

# A study on the sexual and contraception behaviours of the pre-university students in Puglia (South-Italy)

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## Key words

Contraception • Age at first intercourse • Sexual behaviours

## Summary

**Introduction.** *The aim of the present study is to determine attitude and associated factors towards the use of methods of protection/contraception.*

**Methods.** *In August 2008, a study was carried out using a self-administered standardised anonymous questionnaire. It was administered to school-leavers who were attending a study course at Bari University.*

**Results.** *The total number of questionnaires returned was 1091, the average age of the interviewed subjects was 19.6. Those declaring to have had sexual intercourse at least once*

*was 88%. Of those sexually active, the average age at first intercourse was 16.8, and 75.2% stated that they had used some form of contraception on this occasion. The condom was the most popular method employed, followed by withdrawal and by contraceptive pills. Around 20% of the interviewees indicated that they used emergency post-coital contraception.*

**Discussion.** *The study results emphasise the importance of an effective teaching of the aspects of sex and relationship education before puberty.*

## Introduction

Sexually Transmitted Infections (STIs) are a serious problem for present-day public health all over the world, both in industrialised and developing countries. According to the World Health Organisation (WHO), there are, every year, 333 million new cases of STIs, not including AIDS, whose impact on the social-economic-health state of entire countries, above all in Africa, is creating a real emergency [1].

There are two major reasons for the increase in the incidence of STIs: people being more mobile and the increasing number of sexual partners that people tend to have. Various STIs also cause genital lesions and inflammation which considerably increase HIV transmission [2].

One of the categories at major risk of STIs is the adolescents between ages 13-16 [3]. Studies show that the age at first intercourse is between 14-19, with important variations between countries (earlier in North America and Western Europe, later in Eastern Europe and China) [4-6].

Some studies suggested that an early age at first sexual intercourse can determine an increased risk of STIs [7], because initiation at an early age can be associated with a higher number of partners over a person's lifetime, which is a major factor both for receiving a sexually transmitted infection and for the non-use of contraception methods and so unwanted pregnancy [8-10]. Moreover, recent studies showed that having an older first sex partner during adolescence was associated with sexual risk behaviour in adulthood [11].

A study carried out in Washington in 2004 showed that around 26% of university students aged between 18-24 had already had six or more partners [12].

The age of first sexual activity can be influenced by various social factors such as the family or peer group, or by the individual characteristics and can positively or negatively influence the attitude towards the use of contraception and its various methods [4].

The control of STIs is one of the priorities of the WHO and other international health organisations. The different strategies which have been adopted are principally based on primary prevention, through the promotion of responsible sexual behaviour (information, care in casual sexual practices and with occasional partners, access to prophylactics) [1].

The results of several studies carried out in 24 Countries in 2002 showed a frequency of use of contraceptive methods of over 80% in adolescents, with the condom being the most popular method of contraception followed by the assumption of contraceptive pills [13-14]. Very few publications are available on the use of oral emergency contraception, commonly called the morning-after pill, and on the reasons that lead to its use.

The recent introduction of vaccination against Human Papillomavirus (HPV) in several Western countries has opened an important debate within the scientific community and among health workers about the most appropriate vaccination policies to follow, and in particular about which age groups should receive the vaccination. On the basis of available evidences and according to the WHO recommendations, it is important to advise hav-

ing the vaccination before potential exposition to HPV, which means before sexual initiation [15].

With the aim of helping in the planning of suitable preventative strategies it was deemed a good idea to carry out a study among young adults, to determine the attitude and associated factors towards the use of protection/contraception methods, particularly the use of emergency contraception, and to also estimate the age at first sexual experience.

## Methods

The protocol of the study was approved by the Puglia Regional Observatory for Epidemiology in Italy on 20 February 2008 and, in August 2008, the study in sexual behaviour was carried out using a self-administered standardised anonymous questionnaire. It was administered to school-leavers who were attending a study course in preparation for the entrance examination for degree courses limited in number at Bari University in Puglia, Italy.

The questionnaire was developed by the authors after a review of the relevant literature and it was subsequently tested on a group of freshman studying Medicine at Bari University. The questionnaire was in 13 sections: personal details (sex, age, city); sexual orientation (heterosexual, homosexual, bisexual); virgin or not; age at first experience and the number of partners in the last year; the use of contraception or not at first and most recent sexual intercourse and the contraception used (condom, birth control pills, withdrawal); date of most recent intercourse, type of partner (regular, occasional, paid); use of emergency contraception and reasons for its use.

