

ORIGINAL RESEARCH—EPIDEMIOLOGY**Sexual Function Assessment in Postmenopausal Women with the 14-Item Changes in Sexual Functioning Questionnaire**

Plácido Llana, MD, PhD,* José M. Fernández-Iñarrea, MD,† Begoña Arnott, MD,*
María P. García-Portilla, MD, PhD,‡ Peter Chedraui, MD, MSc,§ and
Faustino R. Pérez-López, MD, PhD¶

*Obstetrics and Gynecology Department, Asturias Central University Hospital and Oviedo University Oviedo, Spain; †Obstetrics and Gynecology Department, Cabueñes Hospital, Gijón, Spain; ‡Psychiatry Department, Oviedo University, and Centro de Investigación Biomédica en Red -CIBERSAM-, Oviedo University, Oviedo, Spain; §Facultad de Ciencias Médicas, Universidad Católica de Santiago de Guayaquil, Ecuador; ¶Obstetrics and Gynecology Department, Universidad de Zaragoza, Facultad de Medicina, Hospital Clínico, Zaragoza, Spain

DOI: 10.1111/j.1743-6109.2011.02309.x

ABSTRACT

Introduction. Sexual function assessment is relevant to improve female health care.

Aim. Assess sexual function in postmenopausal women and determine predictors related to sociodemographic, lifestyle, and health-related female/partner data and tool measures.

Methods. Cross-sectional study in which 117 sexually active postmenopausal women filled out the 14-item Changes in Sexual Functioning Questionnaire (CSFQ-14), the 10-item Center for Epidemiologic Studies Short Depression Scale (CESD-10), the Menopause Rating Scale (MRS), and a general questionnaire containing female/partner data. Correlations between tool measurements and female/partner data were analyzed.

Main Outcome Measures. Primary end point was sexual function predictors.

Results. Median age was 57 years, 8.5% had low income, 3.4% had surgical menopause, 17.1% had hypertension, and 66.7% increased body mass index. In addition, 21.4% were current hormone therapy users and 28.2% engaged in regular exercise. According to the MRS, muscle/joint problems (86.3%) and physical/mental exhaustion (81.2%) were the top encountered menopausal symptoms. Also, 48.7% displayed depressed mood (CESD-10 total scores ≥ 10) and 64.1% displayed total CSFQ-14 scores ≤ 41 , suggesting sexual dysfunction. Internal consistency (Cronbach's alpha) was high for all tools: total CSFQ-14 scale (0.87), total MRS (0.80), and the CESD-10 (0.85). CSFQ-14 total scores inversely correlated with MRS scores (total, psychological, and urogenital, $P < 0.05$). Arousal scale scores inversely correlated with MRS total and urogenital scores whereas orgasm scores only with the total MRS. CESD-10 scores inversely correlated with all CSFQ-14 scores and positively with all MRS scores. Multiple linear regression was used to obtain a reduced best-fit model predicting total CSFQ-14 scores (sexual function). Total CSFQ-14 scores were positively correlated to female education, and education and regular exercising in the partner and inversely correlated to CESD-10 total scores.

Conclusion. Assessed with the CSFQ-14 tool, sexual function of this postmenopausal sample correlated to female/partner educational, lifestyle, and health factors. More research is warranted in this regard. **Llana P, Fernández-Iñarrea JM, Arnott B, García-Portilla MP, Chedraui P, and Pérez-López FR. Sexual function assessment in postmenopausal women with the 14-item Changes in Sexual Functioning Questionnaire. J Sex Med 2011;8:2144–2151.**

Key Words. Changes In Sexual Functioning Questionnaire; Menopause Rating Scale; Center For Epidemiologic Studies Short Depression Scale; Sexual Function; Depression; Menopause

Introduction

Female sexuality is modulated by life events, reproduction, health, relationships, and cultural factors. Other important sexual function determinants include age, the menopause, increased weight, metabolic changes, and comorbid conditions which may negatively affect quality of life [1–11]. During the menopausal transition, depression increases threefold in comparison to the premenopause [12].

