

Gynecologic Conditions and Sexual Dysfunction

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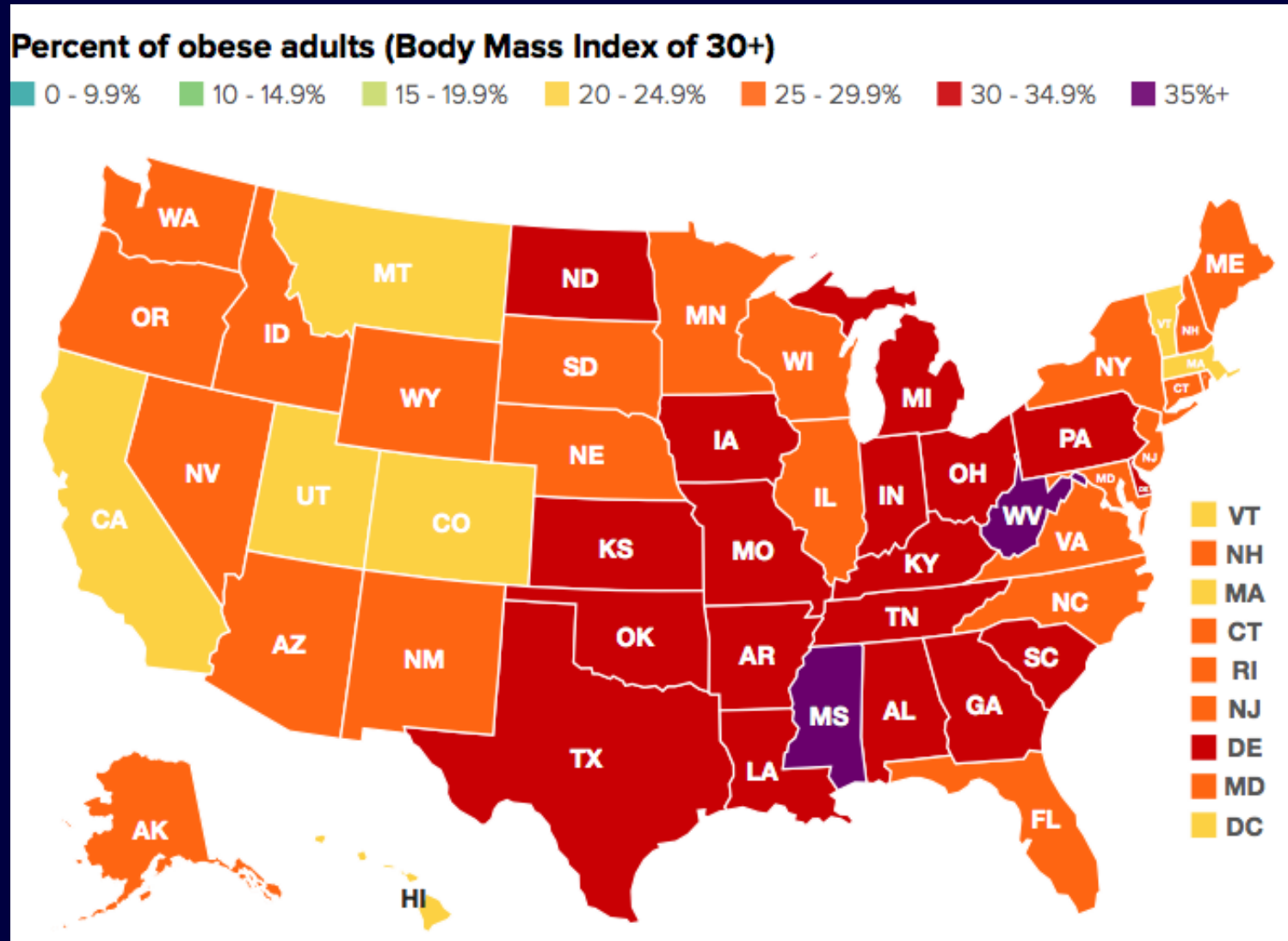
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Learning Objectives

- To understand the impact of common gynecologic concerns on women's sexual health
 - » Obesity
 - » Infertility
 - » Endometriosis
 - » Hysterectomy for Benign Gynecologic Conditions