Before the beginning of the lesson, the authors explained the purpose of the survey to the study population, making it clear that the questionnaire was anonymous and voluntary. The questionnaire was then administered and each participant had 15 minutes for its compilation. As the questionnaire was voluntary and anonymous, written informed consent was not obtained.

The questionnaires were loaded into a database and analysed with the statistical software Epi-Info 3.3. To analyse the associations, the variables were classified in contingency tables and the values of chi-square test, Odds Ratio (OR) and the relative confidence intervals at 95% were calculated. Multiple logistic analysis was also carried out. A *p*-value of < 0.05 was considered significant for all the tests.

## Results

The total number of questionnaires distributed was 1091 and all questionnaires were returned, with a validity rate of 100%. Of the interviewees, 760 were female (69.7%) and 331 male (30.3%). The average age was 19.6 (SD = 1.7; range 16-30), broken down by gender as 19.5 (SD = 1.6; range 17-30) for the women and 19.8 (SD = 1.9; range 16-30) for the men. Those de-

claring to have had sexual intercourse at least once were 88.0% (95% CI = 86.1-89.0). The average age at first intercourse was 16.8 (SD = 1.6; range = 12-27), without differences between male (mean = 16.7; SD = 1.5) and female (mean = 16.8; SD = 1.6). The average number of partners in the last year was 1.8 (SD = 2.7; range = 1-32), higher in male (mean = 2.3; SD = 2.8) than in female (mean = 1.6; SD = 2.8; *p* < 0.05).

Seventy-four percent had had first intercourse between the ages of 16-18 (Fig. 1) and over 50% of the interviewees declared to have had only one partner in the last year (Fig. 2).

For declared sexual orientation, heterosexuals were 98.5% (95% CI = 97.4-99.1), bisexuals 1% (95% CI = 0.5-1.9) and homosexuals 0.5% (95% CI = 0.2-1.3). Broken down, these figures were: bisexuals 1.4% (95% CI = 0.7-2.8) of females and no males, and homosexuals 0.3% (95% CI = 0.1-1.3) of females and 1% (95% CI = 0.3-3.1) of males.

Of those sexually active, contraceptive use on the first occasion of sexual intercourse was 75.2% (95% CI = 72.3-77.9), without significant differences between females (73.7%; 95% CI = 70.1-77) and males (78.8%; 95% CI = 73.7-83.2).

Condom use was the most frequent method of contraception during first intercourse in both genders, followed by withdrawal and contraceptive pills (Tab. I).

Among the sexually active, 85.3% (95% CI = 82-88) declared that the most recent intercourse had taken place less than one month before the study, 9.9% (95% CI = 7.6-12.8) from 1-3 months, and 4.9% (95% CI = 3.3-7.1) more than 4 months before, with no difference per gender (chi-square = 1.8; *p* = 0.4).

Contraceptive use on the most recent occasion of sexual intercourse was 67.2% (95% CI = 64-70.2), lower than contraceptive use on the first occasion of sexual intercourse (*p* < 0.05). Also in this case the condom was the most popular method employed, followed by contraceptive pills and by withdrawal (Tab. I).

Table II shows the distribution of the most recent intercourse partner by type (regular, occasional, paid) and gender.

For last sexual intercourse with the regular partner, contraceptive use was 68% (95% CI = 64.5-71.3), which was 66.1% (95% CI = 61.9-70) for women and 73.8% (95% CI = 67.1-79.9) for men.

For last sexual intercourse with an occasional partner, contraceptive use was lower at 64.4% (95% CI = 54.2-73.6), which was 50% (95% CI = 31.8-68.1) for women and 71% (95% CI = 58.8-81.3) for men.

For last sexual intercourse with a paid partner, contraceptive use was 70.6% (95% CI = 44-89.7), which was 62.5% (95% CI = 28.9-96) for women and 77.8% (95% CI = 40-97.5) for men.

Recourse to emergency contraception by the interviewee or by the partner was 19.3% (95% CI = 16.7-21.9); of which 15.1% (95% CI = 12.8-17.7) declared to have used emergency contraception only once and 4.2% (95% CI = 3-5.8) more than once. For women these figures were 20.6% (95% CI = 17.3-23.8), of which

Tab. I. Contraceptive method employed in first and last sexual intercourses, by gender.

