Sexual Dysfunction, Part I: Classification, Etiology, And Pathogenesis

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Abstract: ***Background:*** **The sexual dysfunctions are extremely common but are rarely recognized by primary care physicians. They represent inhibitions in the appetitive or psychophysiologic changes that characterize the complete adult sexual response and are classified into four major categories: (1) sexual desire disorders (hypoactive sexual desire, sexual aversion disorder), (2) sexual arousal disorders (female sexual arousal disorder, male erectile dysfunction), (3) orgasmic disorders (inhibited male or female orgasm, premature ejaculation), and (4) sexual pain disorders (dyspareunia, vaginismus).**

Methods: **Articles about the sexual dysfunctions were obtained from a search of MEDLINE files from 1966 to the present using the categories as key words, along with the general key word "sexual dysfunction." Additional articles came from the reference lists of dysfunction-specific reviews.**

Results and Conclusions: **Cause and pathogenesis span a continuum from organic to psychogenic and most often include a mosaic of factors. Organic factors include chronic illness, pregnancy, pharmacologic agents, endocrine alterations, and a host of other medical, surgical, and traumatic factors. Psychogenic factors include an array of individual factors (e.g., depression, anxiety, fear, frustration, guilt, hypochondria, intrapsychic conflict), interpersonal and relationship factors (e.g., poor communication, relationship conflict, diminished trust, fear of intimacy, poor relationship models, family system conflict), psychosexual factors (e.g., negative learning and attitudes, performance anxiety, prior sexual trauma, restrictive religiosity, intellectual defenses), and sexual enactment factors (e.g., skill and knowledge deficits, unrealistic performance expectations).**

Understanding the cause and pathophysiology of sexual disorders will help primary care physicians diagnose these problems accurately and manage them effectively. (J Am Board Fam Pract 1992; 5:51-61.)

Sexual dysfunctions are exceptionally common but infrequently recognized. The classic "Content of Family Practice" study from the Department of Family Practice, Medical College of Virginia[1] recorded sexual dysfunctions rarely. Other investigators, however, have reported that sexual problems can occur in 50 percent of all marriages[2] and that they are present in 75 percent of couples who seek marital therapy.[3,4] Moore and Goldstein[5] found that 56 percent of patients in a family practice reported one or more sexual problems, but these problems were recorded in only 22 percent of the cases. In one of the most cited prevalence studies, Frank and colleagues[6] surveyed well-adjusted couples with high marital satisfaction and found that 63 percent of the women and 40 percent of the men experienced a specific sexual dysfunction, and an even higher percentage (77 percent of the women and 50 percent of the men) reported general "sexual difficulties."

Because many sexual problems are hidden, primary care physicians need to help discover them. Once discovered, to manage these disorders effectively, physicians must understand their cause and pathogenesis; evaluate them thoroughly by history, physical examination, and laboratory testing; initiate management; and refer to other appropriate professionals when necessary.

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Classification of Sexual Dysfunctions

Inhibitions in the appetitive or psychophysiologic changes that characterize the complete adult sexual response are at the heart of the sexual dysfunctions. They are not usually diagnosed, however, if they occur exclusively during the course of an-

other psychiatric disorder, such as a major depression or an obsessive compulsive disorder.

The complete sexual response cycle consists of four phases: appetitive, excitement (arousal), orgasmic, and resolution. The appetitive phase involves sexual fantasies and a desire for sexual activity. During the excitement phase, in addition to a subjective sense of sexual pleasure, men experience penile tumescence and erection, and secretions appear from the bulbourethral glands. Women experience pelvic vasocongestion, vaginal lubrication, swelling of the external genitalia, narrowing of the outer third of the vagina by increased pubococcygeal muscle tension and vasocongestion, vasocongestion of the labia minora, breast tumescence, and lengthening and widening of the inner two-thirds of the vagina. Sexual pleasure peaks during the orgasmic phase and is accompanied by the release of sexual tension and rhythmic contraction of the perineal and pelvic reproductive organs. In men, a sensation of ejaculatory inevitability precedes the contractions in the prostate, seminal vesicles, and urethra that results in seminal emission. In women, contractions occur in the outer third of the vaginal wall. During resolution, both men and women feel relaxed and free from muscular tension. Men are temporarily refractory to further erection and orgasm, but women can respond almost immediately to additional stimulation.

