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RESEARCH ARTICLE

Contraceptive use and sexual function: a comparison of Italian female medical students and women attending family planning services

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ABSTRACT

Objectives: The aims of the study were to understand how education relates to contraceptive choice and how sexual function can vary in relation to the use of a contraceptive method.

Methods: We surveyed female medical students and women attending a family planning service (FPS) in Italy. Participants completed an online questionnaire which asked for information on socio-demographics, lifestyle, sexuality and contraceptive use and also included items of the Female Sexual Function Index (FSFI).

Results: The questionnaire was completed by 413 women (362 students and 51 women attending the FPS) between the ages of 18 and 30 years. FSFI scores revealed a lower risk of sexual dysfunction among women in the control group who did not use oral hormonal contraception. The differences in FSFI total scores between the two study groups, when subdivided by the primary contraceptive method used, was statistically significant ($p < 0.005$). Women using the vaginal ring had the lowest risk of sexual dysfunction, compared with all other women, and had a positive sexual function profile. In particular, the highest FSFI domain scores were lubrication, orgasm and satisfaction, also among the control group. Expensive contraception, such as long-acting reversible contraception, was not preferred by this young population, even though such methods are more contemporary and manageable. Compared with controls, students had lower compliance with contraception and a negative attitude towards voluntary termination of pregnancy.

Conclusion: Despite their scientific knowledge, Italian female medical students were found to need sexual and contraceptive assistance. A woman's sexual function responds to her awareness of her body and varies in relation to how she is guided in her contraceptive choice. Contraceptive counselling is an excellent means to improve female sexuality.

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Contraception; female sexual dysfunction; Female Sexual Function Index; online survey; voluntary-induced abortion

Introduction

Contraceptive use has changed considerably over time. In recent decades it has become more widespread, yet it is still affected by numerous sociocultural variables. Nationality, ethnicity, religion, age, parity, educational level, relationship status, economic circumstances and pregnancy intentions all have a bearing on determining the contraceptive method and use; furthermore, satisfaction with the method affects female sexuality [1–5]. For example, the use of hormonal contraception has been reported to be associated with altered sexual function in female medical students [6,7].

Poor education results in incorrect or non-use of contraception, leading to unwanted pregnancy. Socioeconomic factors are the most significant variables related to contraceptive failure [8]. By contrast, educational interventions can help to increase awareness of contraceptive methods, allowing people to make informed decisions and use contraceptive methods effectively [9]. To understand how educational level relates to contraceptive choice and how sexual function can vary in relation to the use of a contraceptive method, we surveyed two Italian populations that differed in terms of education: female medical students and healthy women attending a family planning service (FPS) for a routine appointment. We hypothesised that the university cohort, considered better educated and aware of their bodies thanks to their field of study, would have a lower risk of sexual dysfunction.

Methods

Study population and research ethics

Participants were recruited from two settings. Female medical students were recruited through the online social network of faculty and student associations of 34 Italian universities (universities of Salerno, Bari Aldo Moro, Bologna, Brescia, Cagliari, Catanzaro Magna Grecia, Chieti–Pescara Gabriele D'Annunzio, Ferrara, Firenze, Foggia, Genova, L'Aquila, Messina, Milano, Milano Bicocca, Milano Libera Università Vita Salute S. Raffaele, Modena e Reggio-Emilia, Napoli Federico II, Napoli Luigi Vanvitelli, Padova, Palermo, Parma, Pavia, Perugia, Pisa, Roma Università Cattolica del Sacro Cuore, Roma La Sapienza, Roma Tor Vergata, Sassari, Siena, Torino, Trieste, Udine, Varese–Como Insubria). The only inclusion criterion was the

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self-declared status of being a female medical student. Students over 30 years of age were excluded because the study focused on women of typical student age. For comparison, we recruited healthy women attending the FPS of our health district in Salerno, Italy, by direct invitation during outpatient visits. Exclusion criteria were the following: having received medical training, age over 30 years and previous pregnancy.

