

Determinants of sexual habits in Italian females

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Abstract

Objective—To identify characteristics of women reporting multiple sexual partners and early age at first intercourse in Italy. **Method**—Information on 1139 control women (median age 54 years) interviewed as part of a case-control study of cervical neoplasia conducted in the greater Milan area, Northern Italy were analysed using stratified analysis and multiple logistic regression.

Results—Overall, 81% of the study sample reported no more than one sexual partner, 10% two and 9% three or more. The proportion reporting multiple sexual partners tended to be higher among younger and more educated women (4% vs 19% of women with respectively less than 7 and 12 or more years of education reported three or more partners). Ever smokers reported a higher number of sexual partners than never smokers. The proportion of nulliparae reporting three or more sexual partners was higher than that of parous women. These findings were confirmed after taking into account in a multivariate analysis the role of potential confounding factors. Furthermore similar findings emerged from an analysis restricted to women aged 40 years or less. Always considering number of sexual partners, no relationship emerged with marital status, spontaneous or induced abortions, lifetime number of reported Pap smears and contraceptive habits. With reference to age at first intercourse, 25% of the study population reported their first intercourse at age 18 or before, 34% between 19 and 22 years, and 41% at age 23 or later. Younger women (that is, more recent cohorts) more frequently reported earlier age at first intercourse and the proportion of never married women reporting early intercourse was higher (51% vs 22% of never married vs married women). No relationship emerged between education, smoking habits, parity, history of spontaneous or induced abortions, number of Pap smears, contraceptive habits, and age at first intercourse.

Conclusion—This study documents conservative sexual habits in Northern Italian females (at least on the basis of self reporting) but indicates that any educational campaigns towards safe sex should be focused towards younger women, particularly smokers, unmarried and nulliparae.

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Introduction

Over the past few years the spread of HIV infection in the general population through heterosexual intercourse¹⁻³ and the increasing diagnosis in several developed countries of genital infections, including human papilloma virus (HPV) and herpes virus simplex (HVS) infection, have aroused the interest of the scientific community and health planners in sexually transmitted diseases.^{4,5} In the absence of effective therapy for viral infections, special emphasis has been laid on information and preventive measures.

To focus educational campaigns, it is important to define high-risk populations, including subjects reporting multiple sexual partners. Along this line, it is important to identify the characteristics of women with promiscuous sexual habits. We therefore analysed the relationship between selected socio-demographic characteristics and lifestyle habits and the number of sexual partners and age at first intercourse among more than one thousand control women interviewed as part of a case-control study of cervical neoplasia conducted in the greater Milan area, Northern Italy.

Materials and methods

The subjects included in the present analysis were the control groups of a case control study on intra-epithelial and invasive cervical neoplasia conducted since 1981 in the greater Milan area, Northern Italy.

The general design of the investigation has already been described.^{6,7} Briefly, trained interviewers identified and questioned subjects admitted to the major general and university hospitals of the area under surveillance for acute, non gynaecological or urinary tract conditions or who were referred to cervical screening clinics on selected days (according to the interviewers and hospital schedule). Subjects admitted to hospital for diseases known or suspected to be related to sexual habits (such as sexually transmitted diseases) were not eligible for the study. The protocol indicated that all eligible subjects in the ward should be interviewed, but it is possible that some cases did not enter the study (for instance simply because they were not present in the ward at the time of the interviewers' visit). Interviewers, however, were not aware of the potential interest in the relation between sexual habits and any other information collected: thus it is unlikely that this selective mechanism may be cause of bias.

