ABSTRACT

This paper reports the frequency of use of protection and rates of birth control pill/condom use by age and gender among a large, sexually active group of Ontario adolescents who were followed from 12 to 17 years of age. The sample consisted of the 759 males and 690 females who reported engaging in sexual intercourse during the McMaster Teen Project. Significantly more females aged 15-17 years reported always using a method of protection, and using the birth control pill. Condom use was more frequent among males at all ages, but reached statistical significance at ages 12, 13 and 17 years. Although the numbers reporting no use of protection decreased with age, by 17 years 36% of males and 33% of females continued to report no use of protection. Large numbers of sexually active Ontario adolescents continue to be vulnerable to pregnancy, STDs and AIDS.

ABRÉGÉ

Cet article rend compte de la fréquence d'utilisation de moyens de protection et des taux d'utilisation de condoms et de pilules contraceptives par âge et par sexe au sein d'un important groupe d'adolescents sexuellement actifs en Ontario, qui ont été suivis de l'âge de 12 ans à 17 ans. L'échantillon comprenait 759 garçons et 690 filles qui ont déclaré avoir eu des rapports sexuels pendant la durée du projet McMaster Teen. De manière significative, un plus grand nombre de filles âgées de 15 à 17 ans ont déclaré toujours se servir d'une méthode de protection et prendre une pilule contraceptive. L'utilisation de condoms est apparue plus fréquente chez les garçons de tous les âges mais n'avait de signification statistique que pour ceux âgés de 12, 13 et 17 ans. Bien que le nombre d'adolescents déclarant ne pas se servir de méthode de protection ait diminué à mesure que la catégorie d'âge montait, à 17 ans 36 % des garçons et 33 % des filles déclaraient encore ne pas se protéger. Un grand nombre d'adolescents ontariens sexuellement actifs continuent de courir des risques de grossesse, de MTS et de sida.

Adolescent Sexual Behaviour: Results from an Ontario Sample Part II: Adolescent Use of Protection

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Although there is some recent evidence of a slight increase in condom and birth control pill use among sexually active adolescents, many are still engaging in unprotected sexual intercourse. The potential outcomes of this behaviour, including unintended pregnancy, sexually transmitted diseases (STDs) and autoimmune deficiency syndrome (AIDS), constitute serious health hazards for the adolescent population.

Evidence from comparisons of the results of the Youth Risk Behaviour Survey for the years 1990, 1991 and 1993 indicate that birth control pill and condom use have increased over the four-year period in the United States.¹ Reported use of birth control pills at last sexual intercourse increased from 15% to 18%, while reported condom use at last intercourse increased from 46% to 53%. More detailed data from a 1988 national probability sample of American adolescents aged 15 to 19 years indicated that there were gender and age differences in contraceptive use.² The reported rate of condom use was higher among males than females at all ages. The number of females reporting condom use decreased with an increase in birth control pill use as they aged. Those reporting using an ineffective method or no contraceptive method decreased with age. However, by

19 years of age, 28% of females and 23% of males still reported having unprotected sexual intercourse.

Among those 15-19 years of age, 60% of Canadian males and 57% of Canadian females reported having had sexual intercourse.^{3,4} Recently reported Canadian rates for sexually transmitted diseases among adolescents are disturbing. Gonococcal infections are highest among 15 to 19 year old females and 20 to 24 year old females;⁵ reported 1994 rates were 99 and 81 per 100,000 respectively. Rates of chlamydia infection were much higher, especially among females. The reported female rates per 100,000 were 60, 1,211, and 1,113 respectively among females in the 10-14, 15-19, and 20-24 year age categories. No current data about birth control pill/condom use has been reported for Canadian youth.

The purpose of this paper (the second of two papers about adolescent sexual activity and use of protection behaviour) is to report the frequency of use of protection and the rates of birth control pill/condom use by age and gender among a sexually active Ontario sample of adolescents who were followed from age 12 years to 17 years.

METHODS

The McMaster Teen Project (MTP) was a randomized controlled trial to evaluate the effectiveness of an educational program in reducing adolescent pregnancy.^{6,7} The target population was students between the ages of 11 and 16 years who were in grades seven and eight in 21 of the 23 public schools in a large Ontario city (population 300,000). After stratification for school size, schools were randomly allocated to

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the control or experimental group using a random numbers table. All participants were tested before the 10-week program began, at its completion, and annually for the subsequent four years. Since there were no statistically significant differences between the experimental and control groups on any of the variables, for these analyses, the data were combined.

Self-reported data about sexual activity and birth control use were collected using a private ballot. The questions progressed from least sensitive to most sensitive. Each question was hidden in a perforated pocket that was opened only if the adolescent responded affirmatively to the previous question. The ballot was completed behind a polling booth, placed in an envelope, sealed and deposited into a ballot box.