The two cohorts differed not only in terms of medical studies but also in their degree of schooling. Our aim was to highlight the possible differences in contraceptive choice and sexuality between young women who were well or less well educated. While all female students have a high school diploma and a small percentage (1–2%) already have a degree in another discipline (pharmacy, biotechnology, science or foreign languages), women attending the FPS are likely to have a lower level of education: about half (52%) had a high school diploma, while the remaining 48% had stopped their studies at the age of 14.

A sample size was based on feasibility and not on formal calculation. We expected to be able to enrol 350 students and 50 controls. With this sample size, we would be able to use a two-sided Mann–Whitney *U* test with 80% power and a 5% alpha error, a median score of 27 points on the Female Sexual Function Index (FSFI) with a standard deviation (SD) of 6 and a difference in score of 2.5. However, analyses were only planned as exploratory.

Interested participants were given details of the study, including a guarantee of anonymity and complete confidentiality. The study protocol was approval by the ethics committee of the Scuola Medica Salernitana, University of Salerno (protocol 98, 22 December 2012).

Online questionnaire

Study data were collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted by the University of Salerno [10]. REDCap is a secure, web-based application designed to support data capture for research studies, providing an intuitive interface for validated data entry, audit trails for tracking data manipulation and export procedures, automated export procedures for seamless data downloads to common statistical packages, and procedures for importing data from external sources.

The study electronic case report form (eCRF), administered according to good practice in conducting and reporting surveys [11], was placed online in January 2017 and closed after 6 months. Medical students accessed the eCRF via a weblink, while control participants completed it on a computer in the clinic waiting room. The eCRF had two parts. The first consisted of 17 general questions about age, height and weight (for calculation of body mass index [BMI]), age at first sexual intercourse (<15 years, 15–18 years, 18–25 years and >25 years), having a steady relationship in the previous 6 months, lifestyle factors including smoking (yes/no), alcohol consumption (never, occasionally, daily), level of fitness (very fit, in good shape, average, not very fit, in poor shape), type of contraception used (pill, vaginal ring, subcutaneous implant, patch, intrauterine device [IUD], condom, diaphragm, coitus interruptus, natural family planning/abstinence), current and past use of hormonal contraception (including pill composition), features that guided the choice of contraception, use of emergency contraception (never, once, more than once) and history of voluntary termination of pregnancy. Students were also asked to name their university, and controls to state the number of years they attended school.

The second part contained the validated Italian translation of the FSFI [12,13], a 19-item, multidimensional self-reporting tool that evaluates six key dimensions of female sexual function: desire, arousal, lubrication, orgasm, satisfaction and pain, with regard to participants' sexual experiences during the previous 4 weeks. A total score <26.55 identifies respondents at risk of sexual dysfunction [14]. The FSFI is a validated questionnaire that has been developed for the specific purpose of assessing the fundamental domains of sexual function (i.e., sexual arousal, desire, lubrication, orgasm, satisfaction, pain) in clinical trials over a specific period of time. It can be therefore used as a tool for the measure of female sexual function [12–14].

Statistical analysis

Descriptive statistics were produced for sociodemographic, clinical and laboratory characteristics. Mean and SD values are presented for normally distributed variables, median and interquartile range (IQR) for non-normally distributed variables, and number and percentage for categorical variables. Groups were compared using parametric or non-parametric tests, according to the data distribution, for continuous variables, and Pearson's χ^2 test (Fisher exact test where appropriate) for categorical variables. Correlation between continuous variables was assessed using Pearson's or Spearman's coefficient, according to the data distribution.

In all cases, two-tailed tests were used. The significance level was set at 5%. The main comparison was between the two groups (students versus controls). Interaction between study group and type of contraception by FSFI domain was analysed by subgroups, defined by the primary method of contraception used: non-hormonal (condoms), oral hormonal, non-oral hormonal (vaginal ring) or no medical contraception (abstinence or coitus interruptus). Median regression was used to assess potential determinants of total FSFI score. All statistical analyses used R software, version 3.0.0 (R Foundation for Statistical Computing, Vienna, Austria) [15].