One-third of women in the Western world display some degree of sexual disorders [13,14]. Nevertheless, the prevalence of female sexual dysfunction (FSD), risk factors, and sexual function correlates may vary in relation to studied population, employed diagnostic criteria, and used measurement tools. Combining tools that measure sexuality, depressive symptoms, and quality of life may help identify new correlates to improve female health care [15]. The self-reported 14-item Changes in Sexual Functioning Questionnaire (CSFQ-14) is a reliable instrument validated in Spanish [16,17]. It has been used to assess sexual function in patients with severe mental disorders and young Latin women [17,18]. To date, its use in menopausal women, alone or in combination with other tools, is still lacking.

Aims

The aim of this study was to assess sexual function in postmenopausal women using the CSFQ-14 instrument and determine female sexual function predictors related to sociodemographic, lifestyle, and health-related female/partner data.

Materials and Methods

Study Design and Participants

This cross-sectional study was carried out from February 2010 to November 2010 at the Asturias Central University Hospital (Oviedo) and the Cabueñes Hospital (Gijón), both affiliated to the University of Oviedo, Spain. Spanish Caucasian postmenopausal women (48 to 68 years) attending their annual gynecological checkup at the outpatient clinics of these hospitals were asked to fill out an itemized questionnaire containing female/partner sociodemographic data and several validated tools in order to measure sexual function, depressive symptoms, and quality of life (menopausal symptoms). Blood pressure and height and weight measurements were recorded. Women

unable to understand the survey, not consenting participation, or with psychological or physical incapacity imposing difficulties during the interview were excluded.

General Questionnaire

Female Data

Female data included: age, parity, partner status (yes/no), educational and income level, place of residency (rural/urban), healthiness, marital status, comorbid conditions (yes/no), and time since menopause. Lifestyle habits and drug use included: smoking, regular exercising at least three times a week for more than 30 minutes (yes/no), and current hormone therapy (HT) use. Postmenopausal status was defined, according to the Stages of Reproductive Aging Workshop, as the absence of menses (natural or surgical) in the last 12 months [19]. Body mass index (BMI) was determined as weight (kg) divided by squared height (meter) and classified as low (<18.5), normal (18.5 to 24.99), overweight (25 to 29.99), and obese (30 or more) [20]. Women displaying blood pressure readings $\geq 140/90$ mm Hg or already on medication were defined as being hypertense [21]. Economical family income was defined as: high (>60,000 euros/year), medium (12,000 to 60,000 euros/year), or low (<12,000 Euros/year). Educational level was defined as basic or primary (7 years of formal study), secondary (complete high school), or high (complete university studies). In accordance with the National Center for Health Statistics, women or men capable of performing daily routine activities were defined as healthy [22].

Partner Data

Women provided data related to the partner including: age, educational level, healthiness, regularly exercising (yes/no), and the presence of alcoholism, or sexual dysfunction (erectile dysfunction or premature ejaculation). Definitions for alcoholism, erectile dysfunction, and premature ejaculation are described elsewhere [5].

Instruments

The CSFQ-14

The female CSFQ-14 is a self-reported 14-item tool that evaluates behaviors and/or problems observed during the three phases of the sexual response cycle: desire (items 2–6), arousal (items 7–9), and orgasm (items 11–13). Items 10 and 14 are not specific to any of the sexual response cycle phases. Item 1 reflects pleasure and satisfaction [16–18]. The 14 items are rated by subjects using a

five-point Likert scale of frequency (1 = never to 5 = everyday/always) or intensity (1 = nothing to 5 = very much). Items 10 and 14 are reversed (1 = everyday/always to 5 = never). The sum of all 14 graded items provides a total CSFQ-14 score which may range from 14 to 70. Scores may range from 5 to 25 (desire scale) and from 3 to 15 (arousal and orgasm scales). Higher scores (total, item or scale) reflect better sexual functioning. A total CSFQ-14 female score ≤ 41 suggests sexual dysfunction [16–18].

The 10-Item Center for Epidemiologic Studies Short Depression Scale

The 10-item Center for Epidemiologic Studies Short Depression Scale (CESD-10) is a 10-item questionnaire that assesses how individuals feel during the past week. This is a short version of the 20-item CESD tool [23,24]. Each item can be graded according to a Likert scale: rarely or none of the time, <1 day (0 points); some or a little of the time, 1–2 days (1 point); occasionally or a moderate amount of time, 3–4 days (2 points); and all the time, 5 to 7 days (3 points). Items 5 and 8 are scored inversely. The 10 graded items are summed with total scores ≥ 10 defined as depressed mood [24,25].