Inhibitions in the sexual response cycle can occur at one or more of these phases, although only the first three are of primary clinical significance. The major dysfunctions are classified and defined as follows[7]:

Sexual desire disorders include (1) hypoactive sexual desire disorder, characterized by deficient or absent sexual fantasies and desire for sexual activity; and (2) sexual aversion disorder, defined as extreme aversion to and avoidance of genital contact with a sexual partner.

Sexual arousal disorders include (1) female sexual arousal disorder, characterized by failure to attain or maintain the lubrication-swelling response of sexual excitement until completion of the sexual activity or by lack of a subjective sense of sexual excitement and pleasure during sexual activity; and (2) male erectile disorder, marked by failure to attain or maintain erection until completion of sexual activity or by lack of a subjective

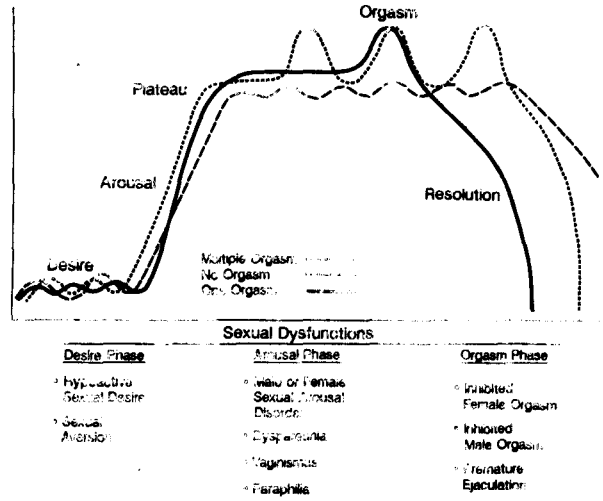

Figure 1 The sexual response cycle, with several normal patterns and the common dysfunctions classified by the phase that they affect.

sense of sexual excitement and pleasure during sexual activity.

Orgasm disorders include (1) inhibited male and female orgasm, characterized by delayed or absent orgasm following a normal sexual excitement phase that is adequate in focus, intensity, and duration; and (2) premature ejaculation, defined as ejaculation with minimal sexual stimulation or before, upon, or shortly after penetration and before the man wishes it.

Sexual pain disorders include (1) dyspareunia, characterized by genital pain in either sex before, during, or after sexual intercourse that is not caused exclusively by lack of lubrication or vaginismus; and (2) vaginismus, defined as involuntary spasm of the musculature of the outer third of the vagina that interferes with coitus.

Figure 1 summarizes these sexual dysfunctions according to the phase of the sexual response cycle that they affect. It also depicts several normal response patterns.

Cause and Pathophysiology

The sexual dysfunctions have both organic and psychogenic causes. A specific dysfunction can be mostly psychogenic, mostly organic, or mixed. Dysfunctions can be lifelong (primary) or acquired (secondary), generalized (occurring in any situation or with any partner) or situational (limited to certain situations or partners), and complete or partial in severity.

General Causative Factors

Organic Factors

Organic problems affect all phases of the sexual response cycle. According to current estimates, the cause of at least 50 percent of erectile dysfunction cases is primarily organic,[8] with some estimates ranging as high as 75 to 85 percent.[9] Thirty percent of surgical procedures on the female genital tract result in temporary dyspareunia, and 30 to 40 percent of the women seen in sex therapy clinics for dyspareunia have pathologic pelvic conditions.[9,10] The common general organic factors that affect sexual function include chronic illness, pregnancy, pharmacologic agents, endocrine alterations, and chemical abuse. A variety of other medical, surgical, and traumatic factors can be implicated in specific dysfunctions.

The degree to which chronic illness interferes with sexual function depends on the type of chronic illness, the age of onset with regard to sexual maturation, and whether the illness was recognized before the current relationship.[11] Congenital illnesses and illnesses that begin before or during puberty have a greater impact on the course of sexual development. The more visible the problem, the more it will interfere with sexual development. Relationships that begin before the onset of a chronic illness are more affected by the illness because they require a greater number of difficult adjustments.[11]

Pregnancy affects sexual desire in different ways.[12,13] In the first trimester, nausea, fatigue, and the fear of miscarriage interfere with sexual desire. In the last trimester, increasing size and a perception of decreasing attractiveness, along with a focus on the well-being of the infant and on enduring labor and delivery, decrease sexual desire. During the middle trimester, increasing pelvic vasocongestion and an overall feeling of well-being facilitate sexual responsiveness.