Contraceptive method	F		M		Total	
	N	% (95%CI)	N	% (95%CI)	N	% (95%CI)
<b>First sexual intercourse</b>						
Condom	420	85.5 (82.4-88.6)	205	90.3 (86.5-94.2)	625	87 (84.6-89.5)
Withdrawal	38	7.8 (5.4-10.1)	12	5.3 (2.4-8.2)	50	7 (5.1-8.8)
Contraceptive pill	33	6.7 (4.5-8.9)	10	4.5 (1.7-7.1)	43	6.0 (4.2-7.7)
Total	491		227		718	
<b>Last sexual intercourse</b>						
Condom	339	76 (72.1-80.0)	179	92.1 (88.5-96.0)	518	80.9 (77.9-84.0)
Withdrawal	51	11.4 (8.5-14.4)	8	4.2 (1.3-6.9)	59	9.2 (7.0-11.5)
Contraceptive pill	56	12.6 (9.5-15.6)	7	3.7 (1.0-6.2)	63	9.9 (7.5-12.1)
Total	446		194		640	

Tab. II. Distribution of last intercourse partner by type and gender.

Last intercourse partner	Female		Male		Total	
	%	95% CI	%	95% CI	%	95% CI
Regular partner	93.2	90.9-95	72.5	67.3-77.6	86.5	84-88.6
Occasional partner	5.5	3.6-7	23.8	18.9-28.7	11.5	9.1-13.1
Paid partner	1.3	0.4-2.1	3.7	1.6-5.9	2.1	1.3-3.3

16.3% (95% CI = 13.4-19.6) only once and 4.3% (95% CI = 2.9-6.4) more than once. The men who reported the use of emergency contraception by the partner were 16.7% (95% CI = 12.4-21), of which 12.9% (95% CI = 9.2-17.3) only once and the remaining 3.8% (95% CI = 1.9-6.8) more than once. The main reason given for the use of the emergency contraception was the rupture of the condom (52.1%; 95% CI = 44.2-60), followed by the lack of forethought about the risk of unwanted pregnancy at the time of intercourse (27%; 95% CI = 20.3-34.5) and by the momentary unavailability of other contraception methods (20.9%; 95% CI = 14.9-27.9).

Early age at first sexual intercourse (< 16 year old) was associated with non-contraceptive use at first intercourse (OR = 1.8; 95% CI = 1.2-2.7; chi-square = 8;  $p < 0.01$ ) Non-contraceptive use at last sexual intercourse was significantly associated with:

- having had more than one partner in the last year (OR = 1.5; 95% CI = 1-2.1; chi-square = 5.3;  $p < 0.05$ );
- an early age at first sexual intercourse (< 16 year old; OR = 1.9; 95% CI = 1.3-2.7; chi-square = 10.9;  $p < 0.001$ );

Having had more than one partner in the last year was significantly associated with:

- male gender (OR = 2.7; 95% CI = 1.9-3.8; chi-square = 40.4;  $p < 0.001$ );
- an early age at first sexual intercourse (< 16 year old; OR = 2.1; 95% CI = 1.4-3.1; chi-square = 14.8;  $p < 0.001$ ).

A multiple logistic regression model confirmed the associations between non-contraceptive use at last sexual intercourse with male gender (OR = 0.4; 95% CI = 0.3-0.5;  $z = -5.8$ ;  $p < 0.01$ ), with having had more than one partner in the last year (OR = 1.7; 95% CI = 1.2-2.5;  $z = 3.2$ ;  $p = 0.001$ ) and with an early age at first sexual intercourse (OR = 1.7; 95% CI = 1.1-2.4;  $z = 2.6$ ;  $p = 0.009$ ).

## Discussion and conclusions

The target of the study was a sample of young adult school-leavers who were attending a preparatory course for the admission test for the limited number of places available for university degree courses. The choice of the study population and the period when to carry out the survey was to limit selection bias. If the study had been carried out after the start of the academic year, the study population would have been composed only of university students (not taking into account those who drop out), instead of the broader sample available, though this is still biased in that it was composed of those aspiring to becoming university students when these are only 40% of young Italians [16]. Furthermore, the study population was limited to those aspiring to the University of Bari and they were almost all from the Region of Puglia. The composition of the study group did not allow the investigation of possible differences either between those from large cities and those from small towns or between social-economic and cultural levels.

The percentage of interviewees declaring to be bisexual or homosexual was lower than reported in other recent studies in Italy [17, 18]. This difference can be explained in part by the cultural and social preclusion still widespread in Italy and in part by the average age of the study population who may have not yet completely matured their sexual orientation [19].