The Menopause Rating Scale

The Menopause Rating Scale (MRS) is a health-related quality-of-life instrument composed of 11 items assessing menopausal symptoms, grouped into three subscales: somatic, psychological, and the urogenital. Each item can be graded by the subject from 0 (not present) to 4 (1 = mild; 2 = moderate; 3 = severe; 4 = very severe). Graded items within each subscale are summed to provide a total subscale score. Total MRS score is the sum of subscale scores [15,26]. Higher MRS scores are indicative of quality-of-life impairment. The Spanish-translated version of the MRS scale was used in this research [15,26].

Statistical Analysis

Analysis was performed using statistical packages: SPSS (Version 10.0 for Windows, SPSS Chicago, IL, USA) and Stata (Version 9.0, Stata Corp, College Station, TX, USA). Data are presented as means, standard deviations, medians, interquartile ranges (IQR), and percentages. The Shapiro–Wilk test was used to determine the normality of data distribution. Rho Spearman coefficients were calculated to determine correlations between scores of all used scales (bivariate analysis). Multiple linear regression analysis was

performed to obtain best-fit model predicting total CSFQ-14 total scores (sexual function/dependant variable). Model was constructed including independent variables found to be significant during bivariate analysis. These variables included female/partner data (sociodemographic, lifestyle, and health-related data) and tool measures (CESD-10 and MRS sub-scale scores). A *P* value of <0.05 was considered as statistically significant.

Internal Consistency of Used Instruments

Internal consistency of all used tools was assessed computing Cronbach coefficient alphas for: the MRS (total and sub-scales), the CSFQ-14 (total and scales), and the CESD-10.

Sample Size Calculation

A minimal sample of 97 postmenopausal women was calculated assuming that at least 50% of surveyed women would present a higher risk for sexual dysfunction (CSFQ-14 total score ≤ 41) with a 10% desired precision and a 95% confidence interval. Nquery Advisor statistical package (Statistical Solutions Ltd., 7B Airport East Business Park, Farmers Cross, Cork, Ireland) was used to perform a post hoc power calculation report of the generated regression model.

Ethical Aspects

Study research protocol was reviewed and approved by the Asturias Ethical Committee, Oviedo, Spain. All participants were informed of the study (objectives and used tools) and requested to voluntarily participate after written consent was obtained.

Main Outcome Measures

Primary end point was sexual function predictors.

Results

During the study period, a total of 165 postmenopausal women were invited to participate. Eight refused participation (4.8%), 26 provided incomplete data (15.8%), and 14 had no partner (8.5%). Statistical analysis was performed only among those sexually active ($n = 117$). Sample characteristics of studied women are depicted on Table 1. Sociodemographical characteristics included: a median age of 57 years (IQR: 14), with 8.5% having low income, 49.6% having basic education,

Table 1 Sample characteristics of studied women

Parameters	All N = 117
Age (years)	57 [6]
Parity	2 [1]
Low income (%)	10 (8.5)
Basic educational level (%)	58 (49.6)
Rural residency (%)	22 (18.8)
Married (%)	106 (90.6)
Tobacco use (%)	16 (13.7)
Type of menopause (%)	
Natural	113 (96.6)
Surgical	4 (3.4)
Time since menopause onset (years)	7 [7]
Body mass index	
Baseline BMI kg/m ²	26.6 [6.6]
Normal (%)	38 (32.5)
Overweight (%)	47 (40.2)
Obese (%)	31 (26.5)
Current HT use (%)	25 (21.4)
Comorbidity (%)	31 (26.5)
Healthiness (%)	108 (92.3)
Engages in regular exercise (%)	33 (28.2)
Systolic BP (mm Hg)	120 [20]
Diastolic BP (mm Hg)	80 [5]

Data are presented as medians [interquartile range] or percentages (%).
BP = blood pressure; BMI = body mass index; HT = hormone therapy.

and 90.6% being married. Regarding general health: 17.1% had hypertension, 66.7% increased BMI (overweight and obesity), and 28.2% engaged in regular exercising. Comorbidity was present in 26.5% (n = 31) which included: hypertension, hypothyroidism, and dyslipidemia as the three most frequent. In relation to the menopause: 3.4% had surgical menopause (median time: 7 years) and 21.4% were current HT users.

