

## Sexual Dysfunction in Polycystic Ovarian Syndrome Patients

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### Abstract

**Background and Objective:** Sexual activity is a major determinant of health-related quality of life. The aim of this study was to investigate sexual activity in women with polycystic ovary syndrome.

**Methods:** A case control survey was conducted at a tertiary care university hospital (Yas Hospital Complex.). One hundred and ninety-three women were enrolled in this study. The Female Sexual Function Index (FSFI) questionnaire was used to assess the sexual dysfunction. One hundred cases with PCOS and ninety-three healthy controls were studied in this study.

**Results:** The mean FSFI total score and all domains except orgasm were significantly lower in PCOS patients as compared to healthy controls. With an FSFI score of less than 26.55, sexual dysfunction was found in 62% of PCOS cases versus 18.2% of the control group. Multiple regression analysis showed that FSH and free testosterone were independent predictors of FSFI score. The result showed that more than sixty percent of PCOS women suffer from sexual dysfunction.

**Conclusion:** PCOS women need to be asked about and managed for sexual dysfunction more frequently than non-PCOS women.

**Keywords:** sexual dysfunction, PCOS, polycystic ovary syndrome, FSFI, Female Sexual Function Index

## **Introduction**

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women, affecting 5-24% of women of reproductive age (1). Irregular menstruation, hirsutism, obesity, infertility, anovulation, and acne are common symptoms of PCOS in women (2, 3). Clinical manifestations cause social and emotional stress (4) while menstrual irregularity and PCOS-related infertility cause psychological stress(5). Although obesity is not one of the diagnostic criteria for PCOS, most women with PCOS are obese (6). Factors such as acne, hirsutism, alopecia, health risk, infertility, and android obesity have affected the health-related quality of life and sexual function (7, 8). There is controversy about sexual function in women suffering from PCOS. Hahn et al. suggested that the manifestations of PCOS lead to decreased sexual function. At the same time, Stovall et al. reported similar levels of sexual function in PCOS and control subjects, with the exception of the orgasmic area (9). Sexual activity is a significant factor in health-related quality of life (10). Attention to this issue is critical, and there are differences by culture, race, and health status (2).

There are few studies on the sexual function of Iranian women with PCOS and its associated factors; SO, we designed this study to investigate the sexual function and its associated factors in Iranian women with PCOS.

## **Material and Methods:**

This case control study was conducted between September 2014 and September 2015 at Yas Hospital Complex. (Hospital affiliated to Tehran University of Medical Sciences). Women with PCOS and healthy subjects were enrolled in this study. The inclusion criteria for the patient group were a definite diagnosis of PCOS according to the Rotterdam criteria (11). The exclusion criteria for the control group were irregular menstrual cycles. Exclusion criteria for both groups were: arterial hypertension, diabetes type I or II, autoimmune diseases, cancer, administration of antidepressants, anxiolytics medication, and pregnancy. All participants were asked to complete an informed consent form, although the local ethics committee had approved the study. Body Mass Index (BMI), back circumference, presence of hirsutism(according to Ferriman-Gallwey index) (12), duration of marriage, age, and age of partner were recorded. An 8-hour fasting venous blood sample was collected from each participant overnight, on the second or third day of the menstrual cycle. Follicle-stimulating hormone (FSH), luteinizing hormone (LH), serum total and free testosterone, progesterone, and DHEAS were determined in all participants by ELISA (DRG Instruments GmbH,

Marburg, Germany). Participants were asked to answer the valid and reliable Persian version of the FSFI questionnaire. The FSFI is a 19-item self-report instrument measuring female sexual function that provides a total score for six domains of sexual function. These domains include desire (2 items, questions 1 and 2), arousal (4 items, questions 3, 4, 5, and 6), lubrication (4 items, questions 7, 8, 9, and 10), orgasm (3 items, questions 11, 12, and 13), satisfaction (3 items, questions 14, 15, and 16), and pain (3 items, questions 17, 18, and 19). Total FSFI score is calculated by the sum of the nineteen items. (13).

