Correlates of sexual functioning in Italian menopausal women

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ABSTRACT

Introduction: Life stressors, quality of past sexuality and mental health are significant predictors of sexual interest in midlife women, but menopausal transition seems to play an independent role on the changes in sex life. It has been also suggested that hormone therapy (HT) users experience sexual dysfunctions less frequently.

Aim: To analyze data on sexuality in menopause in women attending menopause clinics in Italy.

Method: A cross-sectional study was conducted on sexuality of postmenopausal women attending menopause clinics in Italy for general counseling about menopause or treatment of its symptoms. Women were asked about the frequency of intercourse and the self-rated quality of sexual desire, orgasm quality and sexual satisfaction.

Main outcome measures: Women answered twice the same questions: first, recalling their sexual activity during the last five years before menopause; then, about their current sexual activity.

Results: Women who answered at least one question about sexuality were 2334 (96.1%) out of 2428. Low intercourse frequency was associated with increasing age. Transdermal HT users and women with higher mental health score had a lower risk. The main determinant of postmenopausal

intercourse frequency was the frequency during the fertile age. Age was a risk factor; HT use, increasing mental and physical scores, and prior sexual function were positively associated with better postmenopausal function.

Conclusions: This study shows that menopausal Italian women seeking for counseling reported a decline of sexual function after menopause. In this sample, the main determinant of sexuality in menopause is frequency of intercourse in reproductive age, which likely mirrors a better quality of sexuality in the life span.

Key words: Menopause, sexual functioning, hormone therapy, quality of life, cross-sectional study

Introduction

Both aging and the menopausal transition affect women's health, with important effects as climacteric symptoms and changes in hormones level, decreased self-rated well being and increasing sexual problems[1]. Some studies indicate that life stressors, contextual past sexuality and mental health are more significant predictors of sexual interest than menopause status itself[2,3], but menopausal transition seems to play an independent role on the changes in sex life[4]. Conversely, in a survey of American women[5], vaginal lubrication apart, younger women experience more frequently sexual problems. Along this line, some studies suggested that the proportion of women with low desire increases with age while the proportion of women distressed about their low desire decreases with age. Thus, no association between age (and menopause) and sexual dysfunctions, as hypoactive sexual desire disorder, is often reported. [6,7]

Some studies suggested that the change in sexuality is related to the decline of hormone levels.[8-10] A review of observational studies showed that hormone therapy (HT) users are less prone to the occurrence of sexual dysfunctions[11]. This finding was confirmed by a meta-analysis of randomized controlled trials[12]: whether improvements in sexual functioning are secondary to improvements in mood and/or quality of life it is not known. Recently, a randomized trial showed that HRT can improve the health related quality of life: women taking the active drug reported less vasomotor symptoms and sleep problems, and better sexual functioning.[13]

An Italian observational study found that depressive and sexual symptoms were more associated with life events than with psychological changes due to menopause[14]. However, the most significant predictors of postmenopausal women's health and sexual functioning seemed to be prior health and past sexuality.[2,15]

Recently, more attention has been paid to the determinants of sexuality in postmenopausal women, also in consideration of the availability of new treatments.

Aim

In order to obtain information on changes in sexual functioning, we analyzed data collected in an epidemiological study among women attending menopause clinics in Italy.[16]

Methods

This cross-sectional study was conducted between October and December 2000 in a network of first-level outpatient menopause clinics.[16] The coordinator of the study contacted 130 centers for the presentation of the project. Of 107 (82.3%) centers that agreed to participate, 26% were located in northern Italy, 23% were in central Italy, and 51% were in southern Italy. The participation of each center was voluntary and based only on a speculative interest of the center on the menopausal problems. Eligible for the study were women with natural or surgical menopause consecutively observed during the study period and who agreed to participate. There were no exclusion criteria, except for the patient's informed consent. Group 1 consisted of women who had never used HT, group 2 included current users of transdermal estrogens with or without progestins, and group 3 included current users of oral estrogens with or without progestins. Each center was asked to enter up to 10 menopausal women consecutively per group.