Regarding the partner (n = 117), median age was 59 years, 28.2% regularly exercised, 1.7% abused alcohol, and 37.6% had only basic education. Erectile dysfunction was present in 16.2% and premature ejaculation in 6.8%.

CSFQ-14 and MRS scores obtained among participants are depicted on Table 2. Median [IQR] MRS scores were: total (15.0 [11.5]), somatic (6.0 [4.0]), psychological (5.0 [4.0]), and urogenital (4.0 [4.0]). The four most frequently observed menopausal symptoms assessed with the MRS were: muscle/joint problems (86.3%), physical/

mental exhaustion (81.2%), depressive mood (80.3%), and hot flushes (78.6%). Regarding female sexual function, median [IQR] CSFQ-14 scores were: total (38.0 [10.0]), desire (10.0 [4.0]), arousal (8.0 [3.0]), and orgasm (9.0 [3.0]). A 64.1% presented total CSFQ-14 scores ≤ 41 , suggesting sexual dysfunction. A 14.5% answered to CSFQ item 1 as currently having “no pleasure” in their sexual life as compared to the past. Women answered to item 10 as often (26.5%) and always (42.7%) becoming sufficiently aroused and then losing interest. Participants indicated having painful orgasms (item 14) often and everyday in 14.5% and 78.6%, respectively. Women currently using HT presented higher total CSFQ-14 scores (better sexual function) than those not (median 43 vs. 36, $P = 0.001$). Median total CESD-10 score was 9 (IQR: 10) with a 48.7% of women displaying depressed mood (scores ≥ 10).

Internal consistency was assessed for all used tools. Computed Cronbach coefficient alphas for the CSFQ-14 were: desire = 0.75; arousal = 0.76; orgasm = 0.85; and the total = 0.87. The latter reflects the general consistency of the tool. Cronbach coefficient alphas for the MRS were: total = 0.80; somatic = 0.68; psychological = 0.83; and urogenital = 0.67. For the CESD-10, Cronbach's alpha was determined to be 0.85.

Rho Spearman coefficient correlations between MRS, CSFQ-14, and CESD-10 scores are depicted on Table 3. CSFQ-14 total scores inversely correlated with MRS scores (total, psychological, and urogenital). Arousal scale scores inversely correlated with the MRS total and urogenital scores, whereas orgasm scores with the total MRS. CESD-10 scores inversely correlated with all CSFQ-14 scores and positively with all MRS scores. Best coefficients correlations were observed between CESD-10 scores and the MRS total, somatic, and psychological scores.

Multiple linear regression analysis was used to obtain a final reduced best-fit model predicting total CSFQ-14 scores, explaining 28.8% of the variance (Table 4). In this model, total CSFQ-14

Table 2 CSFQ-14 and MRS scores (total and scale/sub-scale) among sexually active women (N = 117)

	Total CSFQ-14	Desire	Arousal	Orgasm	MRS total	Somatic	Psychological	Urogenital
Median	38.0	10.0	8.0	9.0	15.0	6.0	5.0	4.0
IQR	10.0	4.0	3.0	4.0	11.5	4.0	4.0	4.0
Mean \pm SD	37.5 \pm 8.2	10.3 \pm 3.0	7.6 \pm 2.5	8.5 \pm 2.9	15.0 \pm 7.3	5.5 \pm 2.8	5.1 \pm 3.2	4.0 \pm 2.5

IQR = interquartile range; SD = standard deviation; MRS = Menopause Rating Scale; CSFQ-14 = Changes in Sexual Functioning Questionnaire.

Table 3 Rho Spearman coefficient correlations between MRS (total and subscales), CSFQ-14 (total and scales) and CESD-10 total scores (N = 117)

CSFQ-14	CESD-10 total	MRS				Total MRS
		Somatic	Psychological	Urogenital		
Total	-0.315*	-0.177	-0.217*	-0.244*	-0.263*	
Desire	-0.259*	-0.084	-0.126	-0.163	-0.168	
Arousal	-0.265*	-0.125	-0.183	-0.279*	-0.236*	
Orgasm	-0.279*	-0.146	-0.169	-0.183	-0.204*	
CESD-10 total	—	0.590*	0.630*	0.342*	0.630*	

*Coefficient correlations with a $P < 0.05$.

scores were positively correlated to female education, and education and regular exercising in the partner and inversely correlated to CESD-10 total scores. Post hoc calculated power of this generated model was 99%, considering a 5% significance level, seven covariates, a sample size of $n = 117$ and an obtained r^2 of 0.31.

