
	Hormonal contraception – patch	0.2
	Hormonal contraception – vaginal ring	0.8
	Intrauterine contraception	3.0
	Condom	25.7
	Coitus interruptus	13.3
	Calculation of fertile and infertile days	3.4
	Other (please specify)	1.3
	Total	525
Have you been vaccinated against human papilloma virus (HPV), which could cause cervical cancer, genital warts, and other illnesses?	Yes	43.2
	No, but I am considering the vaccination	9.7
	No, I have not thought about the vaccination yet	37.5
	I do not know	9.5
	Total	525
How often do you have vaginal intercourse?	Currently without sex	15.0
	1–2 times a month	12.8
	3–5 times a month	16.6
	≥ 5 times a month	55.6
	Total	525
How often do you have non-coital sexual intercourse (cuddling, oral sex)?	Not involved in sexual activity currently	14.9
	1–2 times a month	19.0
	3–5 times a month	15.8
	≥ 5 times a month	50.3
	Total	525
Do you practice interruption or postpill contraception?	No	69.7
	Emergency pill	25.0
	Interruptions	5.3
	Total	525
Have you ever been treated for sexually transmitted diseases (e.g. gonorrhea, chlamydia)?	No	96.2
	Gonorrhea	0.0
	Chlamydia	1.7
	Herpes genitalis	0.4
	HPV infection (genital warts, constipation)	1.5
	Others (write)	0.2
	Total	525

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		Total (%)
Is contraception important to you?	Definitely yes	44.6
	Maybe yes	34.9
	Maybe not	15.2
	Definitely not	5.3
	Total	525

Table 2. *Socio-demographic characteristics of the respondents (N = 525)*

		n	%
Age	18–20 years	201	38.3
	21–22 years	133	25.3
	23–24 years	191	36.4
Studies	Elementary school/did not continue to secondary school	155	29.5
	Elementary school/studying at secondary school	151	28.8
	College completed/just studying/nderway	219	41.7
Size of the municipality/city	< 999 inhabitants	84	16.0
	1,000–4,999 inhabitants	112	21.3
	5,000–19,999 inhabitants	97	18.5
	20,000–99,999 inhabitants	120	22.9
	≥ 100,000 inhabitants	112	21.3
Education	Elementary	154	29.3
	Trained without a leaving certificate	72	13.7
	With a leaving certificate	245	46.7
	College	54	10.3
	I do not want to say	0	0.0
Region	Prague	49	9.3
	Bohemia	282	53.7
	Moravia	194	37.0
Number of household members	1	18	3.4
	2	150	28.6
	3	125	23.8
	4	163	31.0
	5	47	9.0
	≥ 6	22	4.2
Net personal income	< 5,000 CZK	174	33.1
	5,001–10,000 CZK	100	19.0
	10,001–15,000 CZK	71	13.5
	15,001–20,000 CZK	49	9.3
	20,001–25,000 CZK	18	3.4
	25,001–30,000 CZK	2	0.4
	30,001–40,000 CZK	0	0.0
	40,001–50,000 CZK	0	0.0
	50,001–60,000 CZK	0	0.0
	≥ 60,001 CZK	1	0.2
	Refused to answer	110	21.0

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		n	%
Net household income	< 20,000 CZK	92	17.5
	20,001–30,000 CZK	102	19.4
	30,001–40,000 CZK	95	18.1
	≥ 40,001 CZK	93	17.7
	Refused to answer/do not know	143	27.2
Profession	No answer	11	2.1
	Employed	119	22.7
	Private entrepreneur without employees	5	1.0
	Private entrepreneur with 1 to 9 employees	1	0.2
	Private entrepreneur with ≥ 10 employees	4	0.8
	Unemployed	17	3.2
	Non-working pensioner	1	0.2
	Housewife	6	1.1
	Student, pupil, apprentice with permanent employment	0	0.0
	Working pensioner	0	0.0
	Student, pupil, apprentice without permanent employment	297	56.6
	On maternity/parental leave	64	12.2
Marital status	Unmarried	362	69.0
	Married	133	25.3
	Divorced	29	5.5
	Not specified	1	0.2
ABCD classification *	A – the highest	57	10.9
	B	72	13.7
	C1	90	17.1
	C2	97	18.5
	C3	75	14.3
	D1	51	9.7
	D2	23	4.4
	E – the lowest	24	4.6
	Not identified	36	6.9
Number of children	0	455	86.7
	1	52	9.9
	2	17	3.2
	3	1	0.2