Pharmacologic agents interfere with sexual functioning through several mechanisms.[14] Some cause adrenergic inhibition.[15,16] Drugs that alter the neurotransmitter norepinephrine by blocking α-adrenergic receptors, by depleting norepinephrine stores, or by blocking norepinephrine release can cause sexual dysfunction by altering emission or ejaculation. Adrenergic antagonists include such drugs as guanethidine, reserpine, methyldopa, clonidine, prazosin, and phenoxybenzamine.

Drugs that sedate and depress the central nervous system adversely affect sexual functioning by decreasing libido and altering potency, perhaps by increasing brain serotonin and decreasing dopamine levels.[15,17-19] Depressants include alcohol, cannabis, barbiturates, and benzodiazepines, as well as antihypertensive and anticonvulsant medications that have sedating properties.

Increased prolactin levels reduce the responsiveness of the male gonads to leutinizing hormone, thereby inhibiting testosterone production.[15,19-23] Some drugs can cause increased prolactin release through dopaminergic antagonism (e.g., phenothiazines, thioxanthenes, butyrophenones). Other drugs, such as cimetidine and narcotics, increase prolactin levels through mechanisms that are incompletely defined. Some drugs have antiandrogen effects.[15,24-26] The aldosterone antagonist spironolactone causes estrogenlike side effects with decreased libido, impotence, and gynecomastia in men and painful breast enlargement and menstrual irregularity in women. It likely causes these effects by inhibiting dihydrotestosterone binding to its cytosol protein receptor. Alcohol also decreases testosterone levels, perhaps by peripheral suppression of testosterone production in the testes. Oral contraceptives can decrease libido in women by decreasing estrogen levels. Progesterone is thought to suppress sexual activity in some women because of an antiandrogen effect.

Anticholinergic agents, or drugs with atropinelike actions, can cause sexual problems (chiefly arousal difficulties) secondary to their parasympatholytic activity.[15,27-29] These agents include antiparkinsonian drugs, tricyclic antidepressants, many antipsychotic agents, antihistamines, antiemetics, antivertigo drugs, and the antiarrhythmic disopyramide.

Various mechanisms are proposed to explain the sexual dysfunction associated with drugs that do not appear to fit the other categories.[15,19,30-38] Examples include decreasing receptor sensitivity to dopamine or a decrease in its intraneuronal turnover (lithium) and peripheral vasoconstriction or sympathetic blockade (propranolol).

The specific drugs that are associated with sexual dysfunction and the dysfunctions associated with each are listed in Table 1. The particular effect of any drug on a patient will vary depending on such factors as age, absorption, body

Table 1. Pharmacologic Agents Associated with Sexual Dysfunction.*

Drug	Phase of Sexual Response Cycle Affected (+) or Not Affected (–)		
	Desire	Arousal (erection)	Orgasm (ejaculation)
Antianxiety			
Alprazolam	–	–	+
Clorazepate	+	–	+
Chlordiazepoxide	+	–	+
Diazepam	+	–	+
Anticholinergic			
Atropine	–	+	–
Benztropine	–	+	–
Glycopyrrolate	–	+	–
Mepenzolate	–	+	–
Methantheline	–	+	–
Propantheline	–	+	–
Scopolamine	–	+	–
Trihexyphenidyl	–	+	–
Anticonvulsant			
Carbamazipine	–	+	–
Phenytoin	+	+	–
Primidone	+	+	–
Antidepressant			
Heterocyclic			
Amitriptyline	+	+	+
Amoxapine	+	+	+
Clomipramine	+	+	+
Desmethylimipramine	+	+	+
Doxepin	+	+	+
Imipramine	+	+	–
Maprotiline	+	+	+
Nortriptyline	+	+	+
Protriptyline	+	+	+
Trazodone	–	–	–
Monoamine oxidase inhibitor			
Carboxazid	–	+	+
Fluoxetine	–	+	+
Pargyline	–	+	+
Phenelzine	–	+	+
Tranylcypromine	–	+	+
Antihistamine			
Cyproheptadine	+	+	–
Diphenhydramine	+	+	–
Hydroxyzine	+	+	–
Antihypertensive			
Diuretic			
Amiloride	+	+	–
Furosemide	–	+	–
Indapamide	+	+	–
Spironolactone	+	+	–
Thiazide	+,–	+	+,–
Centrally acting sympatholytic			
Alpha-methyldopa	+	+	+
Clonidine	+	+	+
Guanfacine	+	+	–
Reserpine	+	+	+
α-Adrenergic blocker			
Guanabenz	–	+	–
Guanadrel	+	+	+
Phenoxybenzamine	–	+,–	+
Phentolamine	–	+,–	+
β-Adrenergic blocker			
Labetalol	+	+	+
Metoprolol	–	+,–	–
Pindolol	–	+	–
Propranolol	+	+	–
Timolol	+	+	–
Ganglionic blocker			
Mecamylamine	–	+	+
Trimethaphan	–	+	+
Sympathetic neuroeffector agent			
Guanethidine	+,–	+	+
Nonadrenergic vasodilator			
Hydralazine	+,–	+	–
Prazosin	+,–	+,–	–