Discussion

In postmenopausal women, sexual function is frequently influenced by vasomotor symptoms, depression/anxiety, sleep disorders, atrophy-related genital discomfort, increased body weight, metabolic disorders, self-perceived body image, stress, and psychosomatic complaints [1–12]. Therefore, despite available scientific evidence, female sexuality (premenopausal or postmenopausal) is a topic involving many subjective issues. The present study aimed at assessing sexual function in a Spanish postmenopausal population aged 57 years (median), with basal characteristics that do not differ from the general population: mostly urban, mainly with basic education and increased BMI. Although one-fourth presented at least one comorbid condition, this prevalence was lower than that reported in the general population [27,28].

The European Woman Health and Sexuality Survey (four countries) found that women aged 20 to 70 present 29% desire disorders, 22% arousal disorders, 19% orgasmic disorders, and 14% dyspareunia [14]. Cross-sectional and longitudinal studies show that female age and sexual activity are inversely correlated, while FSD prevalence may

remain fairly constant or increase [29]. Although the causes of decreased sexual activity in postmenopausal women are quite varied, in some circumstances, it is due to arousal difficulties and painful sexual encounters which eventually increase FSD prevalence [6,8,30,31].

To date, there is no definitive consensus on normal sexual function or FSD definition [32]. Criteria may frequently overlap depending on female sexual response, partner factors, emotional status, and used measuring tool. The Female Sexual Function Index (FSFI) has been useful to assess sexual function in menopausal populations and many other diverse clinical scenarios [6,15,30,31]. Nevertheless, it has been criticized as being too long for clinical use, concomitantly imposing a certain degree of limitation [33]. The CSFQ tool specifically assesses changes in sexual function. The present research used the new short 14-item CSFQ in its Spanish version [16–18] in order to assess sexuality in postmenopausal women. To the best of our knowledge, this may be the first report doing so. Future research will determine advantages, if any, of the CSFQ-14 over the FSFI.

The CSFQ-14, and other tools used in the present research, demonstrated high Cronbach's alpha values reflecting appropriate consistency of all measures. A 64.1% of our postmenopausal women presented CSFQ-14 total scores suggestive of having sexual dysfunction. This cutoff value has been set at 41 [18]. Rate of women at risk for sexual dysfunction may vary in function of used tool from 20% to 45% in the general female popu-

Table 4 Final best reduced model predicting total CSFQ-14 scores: multiple linear regression analysis (N = 117)

	Beta coefficient	Standard error	CI 95%	t	P value
Female education	3.451	1.042	1.385 to 5.517	3.31	0.001
Partner education	2.270	0.972	0.343 to 4.197	2.33	0.02
Partner regular exercise	1.495	0.709	0.089 to 2.092	2.11	0.03
Total CESD-10 scores	-0.270	0.098	-0.466 to -0.075	-2.75	0.007

$r^2 = 0.312$; adjusted $r^2 = 0.288$, $P < 0.0001$; CI = confidence intervals.

lation [13,14,28,31,34] and 35% to 75% in menopausal samples [30,31,34–37].

CSFQ-14 scores of our sample were similar, although not completely comparable, to those reported for Spanish women with either schizophrenia or bipolar disorder [17]. In addition to the most obvious difference in mental health status, as compared to our population, they were younger, married only in 44.6%, and with no mention of menopausal status. Menopausal symptoms found in the present sample represent those of postmenopausal women. Indeed, joint problems, physical/mental exhaustion, depressive mood, and hot flushes were reported high in the present sample, yet similar to those found by others [11–15,29–31,35–37]. CSFQ-14 scores (total and scales) significantly and inversely correlated with MRS scores (total, psychological, and urogenital, $P < 0.05$). A similar correlation between the FSFI and MRS scores has recently been reported [15]. Nevertheless, the exact mechanism and clinical significance of this correlation is yet to be determined. Population-based studies using the CSFQ-14 are still needed to establish standard values for the menopausal population. Nonetheless, internal consistency (Cronbach's alpha) was high for the total CSFQ-14 (0.87) as it was for the total MRS (0.80) and the CESD-10 (0.85).