Results

Questionnaires were completed by 432 women (381 medical students and 51 controls). However, 19 students were >30 years old and thus excluded. Therefore, 413 individuals were analysed (362 students and 51 controls) (Table 1). Students were slightly older and were less likely to smoke, have been in a stable relationship in the previous 6 months or have a history of voluntary pregnancy termination.

Hormonal contraception was used by 111 (30.7%) students and 24 (47.1%) controls ($p = 0.025$). Among those currently using hormonal contraception, 35 (31.5%) students and 14 (58.3%) controls had a history of also using

Table 1. Sociodemographic and clinical characteristics of the study groups.

Characteristic	Students ($n = 362$)	Controls ($n = 51$)	p-value
Age, in years, mean (SD)	22.8 (2.4)	20.4 (3.4)	<0.001
BMI, in kg/m^2, mean (SD)	21.6 (3.0)	22.4 (4.8)	0.10
Smoking habit, *n* (%)	88 (24.3)	20 (39.2)	0.028
Alcohol consumption, *n* (%)			
Never	41 (11.3)	14 (27.5)	0.009
Occasionally	315 (87.0)	37 (72.5)	
Daily	6 (1.7)	0 (0)	
Level of fitness, *n* (%)			
Very fit	6 (1.7)	3 (5.9)	0.14
In good shape	75 (20.7)	8 (15.7)	
Average	135 (37.3)	15 (29.4)	
Not very fit	131 (36.2)	21 (41.2)	
In poor shape	15 (4.1)	4 (7.8)	
Age at first sexual intercourse, in years, *n* (%)			
<15	31 (8.6)	6 (11.8)	0.07
15–18	200 (55.2)	36 (70.6)	
19–25	138 (38.1)	9 (17.6)	
>25	7 (1.9)	0 (0)	
No response	3 (0.8)	0 (0)	
Steady relationship in past 6 months, *n* (%)	280 (77.3)	48 (94.1)	0.005
Current use of hormonal contraception, *n* (%)	111 (30.7)	24 (47.1)	0.025
Emergency contraception, *n* (%)			
Never	242 (66.9)	29 (56.9)	0.33
Once	81 (22.4)	17 (33.3)	
More than once	36 (9.9)	5 (9.8)	
No response	3 (0.8)	0 (0)	
History of voluntary pregnancy termination, *n* (%)	11 (3.0)	5 (9.8)	0.036
Contraception after voluntary pregnancy termination, *n* (%)			
No contraception/non-hormonal contraception	4 (36.4)	0 (0)	
Oral hormonal contraception/non-oral hormonal contraception	7 (63.7)	5 (100)	