A total of 2,428 women entered the study (819 in group 1, 819 in group 2, and 790 in group 3). We did not formally collect data regarding the number of eligible women who refused to participate, but an informal questionnaire was sent to a sample of about 10% of participating centers. The reported percentage of refusal was about 5%.

All women underwent a gynecologic examination. During the visit, using a standard questionnaire, they were asked about their general characteristics and habits, reproductive and menstrual history, and a selected medical history. Clinical evidence and answers were checked, when useful, with medical records. In particular all information was collected during the interview, but clinical data (i.e., oophorectomy, age at menopause, and medical treatments) were checked in clinical records. In case of discrepancies, further questions were asked. Diagnosis of menopause was confirmed in women reporting their last menstrual period less than 12 months before study entry by using a follicle-stimulating hormone assay (>30 IU/L), except in women with surgical menopause (i.e., bilateral oophorectomy). Data about hormone therapy (HT) was collected as follows: no current HT

use, current use of transdermal estrogens with or without progestins, current use of oral estrogens with or without progestins. Women who had prior HT use were considered non users.

All women were asked to fulfill a questionnaire about sexuality, including questions about frequency of intercourse, sexual desire, orgasm quality and sexual satisfaction. Women were asked to answer twice the same questions: first, recalling their sexual activity during the five last years before menopause; then, about their current sexual activity.

Symptoms associated with sexual intercourse were vaginal dryness, itching or burning, urinary incontinence or burning while urinating, constipation.

Main outcome measures

Primary outcome of this study was the evaluation of frequency of intercourse and the women's self-rated quality (very good, good, poor, absent) of sexual desire, orgasm quality and sexual satisfaction before and after menopause. Presence of pain during intercourse and related symptoms were investigated. Changes between pre and postmenopausal sexual functioning were evaluated.

Statistical analyses

Differences in means and proportions were tested using analysis of variance and a multiple logistic model, respectively. Cofactors are indicated in the table footnotes. Descriptive statistics such as the mean and standard deviation are used to describe the summary measures of the SF-12 questionnaire scores (physical and mental health: PCS-12 and MCS-12) and VAS rating for hot flushes. Differences in SF-12 values of 1 or less are not considered clinically relevant.

To account simultaneously for the effects of several potential confounding factors, we used the chi-square test modified according to Mantel-Haenszel method.[17,18] Terms for age and HT use were included in the model.

Results

Women who answered at least one question about sexuality were 2334 (96.1%) out of 2428. The two groups (responders vs. non responders) were tested for difference in age, BMI, oophorectomy, HT use, PCS and MCS SF-12, VAS score of climacteric symptoms. Non responders were older than responders (56.3 and 54.2 respectively, $p<0.05$), but no other differences emerged.

Comparing answers regarding sexuality in reproductive age and after menopause, both the frequency and the quality of sexual intercourse decreased: 56.7% of women in reproductive age and 37.5% of menopausal subjects had at least 2 sexual intercourse per week. The percentage of women

who had 1 or less than 1 intercourse per week increased from 43.3% to 62.5%. Women who defined their sexual desire "very good" or "good" were 82.8% and 55.9% respectively in pre- and post-menopause. A "very good" or "good" orgasm was experienced by 81.9% and 59.9% of pre and post-menopausal women. Finally, 83.2% of women defined "very good" or "good" their overall satisfaction when they were in reproductive age, and only 60.9% did so in menopause. More than 60% of women reported a decline in at least one aspect of their sexual life.

Table 1 shows the distribution of characteristics of women according to postmenopausal intercourse frequency. Most postmenopausal women (62.5%) had 1 or less than 1 sexual intercourse per week. After adjusting for other significant variables, frequency was associated with age, HT use, physical and mental scores of SF-12, pain and symptoms associated with sexual intercourses. As expected, premenopausal frequency was a strong determinant of postmenopausal frequency.