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A total of 1139 women aged 20–74 years (median age 54) were interviewed. Of those, 21% were admitted for traumatic conditions (mostly fractures and sprains), 29% for non-traumatic orthopaedic disorders (mostly low back pain and disc disorders), 11% for surgical conditions (mostly abdominal, such as appendicitis or strangulated hernia), 14% for other illnesses such as ear, nose, throat and dental disorders plus another 24% who were identified at cytological screening clinics and had a normal Pap smear. The structured questionnaire included information on socio-demographic variables and lifestyle habits, reproductive history, female hormone use and sexual history, which included questions on lifetime number of sexual partners and age at first intercourse. Participation was almost complete; despite the sensitive nature of the interview, less than 3% of the eligible subjects refused to participate. The present analysis is based on data collected before September 1991.

Data analysis

The percentages of women in strata of number of sexual partners and age at first intercourse according to selected variables were standardised for age by the direct method, using the whole study population as standard. Number of sexual partners and age at first intercourse were categorised in three levels to identify groups potentially characterised by different sexual habits.

The number of sexual partners and age at first intercourse were compared among strata of various characteristics considered. The statistic described by Mantel was computed to test the existence of a linear trend between number of partners (or age at first intercourse) and the other covariates.⁸ This statistic is based on the calculation of observed and expected number of events and follows the chi square distribution with one degree of freedom. A similar analysis was performed for number of sexual partners in women aged 40 year or less.

In order to allow for the potential reciprocal confounding effect of various factors significantly related to number of reported sexual partners in the age adjusted analyses, we included these factors in a multiple logistic regression model, fitted by the method of maximum likelihood⁹ to obtain relative frequency of number of sexual partners rates (odds ratios) and corresponding 95% approximate confidence intervals.¹⁰ For this analysis subjects reporting two and three or more partners were compared in turn with subjects reporting one or no sexual partner. Included in the regression equations were terms for age, education, smoking habits and parity.

Table 1 Distribution of 1127* women according to reported number of sexual partners and selected characteristics. Northern Italy, 1981–1990

	Number of sexual partners					
	0, 1		2		≥3	
	No	(%) [†]	No	(%) [†]	No	(%) [†]
Total	918	(81)	112	(10)	97	(9)
Age (years)						
< 35	136‡	(69)	23	(12)	37	(19)
35–44	205	(80)	25	(10)	27	(11)
45–54	215	(83)	27	(10)	16	(6)
55–64	207	(87)	20	(8)	11	(5)
65–74	155	(87)	17	(10)	6	(3)
Education (years)						
< 7	501	(86)	55	(10)	19	(4)
7–11	266	(80)	36	(11)	31	(9)
≥ 12	151	(73)	21	(8)	47	(19)
χ^2_1			4.15 (p = 0.04)			
Marital status						
Never married	92	(72)	14	(9)	29	(18)
Ever married	826	(83)	98	(10)	68	(7)
χ^2_1			1.98 (p = ns)			
Smoking habits						
Never smokers	643	(86)	62	(8)	40	(6)
Ever smokers	275	(73)	50	(13)	57	(14)
χ^2_1			6.94 (p = 0.01)			
Parity						
0	145	(67)	26	(11)	50	(21)
1–2	536	(84)	65	(10)	41	(6)
≥ 3	236	(91)	21	(8)	6	(2)
χ^2_1			4.28 (p = 0.04)			
Miscarriages						
0	728	(82)	80	(9)	85	(9)
1	140	(83)	21	(12)	9	(5)
≥ 2	50	(73)	11	(15)	3	(11)
χ^2_1			0.01 (p = ns)			
Induced abortions						
0	780	(82)	100	(11)	65	(7)
1	86	(80)	8	(7)	19	(14)
≥ 2	51	(76)	4	(6)	13	(19)
χ^2_1			2.15 (p = ns)			
Number of Pap smears						
0	260	(85)	30	(9)	16	(6)
1	133	(82)	16	(10)	15	(8)
≥ 2	516	(80)	65	(10)	65	(10)
χ^2_1			0.38 (p = ns)			
Oral contraceptive use						
Never	768	(84)	86	(9)	57	(7)
Ever	150	(82)	26	(7)	40	(11)
χ^2_1			1.77 (p = ns)			
Barrier methods of contraception use						
Never	800	(24)	98	(33)	72	(42)
Ever	118	(22)	14	(32)	25	(46)
χ^2_1			0.48 (p = ns)			

*Information on number of sexual partners was missing in 12 cases.