Continued

Table 1. Continued.

Drug	Phase of Sexual Response Cycle Affected (+) or Not Affected (–)		
	Desire	Arousal (erection)	Orgasm (ejaculation)
Angiotensive converting enzyme inhibitor			
Captopril	–	+	–
Enalapril	–	+	–
Lisinopril	+	+	–
Calcium channel blocker			
Diltiazem	–	+	–
Nifedipine	–	+	–
Verapamil	–	+	–
Antimicrobial			
Ethionamide	–	+	–
Ketoconazole	–	+	–
Antipsychotic			
Chlorpromazine	+	+	+
Chlorprothixene	–	–	+
Fluphenazine	+	+	–
Haloperidol	+,–	+	+
Mesoridazine	–	–	+
Perphenazine	–	–	+
Pimozide	+	+	+
Thioridazine	+	+	+
Thiothixene	–	+	+
Trifluoperazine	–	–	+
H_2-receptor antagonist			
Cimetidine	+	+	–
Famotidine	+	–	–
Ranitidine	+	+	–
Hormone			
Danazol	+	–	–
Hydroxyprogesterone	–	+	–
Norethindrone	+	+	–
Oral contraceptives	+	–	–
Progesterone	+	+	–
Narcotic			
Codeine	+	+	+
Heroin	+	+	+
Meperidine	+	+	+
Methadone	+	+	+
Morphine	+	+	+,–
Propoxyphene	+	+	+
Sedative-hypnotic			
Alcohol	+,–	+	+
Barbiturates	+,–	+	+
Chloral hydrate	+	+	+
Ethchlorvynol	+	+	+
Methaqualone	+	+	+
Other agents			
Acetazolamide	+	+	–
Aminocaproic acid	–	–	+
Amiodarone	+	–	–
Amphetamines	–	+	+
Baclofen	+	+	–
Cannabis	+	+	–
Cocaine	–	+	+
Clofibrate	+	+	–
Digitalis	+,–	+	–
Disopyramide	–	+	–
Disulfiram	–	+	+
Fenfluramine	+	+	–
Interferon	+	+	–
Levodopa	–	–	+
Lithium	–	+	–
Mazindol	–	+	+
Methandrostenolone	+	–	–
Methazolamide	+	+	–
Metoclopramide	+	+	–
Metyrosine	–	+	+
Mexiletine	+	+	–
Naltrexone	–	+	+
Naproxen	–	+	+
L-Tryptophan	+	+	–

weight, dosage, duration of use, rates of metabolism and excretion, presence of other drugs, underlying disorders, patient compliance, and suggestibility.

Based on current research, it is unlikely that hormonal fluctuations during the menstrual cycle play a significant role in sexual dysfunction.[11,39] The combination of somatic and emotional symptoms that some women experience during menses, however, can result in sexual disinterest and arousal difficulty. Furthermore, menstruation can affect sexual function because of religious teachings, taboos, sexual ignorance, fears of displeasing one's sexual partner, or simple esthetics rather than because of physiologic factors.[11]