Obesity

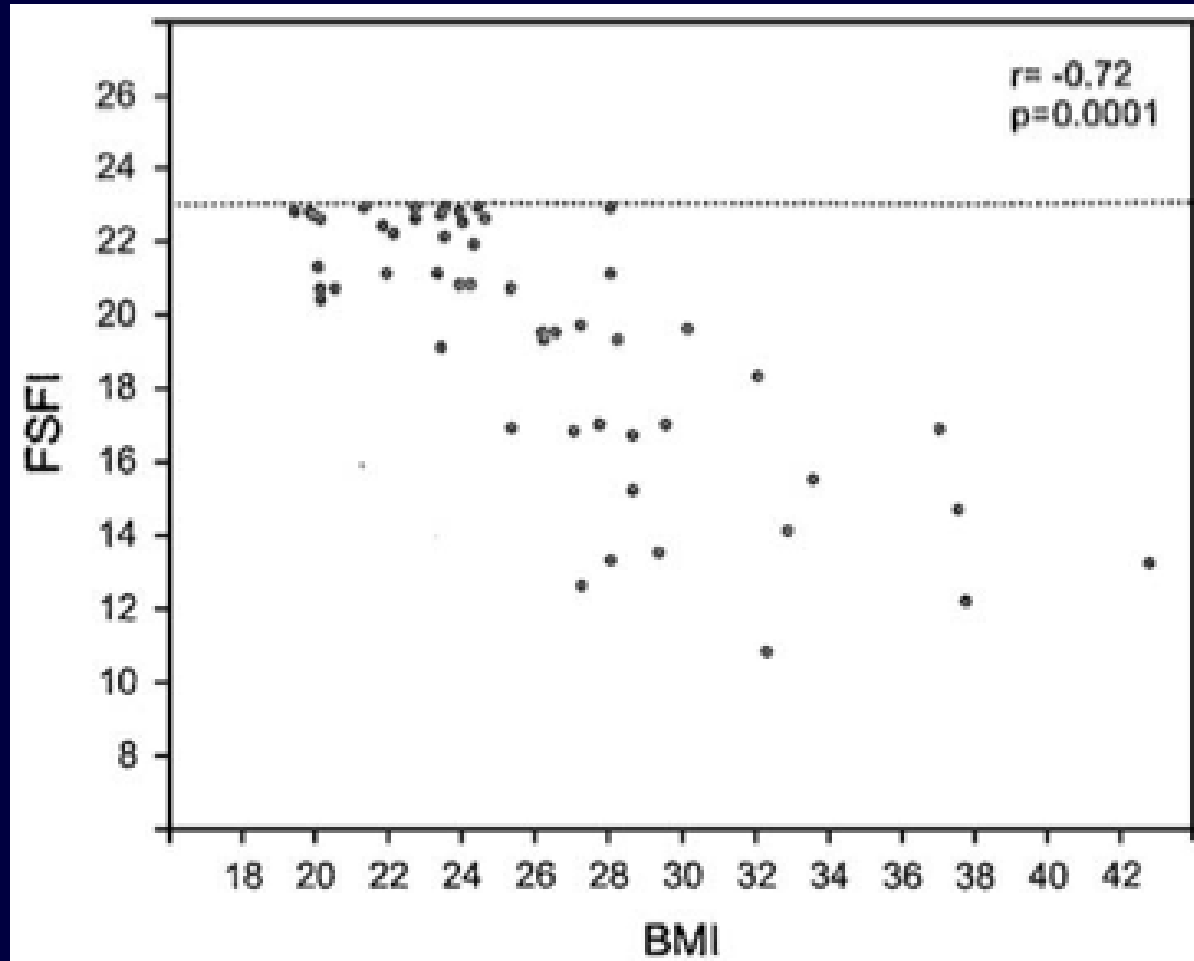
Adult Obesity Rates, 1990 - 2013



The Robert Wood Johnson Foundation Report:
The State of Obesity: Better Policies for a Healthier America, Sept 2014

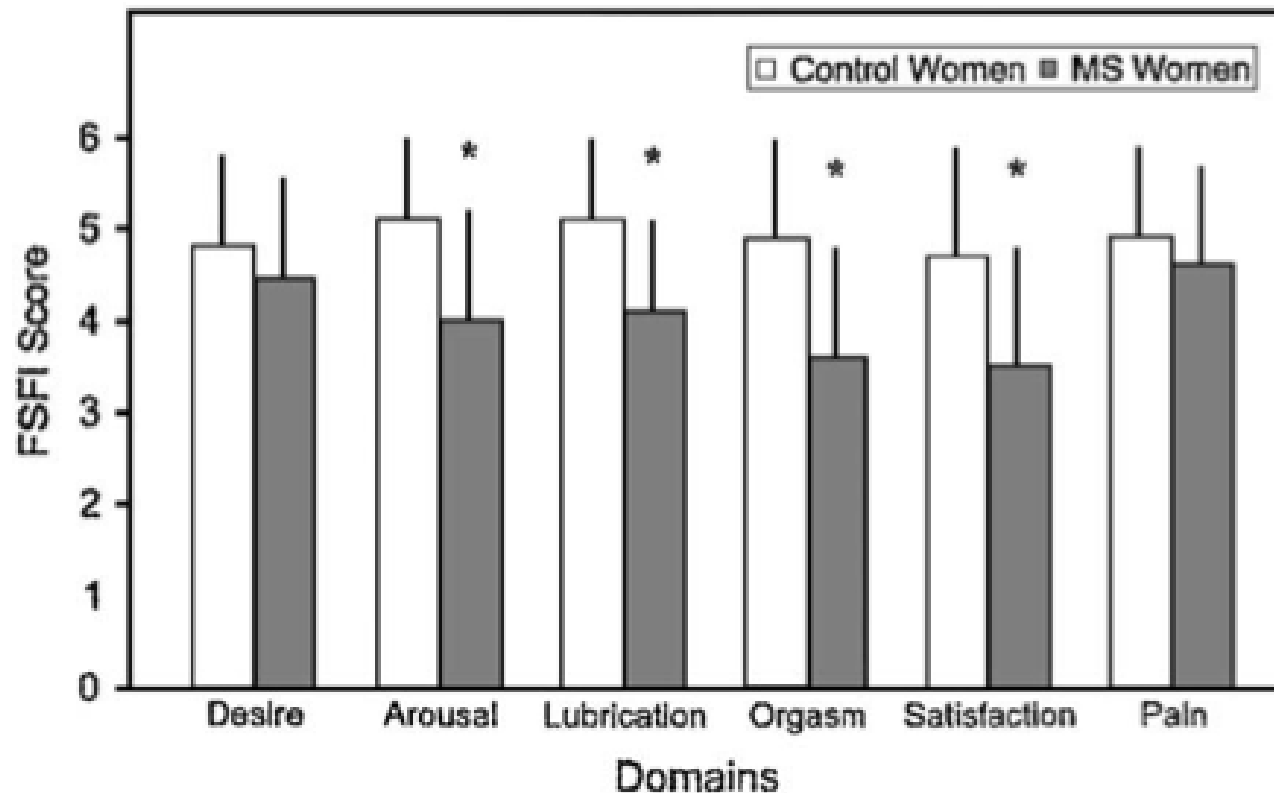
Obesity and Sexuality in Women

Inverse correlation between BMI and FSFI in a population of women with FSD.



Metabolic Syndrome and FSD

Comparison of FSD individual domains of the FSFI scores in women with metabolic syndrome and matched controls.