The proportion of sexually active subjects and the average age at first sexual intercourse is largely comparable with the data from other surveys carried out in recent years in Europe and the USA [20-22]. The age at sexual initiation is largely between 16-17, with some differences between the genders. While there are no large discrepancies between males and females whose sexual initiation is between preadolescence and adolescence (12-14) or after 18, there are more females than males who reported sexual initiation between 15-16, and more males than females who reported sexual initiation at 17 years of age.

These figures confirm the findings of other studies performed in Italy in recent years. Panatto et al. [23] in a survey carried out in 2006-2007 and involved 3474 volunteers, showed that the median age of the sexual debut was 15+/-1 for both females and males in Ligurian students. Moreover, this study provides evidence that many young people have their first sexual experience often without protection.

The results of our study are a confirmation of the decision of the Italian Authorities to offer free HPV vaccination to 12-year-old females, since sexual initiation was at 13 or over for 95% of the females interviewed [24]. With the advent of vaccines for the Human Papillomavirus, many are claiming that cervical cancer may become a health worry of the past. While the vaccines certainly represent an important step forward in the fight against HPV and cervical cancer, they do not diminish the importance of health education or screening for adolescents [25].

Three out of four stated that they had used a contraceptive method during the first sexual intercourse. Seven percent of the sexually active interviewees used withdrawal, ineffective both for the prevention of STIs and unwanted pregnancy [26].

The attitude to the use of contraception methods, as shown by the results for the most recent sexual intercourse, which, in our sample, is on average 2-3 years after sexual initiation, worsens over time. In fact, there is a reduction of almost 10% in the use of contraception and there is also an increase in the practice of withdrawal or of contraceptive pills, all at the expense of condom use. There are also ineffective practices such as withdrawal combined with condom or contraceptive pill use.

Most of the interviewees reported a regular partner in the last sexual intercourse, with an important difference between females and males (93.4% vs. 72.4%), the latter reporting a higher frequency of intercourse with occasional or paid partners. However, among women the proportion of occasional or paid partners with the non-use of contraception / protection was higher.

Monogamy was the behaviour most frequently found in both genders, with an important difference between them. Of the sexually active women, almost 80% stated to have had only one partner in the last year, while for sexually active men the figure was 60%.

The planning and organisation of initiatives for sex education should take into account that males can have a greater inclination towards sexual promiscuity (more than one partner in the last year, more occasional or paid partners), and that subjects with an early initiation and a higher tendency to promiscuity are more at risk of non-protected sexual intercourse.

Our study has also shown that around 20% of the young adults have had recourse to emergency contraception. The main reason given for the use of emergency contraception was the rupture of the condom, as reported in other surveys. Our figure of about 52% was lower than that reported in similar recent studies in Italy and other countries which show between 62 and 91% [27-29]. Despite of this low figure, about 27% of the participants declared that the use of emergency contraception was needed by a lack of forethought about the risk of unwanted pregnancy, and about 21% by the momentary unavailability of other methods of contraception/protection. Contraception should always be readily available, unfortunately, its cost is not always within the budget of an adolescent or young adult.

Of those who had made use of emergency contraception, about 25% declared they had used it more than once. This result is lower than the 34-50% found in other surveys [28, 29]. This difference could be in part due to the nature of the study populations in that most of the studies in the literature have study populations selected from women who go to the accident and emergency services for the prescription of the emergency contraception.

The widespread use of emergency conception by young adults should be a signal for alarm, showing that they worry much more about the risk of unwanted pregnancy than about the prevention of STIs. Also, to allow a more informed use of emergency contraception, availability of information about its proper usage and its mechanism of action must be improved, especially as less-knowledgeable women are more likely to make use of it [30].

The results of our study confirm and underline the need for a preventive approach towards reproductive health in adolescents and young adults. Early sexual initiation, the number of young adults who do not use contraception or who use unsuitable methods for STIs prevention like contraceptive pills, the attitude to paid sex, the easy availability of emergency contraception are all factors that can influence social and health problems especially the spreading of STIs and the increase in unwanted pregnancy. The planning of effective teaching of the aspects of sex and relationship education before puberty in primary schools is of paramount importance.

Health professionals must relate to and interact with the family, the school and other institutions in the planning

of suitable prevention policies which include both targeted health education and the removal of social, cultural and economic barriers which block access to protection.

Finally, the work of the different protagonists in sex education must be made easier by the availability and accessibility of clear and concise information which is based on proven effectiveness.

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