*ABCDE classification MEDIA RESEARCH is defined as a categorisation of the household socioeconomic scores. It consists of 8 categories, namely, A, B, C1, C2, C3, D1, D2, and E that are defined as socioeconomic score octiles of all household populations in the Czech Republic.
(https://www.nielsen-admosphere.eu/products-and-services/tv-audience-measurement-in-the-czech-republic/abcde-socioeconomic-classification/)

a partner living in the same household (45.1%), and those with sexual activities for ≥7 years (54.1%); 37% women had not been vaccinated and did not consider vaccination. Moreover, 29.1% of women did not plan pregnancy at all in the future, 36.0% planned to become pregnant within 5 years, and 15.8% did not have a plan regarding pregnancy within the next 5 years.

DISCUSSION

This study presents the results of a questionnaire survey on the sexual behaviour of young women in the Czech Republic. The main findings of this study were as follows: the average age at coitarche was relatively low; early coitarche, higher cumulative number of sexual partners, STD infection, and abortion were positively correlated with hormonal contraceptive use; and HPV vaccination was positively correlated with hormonal contraception use and negatively correlated with age at coitarche and the cumulative number of sexual partners.

The average age at coitarche was 16.3 years, which falls into the so-called normative period of sexual debut (i.e. 15–19 years) (13). Our study confirmed published data on the gradual reduction of the age at coitarche among Czech females: 1993–1998, median 18 years (14); 2006–2007, median 17 years (14); and 2014, me-

Table 3. *Lifestyle of the respondents (N = 525)*

		n	%
Do you smoke cigarettes or other tobacco products?	Yes	197	37.5
	No	328	62.5
How often do you drink alcohol?	3 or more times a week	24	4.6
	1–2 times a week	151	28.8
	1–2 times a month	169	32.2
	Less often	133	25.3
	Not at all	48	9.1
Swimming	Do not swim at all	157	29.9
	Competitive	223	42.5
	Recreational	65	12.4
	No	80	15.2
Jogging	Do not jog at all	157	29.9
	Competitive	186	35.4
	Recreational	59	11.2
	No	123	23.4

Table 4. *Contraceptive method used (N = 525)*

Contraceptive method	At coitarche		At present	
	n	%	n	%
None	49	9.3	116	22.1
Coitus interruptus	52	9.9	70	10.3
Method of infertile days	11	2	20	3.9
Intrauterine contraception	0	0	16	3
Hormonal contraception – oral	197	37.5	235	44.8
Hormonal contraception – patch	0	0	1	0.2
Hormonal contraception – vaginal ring	0	0	4	0.8
Condom only	216	41.2	79	15
Condom with other method (hormonal contraceptive or intrauterine device)	124	23.6	51	9.7

dian 15.5 years (15). The observed age at coitarche in this study was also significantly lower than that in studies conducted in the USA, the UK, Canada, Australia, and the Netherlands (i.e. 18 years old) (16). According to these previous studies, the proportion of women who did not have sexual intercourse after 18 years of age ranges from 10% to 40% (16); however, we did not observe this because the group includes only sexually active women. The trend of decreasing coitarche age has significant socioeconomic implications (17), and is associated with significant health and psychosocial risks, such as violence, forced sexual intercourse, or substance abuse. Moreover, the age at coitarche is significantly influenced by personal, family, partner, school, community, and cultural (18) as well as religious factors (19). We did not observe such a correlation with alcohol consumption, nicotinism or with demographic and social characteristics (Tables 3 and 5). This may be due to primary characteristics of women included in the STEM/MARK database of respondents. Early coitarche (< 15 years old) was noted in 36% of women and was associated with other risk factors of sexual behaviour. Consistent with the literature (20), these women had a higher cumulative number of sexual partners and more often had a history of abortion and STD. Thus, risky sexual behaviour often presents as a combination of early sexual debut, a high number of sexual partners (21), and substance abuse (22). In addition, a previous study demonstrated that people with early sexual debut use barrier contraceptive methods less often (20), and contraceptive use at coitarche increases the likelihood of using it in the future (odds ratio 2.28, 95% confidence interval 1.91–2.73) (23).

