Female Sexual Dysfunction: Identification of Sexual Problems in Women

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PODCAST– AUA – female sexual dysfunction

1. Introduction

Female sexual dysfunctions are often unrecognized and untreated in clinical settings. The link between urological and sexual health is well established.[1] Since urologists are trained to treat both men and women, they are optimal providers to help diagnose and treat women's sexual problems. Inquiring about sexual wellness in the adult female patient, no matter her age, should become a natural part of the urologist's history taking whether the patient is presenting for sexual concerns or not.

1.1 Epidemiology

The Prevalence of Female Sexual Problems Associated with Distress and Determinants of Treatment Seeking (PRESIDE) study involving 31,581 US women aged 18 to 102 years found that, overall, 44% reported any sexual problem (desire, arousal, orgasm). Low desire was the most common problem reported by 39% of women, low arousal by 26%, and orgasm problems by 21%.[2] While sexual problems were common in this study, only 12% of women endorsed presence of concomitant sexual problem(s) and distress; 10% of women reported distressing low desire, 5.5% of women reported distressing low arousal, and 4.7% of women reported distressing orgasm problems. Presence of a distressing sexual problem was more common in women aged 45 to 64 years (14.8%) than in younger (10.8%) or older (8.9%) women. These data indicate that many women have what may be construed as sexual difficulties that are not major concerns. Be that as it may, more than 1 in 10 women experience distressing sexual problems so these issues are quite prevalent.

Even though distressing sexual problems are present in a substantial proportion of American women, data from the same study indicated that of the more than 1000 women (approximately one-third) who sought formal help for sexual problems, only 7% initiated the conversation about sexual health. It is clearly incumbent on treating clinicians to proactively screen for sexual issues.[3]

2. Nomenclature

Sexual dysfunctions are defined as chronic, distressing sexual symptoms related to disruption of one or more phases of the sexual response cycle (i.e. desire, arousal, and orgasm) and/or pain with sexual activity. Female sexual dysfunctions have distinct classifications, definitions, and diagnostic criteria, which vary across different

systems of nomenclature. Definitions used in this document are based on the nomenclature developed by the International Society for the Study of Women's Sexual Health (ISSWSH)[4,5] and supported by the International Consultation on Sexual Medicine.[6]

Psychologists and psychiatrists generally refer to DSM diagnoses, rather than the ICD and/or ICSM/ISSWSH terminology used by primary care physicians, gynecologists and urologists. It is important to have at least passing familiarity with all of these systems of nomenclature, in order to be able to communicate effectively with healthcare providers of all kinds and to take advantage of the full array of educational and research literature on human sexuality. **Table 1** compares the most recent iterations of DSM, ICD, and ICSM/ISSWSH diagnostic terminologies.

Table 1. Evolution in Female Sexual Diagnostic Nomenclature over Past 25 Years

DSM-IV (1994)	ICD-10 (1999)	DSM-5 (2013)	ICSM-5/ISSWSH (2015/2016)
Female hypoactive desire disorder	Lack or loss of sexual desire	Female sexual interest/arousal disorder	Hypoactive Sexual Desire Disorder (HSDD)
Female arousal disorder	Female sexual arousal disorder	Female sexual interest/arousal disorder	Female Genital Arousal Disorder (FGAD)
Female orgasmic disorder	Female orgasmic dysfunction: failure to reach orgasm	Female orgasmic disorder	Female orgasm disorders (FOD) • Anorgasmia • Decreased frequency • Muted intensity • Premature or Delayed • Anhedonic
Dyspareunia	Non-organic dyspareunia	Genito-pelvic pain/penetration disorder	Female Genital-Pelvic Pain Dysfunction
Vaginismus	Non-organic vaginismus	Genito-pelvic pain/penetration disorder	Female Genital-Pelvic Pain Dysfunction
Sexual aversion disorder	Sexual aversion		
Sexual dysfunction due to a general medical condition			
Substance/medication-induced sexual dysfunction		Substance/medication induced sexual dysfunction	

Sexual dysfunction NOS		Other specified sexual dysfunctions Unspecified sexual dysfunction	Female Orgasmic Illness Syndrome (FOIS) Persistent Genital Arousal Disorder (PGAD)

2.1 Hypoactive Sexual Desire Disorder (HSDD)

- Lack of motivation for sexual activity as manifested by either:
  - Reduced or absent spontaneous desire (sexual thoughts or fantasies)
  - Reduced or absent responsive desire to erotic cues and stimulation or inability to maintain desire or interest through sexual activity
- Loss of desire to initiate or participate in sexual activity, including behavioral responses such as avoidance of situations that could lead to sexual activity, that is not secondary to sexual pain disorders
- AND clinically significant personal distress that includes frustration, grief, incompetence, loss, sadness, sorrow, or worry.