Depressive mood is highly prevalent in postmenopausal women in relation to vasomotor symptoms, family stress, comorbid conditions, and psychosocial stressors [12,36,37]. According to the CESD-10, 48.7% of our sexually active postmenopausal women displayed depressed mood, rate similar to that reported by others [12,37]. CESD-10 scores inversely correlated with all CSFQ-14 scores and positively with all MRS scores. Moreover, our regression model found that CESD-10 scores significantly predicted total CSFQ-14 scores (sexual function). Despite this, premenopausal women with no history of depression may also report high CESD scores with depressive disorders being two times more likely to occur during the menopausal transition [38]. Our data seem to support depressed mood as a risk factor for impaired sexual function. Nevertheless, one must bear in mind the limitations of using a clinical sample. Although recruited women were otherwise healthy, the impact of their anxiety (i.e., confirmation of their healthiness) over studied measures is an issue that remains to be explored. Further studies with larger and population-based samples are required.

Postmenopausal women present urogenital changes (due to low estrogen milieu) which in turn decrease sexual function and impair quality of life [8,15,39,40]. Supporting the latter was the inverse correlation found in our sample between total CSFQ-14 and MRS urogenital scores. A recent report also found that the urogenital component was a significant predictor of sexual function in mid-aged women [15]. Although urogenital changes seem to be important in our postmenopausal sample, we cannot deny the multifactorial nature of sexuality. Indeed, female education in the present sample was also found to be a sexual function predictor, supporting the findings of others [1,2,31]. Unfortunately, for comparison purposes, data using the CSFQ-14 in young, healthy or early premenopausal women are still lacking.

Multiple linear regression model of the present sample found that education and regular exercising in the partner positively correlated with better female sexual function (higher total CSFQ-14 scores). A partner's sexual dysfunction and educational level have previously been reported as factors increasing sexual dysfunction in climacteric women [6,31,41]. Findings of the present sample seem to confirm the latter. Important to mention is the fact that our study provides partner data, to date not presented in reports using the CSFQ [16–18].

Finally, as for the limitations of the present study, one can mention its cross-sectional design, target population (clinical sample), and nonverified reliability of partner data. In addition, due its cross-sectional design, sample size calculation was not based on power calculation required for the regression model construction; this is also a limitation. Despite aforementioned limitations, several strengths can be outlined: it is, to the best of our knowledge, the first to (i) use the CSFQ-14 to assess sexual function in a cohort of postmenopausal women and correlate to partner data; and (ii) correlate these measures with other validated tools. Any tool designed to assess sexuality should be simple, short, and accurate. In this sense, the profile of the CSFQ-14 seems promising. However, we recognize the need for a larger sample to confirm our preliminary data.

Conclusion

As determined with the CSFQ-14 tool, sexual function of this postmenopausal sample correlated to female/partner educational, lifestyle, and health factors. More research is warranted in this regard.

Acknowledgments

The study was partially supported by the B/024535/09 “Agencia Española de Cooperación Internacional para el Desarrollo” grant from the Spanish “Ministerio de Asuntos Exteriores y Cooperación.” We thank Edward Mezones-Holguín for his statistical advice.

Corresponding Author: Faustino R. Pérez-López, MD, PhD, Department of Obstetrics and Gynecology, Universidad de Zaragoza, Facultad de Medicina, Hospital Clínico de Zaragoza, Domingo Miral s/n, Zaragoza 50009, Spain. Tél: +34 976 76 1734; Fax: +34 976 761 735; E-mail: faustino.perez@unizar.es

Conflict of Interests: The authors declare no conflict of interest.

Statement of Authorship

Category 1

(a) Conception and Design

Faustino R. Pérez-López; Plácido Llaneza

(b) Acquisition of Data

Plácido Llaneza; José Fernández-Iñarrea; Begoña Arnott

(c) Analysis and Interpretation of Data

Faustino R. Pérez-López; Peter Chedraui; Plácido Llaneza

Category 2

(a) Drafting the Article

Faustino R. Pérez-López; Peter Chedraui

(b) Revising It for Intellectual Content

Faustino R. Pérez-López; Peter Chedraui; Plácido Llaneza; José Fernández-Iñarrea; Begoña Arnott; María P. García-Portilla

Category 3

(a) Final Approval of the Completed Article

Faustino R. Pérez-López; Peter Chedraui; Plácido Llaneza; José Fernández-Iñarrea; Begoña Arnott; María P. García-Portilla

