

# Sexual behaviours and preconception health in Italian university students

Andrea Poscia, Daniele Ignazio La Milia, Franziska Lohmeyer, Adele Anna Teleman, Chiara de Waure and Walter Ricciardi

*Istituto di Sanità Pubblica, Sezione di Igiene, Università Cattolica del Sacro Cuore, Rome, Italy*

## Abstract

**Introduction.** Risky sexual behaviours have been recognized as a threat for sexual and reproductive health.

**Aim.** This article shows the results of the “Sportello Salute Giovani” project (“Youth Health Information Desk”) in relation to determining how a large sample of university students in Italy cope with preconception health, especially in the domains of sexual transmitted infections (STIs), fertility and vaccination preventable disease.

**Methods.** Twentythree questions of the “Sportello Salute Giovani” survey about sexual behaviour and reproductive health were analysed. Besides, results were stratified for sex, age class and socio-economic status.

**Results.** 19.7% of students have had first sexual intercourse before age 15. 21.8% of female students used emergency contraception. 66.4% of the 74.0% sexual active students reported using contraceptives, but about 32% of them used methods ineffective against STIs. A general low coverage for rubella, measles and mumps vaccination was revealed. 63.7% of men and 30.9% of woman never had urologic or gynaecological examinations.

**Discussion.** Overall, young adults in Italy are not still enough sensitized on fertility and preconception care. High schools and universities should increase awareness towards preservation of male and female fertility and preconception care.

## Key words

- sexual behaviour
- preconception health
- sexual transmitted infections
- vaccination

## INTRODUCTION

Sexual dimension plays, in adolescents and young adults, a very important role for its influence on intellectual growth and development [1, 2]; in the same way, the consequences of sexual behaviours may have a severe impact on their reproductive health [3].

According World Health Organization (WHO), sexual health is “a state of physical, emotional, mental and social well-being in relation to sexuality that requires a positive and respectful approach to sexuality and sexual relationships” [4] and reproductive health includes functionality, system and the action of reproducing in a whole life cycle and, therefore “implies that people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so.” [5]. Risky sexual behaviours have been recognized as an important health, social and demographic concern, and a threat for sexual and reproductive health (SRH).

Risky sexual behaviours are, indeed, frequently observed in university students, both in the developing [6] and in developed world [7]. Reasons for that are multifactorial. Explanations are for example that individuals in this age group have not sufficient knowledge about reproductive health conditions, their symptoms and

consequences and have wrong beliefs, which possibly influence their risk-taking behaviour [8, 9]. Furthermore, socio-cultural change, together with a shift towards later marriage in most countries, has led to an increase in premarital sex and in the number of partners, especially in developed countries and for men [10].

Earlier sexual activity, with multiple partner and without any kind of prevention, represents a risk for sexual transmitted infections, such as HIV, *Chlamydia trachomatis* or gonorrhoea, and may occur unintended pregnancies, abortions and poor pregnancy outcomes [11].

The highest rates of sexually transmitted infections (STIs) are generally found in urban men and women in their sexually most active years (between 15 and 35 years) [12]. WHO estimates in 2008 about 500 million new cases worldwide due to syphilis, gonorrhoea, chlamydia and trichomoniasis in men and women aged 15-49 years and 46.8 million of them were in the European WHO Region [13].

STIs represent a concern due to the development of serious complications and long term consequences: one of the most dreaded is their influence on the capability to reproduce. The prevalence of infertility in Italian women range from 1.99% (primary infertility) to 12.99% (secondary infertility) [14].

Four out of 10 women report that their pregnancies are unplanned [15]. As a result, essential health interventions provided once a woman and her partner decide to have a child will be too late in 40% of pregnancies [16]. For this reason, WHO supports regions and countries in implementing a step-by-step process to improve availability of and access to preconception care interventions, aimed to reduce maternal and childhood mortality and morbidity through the provision of a continuum of care that spans pregnancy, childbirth, infancy, childhood, adolescence and adulthood. Preconception care, defined as the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs, consists of several effective interventions in 12 areas addressing health problems, behaviours and risk factors in the preconception period, including vaccine-preventable disease (VPD); early or unwanted pregnancies; STIs and infertility and subfertility.

Recent evidences highlight that without institutional provider of preconception care, women in childbearing age could query internet with the risk to find incorrect information [17].

Italy is a country with growing experience in implementing preconception care initiatives [18], but more data are needed to describe awareness toward preconception health and patterns of risky sexual behaviours in specific target.

In 2013, the HBSC Survey made a great quantity of information available to address preventive strategy about sexual behaviours in adolescent (11, 13 and 15 years old children) [3]. However, little is known about Italian university student in this field, even if universities represent key settings to improve young people's awareness about fertility and preconception health.