2.2 Female Sexual Arousal Disorder (FSAD)

2.2.1 Female cognitive arousal disorder

- Characterized by the distressing difficulty or inability to attain or maintain adequate mental excitement associated with sexual activity as manifested by problems with feeling engaged or mentally turned on or sexually aroused, for a minimum of 6 months.

2.2.2 Female Genital Arousal Disorder

- Characterized by the distressing difficulty or inability to attain or maintain adequate genital response, including vulvovaginal lubrication, engorgement of the genitalia, and sensitivity of the genitalia associated with sexual activity, for a minimum of 6 months.
- Disorders related to:
  - Vascular injury or dysfunction and/or
  - Neurologic injury or dysfunction

2.2.3 Persistent Genital Arousal Disorder

- A condition characterized by persistent or recurrent, unwanted or intrusive, distressing sensations of genital arousal (e.g., feelings of being on the verge of orgasm and of lubrication and swelling tingling, throbbing, contractions) that persist for ≥3 months and may include other types of genito-pelvic dysesthesia (e.g., buzzing, burning, twitching, itch, pain)
- Sensations may be accompanied by the experience of uncontrollable orgasms and/or having an excessive number of orgasms, not associated with concomitant sexual interest, thoughts, or fantasies
- Could be associated with:
  - o limited resolution, no resolution, or aggravation of symptoms by sexual activity
  - compromised orgasm quality (e.g., aversive; impaired; altered frequency, intensity, timing, and/or pleasure)
  - aggravation by certain circumstances (e.g., sitting, car driving, music or sounds, general anxiety, stress, or nervousness)
  - despair, emotional lability, catastrophization, and/or suicidality; and v) on physical examination, absent overt evidence of genital arousal (e.g., genital lubrication, swelling of clitoris or labia).

2.2.4 Female Orgasmic Disorder

- A condition characterized by a persistent or recurrent, distressing compromise of orgasm frequency, intensity, timing, and/or pleasure, associated with sexual activity.

2.2.5 Genitopelvic Pain/Penetration Dysfunction

- Persistent or recurrent difficulties with at least 1 of the following even in the context of desired sexual contact:
  - Vaginal penetration during intercourse
  - Marked vulvovaginal or pelvic pain during genital contact
  - Marked fear or anxiety about vulvovaginal or pelvic pain in anticipation of, during, or as a result of genital contact
  - Marked hypertonicity or overactivity of pelvic floor muscles with or without genital contact

3. Diagnosis: Asking about sexual dysfunction in a female patient

Initiating a discussion about sexual health problems allows the patient to know that she is not the only woman with her symptoms, that she may safely discuss them, and that there are treatment options available. Essential elements of assessment include inquiry on sexual satisfaction, sexual concerns, and/or sexual problems.

It is important to be critical of the underlying stereotypes and assumptions regarding gender and sex roles that inflect patient presentation and may implicitly bias medical practice. The provider should not assume that a woman is or is not sexually active with a partner, or the gender of that partner, regardless of age or other factors. Inquiry should be directed towards determining if the patient is sexually active. If the patient is not sexually active, a follow up question should help the provider determine if there are sexual dysfunctions or relationship issues that are limiting opportunities for satisfying sexual activity. [7] It may be helpful to include an ubiquity statement before initiating sexual inquiry; an example of this would be “Many women with (a specified condition) experience (a specific or generalized issue with sex). Is this happening to you?” If the patient responds affirmatively to any questions about the presence of sexual concerns, inquiry should proceed with open-ended questions, such as “Please tell me more” to prompt further discussion. Inquiry should include assessment of sexual relationship(s) and a basic assessment of sexual function in all domains.

3.1 Validated Questionnaires

There are a number of validated questionnaires that can be useful in assessing for female sexual dysfunctions. One of the more commonly utilized metrics is the **Female Sexual Function Index** (FSFI, available at **www.fsfiquestionnaire.com/**). The FSFI assesses 6 discrete domains of sexual function (sexual desire, arousal, lubrication, orgasm, satisfaction, and pain) over the preceding 4 weeks. A lower score connotes greater dysfunction, with a total score of 26 or less indicating high risk for sexual dysfunction.[8] The FSFI does not include assessment of distress and as such cannot be used as a substitute to a careful history for making the diagnosis of female sexual dysfunction. The Female Sexual Distress Scale (Revised or Desire/Arousal/Orgasm) (FSDS-R[9] or FSDS-DAO[10]) is another option to help characterize distress related to sexual issues.