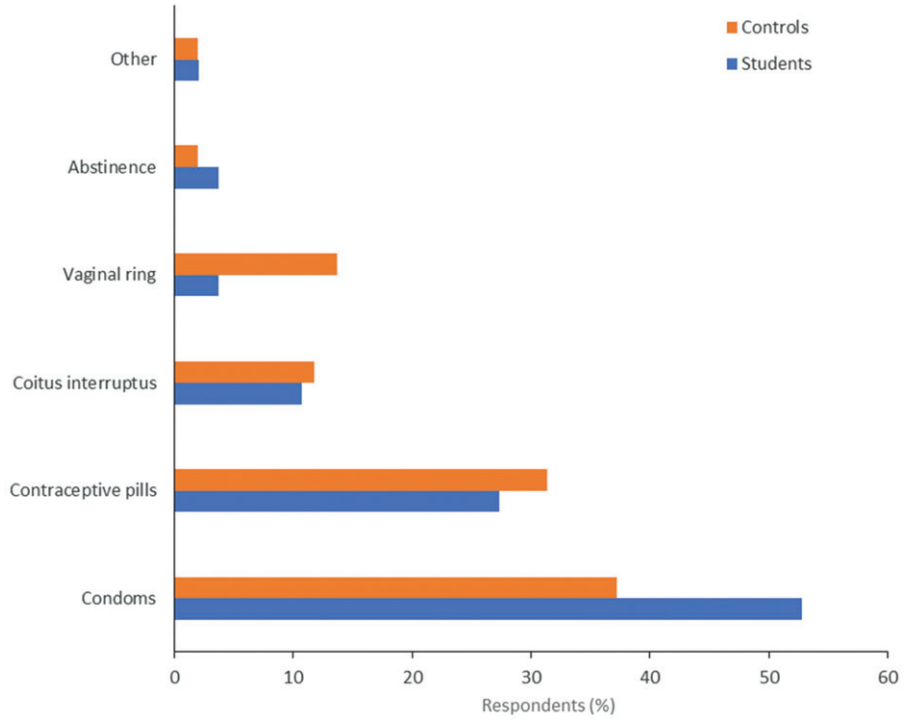

Figure 1. Main contraceptive method used, by the study group.

emergency contraception ($p = 0.01$). The most frequently used contraceptive methods in students and controls were, respectively: condoms (52.8% versus 37.2%), contraceptive pills (27.3% versus 31.4%), coitus interruptus (10.7% versus 11.8%) and the vaginal ring (3.3% versus 15.7%) ($p = 0.01$) (Figure 1). These four methods accounted for ~94% of contraceptive users in each group. No participant used a subcutaneous implant, IUD or diaphragm; one control participant used a patch (60 μg/24 h gestodene and 13 μg/24 h ethinylestradiol [EE]). Of student pill users, 82% took pills containing 20 or 30 μg EE, the remainder used pills containing natural estrogens (i.e., estradiol valerate) or pills containing 15 or 35 μg EE (Figure 2). Conversely, 87.5% of pill users in the control group reported using pills containing 20 or 30 μg EE, with the remainder taking pills containing natural estrogens.

A history of voluntary induced abortion was recorded in 11 (3.0%) students and five (9.8%) controls.

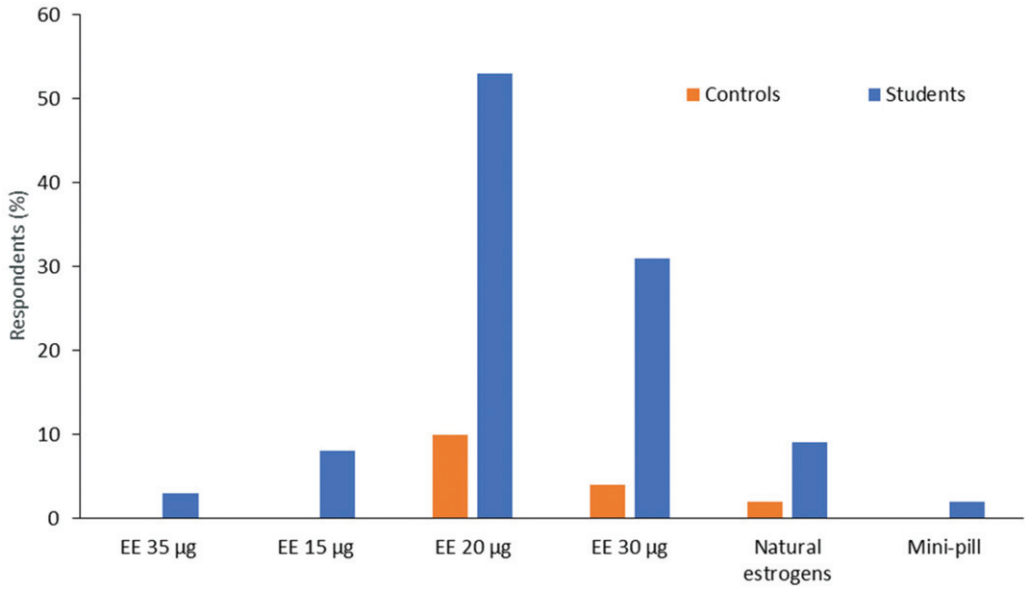

Figure 2. Type of oral hormonal contraception used, by the study group.