The objective of this paper is to present the results of the "Sportello Salute Giovani" project in relation to determining how a large sample of university students in Italy cope with preconception health, especially in the domains of STIs, fertility and VPD.

## METHODS

The information regarding the study population, and study design, including the development process of the "Sportello Salute Giovani" questionnaire, the questionnaire contents, the data entry and cleaning, the codification of variables and the sample characteristics, have been previously covered in another paper in this same monograph [19].

To meet the aim of the present article, only the section referred to sexual behaviours and reproductive health (questions 43-65) was analyzed by the research group.

Five questions (43-47) investigated the sexual behaviours both in males and females: they were aimed to define if students had sexual intercourses or random sexual intercourses, students' age at first sexual intercourse, use and type of contraceptive.

Three questions (48-50) were aimed to investigate, both in males and females, if students had ever acquired STIs and, in that case, the type and if it was diagnosed by a medical doctor.

Questions 51-58 were addressed only to females: three questions (number 51-53) examined the use of hormonal contraceptive, especially emergency contraception and, eventually, how many times. Five questions (54-58) investigated the time since last gynaecological examination, age of menarche, if students had ever acquired rubella and students' vaccination status against rubella and measles.

Finally, the last seven questions (59-65) were aimed to study reproductive health in males: they investigated the time since last urological examination, if students had ever had cryptorchidism, varicocele, orchitis, mumps, and in case at what age, and students vaccination status against mumps.

For each question absolute and relative frequencies were calculated. Tables and graphs were used to summarize results. Questions about similar topics were grouped together in table if they had comparable answers. For questions that investigated quantitative variables, results were reported as mean  $\pm$  standard deviation. Furthermore, data were stratified for sex, age class and socio-economic status according to classes described in the methodological article of de Waure *et al.* [19]. Sex stratification is presented only when applicable (questions 43-50). Differences in categorical or ordinal variables were evaluated through the chi squared, instead differences in quantitative variables were evaluated through ANOVA. A *p* value < 0.05 was considered statistically significant.

## RESULTS

The complete tabular presentation of the data regarding this section of the study can be found in the Appendix which is available online as Supplementary Material at [www.iss.it/anna](http://www.iss.it/anna).

The majority of students (74.0%) answered they had sexual intercourse, with 19.7% of students that had their first sexual intercourse at 15 years old or less. 14.4% of students declared having random sexual intercourses (Table 1).

The greater part of students affirmed to use contraceptive (66.4%) and condom was the most used among them (66.7%), followed by contraceptive pills (31.1%). Among female students using hormonal contraceptive, 40.5% began before 18 years old. Besides, 21.8% of female students used emergency contraception albeit only once in the greater part of cases (68.7%).

The majority of students answered they never acquired STIs (97.5%) but, among those who have had it, the disease was diagnosed by a medical doctor only

**Table 1**  
Main features about sexual behaviour and reproductive health

Features	(%)
Sexual intercourses	74.0
Random sexual intercourses	14.4
Use of contraceptive	66.4
Use of emergency contraception in female	21.8
Occurrence of STIs	2.5

**Table 2**

Time since last medical examination

	Gynecological examination (%)	Urological examination (%)
Never	30.9	63.7
Less than a month	9.4	1.7
More than a month	15.6	3.5
More than six months	17.4	5.0
More than a year	18.0	7.9
More than two years	8.7	18.2

in 68.3% of cases. STIs more frequently reported were genital herpes (25.8%), chlamydia (25.0%), genital warts (17.4%), syphilis (10.6%), AIDS (7.6%) and gonorrhoea (6.8%). Six and three students reported, respectively, trichomoniasis and hepatitis B. STDs is significantly higher in students who have the random sex and younger age at first sexual intercourse categories.