At coitarche, 90% of women used contraceptive methods, such as condoms (65%), which was used either alone (41%) or in combination with hormonal contraceptives (24%). Hormonal contraception was used at coitarche by 38% of women, whereas 49% of women used no contraception at coitarche. The proportion of women using contraceptives at coitarche has been increasing. In 1993 and 1998, unprotected sexual contact at coitarche was reported in 64% and 52% of women, condom use in 14% and 22%, and hormonal contraceptives in 2% and 7%, respectively (24). Compared to the results of other European studies, the proportion of condom users in our study was relatively lower, whereas the proportion of women using hormonal contraception was higher.

Table 5. *Correlations between categorised variables (Pearson correlation coefficient)*

		Hormonal contraception used	She has a permanent partner	1st sexual encounter 17 years of age	1st sexual encounter 16 years of age	She risks a pregnancy	She considers a change in contraceptive method	She had an abortion	She plans further studies	She plans to get pregnant	Vaccinated against HPV	Treated for STD	No. of sexual partners	No. of long-term partners	Age
Hormonal contraception used	Pearson correlation	1	0.068	0.096*	0.040	−0.266 **	−0.083	−0.048	0.090*	0.033	0.094*	−0.043	−0.103*	−0.017	−0.148**
	p-value		0.119	0.028	0.356	< 0.001	0.093	0.276	0.039	0.448	0.031	0.328	0.018	0.691	0.001
She has a permanent partner	Pearson Correlation	0.068	1	0.161**	0.179**	−0.088	−0.105*	0.085	−0.107*	0.079	0.005	−0.016	0.008	0.097*	0.085
	p-value	0.119		< 0.001	<0.001	0.121	0.033	0.053	0.014	0.071	0.910	0.712	0.862	0.026	0.052
1st sexual encounter before 17 years of age	Pearson Correlation	0.096*	0.161**	1	0.595**	0.015	−0.021	0.137**	−0.095*	0.022	0.025	0.118**	0.178**	0.300**	−0.099*
	p-value	0.028	< 0.001		<0.001	0.797	0.673	0.002	0.029	0.616	0.563	0.007	< 0.001	< 0.001	0.023
1st sexual encounter before 16 years of age	Pearson Correlation	0.040	0.179**	0.595**	1	0.060	−0.047	0.123**	−0.053	0.068	0.006	0.059	0.208**	0.253**	−0.054
	p-value	0.356	<0.001	<0.001		0.292	0.339	0.005	0.230	0.119	0.896	0.178	<0.001	<0.001	0.219
She risks a pregnancy	Pearson Correlation	−0.266 **	−0.088	0.015	0.060	1	0.208**	0.066	0.028	−0.041	0.001	0.046	0.177**	0.083	−0.014
	p-value	< 0.001	0.121	0.797	0.292		0.001	0.248	0.626	0.466	0.986	0.416	0.002	0.143	0.812
She considers a change	Pearson Correlation	−0.083	−0.105*	−0.021	−0.047	0.208**	1	0.042	0.166**	−0.009	0.010	0.069	0.012	−0.077	−0.142**
	p-value	0.093	0.033	0.673	0.339	0.001		0.393	0.001	0.859	0.843	0.162	0.815	0.119	0.004
She had an abortion	Pearson correlation	−0.048	0.085	0.137**	0.123**	0.066	0.042	1	−0.064	−0.072	−0.087*	−0.047	0.229**	0.145**	0.070
	p-value	0.276	0.053	0.002	0.005	0.248	0.393		0.144	0.101	0.045	0.280	< 0.001	0.001	0.107
She plans further studies	Pearson correlation	0.090*	−0.107*	−0.095*	−0.053	0.028	0.166**	−0.064	1	−0.045	0.198**	−0.002	−0.086*	-0.121	-0.432
	p-value	0.039	0.014	0.029	0.23	0.626	0.001	0.144		0.303	< 0.001	0.962	0.048	0.006	< 0.001
She plans to get pregnant	Pearson correlation	0.033	0.079	0.022	0.068	−0.041	−0.009	−0.072	−0.045	1	0.086*	−0.026	−0.075	0.038	0.058
	p-value	0.448	0.071	0.616	0.119	0.466	0.859	0.101	0.303		0.049	0.558	0.088	0.380	0.181
Vaccinated against HPV	Pearson correlation	0.094*	0.005	0.025	0.006	0.001	0.010	−0.087*	0.198**	0.086*	1	−0.033	−0.082	−0.062	−0.329**
	p-value	0.031	0.91	0.563	0.896	0.986	0.843	0.045	< 0.001	0.049		0.449	0.060	0.154	< 0.001
Treated for STD	Pearson correlation	−0.043	−0.016	0.118**	0.059	0.046	0.069	−0.047	−0.002	−0.026	−0.033	1	0.124**	0.143**	0.095*
	p-value	0.328	0.712	0.007	0.178	0.416	0.162	0.280	0.962	0.558	0.449		0.004	0.001	0.029
No. of sexual partners	Pearson correlation	−0.103*	0.008	0.178**	0.208**	0.177**	0.012	0.229**	−0.086*	−0.075	−0.082	0.124**	1	0.383**	0.186**
	p-value	0.018	0.862	< 0.001	<0.001	0.002	0.815	< 0.001	0.048	0.088	0.060	0.004		< 0.001	< 0.001
No. of long-term partners	Pearson correlation	−0.017	0.097*	0.300**	0.253**	0.083	−0.077	0.145**	−0.121**	0.038	−0.062	0.143**	0.383**	1	0.239**
	p-value	0.691	0.026	< 0.001	<0.001	0.143	0.119	0.001	0.006	0.380	0.154	0.001	< 0.001		<0.001
Age	Pearson correlation	−0.148 **	0.085	−0.099*	−0.054	−0.014	−0.142**	0.070	−0.432**	0.058	−0.329 **	0.095*	0.186**	0.239**	1
	p-value	0.001	0.052	0.023	0.219	0.812	0.004	0.107	< 0.001	0.181	< 0.001	0.029	< 0.001	< 0.001	