Sexual function

The difference in FSFI total scores between the two study groups, when subdivided by the primary contraceptive method used, was statistically significant ($p < 0.005$). Median (IQR) FSFI total scores were 28.6 (24.6–31.7) for students and 28.2 (24.9–29.9) for controls ($p = 0.29$) (Table 2). The FSFI identified potential sexual dysfunction in 124 (34.3%) students and 14 (27.5%) controls ($p = 0.34$).

The groups had similar scores in all domains except arousal, where students had a higher score ($p = 0.027$) (Table 2). In the subgroup using oral hormonal contraception, students and controls had different scores overall in the arousal and lubrication domains. All domain scores were slightly higher for students. Scores were higher in non-oral hormonal contraception users than in other subgroups, which was particularly significant in the desired domain ($p = 0.052$). Table 2 summarises the analysis performed to assess the influence of various types of contraceptives. In univariate analysis, the variables associated with FSFI total score were having a stable partner (which increased the score) and later age at first intercourse and use of coitus interruptus (which lowered the score) (Table 3).

The results with regard to the history of voluntary termination of pregnancy are presented in Table 4. Total FSFI scores in these subgroups were slightly lower than those in Table 2; pain and satisfaction appeared inversely correlated in students versus controls.

Discussion

Findings and interpretation

We found no noticeable differences in epidemiological characteristics between the students and controls, except for age at first sexual intercourse, which was younger in controls than in students (<15 years old; 11.8% versus 8.6%, respectively); being in a stable relationship, which was less common for students than for controls (77.3% versus 94.1%, respectively); and the percentage of respondents who used hormonal contraception and reported having used emergency contraception (58.3% of controls versus 31.5% of students). Our initial hypothesis that university students would have a lower risk of sexual dysfunction appears not to have been completely valid.

Hormonal contraception was widely used by both groups. The pill (by 27.3% of students and 31.4% of controls) and vaginal ring (by 3.3% and 15.7%, respectively) were common. The results regarding the vaginal ring are interesting, showing higher median (IQR) values in both groups: students 29.2 (23.4–30.8) versus controls 29.1 (27.4–30.4).

Condoms were the most common contraceptive method in both groups, owing to availability, low cost and protection from infection. The acceptability of condoms in terms of sexual experience is controversial. According to some studies, they can negatively interfere with sexual pleasure and arousal, can reduce vaginal lubrication and lead to discomfort and pain [16–18]. Other studies, however, found no particular alteration and indeed attributed various benefits to them: in the USA, no association was found between reduced sexual function and condom use [19]; in Europe, users reported longer sexual intercourse and personal feelings of cleanliness and sexual hygiene [20]. Our results might be explained by the higher percentage of controls having a stable relationship compared with the students (94.1% versus 77.3%).

Condom users had FSFI scores that substantially overlapped with those practising coitus interruptus. A recent study of undergraduates at the University of Seville found that knowledge about contraception was lower among young people using coitus interruptus or no contraception [21]. In our study, coitus interruptus was equally used by 14% of students and controls. The students in the current study certainly knew about the lack of safety and inconsistency of this method, with a consequent negative impact on sexual function. In fact, the students who used no contraception had a lower total FSFI scores compared with those who used oral hormonal contraception (median [IQR]: no contraception 28.3 [24.2–32.0] versus oral hormonal contraception 29.1 [25.1–32.1]) or the vaginal ring (29.2 [23.4–30.8]). Moreover, these values were also lower than those of the non-contraceptive users in the control group (29.3 [24.3–30.5]). On the other hand, the control group had higher FSFI values among non-contraceptive users than among oral

Table 2. FSFI domain scores by type of contraception.