A number of commonly abused chemical agents also cause sexual dysfunction. Alcohol is associated with decreased libido and erectile difficulty.[14,15,40] Marijuana also can decrease libido and cause erectile difficulty.[14,15] Phencyclidine hydrochloride (PCP) can cause erectile and ejaculatory failure.[14,41] Cocaine is associated with sexual indifference, dysphoria, aggressiveness, situational impotency, and anorgasmia.[14,42] Heroin users also experience reduced sexual desire, erectile dysfunction, and anorgasmia.[14,43] Methadone and amphetamines reportedly decrease sexual performance.[14,44,45] Tobacco abuse results in sexual dysfunction primarily through its adverse effects on the vascular system.[14]

Androgens play an important role in the libido of both men and women. Androgen deficiency can result from panhypopituitarism,[46] combined bilateral adrenalectomy and ovariectomy in women, or castration in men. Hyperprolactinemia caused by a prolactin-secreting pituitary tumor has been associated with sexual dysfunction.[47] The mechanism responsible is not clearly defined but may relate to hypogonadism secondary to prolactin-induced hypogonadotropism. Both hypothyroidism and hyperthyroidism can also cause sexual dysfunction.[8,48]

Psychosexual Factors

Sexual dysfunctions are invariably multidetermined; a single cause is rare.[49,50] Even when an organic factor is present, it is essential to treat the principal psychological factors that can complicate the organic problem or that could have resulted from it. Three areas of psychological focus are important: individual psychological determinants, relationship issues, and psychosexual factors.

Empirical studies have linked many individual psychological factors with sexual dysfunction.[51] Depression[52] and anxiety[2,53,54] are most common. Diminished self-esteem,[55] frustration, guilt, hypochondria, sexual fear, hostility or anger,[54,56] unrealistic expectations or perfectionism,[57] intrapsychic conflicts (such as grief, unresolved sex orientation, concerns about paraphilic arousal patterns[54]), and serious psychopathologic disorders also contribute. Depression and anxiety are considered generic causes of sexual dysfunction, but they also commonly occur as consequences of sexual dysfunction[58]; therefore, determining causality can be challenging. As a general rule, severe depression or anxiety is more likely causative; mild forms more commonly represent the impact of sexual failure.

Sexual and relationship factors can interact in several ways.[59] Relationship problems can cause sexual dysfunction, organic sexual dysfunction can precipitate relationship distress, or the two factors can exist independently. Recognizing that sometimes there is no clear relation between sex and marital problems is important. Some couples with serious marital dysfunction appear to have a satisfactory sexual relationship. The reverse is also true. The most common relationship factor that causes sexual dysfunction, however, remains marital dissatisfaction[60] involving relationship problems that generate stress, fatigue, or dysphoria. Dissatisfaction can focus on poor communication,[53,54] unrealistic marital expectations,[61] failure to resolve relationship conflict,[53,61,62] diminished trust,[54] fears of intimacy or romantic success,[54,63] a history of poor relationship modeling that is transferred to the marriage, family system distress (such as caring for an elderly relative or preschool and school-age children), sex role conflicts, divergent sexual preferences or sex values, career problems, and legal troubles.

The most common psychosexual factors causing sexual dysfunction are prior sexual failure (often at first intercourse), chronic sexual performance inconsistency, negative learning and attitudes about sex,[2,64] and prior sexual trauma.[2,54] Other identified factors include sexual guilt and shame,[65,66] unrealistic expectations about sexual performance,[67] restrictive religiosity,[2] sexual performance anxiety generated by fears of failure or

perceived performance demands from a partner,[2] interpersonal insensitivity,[58] intellectual defenses (such as denying sexual arousal and detachment from sensual pleasure),[54] sexual identity conflict,[68] sexual orientation issues, and a parent-child relationship history filled with conflict.

Other sexual disorders sometimes underlie sexual dysfunctions, especially in men. For example, gender dysphoria or paraphilia (e.g., transvestism, voyeurism, pedophilia) in some cases manifests as erectile dysfunction or inhibited orgasm. Current evidence suggests that these factors are more common than previously thought.[69]

In some cases, sexual dysfunction is caused by deficient skill and knowledge about sexual physiology and sexual stimulation or by unrealistic performance expectations. For example, a potential cause of erectile dysfunction can be inadequate physical stimulation to the penis. Female dyspareunia can be caused by insufficient foreplay to cause arousal, overly aggressive digital or penile penetration, or an unfavorable pelvic position for intercourse.