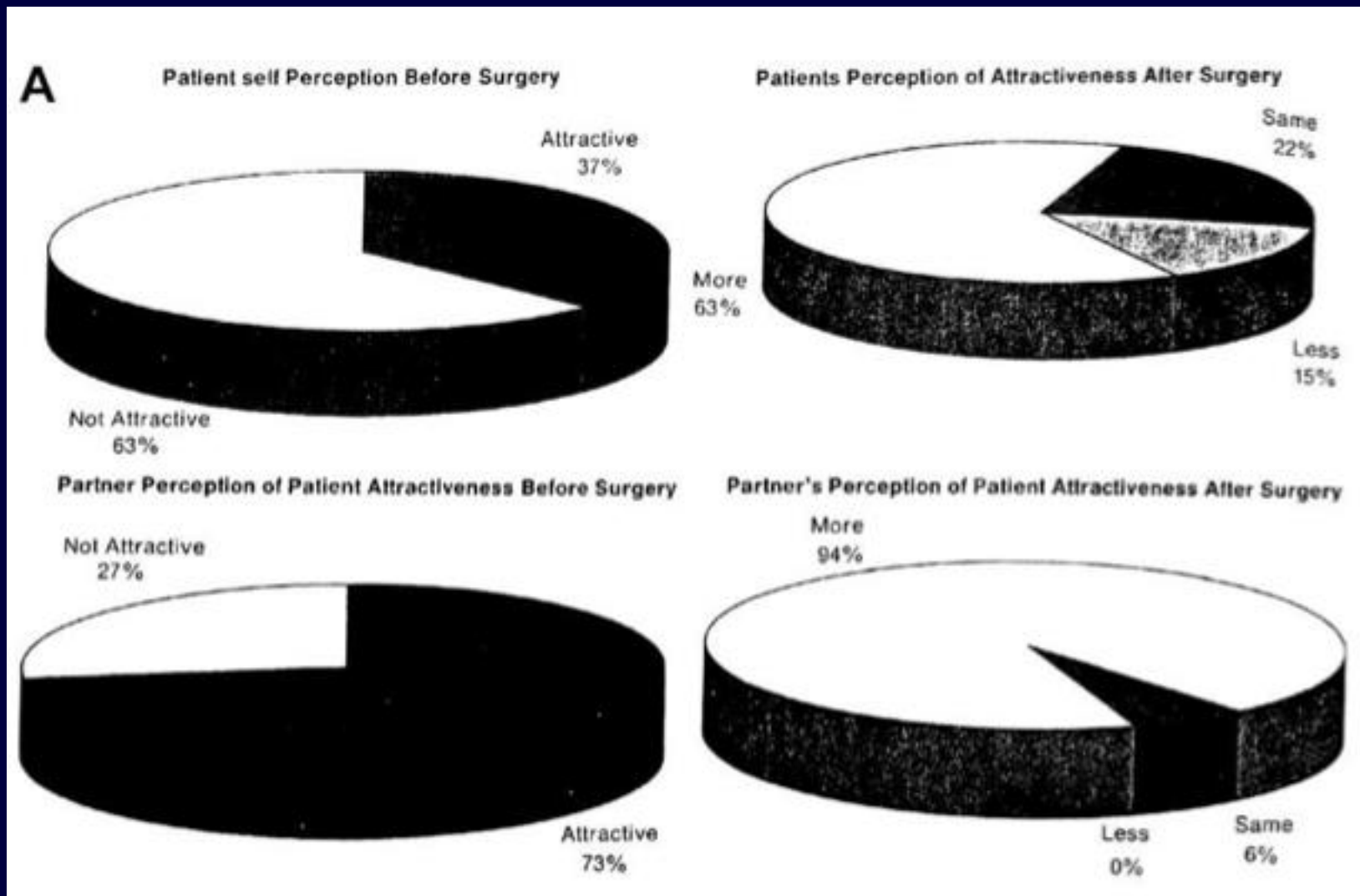
Sexual Quality of Life based on BMI category

Because of my weight, I.....

	BMI Category*			F	P	η^2	Post hoc*
	Class I (30–34.9 kg/m ²) (n = 159)	Class II (35–39.9 kg/m ²) (n = 277)	Class III (> 40 kg/m ²) (n = 722)				
Do not enjoy sexual activity							
Women	2.34 ± 1.36	2.59 ± 1.33	3.00 ± 1.46	BMI: 11.35	< 0.001	0.019	III > II > I
Men	1.68 ± 1.02	1.93 ± 1.14	2.11 ± 1.36	Sex: 53.02	< 0.001	0.044	F > M
Have little sexual desire							
Women	2.89 ± 1.32	2.72 ± 1.31	3.09 ± 1.41	BMI: 2.22	0.109	0.004	—
Men	2.29 ± 1.22	2.41 ± 1.23	2.43 ± 1.27	Sex: 27.50	<0.001	0.023	F > M
Difficulty with sexual performance							
Women	2.31 ± 1.37	2.55 ± 1.36	3.08 ± 1.41	BMI: 17.67	<0.001	0.030	III > II > I
Men	2.17 ± 1.05	2.58 ± 1.25	2.78 ± 1.40	Sex: 1.86	0.173	0.002	—
Avoid sexual encounters							
Women	2.67 ± 1.46	2.72 ± 1.43	3.02 ± 1.52	BMI: 6.12	0.002	0.011	III > II, I
Men	1.8 ± 0.98	2.15 ± 1.12	2.35 ± 1.38	Sex: 40.01	<0.001	0.034	F > M