Participants included in these analyses were those who responded positively to having sexual intercourse at some point during the study. The questions used included those about age and gender at each test, frequency of use of any method of birth control (i.e., always, frequently, rarely, never), and the method most frequently used in the preceding year. The rarely and never categories of birth control use were collapsed because this inconsistent use of protection placed this group at particularly high risk for both pregnancy and STDs.

Although the instructions were clearly marked on the ballot, some students did not follow them. Only those with a positive response to sexual intercourse were included in the analysis. Those who responded negatively to sexual intercourse, but positively to use of a contraceptive method, were excluded. Those where there was a positive response to sexual intercourse and no response to contraceptive use were coded as never using a method. Consequently, our results could be an underestimation of the frequency of contraceptive use.

Analyses were carried out using SAS.⁸ Frequencies by age and gender for overall contraceptive use were calculated. Because condoms and birth control pills were the most frequently reported methods of protection, frequencies of their use by age and gender were also calculated.

TABLE I
Frequency of Use of Protection Among Sexually Active Adolescents by Age and Gender

Age & Gender		Frequency					
		Always		Frequently		Rarely/Never	
		n	%	n	%	n	%
12	male	38	(22.2)	17	(9.9)	116	(67.8)
	female	16	(14.8)	13.	(12.0)	79	(72.2)
13	male	107	(26.1)	64.	(15.6)	239	(58.3)†
	female	59	(21.1)	35	(12.5)	185	(66.3)
14	male	119	(32.2)	104	(17.5)	299	(50.3)
	female	170	(35.8)	82	(17.3)	223	(46.9)
15	male	282	(43.0)††	116	(17.7)†††	258	(39.3)
	female	323	(52.9)	65	(10.6)	223	(36.4)
16	male	294	(46.9)††††	115	(18.3)	218	(34.7)*
	female	415	(62.7)	96	(14.5)	151	(22.8)
17	male	238	(52.8)**	98	(21.7)***	115	(25.5)
	female	311	(69.3)	41	(9.1)	97	(21.6)
†	$\chi^2 = 4.5$	p = 0.0340		*	$\chi^2 = 22.5$	p = 0.0000	
††	$\chi^2 = 12.4$	p = 0.0004		**	$\chi^2 = 25.7$	p = 0.0000	
†††	$\chi^2 = 12.8$	p = 0.0003		***	$\chi^2 = 27.3$	p = 0.0000	
††††	$\chi^2 = 32.5$	p = 0.0000					

TABLE II
Reported Rates† of Birth Control Pill Use Among Sexually Active Adolescents by Age and Gender

Age	Gender			
	Males (Partners of)		Females	
	n	%	n	%
12	18	(21.4)	6	(13.1)
13	238	(19.5)	27	(17.0)
14	43	(14.8)	45	(13.5)
15*	58	(21.6)	289	(30.8)
16**	68	(23.2)	124	(40.6)
17***	57	(29.7)	87	(46.5)
† $\frac{\text{number reporting birth control pill use}}{\text{number reporting sexual intercourse}} \times 100$				
* $\chi^2 = 6.1$		p = 0.0133		
** $\chi^2 = 20.9$		p = 0.0000		
*** $\chi^2 = 11.4$		p = 0.0007		

RESULTS

Of the 1,652 males and the 1,722 females enrolled in the MTP, 47% (n=759) and 41% (n=690) respectively reported engaging in sexual intercourse during the study.

Frequencies of adolescent use of approved contraceptive/protection methods (i.e., condom, birth control pill, IUD, and diaphragm) are outlined for each age and gender in Table I. Although some students of both genders and at all ages reported always using a method of protection at every sexual intercourse encounter, the proportion increased as the students grew older. At ages 13, 15, 16 and 17 years, statistically significantly more males than females reported rarely/never using protection. More females than males aged 15-17 years reported always

using a method of protection ($\chi^2 = 12.4$ p=0.0004, $\chi^2 = 32.5$ p=0.0000, $\chi^2 = 22.5$ p=0.0000 respectively). Conversely, statistically significantly more males than females at ages 15 and 16 years reported rarely/never using a method of protection. At age 17 years, significantly more males reported frequently using a method ($\chi^2 = 27.3$ p=0.0000). By age 17 years, among those who were sexually active, 26% of males and 22% of females continued to report using protection rarely or never.

A review of the data indicated that the birth control pill and the condom were by far the most frequently used types of protection. Fewer than 10% of males or females reported using any other type of protection during the study. Consequently, only rates of use of these two methods are included in these results.