3.2 Ethical Concerns

Sexuality, sexual interest, and sexual responses are subjective and variable among individuals. Their manifestations and interpretation are historically and culturally contingent. This variation has led some scholars to argue that the medicalization of sexual function represents an inappropriate simplification of a more complex reality, pathologizing functions and feelings that may be normal within the diversity of human experience. [11] These criticisms are explicitly inspired by feminist theory and politics and are worthwhile

considerations for practicing clinicians. However, sexual issues often have a biological component that may be amenable to biomedical intervention, and patients often seek assistance from medical providers for sexual concerns.

The role of the clinician in treating any patient's sexual dysfunction is to optimize anatomical and physiological function to assist the patient in the safe achievement of their personal sexual goals. Ultimately, some patients' sexual complaints may be best served by the medical and/or surgical care that urologists are equipped to provide whereas others may benefit from primary psychobehavioral education and treatment. A collaborative approach between biomedical and psychobehavioral providers is often the most effective means of treating sexual problems in any patient.

4. Anatomical Aspects of Female Sexual Medicine

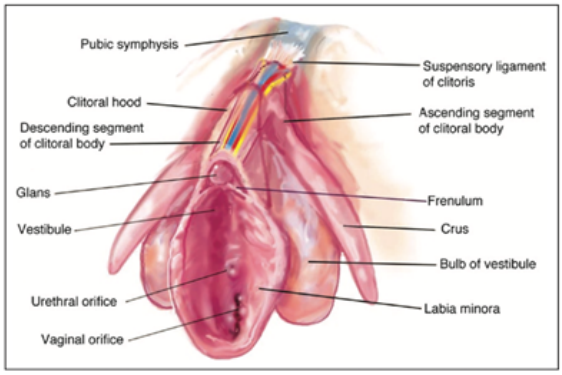

Figure 1. Schematic depiction of the frontal view of the female genitalia. The labia majora and dorsal component of the clitoral hood have been removed from the image to properly depict all critical anatomic structures.

Figure 1

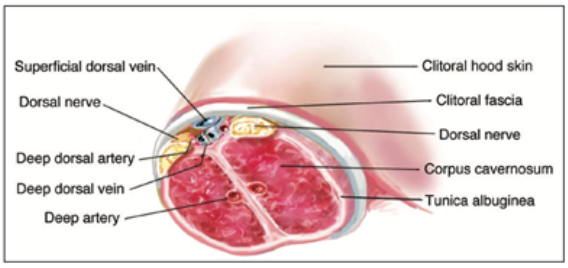

Figure 2. Schematic depiction of the anatomic structures as seen through a cross-section of the clitoral body. It is important to note how superficial the neurovascular bundles are situated on the dorsal surface of the clitoris.

Figure 2

The majority of practicing urologists have received little training on evaluation of the vulva and vagina with respect to issues that may impair sexual response. An understanding of female genital anatomy can facilitate comprehensive evaluation and optimize treatment outcomes for women with sexual concerns.

Female sexual organs include the clitoris (glans and crura), labia major and minora, the vulvar vestibule, the vagina, cervix, the vestibular bulbs, and the pelvic floor muscles.[12] Vasodilation and tissue engorgement are the genital changes which accompany female sexual arousal.[13,14]

The clitoris is composed of large dilated vascular spaces that engorge with blood during arousal. The clitoris contains a glans, prepuce, corpora cavernosa, vestibular bulbs, and crura similar in structure to the homologous penis. The glans clitoris is the component of the clitoris that is visible but often covered by a "hood" of preputial skin, particularly in the unaroused state. This prepuce can develop phimosis and/or balanitis with smegma trapped under it forming keratin pearls, each of which can contribute to clitoral pain

(clitorodynia) and/or anorgasmia. Historically, there has been a paucity of information regarding clitoral anatomy in medical textbooks and journals. [15] (see **Figure 1** and **Figure 2**).

The vulvar vestibule is located between the labia minora and the hymen and contains glandular openings (Skene's and Bartholin's glands) that produce lubrication. This rarely examined tissue is a leading cause of vestibulodynia, or entrance dyspareunia. The vulvar vestibule can become painful due to changes in hormones, inflammation, an excess of mast cells and nerves, or muscle hypertonicity. [16]

With increased blood engorgement in the vaginal submucosa, there is increased oncotic pressure and sodium reabsorption.[17] This pressure leads to production of a fluid transudate which passes into the vaginal lumen via aquaporins located in the vaginal mucosa. [18,19] This oncotic process is the source of most arousal-related vaginal lubrication.