References

- Greer G. The change. Women, ageing and the menopause. London: Penguin Book; 1992.
- Perez-Lopez FR. Sexuality and menopause. In: Perez-López FR, ed. La menopausia. Madrid: Temas de Hoy; 1992:169–85.
- Graziottin A, Leiblum SR. Biological and psychosocial pathophysiology of female sexual dysfunction during the menopausal transition. *J Sex Med* 2005;2:133–45.
- Cho GJ, Lee JH, Park HT, Shin JH, Hong SC, Kim T, Hur JY, Lee KW, Park YK, Kim SH. Postmenopausal status according to years since menopause as an independent risk factor for the metabolic syndrome. Postmenopausal status according to years since menopause as an independent risk factor for the metabolic syndrome. *Menopause* 2008;15:524–9.
- Pérez-López FR, Chedraui P, Gilbert JJ, Pérez-Roncero G. Cardiovascular risk in menopausal women and prevalent related co-morbid conditions: Facing the post-Women’s Health Initiative era. *Fertil Steril* 2009;92:1171–86.
- Chedraui P, Pérez-López FR, San Miguel G, Avila C. Assessment of sexuality among middle aged women using the Female Sexual Function Index. *Climacteric* 2009;12:213–21.
- Rosen R, Brown C, Heiman J, Leiblum S, Meston C, Shabsigh R, Ferguson D, D’Agostino R Jr. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther* 2000;26:191–208.
- Levine KB, Williams RE, Hartmann KE. Vulvovaginal atrophy is strongly associated with female sexual dysfunction among sexually active postmenopausal women. *Menopause* 2008;15:661–6.
- Bixler EO, Papaliaga MN, Vgontzas AN, Lin HM, Pejovic S, Karataraki M, Vela-Bueno A, Chrousos GP. Women sleep objectively better than men and the sleep of young women is more resilient to external stressors: Effects of age and menopause. *J Sleep Res* 2009;18:221–8.
- Chedraui P, Pérez-López FR, Blümel JE, Hidalgo L, Barriga J. Hyperglycemia in postmenopausal women screened for the metabolic syndrome is associated to increased sexual complaints. *Gynecol Endocrinol* 2010;26:86–92.
- Fernández-Alonso AM, Cuadros JL, Chedraui P, Mendoza M, Cuadros AM, Pérez-López FR. Obesity is related to increased menopausal symptoms among Spanish women. *Menopause Int* 2010;16:105–10.
- Freeman EW. Associations of depression with the transition to menopause. *Menopause* 2010;17:823–7.
- Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: Prevalence and predictors. *JAMA* 1999;281:537–44.
- Graziottin A. Prevalence and evaluation of sexual health problems—HSDD in Europe. *J Sex Med* 2007;4:211–9.
- Chedraui P, Pérez-López FR, Mezones-Holguín E, San Miguel G, Avila C. Assessing predictors of sexual function in mid-aged sexually active women. *Maturitas* 2011;68:387–90.
- Keller A, McGarvey EL, Clayton AH. Reliability and construct validity of the Changes in Sexual Functioning Questionnaire short-form (CSFQ-14). *J Sex Marital Ther* 2006;32:43–52.
- García-Portilla MP, Saiz PA, Fonseca E, Al-Halabi S, Bobes-Bascaran MT, Arrojo M, Benabarre A, Goikolea JM, Sanchez E, Sarramea F, Bobes J. Psychometric properties of the Spanish version of the Changes in Sexual Functioning Questionnaire short-form (CSFQ-14) in patients with severe mental disorders. *J Sex Med* 2011;8:1371–82.
- Hullfish KL, Pastore LM, Mormon AJ, Wernecke Y, Bovbjerg VE, Clayton AH. Sexual functioning of Latino women seeking outpatient gynecologic care. *J Sex Med* 2009;6:61–9.
- Soules MR, Sherman S, Parrott E, Rebar R, Santoro N, Utian W, Woods N. Executive summary: Stages of Reproductive Aging Workshop (STRAW). *Climacteric* 2001;4:267–72.
- World Health Organization (WHO). Obesity and overweight. Fact sheet N°311. Geneva: WHO; 2006; September 2006. Available at: <http://www.who.int/mediacentre/factsheets/fs311/en/index.html> (accessed April 26, 2011).
- Whitworth JA, World Health Organization, International Society of Hypertension Writing Group. 2003 World Health Organization (WHO)/International Society of Hypertension (ISH) statement on management of hypertension. *J Hypertens* 2003;21:1983–92.
- Brett KM, Chong Y. Hormone replacement therapy: Knowledge and use in the United States. Hyattsville, MD: National Center for Health Statistics; 2001.