	Students			Controls			
Contraception and FSFI domain	*n* (%)	Median	IQR	*n* (%)	Median	IQR	*p*-value
All contraception	362 (100)			51 (100)			
Total		28.6	24.6–31.7		28.2	24.9–29.9	0.295
Desire		3.6	3.6–4.8		3.6	2.4–3.6	0.753
Arousal		4.8	3.9–5.4		4.5	3.9–5.1	0.027
Lubrication		5.7	4.5–6.0		5.4	4.2–6.0	0.114
Orgasm		4.8	3.2–5.6		4.6	4.0–5.2	0.960
Satisfaction		4.8	4.0–5.6		5.2	4.8–5.6	0.113
Pain		4.8	3.6–6.0		4.8	3.6–6.0	0.570
Non-hormonal contraception	190 (52.5)			19 (37.3)			
Total		28.2	23.3–30.8		28.2	26.9–30.4	0.778
Desire		3.6	3.6–4.2		3.6	3.6–4.8	0.396
Arousal		4.8	3.6–5.4		4.5	3.9–5.1	0.250
Lubrication		5.4	4.5–6		5.7	4.8–6	0.462
Orgasm		4.8	2.8–5.6		4.8	3.6–5.2	0.716
Satisfaction		4.8	3.6–5.6		4.8	4.4–5.6	0.400
Pain		4.8	3.6–6		5.2	4.0–6.0	0.418
Oral hormonal contraception	99 (27.3)			16 (31.4)			
Total		29.1	25.1–32.1		27.3	20.7–28.7	0.016
Desire		3.6	3.6–4.8		3.6	3.3–3.6	0.069
Arousal		5.1	3.9–5.7		4.3	3.1–4.5	0.013
Lubrication		5.7	4.8–6.0		4.0	3.3–5.2	<0.001
Orgasm		4.8	3.6–5.6		4.4	3.4–5.2	0.238
Satisfaction		5.2	4.4–5.6		5.0	4.8–5.6	0.816
Pain		5.2	3.6–6		4.0	3.2–5.8	0.284
Non-oral hormonal contraception	12 (3.3)			8 (15.7)			
Total		29.2	23.4–30.8		29.1	27.4–30.4	0.908
Desire		4.2	3.6–4.8		3.6	3.6–3.6	0.052
Arousal		4.9	4.0–5.1		4.6	4.2–5.2	0.938
Lubrication		5.4	4.0–6.0		5.5	5.1–6.0	0.692
Orgasm		4.8	4.0–5.4		5.6	5.2–5.6	0.108
Satisfaction		4.8	4.6–5.4		5.6	5-5–6.0	0.250
Pain		4.4	2.8–6.0		4.8	3.0–5.4	0.815
No contraception	51 (14.1)			7 (13.7)			
Total		28.3	24.2–32.0		29.3	24.3–30.5	0.768
Desire		3.6	3.0–4.2		4.2	3.6–4.8	0.102
Arousal		4.8	3.0–5.7		4.2	3.9–5.1	0.636
Lubrication		5.7	3.9–6.0		4.8	4.2–5.4	0.260
Orgasm		4.8	2.8–5.6		4.4	4.0–5.2	0.990
Satisfaction		5.2	3.2–5.6		5.6	4.8–6.0	0.230
Pain		5.6	3.6–6.0		4.4	3.2–6.0	0.426
Other/not known	10 (2.8)			1 (2.0)			
Total		28.7	24.9–32.1		30.0	30.0–30.0	1.0
Desire		3.6	3.6–4.8		4.2	4.2–4.2	0.617
Arousal		5.2	4.5–5.7		5.4	5.4–5.4	0.749
Lubrication		5.8	5.4–6.0		6.0	6.0–6.0	0.387
Orgasm		5.0	3.2–6.0		5.2	5.2–5.2	0.873
Satisfaction		5.0	4.4–5.2		5.2	5.2–5.2	0.625
Pain		4.8	2.0–5.2		4.0	4.0–4.0	0.521

hormonal contraceptive users (29.3 [24.3–30.5] versus 27.3 [20.7–28.7], respectively). It would be interesting to investigate why students used coitus interruptus even though they knew it was ineffective.

Another important issue is the sexual function of young women after voluntary termination of pregnancy in the first trimester (<90 days, in accordance with Italian law no. 194/1978). A decline in sexual function after abortion has been found in different cultures [22,23], owing to possible psychological trauma and worry about another unwanted pregnancy [24]. In our study, sexual function after abortion was lower in students than in controls; 100% of controls were using hormonal contraception (oral or non-oral), whereas only 63% of students were using oral hormonal contraception and the remaining 37% non-oral hormonal contraception (Table 1).