Table 2 to table 4 show the distribution of study subjects according to three aspects of postmenopausal sexuality: sexual desire, capacity for orgasm and overall satisfaction. Answering the question about sexual desire, 7.6% of women defined it "very good", 48.4% "good", 36.0% "poor" and 8.1% "absent". The corresponding figures were 8.0%, 51.8%, 31.6% and 8.5% for orgasm, and 8.1%, 52.9%, 31.8% and 7.2% for overall satisfaction.

Similarly, HT use, increasing mental and physical score were positively associated with better function, but the prior sexual function emerged as the major determinant of postmenopausal sexuality. After adjustment for education, HT use and geographical area, age emerged as a risk factor for loss of desire, but not for orgasm quality and overall sexual satisfaction.

Oral and transdermal patch HT users had higher intercourse frequency when compared to non users; however, the comparison between the two routes of administration was not statistically significant ($p=0.28$). Similar results emerged also in the other sexual issues investigated.

Out of 2334 women who answered the questions about sexuality, 135 (5.8%) reported that their partner currently had a health problem: 85 a general health disorder, 62 a sexual dysfunction. These two conditions coexisted in 19 men; 7 were nor specified. The presence of this condition was significantly associated with less frequent sexual intercourses (65% with health problems had less than 1 per month vs 23% of healthy men) and diminished desire ($p=0.01$), orgasm ($p<0.0001$) and overall satisfaction ($p=0.01$).

When these subjects were excluded from analyses, the results did not change.

Discussion

In this study we found that sexual functioning is affected by several mutually linked factors. Age, HT use, physical and psychological well-being are significantly associated with sexuality in menopause. However, the strongest factor affecting the sexual function after menopause, both in HT users and non users, was the sexual function during premenopausal period.

This finding was consistent with previous results. In a cohort of Danish women[19] born in 1936, followed up during climacteric years, most women experienced no change in sexual desire during the study period. The older women's experience of change in sexual desire was not related to menopausal status, but frequency of sexual desire was highly correlated to previous and present subjective health status and former sexual activity. In a sample of middle-aged Australian women, a longitudinal study[3] showed that prior functioning and relationship factors are more important than hormonal determinants. Similarly, a cross-sectional study conducted on Columbian women[20] aged 40-62 found that HT improves some factors of sexual functioning, but it is not effective on the most affected domains, which were desire and arousal. However, a review of double blind, randomized controlled trials[12] concluded that estrogen therapy are associated with increased frequency of sexual activity, desire and satisfaction; but it was not clear, in the opinion of the authors, whether improvements in sexual function achieved with HT were secondary to improvements in mood and quality of life.

A longitudinal study considering many health outcomes after menopause found that the most important factor affecting any health variable was prior value of the variable: in particular, sexual response was determined, in decreasing order, by previous value of sexual response, relationship with the partner, estrogen level and well-being.[15]

However, another recent study conducted in a cohort of British women showed that menopausal transition had an independent effect on the reported change in sex life and difficulties with intercourse.[4]

Some potential limitations of the present study should be taken into account. First, this was an observational study, and as such it has several limitations.

Selective mechanisms may explain some of the findings. This was a selected population of women attending menopause clinics, and therefore these women cannot be considered representative of the Italian population. These women were particularly interested in health problems, specifically menopause-related ones. Thus, any inference from the present analysis must be made in strictly comparative terms.

Women who entered the study were identified in 107 centers throughout Italy, and each center's role was taken into account in the analysis. Otherwise, the main aim of this study was to offer information from a large dataset of the Italian population, which generally has low levels of climacteric symptoms and a low prevalence of HT use, and has therefore been the topic of few epidemiological studies.