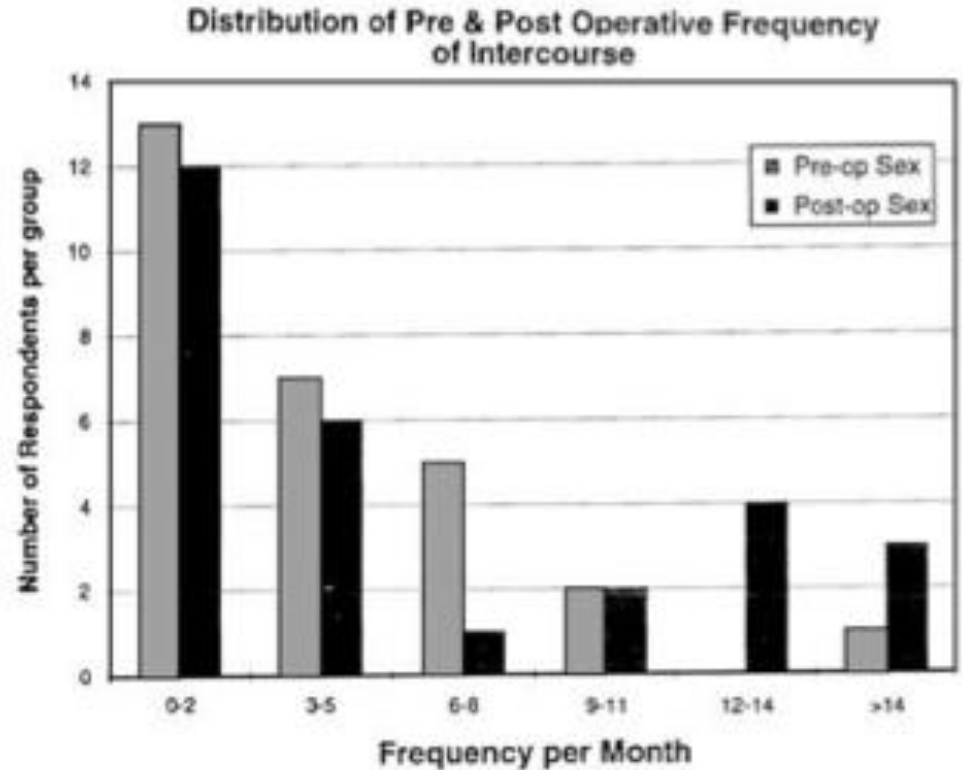
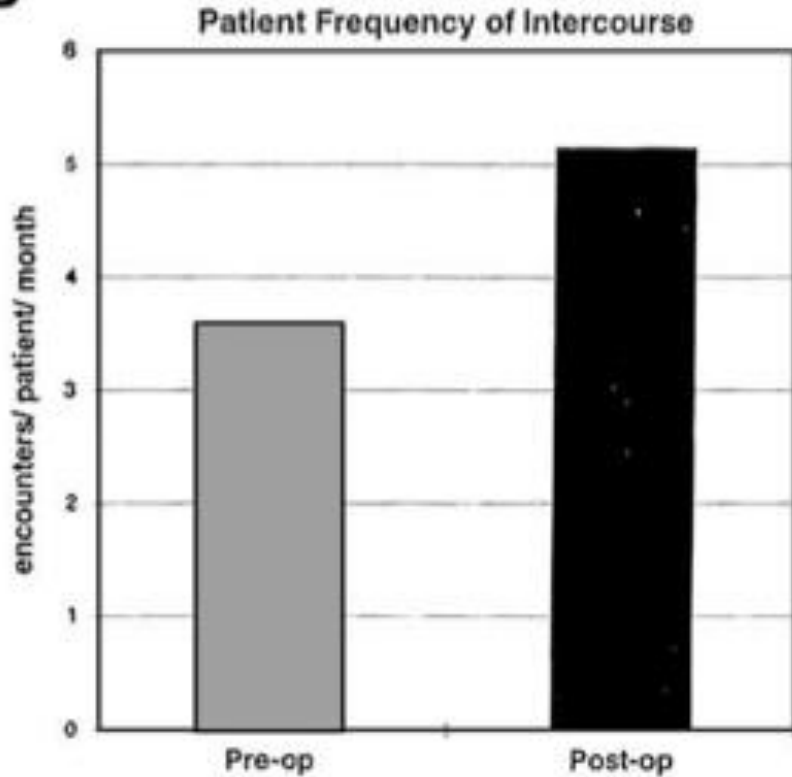
^a Assessed using the IWQoL-Lite Impact of Weight on Quality of Life-Lite (IWQoL-Lite) questionnaire. * I=BMI 30-34.9 kg/m², II=BMI 35-39.9 kg/m², III=BMI >40 kg/m². Data from Kolotkin R, Binks M, Crosby R, et al. Obesity and sexual quality of life. Obesity 2006;14:474; with permission.

Body Image before/after Bariatric Surgery



Frequency of Intercourse before/after Bariatric Surgery

B



Change in FSFI scores and Sex Hormone Levels after Bariatric Surgery

	Model-Based Estimates, Mean (SD)			P Value		
	Baseline	Year 1	Year 2	Year 1 vs Baseline	Year 2 vs Baseline	Year 2 vs Year 1
FSFI						
Total FSFI score	20.3 (10.8)	23.5 (10.6)	24.8 (8.3)	.04	.002	.59
Arousal	3.1 (2.0)	3.7 (2.0)	3.9 (1.8)	.06	.01	.81
Lubrication	3.7 (2.3)	4.1 (2.2)	4.4 (1.8)	.31	.045	.63
Desires	2.7 (1.3)	3.4 (1.4)	3.3 (1.3)	<.001	<.001	.83
Orgasm	3.3 (2.3)	3.7 (2.2)	4.0 (2.1)	.40	.07	.57
Satisfaction	3.5 (1.9)	4.2 (1.7)	4.1 (1.6)	<.001	.002	.98
Pain	4.1 (2.5)	4.4 (2.3)	4.6 (2.1)	.54	.23	.81
Sex hormone levels						
Estradiol, pg/mL	86.9 (98.0)	51.4 (58.5)	53.1 (54.8)	.01	.01	.98
Total testosterone, ng/dL	47.8 (34.3)	30.4 (19.8)	23.1 (17.8)	<.001	<.001	.02
FSH, mIU/mL	15.3 (22.8)	22.0 (26.6)	29.9 (34.8)	<.001	<.001	.01
LH, mIU/mL	9.4 (9.6)	13.3 (13.6)	15.9 (15.7)	.01	<.001	.30
SHBG, µg/mL	4.8 (4.2)	11.4 (7.0)	9.8 (3.4)	<.001	<.001	.08
DHEA-S, µg/dL	118.6 (77.9)	106.1 (55.9)	92.6 (50.4)	.29	.01	.20

Body Image and African-American Females' Sexual Health

The association between body image dissatisfaction and a range of sexual attitudes, beliefs, and behaviors.