Dysfunction-Specific Factors

Sexual Desire Disorders

Hypoactive sexual desire disorder is common (40 percent) for both men and women, complicated in its origin, and difficult to treat.[50,70,71] Common organic problems associated with loss of desire include chronic illness, thyroid disorders, disfiguring trauma, congenital disfigurement, and pituitary disorders. Libido loss can be profound in hypopituitarism. In women, early pregnancy should also be considered.

In severe forms, such as sexual aversion, the cause is commonly rooted in developmental factors (often sexual trauma), family-of-origin conflicts, or serious individual psychopathology. In less severe cases, lack of sexual desire can accompany a major depression, relationship issues, or negative beliefs about sex. Some cases involve loss of desire in a specific situation only and are relatively uncomplicated.

Because loss of sexual interest is a symptom diagnostic of depression, the diagnosis of sexual desire disorder is complicated. When events are present that clearly make a reactive or anticipatory depression diagnosis appropriate, the depression should be treated presuming that sexual desire will return. Other individual factors include primary sexual identity dysphoria, sexual orientation conflict, negative sexual learning, and sexual trauma.

Learning conflicts about sex create an emotional double bind for some patients with a hypoactive sex drive. Mixed messages about sex often originate with parents, religious instruction, and society in general. Young people are praised for appearing sexually attractive but chastised for behaving sexually. Negative sexual experiences can create feelings of disregard, avoidance, or even repugnance, and avoidance behavior can result from fears of sex related to problems of infectious disease, exploitation, and control. "Anti-fantasies,"[54] a focus on negative aspects of sex, are common also.

Loss of sexual interest commonly blunts relationship affect, often generalizes to other feelings, and can signal important marital distress. The most common relationship issues in sexual desire disorders are unresolved conflict and disappointment that lead to subsequent anger, hidden resentment, and unconscious alienation. Covert resentment in overly conventionalized, attractive, adaptive couples can manifest itself in lost "passion" or desire. In other couples, sex is withheld or used to exploit, control, or manage the partner to negotiate other desires. Anger, fear of intimacy, commitment, or sexual success (with resultant shame), and emotional fatigue are other relationship factors that decrease desire.

Research documents that men and women with a normal sex drive perceive their parents' attitudes toward sex and their parents' affectionate interaction with each other as more positive than do those with hypoactive sexual desire.[11] Parental attitudes and modeling can be latent predisposing factors that influence sexual interest in later life. Incestuously eroticized relationships with the parent of the opposite sex, exposure to parental conflict, and failure to introject the sex role of the same-sex parent are also adverse influences.

Sexual Arousal Disorders

Organic origins of male sexual impotence include more than 100 distinct entities. The major disorders are listed in Table 2. Organic origins of female sexual arousal disorders have not been studied as extensively. Many of the same factors, however, might be important, e.g., chronic cardiovascular and neurologic disorders; pituitary,

Table 2. Medical Problems Associated with Erectile Disorders.

Category	Condition or Disease
Cardiovascular	Atherosclerosis, arteritis, arterial thrombosis, arterial embolism, aortic aneurysm, the Leriche syndrome, cardiac failure
Endocrine	Pituitary problems (e.g., acromegaly, chromophobe adenoma, craniopharyngioma, pituitary destruction, hyperprolactinemia), adrenal problems (Addison disease, the Cushing syndrome), thryroid problems (hyperthyroidism, hypothyroidism), gonadal dysfunction (castration, postinflammatory fibrosis, exogenous estrogens, feminizing interstitial-cell tumor), diabetes mellitus, the Fröhlich syndrome
Genetic	The Klinefelter syndrome, the male Turner syndrome, congenital vascular or structural abnormalities (extrophy, epispadias, hypospadias, spermatocele, varicocele)
Hematologic	Anemia, leukemia, immunologic disorders, sickle cell disease
Hepatic	Cirrhosis (usually alcoholic)
Infectious	Urethritis, prostatitis, seminal vesiculitis, cystitis, gonorrhea, tuberculosis, elephantiasis, mumps orchitis
Neurologic	Multiple sclerosis, myasthenia gravis, Parkinson disease, amyotrophic lateral sclerosis, stroke, central nervous system (CNS) tumors, CNS infections (especially of the temporal lobe), trauma (head, spinal cord), spinal cord compression (disc, tumor, abscess, spinal stenosis), tabes dorsalis, temporal lobe epilepsy, spina bifida, syringomyelia, subacute combined degeneration of the spinal cord, peripheral neuropathy, cerebral palsy, electroconvulsive therapy, transverse myelitis
Nutritional	Malnutrition, vitamin deficiencies, morbid obesity
Poisoning	Lead, herbicide
Pulmonary	Respiratory failure
Renal and urologic	Peyronie disease, priapism, urethral stricture, chronic renal failure
Surgical	Perineal prostatectomy, perineal prostatic biopsy, suprapubic and transurethral prostatectomy, abdominal aortic aneurysmectomy, aortofemoral bypass, retroperitoneal lymphadenectomy, sympathectomy (lumbar, dorsal, pelvic), cystecomy, abdominoperineal resection, external sphincterotomy
Traumatic	Pelvic fracture, urethral rupture, penectomy
Other problems	Radiation therapy, any severe or debilitating systemic problem