Differences and similarities in relation to other studies

In 2008, Shindel et al. [25] found that 63% of female medical students were at risk of sexual dysfunction. In 2010, Wallwiener et al. [7] found a high percentage of sexual dysfunction in this population. We also analysed sexual function among a population of medical students through questionnaires and evaluation of the FSFI. In our study, data were collected through the REDCap platform and students were compared with a demographically matched cohort with a different level of schooling.

Strengths and weaknesses

The questionnaire explored different areas of lifestyle and factors potentially associated with sexual function. Using a simple method of data collection, the questionnaire offered access to a large amount of data that may be useful for pharmacologists in understanding how to direct scientific research and for clinicians in contraceptive counselling. Although our pilot study consisted of a small sample, it is, as far as we know, the first in Italy to evaluate contraceptive choice and sexual function in this particular type of population. Although there were not many epidemiological differences between the two cohorts, they were

Table 3. Analysis of the participants' data.

Variable	Coefficient	Confidence interval	*p*-value
Study group			
Students	Ref.		
Controls	−0.400	−2.322, 1.522	0.683
Age, for each year	0.213	−0.015, 0.44	0.067
BMI, for each point	0.072	−0.13, 0.274	0.484
Weight, for each kg	0.018	−0.044, 0.079	0.572
Height, for each cm	−3.636	−12.907, 5.634	0.442
Age at first intercourse, years			
<15	Ref.		
15–18	0.200	−1.945, 2.345	0.855
19–25	0.300	−1.929, 2.529	0.792
>25	−23.200	−28.708, −17.692	0.000*
Stable partner			
No	Ref.		
Yes	4.000	2.382, 5.618	0.000*
Smoking			
No	Ref.		
Yes	−1.300	−2.714, 0.114	0.072*
Alcohol intake			
Never	Ref.		
Occasionally	1.700	−0.15, 3.55	0.072*
Daily	0.300	−5.012, 5.612	0.912
Length of education, years			
8	Ref.		
13	1.000	−2.991, 4.991	0.623
>16 (university degree)	2.200	−4.325, 8.725	0.509
University student	1.700	−1.557, 4.957	0.306
Physical activity			
Very fit	Ref.		
In good shape	0.600	−3.454, 4.654	0.772
Average	0.900	−3.063, 4.863	0.656
Not very fit	−0.100	−4.052, 3.852	0.960
In poor shape	−1.300	−6.001, 3.401	0.588
Contraception			
Oral hormonal	Ref.		
Vaginal ring	0.300	−2.771, 3.371	0.848
Transdermal patch	3.300	−9.133, 15.733	0.603
Condoms	−0.400	−1.866, 1.066	0.593
Coitus interruptus	1.100	−1.224, 3.424	0.354
Abstinence/natural family planning	−7.900	−11.409, −4.391	0.000
Other/no response	1.400	−2.511, 5.311	0.483
Hormonal contraception			
No	Ref.		
Yes	0.400	−0.809, 1.609	0.517
Type of contraception			
Non-hormonal	Ref.		
Oral hormonal	0.400	−1.055, 1.855	0.590
Non-oral hormonal	0.700	−2.183, 3.583	0.634
No contraception	0.100	−1.816, 2.016	0.919
Other/not known	1.800	−2.006, 5.606	0.354
Current duration of use of contraception, months			
<3	Ref.		
3–6	−0.600	−3.916, 2.716	0.723
6–12	−1.800	−4.717, 1.117	0.226
>12	−0.900	−3.163, 1.363	0.436
Emergency contraception			
Never	Ref.		
Once	−0.500	−2.019, 1.019	0.519
More than once	−0.500	−2.624, 1.624	0.645
Ever used emergency contraception			
No	Ref.		
Yes	−0.500	−1.815, 0.815	0.456
History of voluntary pregnancy termination			
No	Ref.		
Yes	−1.200	−4.257, 1.857	0.442

*$p < 0.05$.