†Directly standardised for age.

‡In some cases the sum does not add up to the total because of missing values.

Results

Table 1 shows the distribution of study subjects according to number of sexual partners and selected characteristics. Overall, 81% of the study sample reported one sexual partner, 10% two and 9% three or more. The proportion of women reporting multiple sexual partners tended to decrease with age at interview (19% in subjects aged less than 35 years vs 3% in those aged more than 65) and was higher among more educated women (4% vs 19% of women with less than 7 and 12 or more years of education reported three or more partners respectively).

Ever smokers reported three or more sexual partners more frequently (14%) than never smokers (6%). Furthermore the proportion of women reporting three or more sexual partners was higher among nulliparae, never married, and women with two or more induced abortions. The latter two findings were, however, not statistically significant. No relationship emerged between number of sexual partners and history of miscarriages, lifetime number of Pap smears and use of oral or barrier methods of contraception. Table 2 presents the multivariate odds ratios for variables significantly associated with number of partners in the age-adjusted analysis (education, smoking habits and parity) in relation to arbitrarily selected reference categories. These estimates should be

Table 2 Multivariate odd ratios (and 95% confidence intervals)* for women reporting 2 or ≥ 3 sexual partners compared with those reporting only one partner in relation to selected characteristics. Northern Italy, 1981-1990

	Number of sexual partners	
	2	≥ 3
Education (years)		
<7	1†	1†
7-11	1.0 (0.7-1.7)	1.9 (1.1-3.5)
≥ 12	1.0 (0.5-1.7)	4.0 (2.2-7.5)
Smoking habits		
Never smokers	1†	1†
Ever smokers	1.8 (1.2-2.8)	2.5 (1.6-4.0)
Parity		
0	1†	1†
1-2	0.7 (0.4-1.1)	0.3 (0.2-0.5)
≥ 3	0.5 (0.3-1.0)	0.1 (0.1-0.3)
Maximum likelihood deviance (df)	693 (1022)	533 (1007)

*Derived from logistic model including terms for age and the above listed variables.

†Reference category.

viewed in relative terms of comparison between various categories. The multivariate analysis confirmed the association between these factors and higher number of sexual partners.

The analysis restricted to women aged 40 years or less (for a total of 324 subjects) is shown in table 3. As observed in the overall

study population, ever smoking and nulliparity were associated with a higher number of sexual partners. Never married women and ever oral contraceptive or barrier methods of contraception users reported a higher number of sexual partners too.

Furthermore, in the overall study population we have analysed the relation between age at first intercourse and the various factors considered (table 4). Overall, 25% of the study population reported first intercourse at age 18 or before, 34% between 19 and 22 years, and 41% at age 23 or later. Younger women (that is, more recent cohorts) more frequently reported early age at first intercourse and the proportion of never married women reporting first intercourse at age 18 or before was higher (51% vs 22% of never married vs married women). No relationship emerged between age at first intercourse and smoking habits, education, parity, spontaneous or induced abortions, number of Pap smears and contraceptive habits.

Discussion

Before discussing the findings of this analysis, potential biases should be considered. The study population consisted of women in hospital for non-neoplastic, non-gynaecological and non-hormone-related conditions or referred to cervical screening clinics, interviewed as the control group in the framework of a case-control study of cervical neoplasms. They were matched by age with cases so they cannot be considered representative of the general population. Any inference, consequently, must be considered in strictly comparative terms. Since cervical neoplasia is, to some extent, a sexually transmitted disease, the fact that about 25% of study population was included in the study group following a normal pap smear may introduce a bias; these subjects might be less "promiscuous" than general population. However, there was no marked difference in the results when the analysis was performed considering separately hospitalised subjects and the ones interviewed at the cervical screening clinics. Moreover, all subjects admitted to hospital for diseases known or suspected to be related to sexual habits were excluded from the study, and there is no clear evidence of women admitted to hospital for trauma or acute surgical conditions having sexual behaviour different from the general population. Thus, the estimates from this study should, at least in relative terms and in first approximation, provide reasonable indicators of sexual habits determinants of the Northern Italian population.