All data were analyzed using SPSS version 20 software (SPSS Inc., Chicago, IL, USA). Student's t-test and chi-square test with exact fissure test were used to compare continuous and categorical variables. Multiple linear regression analyses with FSFI score as dependent variable, age, BMI, FSH, LH, testosterone, free testosterone, DHEAS, duration of infertility, and hirsutism as independent variables were performed to evaluate their significance on sexual function. A P value of less than 0.05 was considered significant.

### **Results:**

One hundred cases with PCOS and 93 healthy controls were studied. The presence of hirsutism, levels of FSH, LH and free testosterone were substantially different between the two groups (table 1). The mean FSFI total score and all domains except orgasm were significantly lower in the PCOS group (Table 2).

With an FSFI score of less than 26.55 as sexual dysfunction, 62 (62%) of PCOS cases had sexual dysfunction, while 17 (18.2%) of healthy controls had sexual dysfunction ( $p < 0.001$ ). There was no significant correlation between BMI and FSFI score and its subscales in the PCOS group (Table 3). Only the pain domain and the total FSFI score were significantly different between PCOS cases with and without hirsutism (Table 4). Multiple regression analysis showed that FSH and free testosterone were independent predictors of FSFI score (Table 5).

### **Discussion:**

The result of this study shows that more than 60% of women with PCOS suffer from sexual dysfunction. A sexual dysfunction was reported in 57% of women with PCOS (14). In another study conducted in the city of Kashan (IRAN), sexual dysfunction was found in 16% of the cases studied (2).

Stovall et al. compared sexual function in women with PCOS and healthy controls and studied sexual dysfunction in 27% of cases and 24% of rules (not significant) , which is in contrast to our results. We found a significant difference between sexual dysfunction in PCOS patients and controls (62% vs. 18.2%).

The results also showed that the mean FSFI total score and its domains, except orgasm, were significantly different between the PCOS group and controls. In the study by Stovall et al. the mean domain scores, with the exception of orgasm, were not significantly different from ours(9).

Ercan et al. studied 32 PCOS women and 32 age-matched healthy subjects. In their study, the mean FSFI score and domains did not differ significantly between PCOS and control subjects (15). In another study, Mansson et al. reported that women with PCOS had lower satisfaction with their sexual life compared to their control subjects (16). In the study by Drosdzol et al, 28.6% of Polish PCOS women were diagnosed with sexual dysfunction compared with 10% of healthy subjects (17).

The regression results also showed that FSH was a significant negative predictor and DHEAS was a significant positive predictor of sexual dysfunction in PCOS women. At the same time, testosterone and free testosterone were not independent predictors. We should keep in mind that hyperandrogenemia is one of the hallmarks of this syndrome, whereas in this study only DHEAS was an independent predictor. Stovall et al. studied that lower testosterone level was associated with lower sexual function in PCOS cases, while higher testosterone level was associated with greater desire/frequency (9). Previous studies have shown that physical characteristics of PCOS affect the psychological well-being of affected individuals as well as sexual function (14, 18, 19). BMI, acne, and hirsutism have been associated with sexual dysfunction (14). Mansson et al. found that BMI had a small effect on sexual function, while total serum levels of testosterone correlated positively with sexual function (15). Increased BMI and hirsutism on sexual function could be due to the perception of sexual attractiveness. However, we found that none of these factors were predictors of sexual dysfunction in our cases, which is consistent with the findings of Benetti-Pinto et al. They found only a significant negative correlation between BMI and orgasm with no other associations (4). Stovall et al. reported that in their study, only the orgasm component differed significantly between average weight and obese women (9). It appears that obesity correlates weakly with sexual function, and the correlation with sexuality is attributed to the association of obesity

with hirsutism, infertility, and other metabolic effects. We found no significant correlation between BMI and FSFI scores and their subscales. We also found that hirsutism did not predict sexual function in PCOS women, while Hashemi et al. reported lower sexual scores in PCOS women (20). In this study, only the pain range and total FSFI score differed significantly between PCOS cases with and without hirsutism. Hirsutism is considered a factor that negatively correlates with sexual function in PCOS cases (8, 21, 22).