<i>Sexual functioning</i>	<i>Bivariate analyses</i>					<i>Multivariate analyses</i>		
	<i>Less satisfied body image</i>	<i>More satisfied body image</i>	<i>PR^a</i>	<i>(95% CI)</i>	<i>p</i>	<i>OR^b</i>	<i>(95% CI)</i>	<i>p</i>
<i>Sexual behaviors</i>								
Never used condoms, 30 days	72.6	62.6	1.2	(1.02–1.3)	0.03	1.6	(1.01–2.5)	0.04
Never used condoms, 6 months	65.3	57.1	1.1	(1.0–1.3)	0.09	1.4	(0.93–2.2)	0.10
Unprotected vaginal sex, 6 months	29.1	22.3	1.3	(0.95–1.8)	0.09	1.6	(1.02–2.4)	0.04
Being less than 14 years old at initial sexual intercourse	54.3	43.7	1.2	(1.0–1.5)	0.02	1.4	(0.97–2.1)	0.07
<i>Sexual health concerns</i>								
Fear of abandonment when negotiate condom use	11.0	2.5	4.4	(1.8–10.6)	0.0001	3.3	(1.3–8.7)	0.02
Fewer options for sex partners	73.4	54.1	1.4	(1.1–1.6)	0.0001	2.4	(1.4–4.0)	0.001
Less control in relationship	69.6	44.4	1.6	(1.3–1.9)	0.0001	2.0	(1.3–3.0)	0.002
Greater HIV/AIDS anxiety	60.8	46.1	1.3	(1.1–1.6)	0.002	1.5	(1.02–2.3)	0.04
Less confident to refuse unsafe sexual encounter	50.0	35.3	1.4	(1.1–1.8)	0.001	1.5	(1.00–2.2)	0.07

Women who are more dissatisfied with their body image may be at greater risk for unintended pregnancy, sexually transmitted infections (STIs), and HIV infection.

Reproductive Health Concerns in the Obese Patient

- Family Planning
 - » Comorbid risk factors limit contraceptive options (i.e. DVT/PE, CVA)
 - » LARC methods (IUD, implant, injectable)
 - » Non-hormonal methods
- Childbearing
 - » Increased risk miscarriage/stillbirth
 - » Increased infertility (due to: DM, HTN, PCOS, chronic anovulation)
- Menopause
 - » Comorbid risk factors limit therapeutic options (i.e. DVT/PE, CVA, endometrial protection)
 - Herbal therapy, SSRIs, conservative management

Assessment Sexual Health in the Obese Patient

1. Generalized inquiry – “Many women who are struggling with their weight also have sexual problems, how about you?”
2. Administer validated instruments such as FSFI – identify the problem and monitor progress if multiple dysfunctions found
3. Have patient fully clothed, avoid being judgmental
4. Multi-team approach
 - » Provider, nutritionist, exercise physiologist, psychologist, PT
 - » Individualized program of diet and exercise with clear-cut goals
 - » Screen for other medical disorders

Infertility

Infertility

- Psychosocial impact of infertility
 - » Affects quality of life
 - » Affects emotional well-being
- “Emotional Rollercoaster” of fertility treatments
 - » 59% of couples, infertility treatment had a negative impact on sexual relationship
 - » 37% of couples, there was a positive impact
- Prevalence rate FSD 10 - 60%*

Hammarberg K; Hum Reprod 2001

*Moller A. Scand J Sexol; 4:75-87

Is Infertility a Risk Factor for FSD?

Case Control Study

N=199 infertile women/N=99 healthy controls

Age 18 – 45

Outcome Measures: FSFI, Frequency sexual intercourse, masturbation, sex-life satisfaction

	Infertility participants	Healthy controls	P value
Mean overall FSFI score	27.1	28.7	.022
Women at risk for sexual dysfunction (%)	40	25	.026
Desire	3.4	3.8	.007
Arousal	4.4	4.9	.006
Lubrication	5.0	5.1	.89
Orgasm	4.3	4.7	.073
Satisfaction	4.7	4.9	.09
Pain	5.2	5.3	.487
Frequency of intercourse per month	7.0	9.2	.008
Frequency of masturbation per month	1.2	2.6	.007
Sex-life satisfaction score before infertility diagnosis	3.08 ^a	NA	
Current sex-life satisfaction score	2.66	3.05 ^a	.003

Note: FSFI = Female Sexual Function Index; NA = not applicable.

^a Sex-life satisfaction of patients with infertility before the diagnosis was similar to the controls' current sex-life satisfaction.

Infertility - a Risk Factor for FSD

- For the Woman
 - Infertility has a greater effect on a woman's sense of sexual identity than other sources of stress
 - She may not disclose a sexual complaint
 - Embarrassment
 - Focus solely on getting pregnant
 - Negative impact on body image
 - Feelings of futility, deficiency
 - Affects more women than men

Infertility - a Risk Factor for FSD

- For the Man
 - Fertility equated with virility (manhood questioned)
 - Pressure from “Sex on Demand” becomes vicious cycle
 - Performance anxiety
 - Feelings of shame, failure, depression
 - Erectile Dysfunction (prevalence rate up to 20%)
 - Premature ejaculation
 - Correlation between male partner sexual dysfunction and FSD
- Resultant Marital distress
 - Multiple, unsuccessful treatment attempts
 - Psychological distress due to unfulfilled desire for a child

Psychogenic Infertility

- 10 – 15% of couples have unexplained infertility
- In 5% of infertile couples, sexual dysfunction may play a role
- No data available on:
 - » homosexual/lesbian couples
 - » Singles with unfulfilled desire for a child

Timed Sexual Intercourse

- Eliminates spontaneity of act
- Focus of sex becomes solely on one of conception rather than of pleasure
- Pressure to conceive stems from “sex on demand”
 - » Leads to psychological pressure
 - » Decreased satisfaction with intercourse
 - » Intercourse associated with sense of failure
 - » Potential eventual loss of couple’s intimacy

Effects of Infertility Duration on Female Sexual Function

FSFI scores according to infertility duration

	< 2 yrs	2 - 5 yrs	≥ 5 yrs	
	Group I (<i>n</i> = 65)	Group II (<i>n</i> = 67)	Group III (<i>n</i> = 42)	<i>p</i>
Desire	3.9 ± 0.11	3.6 ± 0.14	3.0 ± 0.15	S
Arousal	4.0 ± 0.16	3.4 ± 0.18	2.7 ± 0.22	S
Lubrication	4.0 ± 0.15	3.7 ± 0.25	3.3 ± 0.24	S
Orgasm	5.0 ± 0.21	4.6 ± 0.23	3.4 ± 0.3	S
Sexual satisfaction	3.9 ± 0.19	3.7 ± 0.19	3.4 ± 0.24	NS
Pain	4.1 ± 0.16	3.8 ± 0.19	3.1 ± 0.27	S
Total	25.1 ± 0.83	23 ± 0.96	19 ± 1.23	S