Another important limitation of the study is the possibility of confounding. We considered in the analysis the role of factors such as age, center, education, and time since menopause. However, we did not consider the role of other potentially relevant factors such as diet or physical activity. After taking into account these recognized confounding variables, the role of residual confounding variables cannot be excluded, in that it is difficult to measure some variables perfectly.

Further, the participating gynecologists were not specifically trained to interview their patients about their sexual life, and the sexual questionnaire was self-administrated.

Finally, the observational, cross-sectional design of the study did not provide us with the opportunity to evaluate the effect of menopause over time. Nonetheless, we asked the participating women to answer several questions about their sexuality before menopause; if some wrong recall had occurred, it was not likely that it resulted in bias. The strong relation between pre- and post-menopausal sexual functioning was consistent with the findings from a longitudinal study.[15]

Conclusions

Despite its limitations our study showed that menopausal Italian women seeking for counseling reported a decline of sexual function after menopause. In our sample, several factors affect sexuality in menopause. Significantly associated with different aspects of sexual functioning were age, HT use, physical and mental scores of quality of life and climacteric symptoms. All these variables are strongly interrelated: which of them have a direct effect on sexual function in menopause remains to be investigated. In our sample, the main determinant of sexuality in menopause was sexuality in reproductive age.

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Table 1 – Frequency of intercourse in menopause (no=2267)

Variables	≤ 1 per month no(%)= 578 (25.5)	≤ 1 per week no(%)= 839 (37.0)	2-3 per week no(%)=676 (29.8)	3 per week no(%)=174 (7.7)	P[§]
Age					
≤ 50	54 (10.8)	109 (15.8)	92 (16.1)	32 (20.2)	
51-55	253 (50.5)	370 (53.8)	323 (56.5)	81 (51.3)	
≥ 56	194 (38.7)	209 (30.4)	157 (27.4)	45 (28.5)	0.005
Time since menopause (years)	6.4 (5.7)	5.0 (4.7)	4.9 (4.8)	4.8 (5.0)	0.46
Oophorectomy					
No	476 (82.4)	714 (85.1)	569 (84.2)	146 (83.9)	
Monolateral	22 (3.8)	27 (3.2)	30 (4.4)	7 (4.0)	
Bilateral	80 (13.8)	98 (12.7)	77 (11.4)	21 (12.1)	0.60
Current HT					
Yes, oral therapy	95 (29.2)	286 (34.1)	218 (32.2)	58 (33.3)	0.01
Yes, transdermal patch	88 (27.1)	276 (32.9)	270 (39.9)	52 (29.9)	<0.0001
No	142 (43.7)	277 (33.0)	188 (27.8)	64 (36.8)	
SF12 (mean,SD)					
physical	44.9 (9.6)	47.8 (7.9)	48.4 (7.9)	46.9 (9.0)	0.0004
mental	40.8(11.3)	44.6 (9.9)	46.3 (9.5)	45.0 (10.3)	<0.0001
VAS score of climateric symptoms	2.7 (2.9)	2.3 (2.6)	2.2 (2.5)	2.2 (2.3)	0.054
Premenopausal frequency					
≤ 1 per month	171 (31.7)	5 (0.6)	7 (1.1)	4 (2.4)	
≤ 1 per week	165 (30.6)	408 (49.5)	156 (23.9)	43 (25.3)	
2-3 per week	165 (30.6)	373 (45.3)	402 (61.7)	69 (40.6)	
> 3 per week	39 (7.2)	38 (4.6)	87 (13.3)	54 (31.8)	<0.0001
Pain during sexual intercourse*	164 (50.5)	261 (31.1)	181 (26.8)	61 (35.1)	0.005
Symptoms associated with sexual intercourse*	164 (50.5)	309 (36.8)	220 (32.5)	71 (40.8)	0.31

[§] adjusted for age, education, centres location and use of HT
*Women with no sexual intercourse in menopause were excluded from the analyses of associated pain and symptoms

Table 2 – Sexual desire in menopause (no=2138)