Being drawn from a case-control study of cervical neoplasia, women who had undergone hysterectomy were excluded from the sample. From a hospital-based case-control study on breast and low genital tract neoplasms with a similar design conducted by our group in the greater Milan area,¹¹ the prevalence of hysterectomised women was around 10%, that is, a minority of the population, and, again, there is no suggestion of these women having different

Table 3 Distribution of 324* women aged 40 years or less according to reported number of sexual partners and selected characteristics. Northern Italy, 1981-1990

	Number of sexual partners					
	0, 1		2		≥ 3	
	No	(%) [*]	No	(%) [*]	No	(%) [*]
Total	236	(73)	36	(11)	52	(16)
Education (years)						
<7	77	(83)	8	(9)	8	(9)
7-11	89	(77)	14	(12)	13	(11)
≥ 12	70	(61)	14	(12)	31	(27)
χ^2_1			15.39 (p < 0.01)			
Marital status						
Never married	40	(55)	9	(12)	24	(33)
Ever married	196	(78)	27	(11)	28	(11)
χ^2_1			20.17 (p < 0.01)			
Smoking habits						
Never smokers	142	(81)	18	(10)	16	(9)
Ever smokers	94	(64)	18	(12)	36	(24)
χ^2_1			14.86 (p < 0.01)			
Parity						
0	57	(54)	14	(13)	35	(33)
1-2	145	(79)	21	(12)	17	(9)
≥ 3	33	(97)	1	(3)	—	(—)
χ^2_1			38.01 (p < 0.01)			
Miscarriages						
0	201	(71)	32	(11)	50	(18)
≥ 1	35	(85)	4	(10)	2	(15)
χ^2_1			3.58 (p = ns)			
Induced abortions						
0	188	(73)	33	(13)	37	(14)
≥ 1	48	(73)	3	(5)	15	(23)
χ^2_1			0.81 (p = ns)			
Number of Pap smears						
0	59	(81)	5	(7)	9	(12)
1	37	(69)	6	(11)	11	(20)
≥ 2	140	(71)	25	(13)	32	(16)
χ^2_1			1.22 (p = ns)			
Oral contraceptive use						
Never	140	(84)	14	(8)	21	(12)
Ever	96	(64)	22	(15)	31	(21)
χ^2_1			8.41 (p < 0.05)			
Barrier methods of contraception use						
Never	188	(75)	31	(12)	33	(13)
Ever	48	(67)	5	(7)	19	(26)
χ^2_1			4.44 (p = 0.04)			

*In some cases the sum does not add up to the total because of missing values.

Table 4 Distribution of 1139 women according to age at first intercourse and selected characteristics. Northern Italy, 1981-1990