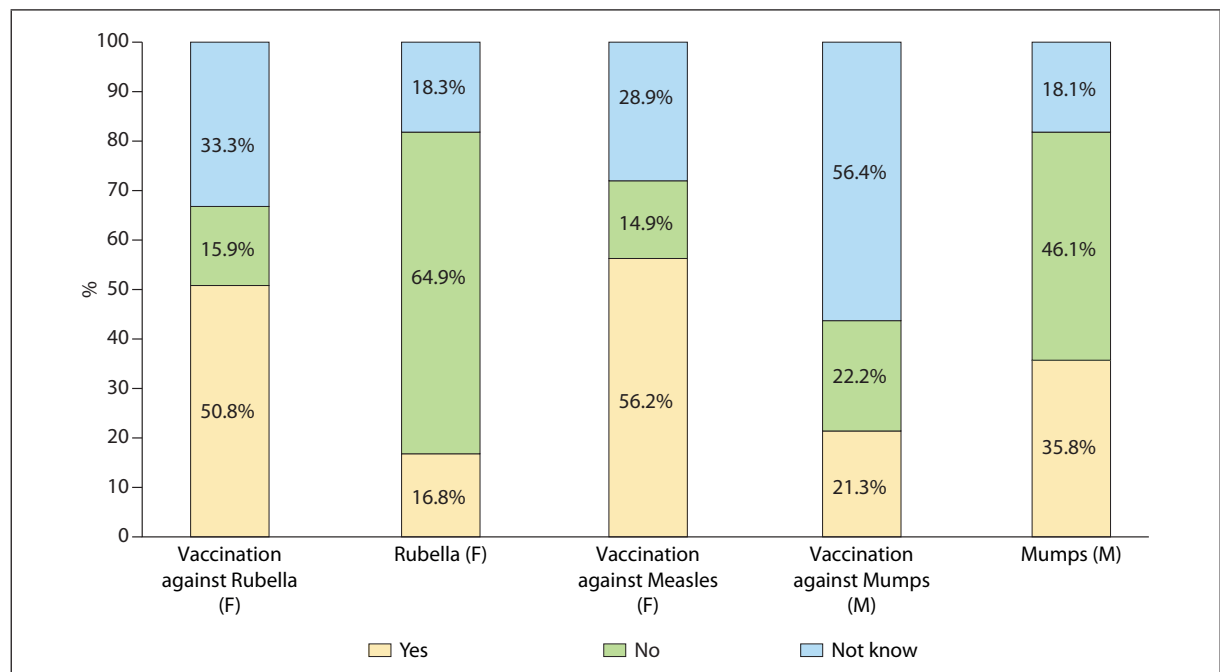
The majority of female students affirmed they had gynaecological examination during the last 2 years (60.4%), whereas 63.7% of male students has never done urological examination (Table 2). 90% of female reported to have the menarche between 11 and 15 years (7.8% before 11 years, 2.0% after 15 years and 0.2% not yet). Finally 4.7%, 10.2% and 3.2% of males declared to had cryptorchidism, varicocele and orchitis, respectively.

Although the greater part of female students affirmed they have never acquired rubella (64.9%), only 50.8% answered to be vaccinated against it, while 33.3% did not know about their vaccination status (Figure 1). Combining the questions about rubella disease and vaccination against rubella, 29.7% did not know if they

were vaccinated for/have already contracted rubella and 10.1% were surely unprotected towards it. Likewise, 46.1% of male students answered that have never acquired mumps (mean age of mumps onset is  $7.81 \pm 3.35$  years old), even though only 21.3% answered to be vaccinated against it (56.4% did not know their vaccination status against mumps). Also in this case, combining the information about the disease and vaccination status, 38.9% did not know if they were vaccinated for/have already contracted mumps and 12.1% were surely unprotected.

#### Stratification by sex

The main differences found concerned sexual behaviour: in fact, 77.5% and 27.0% of male students answered to have sexual intercourses and random sexual intercourses respectively, against 72.2% and 8.2%, respectively, among female students ( $p < 0.01$ ). Likewise, 26.2% of female students vs 20.2% of males affirmed to had their first sexual intercourse after 17 years old and 18.5% of females vs 13.3% of males answered to have never had their first sexual intercourse ( $p < 0.01$ ).

**Figure 1**

Relative frequencies (%) of vaccination coverage and occurrence of infectious diseases linked to reproductive health.

### Stratification by age

The main differences among age groups refer to sexual behaviour, occurrence of disease related to reproductive health and vaccination coverage.

With regards to sexual intercourses, 82.7% of students aged 25-30 answered to have sexual intercourses in respect to 78.9% of students aged 22-24 and 66.2% of students aged 18-21 ( $p < 0.01$ ). In the same way, percentage of students that answered to have had STIs is significantly higher between aged 25-30 (5.0%) respect to aged 22-24 (2.7%) and 18-21 (1.4%) ( $p < 0.01$ ). A similar trend was found in female students that affirmed to use emergency contraception (32.2%, 25.1% and 15.5%, respectively;  $p < 0.01$ ).

Also the percentage of males that declared to have varicocele shows a linear trend with age: 7.6% for males between 18-21 years, 11.6% between 22 and 24 years and 13.5% between 25-30 years ( $p < 0.01$ ).