- 23 Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. *Appl Psychol Meas* 1977;1:385–401.
- 24 Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: Evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). *Am J Prev Med* 1994;10:77–84.
- 25 Irwin M, Artin KH, Oxman MN. Screening for depression in the older adult. Criterion validity of the 10-item Center for Epidemiological Studies Depression Scale (CES-D). *Arch Intern Med* 1999;159:1701–4.
- 26 MRS. The Menopause Rating Scale. 2002. Available at: <http://www.menopause-rating-scale.info/> (accessed December 10, 2010).
- 27 Bernis C, Reher DS. Environmental contexts of menopause in Spain: Comparative results from recent research. *Menopause* 2007;14:777–87.
- 28 Pérez JA, Garcia FC, Palacios S, Pérez M. Epidemiology of risk factors and symptoms associated with menopause in Spanish women. *Maturitas* 2009;62:30–6.
- 29 Hayes R, Dennerstein L. The impact of aging on sexual function and sexual dysfunction in women: A review of population-based studies. *J Sex Med* 2005;2:317–30.
- 30 Figueroa JR, Jara AD, Fuenzalida PA, del Prado AM, Flores D, Blümel JE. Prevalencia de disfunción sexual en mujeres climatéricas. *Rev Med Chile* 2009;137:345–50.
- 31 Blümel JE, Chedraui P, Baron G, Belzares E, Bencosme A, Calle A, Espinoza MT, Flores D, Izaguirre H, León-León P, Lima S, Mezones-Holguin E, Monterrosa A, Mostajo D, Navarro D, Ojeda E, Onatra W, Royer M, Soto E, Vallejo S, Tserotas K; Collaborative Group for Research of the Climacteric in Latin America (REDLINC). Sexual dysfunction in middle-aged women: A multicenter Latin American study using the Female Sexual Function Index. *Menopause* 2009;16:1139–48.
- 32 Jha S, Thakar R. Female sexual dysfunction. *Eur J Obstet Gynecol Reprod Biol* 2010;153:117–23.
- 33 Isidori AM, Pozza C, Esposito K, Giugliano D, Morano S, Vignozzi L, Corona G, Lenzi A, Jannini EA. Development and validation of a 6-item version of the Female Sexual Function Index (FSFI) as a diagnostic tool for female sexual dysfunction. *J Sex Med* 2010;7:1139–46.
- 34 Lindau ST, Gavrilova N. Sex, health, and years of sexually active life gained due to good health: Evidence from two U.S. population based cross sectional surveys of ageing. *BMJ* 2010;340:c810.
- 35 Dennerstein L, Lehert P, Burger H, Guthrie J. Sexuality. *Am J Med* 2005;118:59–63.
- 36 Hayes RD, Dennerstein L, Bennett CM, Sidat M, Gurrin LC, Fairley CK. Risk factors for female sexual dysfunction in the general population: Exploring factors associated with low sexual function and sexual distress. *J Sex Med* 2008;5:1681–93.
- 37 Schnatz PF, Whitehurst SK, O’Sullivan DM. Sexual dysfunction, depression, and anxiety among patients of an inner-city menopause clinic. *J Womens Health* 2010;19:1843–9.
- 38 Freeman EW, Sammel MD, Lin H, Nelson DB. Associations of hormones and menopausal status with depressed mood in women with no history of depression. *Arch Gen Psychiatry* 2006;63:375–82.
- 39 Schaffer J, Fantl JA. Urogenital effects of the menopause. *Baillieres Clin Obstet Gynaecol* 1996;10:401–17.
- 40 Society of Obstetricians and Gynecologists of Canada. SOGC Clinical Practice Guidelines. The detection and management of vaginal atrophy. *Int J Gynecol Obstet* 2005;88:222–8.
- 41 Dennerstein L, Lehert P, Burger H. The relative effects of hormones and relationship factors on sexual function of women through the natural menopausal transition. *Fertil Steril* 2005;84:174–80.