5. Neurological Aspects of Sexual Arousal in Women

The autonomic nervous system regulates genital arousal responses. The parasympathetic nervous system generally facilitates sexual response by vasodilation. The sympathetic nervous system opposes the parasympathetic arousal responses but does play an important role in pelvic contractions with orgasm.[12] The somatic nervous system plays a role in transmission of sensation and control of motor neurons to the pelvic floor. [20] Additionally, research[16] on the cervix has indicated that its triple innervation from the pelvic, hypogastric and vagus nerves may aid in female sexual function and pleasure. [16,21]

6. Hormonal Aspects of Sexual Arousal in Women

Estradiol (E_2) is the primary "female" sex steroid. E_2 acts by binding to the estrogen receptor.[22,23] Estrogens maintain female genital tissue integrity and thickness.[19] Peak estradiol levels occur at the midpoint of the menstrual cycle and are associated with maximal vaginal mucosal thickness and glycogen content.[24]

With menopause there is a decline in genital sensitivity, vaginal wall thickness, collagen content, and acidity. **Women with serum estradiol levels less than 50 pg/mL are at increased risk of dryness and pain during vaginal penetration**.[25] Estrogen supplementation may reverse some of these changes and enhance sexual responses.[26,27]

While low E_2 is associated with decline in sexual activity, many women with low serum E_2 are able to maintain satisfying sexual activity.[28,29] Furthermore, the capacity for vaginal lubrication is often maintained in otherwise healthy post-menopausal women; changes in vaginal blood flow with sexual arousal are similar in healthy pre- and post-menopausal women.[30]

Testosterone (T) is often considered the "male" sex hormone but is present and serves an important function in women. [31,32] About half of circulating T in premenopausal women is derived from the adrenal glands with the other half produced by the ovaries.[33] During peri-menopause, ovarian production of T declines but adrenal production persists. [34]

Androgen receptors are present in female genital tissues.[22] There is evidence that T plays a role in sexual desire,[31] genital reactivity, and sexual arousal in women.[35] Exogenous androgen increases sexual desire, arousal, and orgasmic response in women with low baseline serum androgen levels.[36,37] However, there are concerns from some experts about increased incidence of carcinogenesis (principally breast and endometrial) from testosterone supplementation in women. The majority of long term observation studies have not suggested a significant increase in cancer risk in women taking exogenous T out to two years.[31] Long term safety data are sparse, and the use of T in women is not approved for any indication in the United States.[38]

7. Physical Exam Considerations in FSD

Many objective findings on physical exam can be seen in a patient with sexual complaints, and a full vulvar and vaginal exam will aid finding the proper treatment for the patient.

Important anatomy to assess includes:

- Labia majora and minora.
- Clitoris, including glans and hood.
- Urethra and periurethral glands.
- Vestibule.
- Vaginal vault.
- Cervix.
- Pelvic floor levator ani muscles.

Important factors to evaluate in the focused genital exam:

- Distribution of hair.
- Symmetry and size of genital tissues.
- Evidence of atrophy or stenosis.
- Areas of provoked pain.
- Color uniformity, erythema or other discoloration.
- Visible lesions, excoriations, or scars.
- Pelvic organ prolapse.
- Pelvic floor muscle tone and voluntary control.
- Presence of vaginal discharge.
- Presence or absence of vaginal rugae.

7.1 Pubic Hair

The presence, absence, and pattern of pubic hair should be assessed. Grooming practices of pubic hair vary widely with age, race and cultural norms. [39] Due to decrease in estrogen levels, pubic hair can become thin or absent during menopause. Providers should not render personal opinions on an individual woman's pubic hair grooming choices.

7.2 Labia Majora

The labia majora should be evaluated for skin conditions including erythema, lichenoid changes (eg flat white lesions), erosions, or other lesions that may warrant a vulvar biopsy.[40] After menopause, the labia majora can appear flattened or even pendulous due to loss of the subcutaneous labial fat pad. The labia majora should be palpated from top to bottom to assess for pain or discomfort that may indicate pelvic floor muscle dysfunction.