On the contrary, percentage of male students that answered to be vaccinated against mumps is significantly higher ( $p < 0.01$ ) among 18-21 years old (24.3%) respect to 22-24 (19.8%) and 25-30 age groups (16.3%). At the same time, female students aged 18-21 answered to be vaccinated against rubella and measles (53.3% and 59.6%, respectively) with a significantly higher percentage in respect to females aged 22-24 (49.8% and 54.0%, respectively) and 25-30 (47.9% and 53.0%, respectively) ( $p < 0.01$ ).

### Stratification by socio-economic level

Differences linked to socio-economic level were observed with respect to the use of contraceptives and some aspects of reproductive health.

The use of contraceptives was more frequent in students who affirmed to belong to high socio-economic level (69.4%) than in those of the low one (61.8%) ( $p < 0.01$ ). Furthermore condoms were more frequently used among high socio-economic level students (74.3% vs 60.5% of the low socio-economic group;  $p < 0.01$ ), while pills were more used in the low socio-economic group (32.7% vs 24% of the high socio-economic group;  $p < 0.01$ ).

Percentage of male students who answered to have never done an urological examination was significantly higher between those who affirmed to have a low (69.7%) and middle-low (69.4%) socio-economic level respect to those who affirmed to have an high (59.8%) and a middle-high (56.1%) income ( $p < 0.01$ ).

## DISCUSSION

This study highlights several risky sexual behaviours, such as early sexual initiation, random and unprotected sexual intercourse and a low awareness about reproductive health among a big sample of university students.

Early sexual debut is a risk factor for STIs and adverse social, emotional, and physical health outcomes in adolescence and into adulthood [20] and it increases teenage pregnancies.

In our study 19.7% of students had intercourse before the age of 15. This percentage is quite similar to USA young adults (19% of 15 years-old females) [21].

The frequent use (21.8%, sometimes more than once)

of emergency contraception in females could represent low ripeness in emotional relationship and low awareness about the potential consequences of own behaviours. The Center for Disease Control (CDC) estimates that about 11% (around 5.8 million people) of American women aged 15-44 used emergency contraception from 2006-2010, but the percentage was higher in younger age groups. The main reasons for using emergency contraceptives are "method failure" (45%) or "unprotected intercourse" (49%) [22].

In our study, 66.4% of the 74.0% sexual active students reported using contraceptives and about 32% used methods ineffective against STIs (pills or IUD), less than found in a survey conducted in other European Countries in 2010 [23]. In the Netherlands the use of contraceptives is higher with 85% of people who have intercourse using any method (46% condoms and 24% contraceptive pill and condoms) [24].

The low percentage of STIs diagnosed by a medical doctor could represents an underestimated alarm bell. 2.5% of students had at least one STIs, but only in 68.3% it was diagnosed by a medical doctor. Moreover, 63.7% of men and 30.9% of woman never had urologic or gynaecological examinations. This aspect could imply an important under notification and have several implications in term of SRH. In fact, some disease, for example chlamydia, could remain asymptomatic for a long time and students could represents a reservoir for their dissemination to their partners. Furthermore chronic silent STIs represents a risk for infertility or poor reproductive outcome. It is important to highlight that some of the young girl that never had a gynaecological examination are in the age of the Papanicolau screening for the prevention of the cervix carcinoma.

In males we observed a delay in the diagnosis of varicocele: as a matter of fact, varicocele was significantly higher in students aged between 25-30 years (13.5%) in respect to 22-24 (11.6%) and 18-21 years old (7.6%), while usually its mean age of incidence is after puberty [25]. Probably abolition of mandatory military service, that was considered a social screening, reduces the possibility of an early detection of the disease, which is the major cause of male infertility.

Vaccination for rubella, measles and mumps showed low coverage in our sample and reached the higher level in younger students (aged 18-21). The lower vaccination among older students could be reasonable in consideration of the suboptimal routine vaccination coverage in the cohorts born in Italy in the 1980s and 1990s [26]. However, it raises an important issue from the SRH point of view. As a matter of fact in the study population about 40% of the females could be susceptible to rubella in future pregnancy and more than 50% of males could be susceptible to mumps and, as a consequence of a late infection, to an high risk to develop complication.

## CONCLUSION

This study showed that young adults in Italy are not still enough sensitized on fertility and preconception care. With certainty, it can be said that the number of





women visiting regularly the gynaecologist should be improved. For young men it would be necessary to replace outdated universal check up, as the mandatory army visit, to raise awareness about their health status and to identify early preventable health problems, such as varicocele.

This could be done during the different educational stages through targeted health promotion interventions aimed at educating adolescents and young adults towards a positive and responsible lifestyle, in full respect of their own and of other's life and health.

High schools and universities should increase the awareness towards the preservation of male and female fertility and the concept of preconception health and care in order to contribute to the reduction of maternal and childhood mortality/morbidity.

#### Conflict of interest statement

None.

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