Table 4. FSFI domain scores after voluntary-induced abortion.

	Students ($n = 11$, 3.0%)		Controls ($n = 5$, 9.8%)		
FSFI domain	Median	IQR	Median	IQR	*p*-value
Total	27.4	21.4–30.7	27.5	27.3–29.1	0.955
Desire	3.6	3.0–4.8	3.6	3.6–3.6	1.0
Arousal	5.1	3.6–5.4	4.5	4.5–4.5	0.730
Lubrication	5.7	4.8–6.0	4.8	3.9–5.1	0.243
Orgasm	4.8	1.2–5.6	4.4	4.4–5.2	0.689
Satisfaction	4.8	3.2–5.6	5.1	4.8–5.6	0.327
Pain	5.6	3.2–6.0	4.8	3.2–5.6	0.452

substantially different from an educational point of view and in terms of body awareness.

Relevance of the findings: implications for clinicians and policy-makers/health care providers

The evolution of hormonal contraception not only brings improvements in many symptoms but also the emergence of new issues (e.g., dyspareunia), particularly with regard to

low-dose combined oral contraceptives [26]. Non-oral administration of combined hormones seems to be one of the best contraceptive choices, allowing the gynaecologist to improve metabolic and psycho-relational patterns [1,27,28]. In our study, women using the vaginal ring reported overall positive results in sexual function, perhaps because of an increase in sexual fantasy for them and their partners, as previously suggested [2].

After surgical or medical pregnancy termination all women should be guided in choosing hormonal contraception. Contraceptive counselling is the basis of post-abortion care: it is the right time to give contraceptive advice, when women often specifically ask for information about contraception, especially young women who are anxious to resume their sexual life [29]. After abortion, women adhere better to hormone therapy and attend clinical examinations more consistently compared with those seeking preventive hormonal contraception [30]. Despite this, in our study, the students had a lower use of hormonal contraception compared with the controls (63.7% versus 100%; Table 1). Furthermore, despite appreciating the 'forgettable' nature and long duration of use of long-acting reversible contraception, young women who have undergone a voluntary termination of pregnancy have been found to prefer not to use contraceptives such as IUDs and subcutaneous implants, probably because of the high initial costs [31]. Post-abortion contraceptive counselling not only improves contraceptive use but also prevents any decline in sexual function. From an economic viewpoint, most participants preferred cheaper methods such as condoms, the vaginal ring (with higher mean FSFI scores among the student group) and the pill, the latter being the contraceptive of choice with the best sexual function profile in students. Beyond contraception, being in a steady relationship, having better physical fitness and greater self-acceptance were better represented among the control group and were associated with higher FSFI total scores (implying a lower risk of sexual dysfunction).

Unanswered questions and future research

It would be interesting to understand why female students use contraceptive methods that are notoriously ineffective and why their sexual life seems less satisfactory than that of their peers. Another element that could be explored is the emotional and psychological aspects of FPS visits with respect to women who do not use these services (such as the students in our study). Given the complexity of the topic, many elements require further investigation.

Awareness campaigns are needed so that all young women (regardless of schooling) can fully understand issues about contraception. Improvement in reproductive health is important. Special training programmes for medical undergraduates could encourage direct relationships with different professional figures such as gynaecologists, urologists, sexologists, midwives, infectious disease specialists and psychologists.

Conclusion

Awareness of one's own body and knowledge of the physiological mechanisms that underlie female fertility are important but not sufficient to improve sexuality. The control group used more reliable contraception and seemed to enjoy their sexuality more, even after situations such as abortion, possibly because they were constantly reassured and followed by the FPS team. On the other hand, the students made less effective contraceptive choices, with a consequently negative impact on sexual function, despite being aware of the risks. The two groups shared in common a preference for cheap and easy-to-use contraception. The vaginal ring was associated with better sexual function. Future studies should be carried out in larger samples, comparing medical students with a population with the same level of schooling, or evaluating the same populations after carrying out awareness campaigns.

Disclosure statement

The authors report no conflict of interest.

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