*Correlation is significant at the 0.95 level (two-tailed); **Correlation is significant at the 0.99 level (two-tailed).

Table 6. *Share of STD in tested groups*

		Coitarche prior 17 years of age		Number of male sexual partners		
		No (A)	Yes (B)	0–1 (A)	2–5 (B)	6+ (C)
STD	No	99.0% (B)	94.4%	99.2% (C)	98.2% (C)	89.4%
	Yes	1.0%	5.6% (A)	0.8%	1.8%	10.6% (A B)

Results are based on two-sided tests with significance level 0.01. For each significant pair, the key of the category with the smaller column proportion appears under the category with the larger column proportion.

According to the French FECOND study in 2014, at coitarche the barrier contraceptive method was used by 88.4% of women and hormonal contraception was used by 9.9% of women (25). The differences could be attributed to cultural differences and hormonal contraception availability at the time of sexual debut. We identified that women who did not use any contraceptive method at coitarche are at a high risk of pregnancy and that those using contraceptive methods that do not prevent STDs are at a high risk of infection. Thus, the higher incidence of unwanted pregnancy and STDs is not surprising.

The proportion of adolescent women with regular sexual activity is extremely heterogeneous and depends on social, cultural and religious factors (19). However, data on regular sexual intercourse among adolescent women in our study are consistent with data reported in the literature (8, 9, 26).