TABLE III
Reported Rate† of Condom Use Among Sexually Active Adolescents by Age and Gender

Age	Gender			
	Males		Females (Partners of)	
	n	%	n	%
12*	28	(43.3)	8	(17.4)
13**	81	(41.5)	41	(25.8)
14	55	(23.7)	47	(14.2)
15	58	(21.6)	73	(25.2)
16	92	(31.4)	89	(29.2)
17***	71	(37.0)	44	(23.5)

† $\frac{\text{number reporting condom use}}{\text{number reporting sexual intercourse}} \times 100$

* $\chi^2 = 3.8$ $p = 0.0521$
 ** $\chi^2 = 7.3$ $p = 0.0070$
 *** $\chi^2 = 8.1$ $p = 0.0044$

TABLE IV
Reported Rate† of No Protection Among Sexually Active Adolescents by Age and Gender

Age	Gender			
	Males		Females	
	n	%	n	%
12*	37	(44.1)	33	(71.7)
13**	95	(48.7)	96	(60.4)
14	192	(66.0)	167	(61.0)
15	136	(50.5)	116	(40.1)
16***	139	(47.4)	97	(31.8)
17	70	(36.4)	61	(32.6)

† $\frac{\text{number reporting using no protection}}{\text{number reporting sexual intercourse}} \times 100$

* $\chi^2 = 9.2$ $p = 0.0030$
 ** $\chi^2 = 4.8$ $p = 0.0029$
 *** $\chi^2 = 15.3$ $p = 0.0001$

Reported rates of birth control pill use by partners of males and by females at each age from 12 to 17 years are displayed in Table II. At ages 15-17 years, statistically significantly more females than (partners of) males reported using birth control pills. However, at age 17 years, only 47% of sexually active females and 30% of males reported using this method.

Table III summarizes the reported rates of condom use for sexually active males and females. Although the numbers are small, for males the highest rates are reported among 12 and 13 year olds. At age 17 years, significantly more males than (partners of) females ($\chi^2=8.1$ $p=0.0044$) reported condom use. By age 17 years, 37% of males and 24% of (partners of) females reported condom use.

The rates of those reporting no use of protection during sexual intercourse by age and gender are displayed in Table IV. Among young females (ages 12 and 13 years), significantly more females than males reported no use of protection.

Among 16 year olds, males more frequently reported no use of protection ($\chi^2=15.3$ $p=0.0001$). By age 17, approximately one third of both males and females who were sexually active reported no use of protection.

DISCUSSION

There are at least three ways to evaluate use of protection during sexual intercourse. In the large American surveys, use at last sexual intercourse has been the question asked. Neither this nor use at first sexual intercourse presents a complete picture of the issue because they do not include actions between first and last sexual intercourse. Frequency data have been criticized because of the potential range of risk included in one category (i.e., sometimes). To date no ideal method for obtaining consistency data about this behaviour has been identified.² In this study, both frequency of use over the previous year and type of protection most frequently used

were asked. For both males and females, the numbers reporting always using a method of protection increase with age, and those reporting rarely or never using protection decrease with age. However, about 25% are still not protecting themselves at age 17 years. The increases in frequency of use of protection are gradual for both sexes and there is no dramatic change from one year to the next. Since the rates of sexual intercourse increase quite markedly between ages 13 and 14 years,⁹ many more adolescents are increasing the frequency of protection use at this time. It is unknown whether these are adolescents who are initially becoming sexually active or who have been active for a while and have decided to increase their use of protection. Programs directed at delaying sexual activity among this age group should include very specific information about use of protection to try to increase the numbers of those choosing to be sexually active who use protection from the beginning.

The low rates of reported birth control pill use at all ages are troubling. These rates are much lower than those found by Newcomer and Baldwin² for white American females. Although their work included all forms of female contraception, this would not account for the differences. It is clear that those who are sexually active require accurate knowledge about the pill and its side effects, as well as easy access if they choose. Programs targeted at adolescent health within the school and the community must provide accurate information. Public birth control clinics need to advertise their services where adolescents congregate and provide service that is user-friendly to adolescents. Family physicians should discuss sexual activity and appropriate protection with all adolescent patients.

The high rates of reported condom use among males and females aged 12 and 13 years is an interesting finding that has not been reported by others. We could find no other similar data on this young age group. The findings of Newcomer and Udry¹⁰ that males tend to over-report when providing information regarding their sexual behaviour may explain the rates reported by males. However, their finding that females under-report does not seem to be applicable to these findings. Among females, the

high rate may be explained by the fact that many of these adolescents are having sexual intercourse with older males who may be responsible for the condom use.

Overall, the rates of use of protection of any type during sexual intercourse among this group of adolescents are very low. Furthermore, although the number who are protecting themselves against pregnancy is higher than those protecting themselves against disease, many of these adolescents are vulnerable to both of these deleterious outcomes.

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