	Age at first intercourse (years)					
	≤18		19-22		≥23	
	No	(%)*	No	(%)*	No	(%)*
Total	287	(25)	389	(34)	463	(41)
Age (years)						
<35	99	(50)*	63	(37)	37	(19)
35-44	58	(22)	110	(42)	91	(35)
45-54	47	(18)	89	(36)	126	(48)
55-64	46	(19)	70	(33)	125	(52)
65-74	37	(21)	57	(32)	84	(47)
Education (years)						
<7	134	(25)	198	(35)	248	(40)
7-11	98	(27)	120	(36)	120	(37)
≥12	55	(20)	71	(30)	95	(51)
χ^2_1			0.54 (p = ns)			
Marital status						
Never married	75	(51)	35	(22)	26	(27)
Ever married	212	(22)	354	(35)	437	(43)
χ^2_1			13.85 (p = 0.01)			
Smoking habits						
Never smokers	167	(23)	253	(34)	334	(43)
Ever smokers	120	(29)	136	(35)	129	(36)
χ^2_1			2.17 (p = ns)			
Parity						
0	96	(39)	59	(25)	68	(37)
1-2	127	(21)	227	(34)	295	(45)
≥3	63	(27)	103	(40)	100	(33)
χ^2_1			0.04 (p = ns)			
Miscarriages						
0	231	(25)	297	(33)	375	(42)
1	36	(23)	70	(41)	66	(36)
≥2	20	(41)	22	(30)	22	(30)
χ^2_1			0.04 (p = ns)			
Induced abortions						
0	223	(24)	318	(34)	414	(43)
1	35	(26)	44	(37)	35	(36)
≥2	29	(40)	26	(39)	14	(21)
χ^2_1			0.54 (p = ns)			
Number of Pap smears						
0	95	(34)	85	(27)	128	(39)
1	42	(22)	62	(39)	62	(39)
≥2	148	(24)	238	(35)	268	(41)
χ^2_1			1.28 (p = ns)			
Oral contraceptive use						
Never	206	(24)	307	(33)	409	(42)
Ever	81	(22)	82	(32)	54	(46)
χ^2_1			0.36 (p = ns)			
Barrier methods of contraception use						
Never	249	(26)	329	(34)	402	(40)
Ever	38	(21)	60	(35)	61	(44)
χ^2_1			0.50 (p = ns)			

*Directly standardised for age.

†In some cases the sum does not add up to the total because of missing values.

sexual habits, although no formal evidence on the issue is available.

Under-reporting of sexual partners cannot be excluded, particularly by older women. The hospital setting may conceivably reduce inaccuracy or bias in reporting sexual habits and other information, but the extent of this potential bias is still difficult to assess. Even assuming large-scale underreporting, however, this per se should not markedly influence internal comparison across strata of identified variables. Although age at first intercourse is not an optimal marker for late sexual behaviour, we decided to present also this indicator to provide information on sexual behaviour in early age, when less attention is generally paid toward safe sexual behaviours.

The first evidence emerging from the study is the low absolute proportion of women reporting more than one sexual partner. Still, the inverse relationship between age at interview and number of sexual partners, and the direct one with age at first intercourse indicate

that sexual habits of the younger generations are changing. Similar results have been reported among English women¹² and men.¹³ An increasing number of sexual partners and a decreasing age at first intercourse in subsequent cohorts of women were observed in subjects interviewed as controls in a survey of risk factors for genitourinary cancers conducted on a similar Italian population.¹⁴

In this study we observed an inverse relationship between education and number of sexual partners, but no relationship with age at first intercourse. This finding is inconsistent with the generally accepted opinion that lower social classes have a higher number of sexual partners. However, no social class trend in number of partners was observed in a study of sexual behaviour in women conducted in the UK though low social class was related to lower age at first intercourse.¹⁵ Thus, important differences appear in the socio-cultural attitudes of various populations as regards the relationship between indicators of social class and sexual habits.

Smoking was another characteristic of women reporting a higher number of sexual partners. In a public health perspective this suggests that the same group of women may be a target for different campaigns against smoking and for safer sex.

In preventive terms, an important negative finding of this analysis is the lack of relation between contraceptive habits and number of sexual partners. Barrier methods are currently the most effective instruments to reduce the risk of heterosexual HIV infection. In Italy barrier methods of contraception are infrequently utilised in order to avoid unwanted pregnancies and probably only marginally to prevent sexually transmitted diseases.¹⁶

In conclusion, this study indicates rather conservative sexual habits in most Northern Italian women (at least on the basis of self-reporting), but indicates that any educational campaigns towards safer sexual habits should specifically aim at younger women, particularly the more educated, smokers, unmarried and nulliparae.

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