adrenal, and thyroid disorders; hematologic, hepatic, pulmonary, and renal disorders; and pelvic surgery, trauma, or infection.

Diabetes mellitus deserves special mention as the most common medical disorder causing male sexual impotence. Between 30 and 60 percent of all diabetic men will develop erectile dysfunction.[48,72] Impotence can occur as the presenting symptom of diabetes, as a complication of the disease, or as a transient phenomenon during periods of poor control.[73] There is no apparent correlation between impotence and the severity of diabetes, the duration of the illness, or the type or amount of hypoglycemic medication.[73] Prevalence rates of 25 to 30 percent are reported among diabetics in their 20s and 30s up to 50 to 70 percent in diabetic men aged > 50 years.[73] Most investigators believe that the erectile dysfunction in diabetes mellitus is caused principally by the autonomic neuropathy and the macrovascular and microvascular changes that result from the disease.[74]

While most research exploring the psychological causes of sexual dysfunction has examined inhibited excitement in men, many clinicians assume that the findings apply to women as well. Further research on female arousal disorders is needed to establish whether this assumption is warranted.

Depression again is a common factor inhibiting the arousal phase of the sexual response cycle by psychologically "numbing" the body and sensuality.[75] By inhibiting arousal, depression causes difficulty with erections for men and problems with lubrication and emotional involvement for women. Anxiety can also interfere with sexual arousal. It is most common as performance anxiety, the pressure to perform, to please one's partner, or to succeed sexually as a medium for proving sexual and personal adequacy. Personal deficits in knowledge and perception can contribute to arousal disorders by creating a set of impossible expectations, which create a failure mentality that predictably results in an inhibited performance. Self-prophesied sexual failures then invariably lead to cognitive interference (a series of identifiable negative thoughts and judgments) that creates anxiety and detaches people from the sensual experience of sexual arousal.

Pressures from the partner can exacerbate the individual pressures just described. Some persons express ambivalence toward their partner, an ambivalence that might reflect marital dysfunction. Others choose partners in whom they are less interested as a defensive protection from personal rejection. Conjoint adherence to the expectations that sex should always "work," be "spontaneous," and conform to other societal standards is invariably involved in arousal dysfunctions. In some cases, conflict with one's social sex role, nonacceptance of the other sex, and relationship factors such as anger, resentment, frustration, disap-

pointment, and fear of intimacy, sexual success, or rejection are causative. In a few cases, fears of hurting the partner, of pregnancy, and of sexually transmitted disease are important.

Cultural guilt about sex, prior failures, and sexual trauma inhibit arousal in some patients, as can negative attitudes toward sexuality that are learned in the family of origin, Oedipal problems, and unresolved interpersonal conflicts with family members.

A common cause of male erectile dysfunction is the man's efforts to resolve a more profound problem of premature ejaculation by literally inhibiting arousal to the point that the inhibition causes difficulty with erection.

Orgasm Disorders

Both men[76] and women[77] can experience delayed or absent orgasm. To date, no common organic causes of primary inhibited orgasm are identified other than pharmacologic agents; therefore, psychological causes are implicated. Partial inhibition for both men and women is manifest by distress with the amount of time and effort needed to achieve orgasm, unreliability at reaching orgasm, or deficient subjective pleasure. Immediate psychological causes involve obsessive self-observation during sex, unresolved marital conflict, inability to abandon oneself to pleasure, or insufficient stimulation for orgasm. More remote causes include chronic hostility toward the opposite sex, post-traumatic stress reaction, sexual guilt or conflicting beliefs about the adult male or female role, family-of-origin issues such as loyalty to the family's sexual values (sex as bad), or placing limited value on sex (procreation only).