**Conclusion:** Sexual dysfunction is more prevalent among PCOS patients. As a result of our studies and since sexual function has an impact on quality of life, it is important to assess the sexual function of patient diagnosed with PCOS in order to improve their quality of life. For polycystic ovary syndrome patients, multidisciplinary care should be done, which includes referring to gynecologists, endocrinologists, and psychiatrists if they have other health problems.

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**Author's Contributions**

Fatemeh Davari Tanha and Mojgan Asadi conceived and designed the study; Zahra shahraki collected the data;; Mahsa Ghajarzadeh performed the analysis; Zeinab Assaf and Zahra kaveh wrote the paper.

**Conflict of Interest:**

The authors declare no conflict of interest.

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Table 1: Demographic and laboratory findings of two groups.

	PCO group N=100	Control N=93	P value *
Age	29.7±5.4	30.4± 4.1	0.2
Duration of infertility	8.4±3.8		
Hirsutism	54(54%)	11(11.8%)	<0.001
Partner age	35.9±6.2	34.6±5.1	0.1
Marital duration	8.8±3.8	8±3.2	0.1
FSH	6.3±1.7	5.6±1.8	0.005
LH	9.7±7.1	8.2±2.1	<0.001

Testosterone	0.6±0.2	0.6±0.1	0.07
Free testosterone	1.5±0.6	1.2±0.3	<0.001
DHEAS	128.1±16.5	128.8±15.8	0.7

\*P<0.05 was considered significant

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Table2: FSFI score and its domains in two groups.

	PCO group N=100	Control N=93	P value *
Desire	3.4±1.3	4.3±1.6	<0.001
Arousal	3.9±1.5	5.3±1.6	<0.001
Lubrication	4.4±1.2	5.1±1.5	0.003
Orgasm	4.5±1.3	4.9±1.3	0.06
Satisfaction	4.4±1.3	5.4±1.6	<0.001
Pain	4.6±1.6	5.7±1.8	<0.001
Total score	25.4±4	30.9±4.5	<0.001

\*P<0.05 was considered significant

Table3: correlation between BMI and FSFI score and its subscales.

	Correlation coefficient	P value *
Desire	-0.04	0.7
Arousal	0.09	0.4
Lubrication	0.1	0.2
Orgasm	0.09	0.4
Satisfaction	-0.1	0.1
Pain	0.1	0.1
Total score	0.08	0.4

\*P<0.05 was considered significant

Table 4: Comparison of FSFI and its subscales in PCO cases with and without hirsutism

	Without hirsutism	With hirsutism	P value *
Desire	4.4±1.5	4.1±1.7	0.4
Arousal	5.3±1.4	5.3±1.8	0.9
Lubrication	5.1±1.6	5±1.4	0.8
Orgasm	5.1±1.1	4.6±1.7	0.07
Satisfaction	5.5±1.6	5.3±1.6	0.4
Pain	6.2±1.6	5.1±1.8	0.04
Total score	31.9±3.5	29.7±5.2	0.02

\*P<0.05 was considered significant

Table 5: regression analysis considering FSFI as dependent and age, BMI, FSH, LH, testosterone, free testosterone, DHEAS, infertility duration and hirsutism as independent variables

	B coefficient	P value
Age	-0.11	0.1
BMI	0.04	0.5
FSH	-0.9	<0.001
LH	-0.35	0.1
Testosterone	0.8	0.7
Free testosterone	-1.9	0.1
DHEAS*	0.05	0.03
Infertility duration	-0.6	0.2
Hirsutism	0.6	0.5

\*Dihydroepiandrosterone sulfate (DHEAS)