Data are expressed as mean ± SD

p > 0.05 non-significant (NS); *p* < 0.05 significant (S)

Fertility Medications

- Side effects are known contributors to FSD
 - » Short-lived
 - » Usually resolve following cessation of therapy
- Sexual pain can affect any phase of sexual response

Medications

- GnRH Analogues
- Clomiphene Citrate
- Metformin
- Exogenous Gonadotropins

Counseling

- Take a 'vacation' from infertility
 - » Stress-relieving
- Instead of only 'sex for baby-making'
 - » Have more 'sex for fun'
- Couples therapy
- Social Support Networks
- Alternatives - Caring for Others

Endometriosis

Endometriosis

- Severely debilitating disease affecting 30 - 50% of symptomatic premenopausal women
- Impact on quality of life:
 - » Chronic pelvic pain, dysmenorrhea, dyschezia, dysuria, and infertility
- Dyspareunia with deep penetration affects 60% - 79% of women undergoing surgery
 - » Inflammation, adnexal masses, adhesions

Montanari G et al. JSM 2013; 10:1559-1566

Tripoli TM et al. JSM 2011; 8:497-503

Ferrero S, et al. Human Reprod 2007, 22(4):1142-1148

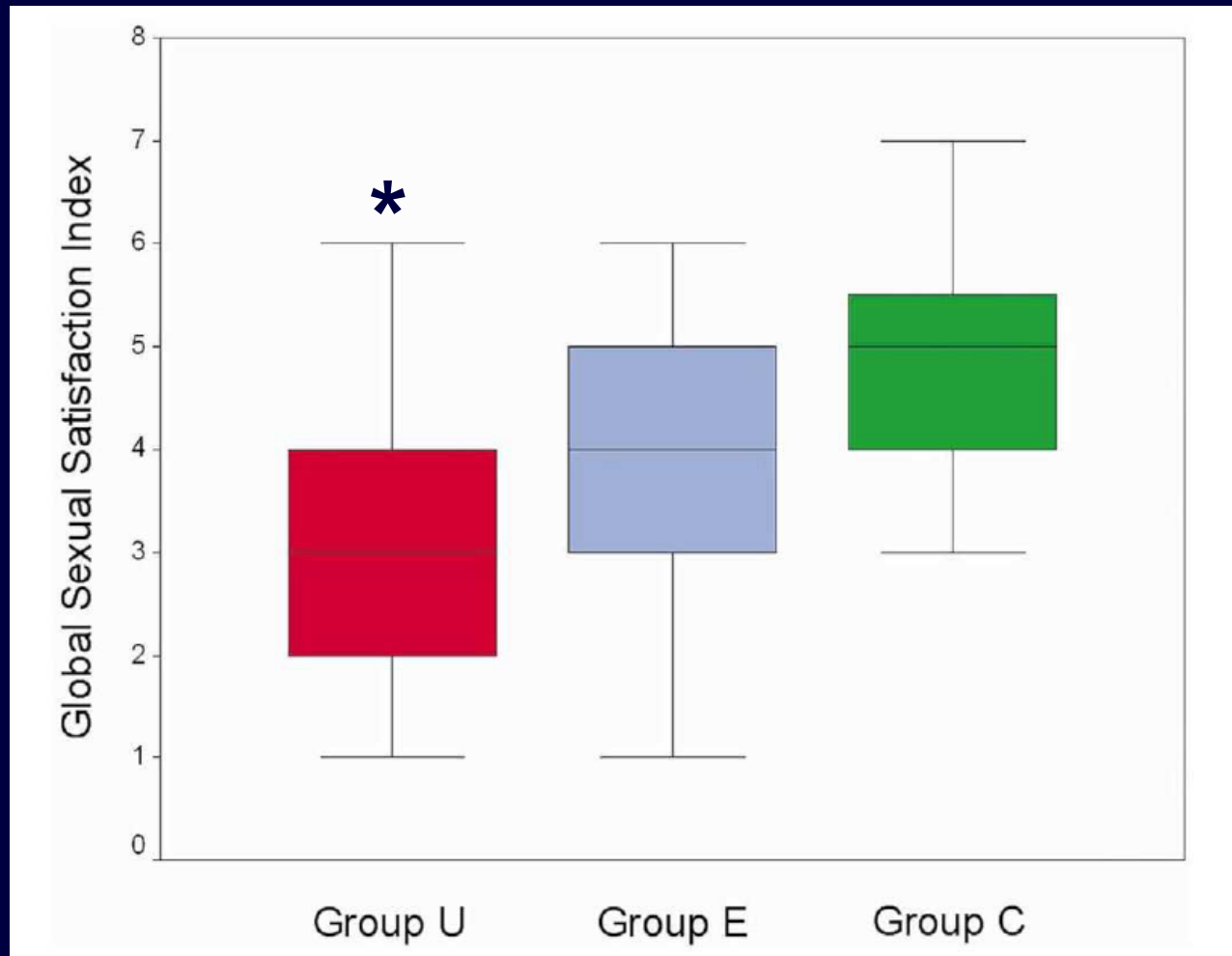
Deep Dyspareunia and Chronic Pelvic Pain of Endometriosis

- 1/3 of women with chronic pelvic pain have endometriosis
- Limits sexual activity
- May lead to sexual avoidance
- Lowers self-esteem and negatively affects partner relationships
- Uterosacral ligament involvement linked to most severe impairment on sexual function

Pathogenesis of Deep Dyspareunia

- Endometriotic lesions infiltrate uterosacral ligaments
 - » Contains considerable nervous innervation
 - » Severity of pain correlated with neural invasion by endometriotic lesions
 - » Tension on uterosacral ligament may trigger pain during intercourse
 - » Fibrosis, cyclic hemorrhage, release of prostaglandins and inflammatory mediators contribute to the pathogenesis of pain

Quality of Sex Life in Women with Endometriosis and Deep Dyspareunia



Psychological Impact FSD in Patients with Endometriosis

Relationships between psychological and clinical characteristics of 125 patients with and without a female sexual dysfunction (FSD) measured via FSFI.