Organic conditions are rarely implicated as a cause of premature ejaculation. Surgical trauma to the sympathetic nervous system during surgery for aortic aneurysm, pelvic fracture, local genital disease, such as prostatitis and urethritis, and drug withdrawal from narcotics or trifluoperazine have all been associated with premature ejaculation.

Premature ejaculation often starts with ignorance or inappropriate social learning. Men's first sexual experiences are often accompanied by anxiety. Ejaculation comes quickly. This pattern of quick ejaculation can become habitual in men with premature ejaculation. The man's sexual focus is often directed toward the partner's body rather than his own. Thus, he rarely learns the more detailed aspects of his own sexual response. This inattention results in failure to perceive the erotic sensations that precede orgasm and, therefore, failure to control the arousal and ejaculatory response.

In addition to the individual frustration of fearing that he cannot control ejaculation, the man with premature ejaculation worries about disappointing his partner, partner misunderstanding and rejection, and appearing unmanly. In some men, premature ejaculation is the manifestation of a narcissistic personality where only the man's pleasure is pursued. In this case, the premature ejaculation is perceived as a problem by the partner but not by the man involved.

Sexual Pain Disorders

Dyspareunia is associated with many organic factors.[9,78,79] Gynecologic factors include a rigid hymen, painful hymeneal tags, hymeneal fibrosis, episiotomy scars, urethral carbuncle, Bartholin cyst, clitoral inflammation and adhesions, vulvar lesions, arousal-induced adhesive vaginal bands, vaginal atrophy, vaginal stenosis, vaginal infections, radiation vaginitis, the Sjögren syndrome, pelvic relaxation syndrome, endometriosis, pelvic inflammatory disease, pelvic tumors, pathologic conditions caused by childbirth, ectopic pregnancy, and allergic reactions to contraceptive materials, douches, or deodorant sprays. Dyspareunia has also been associated with cystitis and acute urethral syndrome. Gastrointestinal associations include constipation, hemorrhoids, proctitis, and moderately severe to severe irritable bowel syndrome.[80]

In men, dyspareunia is associated with structural abnormalities of the penis, Peyronie disease, priapism, urethral stricture, previous genital surgery, or genital infections.

Many psychological factors are associated with the sexual pain disorders. Cognitive-behavioral and social learning theory research[81] supports such variables as anxiety about intercourse based on misinformation; fear of pain based in childhood learning or memories of distressing early sexual experiences; guilt about intercourse and pleasure; fear of penetration; dislike of the partner; anger at the partner; feelings of shame, guilt, or tension associated with new sexual situations; and inept precoital male stimulation and technique. Primary dyspareunia more commonly in-

volves ignorance, faulty information, a post-traumatic stress history, and intrapsychic issues, whereas relationship problems more often result in secondary dyspareunia. Classical psychoanalytic theory considers this dysfunction a conversion symptom or histrionic manifestation, conceptualized as the symbolic expression of a specific unconscious, intrapsychic conflict.

Summary

Sexual dysfunction is an unusually common but infrequently recognized problem in primary care. The usual method of classification categorizes the dysfunctions based on the part of the normal sexual response cycle that they affect. Consequently, there are sexual desire disorders (hypoactive sexual desire and sexual aversion), sexual arousal disorders (female arousal disorder and male erectile disorder), orgasm disorders (inhibited female orgasm, inhibited male orgasm, and premature ejaculation), and sexual pain disorders (dyspareunia and vaginismus). The cause of sexual dysfunction is complex, involving an interplay of organic, psychogenic, and relationship variables. General organic problems include chronic illness, pregnancy, pharmacologic agents, endocrine alterations, and a host of other dysfunction-specific medical, surgical, and traumatic factors. Psychogenic issues include a variety of general individual, relationship, and psychosexual concerns, as well as developmental factors and family-of-origin concerns. In some cases, the dysfunction is caused by inadequate skill and ignorance about sexual anatomy and physiology or unrealistic performance expectations.

Because of the complex mosaic of biopsychosocial factors and the impact of sexual disorders on the family system, the sexual dysfunctions are very much part of the family physician's practice domain. As family physicians understand more about these problems, they will become better equipped to identify them and to manage them independently, with consultation, or by referral.

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