Variables	Very good no (%)=162 (7.6)	Good no (%)=1034 (48.4)	Poor no (%)=769 (36.0)	Absent no (%)=173 (8.1)	P§
Age					
≤ 50	33 (22.0)	151 (17.0)	80 (12.1)	17 (10.8)	
51-55	78 (52.0)	499 (56.0)	366 (55.4)	74 (47.1)	
≥ 56	39 (26.0)	241 (27.0)	215 (32.5)	66 (42.0)	0.02
Time since menopause	4.2 (3.4)	4.9 (4.4)	5.4 (5.6)	6.3 (5.6)	0.97
Oophorectomy					
No	135 (83.3)	854 (82.6)	661 (86.0)	142 (82.4)	
Monolateral	5 (3.1)	31 (3.0)	17 (2.2)	10 (5.8)	
Bilateral	22 (13.6)	149 (14.4)	91 (11.8)	21 (12.1)	0.23
Current HT					
Yes, oral therapy	64 (37.6)	403 (38.3)	227 (28.4)	41 (22.9)	<0.0001
Yes, transdermal patch	72 (42.4)	402 (38.2)	233 (29.2)	38 (21.2)	<0.0001
No	34 (20.0)	248 (23.6)	339 (42.4)	100 (55.9)	
SF12 (mean,SD)					
physical	50.1 (6.8)	48.6 (7.8)	46.0 (8.8)	42.8 (10.2)	<0.0001
mental	49.4 (9.3)	46.0 (9.6)	42.5 (10.1)	37.9 (12.1)	<0.0001
VAS score of climateric symptoms (mean,SD)	1.8 (2.4)	2.0 (2.4)	2.6 (2.7)	3.0 (3.1)	0.0004
Premenopausal desire					
Very good	113 (72.0)	205 (20.6)	73 (9.8)	19 (11.9)	
Good	36 (22.9)	718 (72.1)	483 (65.2)	62 (38.8)	
Poor	8 (5.1)	68 (6.8)	175 (23.6)	47 (29.4)	
Absent	0 (0.0)	5 (0.5)	10 (1.4)	32 (20.0)	<0.0001
Pain during sexual intercourse*	23 (14.2)	263 (25.4)	336 (43.7)	83 (48.0)	<0.0001
Symptoms associated with sexual intercourse*	30 (18.5)	315 (30.5)	380 (49.4)	80 (46.2)	0.0002

§ adjusted for age, education, centres location and use of HT
*Women with no sexual intercourse in menopause were excluded from the analyses of associated pain and symptoms

Table 3 – Orgasm in menopause (no=2087)

Variables	Very good no (%)=167 (8.0)	Good no (%)=1082 (51.8)	Poor no (%)=660 (31.6)	Absent no (%)=178 (8.5)	P§
Age					
≤ 50	39 (24.8)	138 (14.5)	76 (14.0)	19 (12.0)	
51-55	78 (49.7)	538 (56.6)	309 (56.8)	68 (43.0)	
≥ 56	40 (25.5)	274 (28.8)	159 (29.2)	71 (45.0)	0.08
Time since menopause	4.5 (3.9)	4.9 (4.5)	5.2 (5.2)	7.0 (6.3)	0.32
Oophorectomy					
No	146 (87.4)	903 (83.4)	557 (84.4)	147 (82.6)	
Monolateral	5 (3.0)	29 (2.7)	20 (3.0)	9 (5.1)	
Bilateral	16 (9.6)	150 (13.9)	83 (12.6)	2 (12.2)	0.13
Current HT					
Yes, oral therapy	65 (37.1)	408 (36.6)	200 (29.5)	47 (25.8)	<0.0001
Yes, transdermal patch	67 (38.3)	416 (37.4)	206 (30.4)	40 (22.0)	<0.0001
No	43 (24.6)	289 (26.0)	272 (44.6)	95 (52.2)	
SF12 (mean,SD)					
physical	50.6 (6.6)	48.4 (7.8)	45.9 (8.7)	42.7 (10.1)	<0.0001
mental	48.8 (9.4)	46.0 (9.7)	42.3 (10.0)	38.4 (11.2)	<0.0001
VAS score of climateric symptoms (mean,SD)	1.9 (2.4)	2.1 (2.6)	2.5 (2.6)	3.1 (3.1)	0.0002
Premenopausal orgasm					
Very good	127 (79.4)	195 (18.7)	70 (11.0)	16 (9.6)	
Good	22 (13.8)	799 (76.6)	346 (54.5)	75 (45.2)	
Poor	8 (5.0)	46 (4.4)	212 (33.2)	38 (22.9)	
Absent	3 (1.9)	3 (0.3)	11 (1.7)	37 (22.3)	<0.0001
Pain during sexual intercourse*	31 (17.7)	279 (25.1)	302 (44.5)	95 (52.2)	<0.0001
Symptoms associated with sexual intercourse	29 (17.4)	341 (31.5)	338 (51.2)	91 (51.1)	<0.0001