Moreover, in our study, 45% of women had four or more sexual partners since coitarche, and only 23.2% had one sexual partner. The cumulative number of sexual partners is a risk factor for STD. The risk is higher with a higher number of sexual partners over the past 18 months than that with a single sexual partner. The risk of STDs and the number of sexual partners increases with age, and the STD risk is the highest at 25–30 years. The risk factor for a higher number of sexual partners is the use of addictive substances, including nicotine and alcohol (27). The number of sexual partners in our study was positively correlated with early sexual debut, history of STD infection, and abortion, but not with nicotine and regular alcohol consumption (28, 29). In addition, the number of sexual partners in our study was negatively correlated with hormonal contraception use, which is consistent with the finding of previous studies (29).

During the survey, hormonal contraception was the most frequently used contraception method (44.8%), while condoms were used by 25.7% of women (16% in combination with other contraceptives, 9.7% condom alone). In the USA, the rate of hormonal contraption use is similar to that in our study; however, other forms of contraception, such as intrauterine device or injectables, are more common (30), and contrary to our observation, condoms were used alone or in combination with other contraceptive measures by 55% of the women. However, the percentage of condom users is lower, 15.0% used condom only and 9.7% used condom in combination with other methods; 4% had STDs while 5.3% had artificial abortions. In addition, the percentage of condom users in our study is similar to that in the study of Pastor et al. (15); however, hormonal contraception use was 37% higher in our study. Thus, general knowledge on the risks of unprotected sexual intercourse is apparently improving. Women who do not plan their pregnancies and do not use any contraceptive methods should be better educated about the potential risks and how to prevent them.

Based on the questionnaire responses, 3.8% of women had a history of infection; the most common were chlamydia (1.7%), HPV (1.5%), and genital herpes (0.4%) infections. The positive correlation among STDs, early coitarche, and a higher number of sexual partners in our study is consistent with the finding in a previous study (31). In addition to the cumulative number of sexual partners, the risk of acquiring STD is also determined by the number of sexual partners in the last 18 months (29). In our study group, an increase in the number of sexual partners and incidence of STDs could be expected as the maximum values of both parameters are noted for women aged in the mid-twenties: 25–30 years.

Furthermore, 43% of the women were vaccinated against HPV, and HPV vaccination was considered by 10%. Vaccinated women were often younger (18–20 years), planned to pursue further studies, and considered contraception as essential. The positive correlation between HPV vaccination and hormonal contraception use indicates better awareness of their positive effects. In addition, vaccination positively correlated with age at coitarche and negatively correlated with the cumulative number of sexual partners. Similar to the finding in previous studies, the sexual behaviour of vaccinated women was not riskier than that of unvaccinated women.

Limitations and Strength of the Study

This study, which employed an online questionnaire survey and a representative sample of women, allows quick data collection and is logistically and economically the most accessible way. The selected method of information collection provides an opportunity to women who have challenges with face-to-face interviews, including those who are stigmatised. However, only women included in the agency database were included. This may result in selection bias since women with limited access to the internet, drug users, teenage mothers, etc. could be underrepresented.

This study includes information of 525 women, who represent only a small proportion of late adolescent women in the Czech Republic. The size of the sample had to be limited because of restricted funding resources. Nevertheless, the sample was composed of women from different socioeconomic and geographical groups in the Czech Republic. Future relevant studies should include women who are not registered in the agency database, non-sexually active women, and women who could not access the Internet.

A similar study on sexual behaviour in the Czech Republic has not been performed since 2001. Therefore, our study provides valuable information to healthcare providers in the field of reproductive health.

CONCLUSIONS

Our study focused on the sexual and reproductive behaviours of adolescent women in the Czech Republic and on identifying the factors predicting health risks. An extremely broad spectrum of factors affecting reproductive and sexual behaviours has been

analysed; however, numerous aspects must be explored in future research, such as the relationships between sexual and reproductive behaviours and positive health implications. Our study has shown that women with early coitarche and a high cumulative number of sexual partners have more unwanted pregnancies and STDs; moreover, those with regular coital activity without contraception are less frequently vaccinated against HPV. Further research should compare the specific elements of sexual and reproductive behaviours among different age groups of women, and analysis of the relationship between individual factors of sexual and reproductive behaviours is important to understand the circumstances under which sex is beneficial or harmful to the general, reproductive, mental and social health of adolescent women.

Conflict of Interests

None declared

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