Clinical and psychological features	With FSD		Without FSD		p-value
	Mean	SD	Mean	SD	
Duration of dyspareunia	5.8 yrs.	4.9 yrs.	4.5 yrs.	4.0 yrs.	0.12
NAS during intercourse	6.5	2.7	5.2	2.3	<0.01*
NAS after intercourse	5.7	2.8	4.0	2.6	<0.01*
Frequencies of intercourse/month	4.3	5.0	8.0	5.7	<0.01*
Feelings of feminity	2.7	1.2	3.5	1.0	<0.01*
Feelings of guilt towards the partner	3.2	1.5	2.5	1.5	<0.01*
Fear of separation because of pain	1.9	1.2	2.7	1.3	<0.01*
Feel of understanding by the partner	4.2	1.0	3.8	1.4	0.02*

yrs = years; SD = standard deviation; FSD = female sexual dysfunction.

^{a,b} = Numeric Analogue Scale 1-10.

^{c-f} = Rating Scale 1-5.

* $p < 0.05$; t-test for equality of means.

Laparoscopic Excision and Postoperative GnRH agonist

- Treats deep dyspareunia and improves quality of sex life
 - » 45.9% had no deep dyspareunia 1 year after postoperative treatment
 - » 34.7% reported a decrease in deep dyspareunia intensity
 - » 62.2% reported an increase in frequency of sexual intercourse
- Objective improvements (increase in GSSI) in several aspects sex life observed
- Administration postoperative GnRH agonist x 6 months delays recurrence after surgery
 - » Delayed recurrence at 12 and 24 months noted
 - » Reduction in endometriosis-associated pain

Prospective 2 – 5 year follow-up

- Reduction of pain, improved QOL for up to 5 years
- Impaired quality of life, which, despite treatment, may not return to levels enjoyed by women without disease
- 36% probability of further surgery
 - » return of pain not always associated with clinical evidence of recurrence
 - » endometriosis not found (histologically) in 1/3 of women who undergo further surgery

What is the Impact on Sexual Function of Laparoscopic Treatment and Subsequent Combined Oral Contraceptive Therapy in Women with Deep Infiltrating Endometriosis?

Prospective Cohort 106 sexually active women with Deep Infiltrating Endometriosis managed by laparoscopy and subsequent COC therapy for 6 months.

SHOW-Q items	Preoperative Mean scores	95% CI for Mean	Post-treatment Mean scores	95% CI for Mean	<i>P</i> value
Satisfaction scale	51	45–56	65	60–70	<0.0005
Orgasm scale	57	52–62	59	53–64	0.7
Desire scale	55	50–60	64	58–69	0.004
Pelvic problem interference scale	59	53–65	26	21–31	<0.0005

P value relative to the difference between pre- and posttreatment

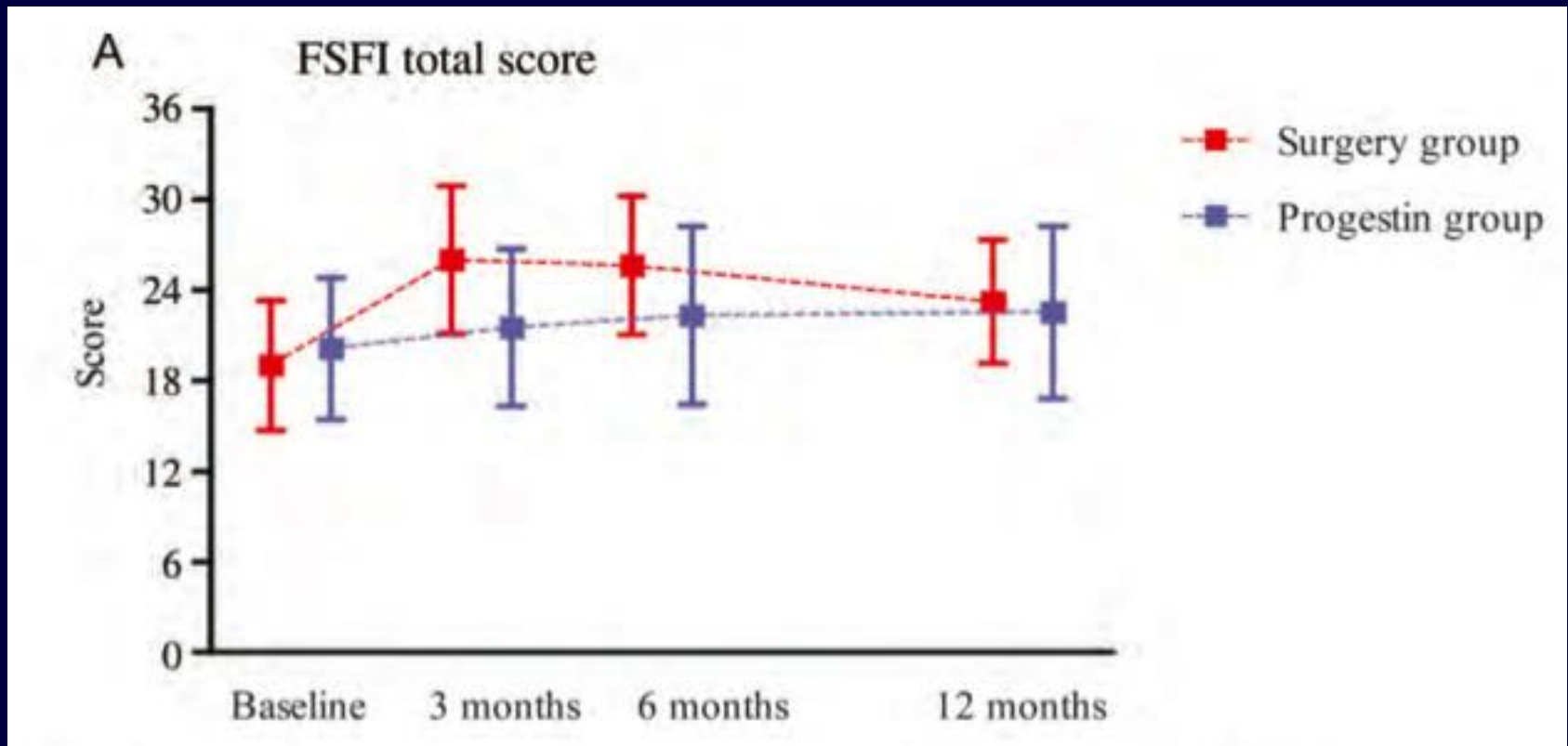
SHOW-Q = Sexual Health Outcomes in Women Questionnaire; CI = confidence interval

Endometriosis-Associated Pelvic Pain

Continuous OCPs vs GnRH analog?