7.3 Labia Minora

The labia minora should be evaluated carefully, as a lack of estrogen and androgen can cause them to resorb. Labial resorption is seen often in menopause but can also be seen in women on oral contraceptives, breastfeeding women, or those on medications used in breast cancer. In severe cases the labia minora may be completely fused or absent.[41]

7.4 Clitoris

At the most superior portion of the labia minora the preputial hood should be maximally retracted to allow for

inspection of the glans of the clitoris. The clitoral hood should pull back so that the corona of the glans clitoris can be seen. Absence of corona visualization may indicate clitoral adhesions (**phimosis**) which may be a sign of hormone deficiency or lichen sclerosis. Light palpation of the glans clitoris with a cotton-tipped swab should be performed to assess for pain or hypersensitivity. It is important to ask patients about pain or discomfort, which may be causing an anatomical reason for orgasmic dysfunction or clitorodynia.[42]

7.5 Urethra

Light palpation of the urethra with a cotton-tipped swab can help establish if a patient has pain directly on the urethra or on the vestibular glands just lateral to the urethra. Erythema of the urethra is often referred to as a urethral caruncle and can improve with local hormone treatments. Additional signs of hormone deficiency include urethral prolapse where the tissue has a telescoping appearance, and/or urethral polyps. Telescoping and protruding urethral tissue as well as an increase in vaginal pH may increase a woman's risk of recurrent urinary tract infection or symptoms of dysuria, frequency and urgency. [43]

7.6 Vulvar Vestibule

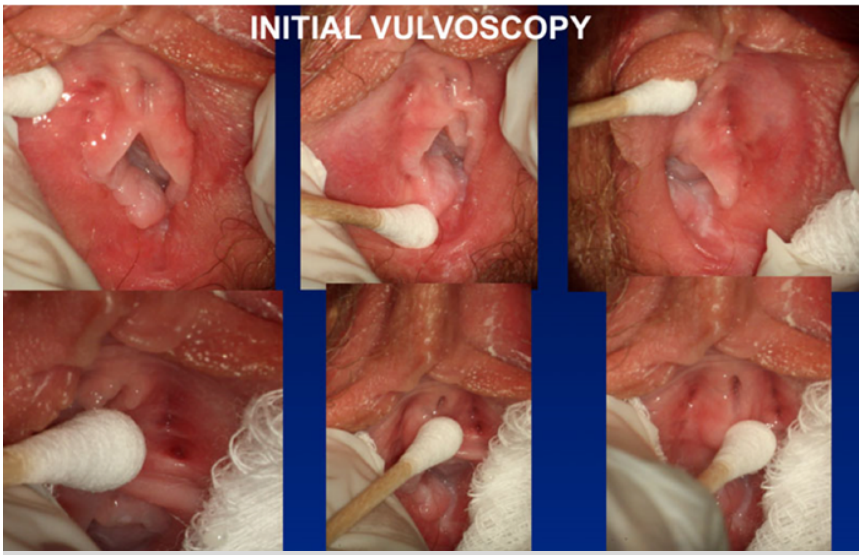

Figure 3: Vulvoscopy showing Q-tip testing of irritated and erythematous and very tender minor vestibular glands

Maximal lateral retraction of the labia minora allows for complete visualization of the vulvar vestibule. This tissue is distinct from the skin of the vulva; the epithelium of the vagina is embryologically similar to the lining of the bladder. Embryologically, the vulvar vestibule is the direct homologue to the penile urethra. The vestibule encompasses the introital opening up to the hymenal remnant, includes the urethra and the glands on either side (often called Skene's glands or minor peri-vestibular glands), as well as the inferior portion that contains the Bartholin's glands openings. This tissue is hormonally sensitive and responds to estrogens and androgens. The vestibule should be evaluated for atrophy, pallor and erythema, and should be palpated with a cotton-tipped swab systematically to evaluate for pain and establish a baseline prior to treatment (**Figure 3)**.[44]

7.7 Vagina

A vaginal speculum should be placed and the quality of vaginal tissue documented. Note should be made of any discharge, friability, and the degree of rugae. The speculum may be gently rotated 90 degrees to allow visualization of the periurethral tissue (prostate) underlying the anterior vaginal wall extending from the urethral

meatus towards the bladder neck).

7.8 Pelvic Floor

Once the internal vaginal exam is complete, the examiner should palpate the levator muscles circumferentially, assessing for tenderness and hypertonicity. The patient should be asked to squeeze and relax in order to gauge the strength of the pelvic floor muscles. Pressure can be applied to the urethra and bladder during this exam to evaluate for bladder pain symptoms. [45]

8. Conclusions

Sexual problems are common in women but frequently go undiagnosed and untreated. Clinicians should inquire about sexual health; in women who endorse sexual concerns a thorough history and focused physical examination can help elucidate factors that may be amenable to intervention using a biomedical and/or psychobehavioral approach. Treatment (or avoidance of treatment) for sexual concerns must always be tailored to the woman's personal goals and values.

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