§ adjusted for age, education, centres location and use of HT
*Women with no sexual intercourse in menopause were excluded from the analyses of associated pain and symptoms

Table 4 – Sexual satisfaction in menopause (no=2047)

Variables	Very good no (%)= 165 (8.1)	Good no (%)=1082 (52.9)	Poor no (%)=652 (31.8)	Absent no (%)=148 (7.2)	P§
Age					
≤ 50	35 (22.9)	136 (14.4)	87 (15.7)	14 (10.6)	
51-55	76 (49.7)	538 (57.0)	310 (56.1)	57 (43.2)	
≥ 56	42 (27.4)	270 (28.6)	156 (28.2)	61 (46.2)	0.12
Time since menopause	4.4 (3.5)	4.9 (4.5)	5.3 (5.3)	6.3 (5.3)	0.28
Oophorectomy					
No	139 (84.2)	916 (84.7)	544 (83.7)	123 (83.1)	
Monolateral	5 (3.0)	28 (2.6)	19 (4.7)	6 (4.0)	
Bilateral	21 (12.7)	138 (12.8)	89 (11.6)	19 (12.8)	0.71
Current HT					
Yes, oral therapy	67 (39.0)	398 (35.9)	208 (30.9)	38 (25.3)	0.0001
Yes, transdermal patch	63 (36.6)	419 (37.8)	202 (30.0)	34 (22.7)	<0.0001
No	42 (24.4)	291 (26.2)	263 (39.1)	78 (52.0)	
SF12 (mean,SD)					
physical	50.3 (7.4)	48.7 (7.6)	45.3 (8.9)	43.5 (9.4)	<0.0001
mental	49.2 (9.1)	46.1 (9.8)	41.8 (9.9)	39.0 (11.6)	<0.0001
VAS score of climateric symptoms (mean,SD)	1.8 (2.3)	2.0 (2.5)	2.6 (2.7)	2.9 (3.0)	0.0002
Premenopausal satisfaction					
Very good	136 (84.5)	198 (19.0)	68 (10.8)	17 (12.2)	
Good	21 (13.0)	787 (75.6)	359 (57.1)	59 (42.4)	
Poor	4 (2.5)	48 (4.6)	186 (29.6)	36 (25.9)	
Absent	0 (0.0)	8 (0.8)	16 (2.5)	27 (19.4)	<0.0001
Pain during sexual intercourse*	28 (16.3)	285 (25.7)	312 (46.4)	64 (42.7)	<0.0001
Symptoms associated with sexual intercourse	26 (15.8)	357 (33.0)	327 (50.2)	66 (44.6)	<0.0001

§ adjusted for age, education, centres location and use of HT
*Women with no sexual intercourse in menopause were excluded from the analyses of associated pain and symptoms