- Both GnRH analog and Continuous OCPs are:
 - » Equally effective in treating pelvic pain
 - Decline in pain intensity
 - Improved QOL
 - Improved psycho-social functioning
 - » No difference between treatment modalities
 - However continuous OCPs more cost-effective
 - Cost savings of \$7,552 over 12 months

Surgical vs Low-dose Progestin for Endometriosis-associated Severe Deep Dyspareunia



Both surgery and medical treatment with progestins are valuable options for improving the detrimental impact of endometriosis-associated dyspareunia on sexual functioning.

Surgical vs Medical Management or Both?

- Weigh the risk and benefits
- Minimize sexual side effects
 - » Consider adverse sexual side effects of both GnRH agonists and OCPs
 - » If GnRH agonist – need add-back therapy if use > 6 mo
 - » High rate discontinuation continuous OCPs → recurrence of endometriosis symptoms
 - » Do not use in women seeking conception
 - » Surgery works in the short-term
 - May need concomitant medical therapy for long-term management
 - Recurrence is common
- Consider Sex Therapy

Hysterectomy for Benign Gynecologic Conditions

Influence Different Hysterectomy Techniques on Postoperative Sexual Function

	Supracervical laparoscopic hysterectomy (n = 72)		Total laparoscopic hysterectomy (n = 98)		Vaginal hysterectomy (n = 67)	
	Mean	SD	Mean	SD	Mean	SD
Desire						
Preoperative	2.69	1.07	3.07	1.26	2.90	1.11
Postoperative	3.71*	1.23	3.84*	1.25	3.41*	1.36
Difference	1.02	1.3	0.77	1.58	0.51	1.28
Arousal						
Preoperative	3.12	1.83	3.26	1.77	3.13	1.79
Postoperative	4.13*	1.7	4.06*	1.73	3.60*	1.88
Difference	1.01	1.73	0.8	2.04	0.47	1.61
Lubrication						
Preoperative	2.61	1.04	2.59	1.25	2.37	1.19
Postoperative	3.03*	0.89	2.96*	1.06	2.77*	1.08
Difference	0.42	1.02	0.37	1.06	0.4	0.98
Orgasm						
Preoperative	2.91	1.64	3.02	1.64	2.69	1.75
Postoperative	3.32*	1.51	3.39*	1.46	3.14*	1.52
Difference	0.41	1.28	0.37	1.64	0.45	1.4
Satisfaction						
Preoperative	4.14	1.97	3.91	1.89	4.14	1.99
Postoperative	4.56*	1.88	4.42*	1.89	4.64*	1.75
Difference	0.42	1.39	0.51	2.01	0.50	1.52
Pain						
Preoperative	2.14	1.29	2.33	1.12	1.92	1.21
Postoperative	1.87*	1.49	2.21*	2.21	1.51*	1.01
Difference	-0.27	1.68	-0.12	1.76	-0.41	1.51

* $P \leq 0.01$ for postoperative subcategory values compared with preoperative values

$P > 0.05$ for comparison of difference-values of FSFI subcategories between the three groups

Comparison of HSDD in women after 5 Different Hysterectomy Procedures

	AH (n=70)	VH (n=34)	LAVH (n=36)	LASH (n=56)	TLH (n=62)	P value unadjusted
B-PFSF score	21 (26)	23.5 (27)	23 (27)	26 (28)	25 (27)	0.16
No. of women with B-PFSF < 20	26 (37.1%)	10 (29.4%)	10 (27.7%)	13 (23.3%)	17 (27.4%)	0.52
Final items in the B-PFSF						
1. I felt like having sex	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)	0.30
2. I was unhappy about my lack of interest in sex	4 (5)	4.5 (5)	5 (5)	4 (5)	5 (5)	0.44
3. Getting aroused took forever	3 (4)	3.5 (5)	3 (4)	4 (4)	4 (5)	0.06
4. I felt sexually numb	4 (5)	4 (5)	4 (5)	5 (5)	5 (5)	0.04
5. I felt disappointed by my lack of interest in sex	3 (3)	3 (4)	3 (3)	4 (5)	3 (3)	0.33
6. I lacked sexual desire	4 (5)	4 (5)	4 (5)	5 (5)	5 (5)	0.08
7. I reached orgasm easily	2 (2)	2 (1)	2 (3)	2 (2)	2 (2)	0.75

**After adjustment for age there were no significant differences with P values > 0.05

No differences were observed using the Brief Profile of Sexual Function (B-PFSF) score with regard to the prevalence of HSDD after hysterectomy, irrespective of the surgical technique used.

Prophylactic Oophorectomy

	Group A (hysterectomy + oophorectomy) pts	Group B (Simple hysterectomy) pts	<i>P</i> value
Sex life			
No	218	155	
Yes	38	181	
FSFI score	21.22 ± 5.34	24.83 ± 4.19	0.003
≤20	19	24	
20–30	19	139	
≥30	0	18	
Sexual interest	3.2 ± 0.71	3.32 ± 0.63	0.314
Sexual arousal	2.49 ± 1.2	3.15 ± 0.71	0.001
Vaginal lubrication	2.93 ± 0.93	3.27 ± 0.7	0.010
Orgasm	3.21 ± 0.97	3.76 ± 0.84	0.001
Sexual satisfaction	5.61 ± 1.61	6.51 ± 1.39	0.002
Pain	3.78 ± 0.99	4.79 ± 0.89	0.001

The Debate Between Ovarian Conservation vs Elective Oophorectomy

Ovarian Conservation

- Overall life expectancy
- Cognitive benefits
- Prevention of osteoporosis and hip fracture
- Sexual function
- Risks of unintended procedure

Elective Oophorectomy

- Cancer prevention
 - » High-risk population
 - » General population
- Estrogen therapy after elective oophorectomy
- Repeat surgical operation
- Secondary benefits