CHAPTER 9

LOW SEXUAL DESIRE IN WOMEN AND MEN

While something is known about how to generate sexual desire—for example, creation of a new intimacy in a conflicted relationship, education in how to sexually stimulate one another, and provision of permission to engage in sensuous activity—the therapist knows far less than the patient thinks about how to catalyze the appearance of (sexual desire) . . . A sexual desire problem begins as a mystery to both patient and doctor. . .

LEVINE, 1988[1]

THE PROBLEM

A 35-year-old woman described a concern that from the time of her marriage seven years ago until the delivery of her 2½ year old child, she became depressed and irritable the week before her menstrual periods and also lost all interest in anything sexual during that time—thoughts, feelings, or activities. This contrasted with her "normal" sexual desire at other times, which she felt were a rich part of her personal life experience and relationship with her husband. She was sexually active and interested during her pregnancy but since the delivery ceased to be interested in anything sexual. Her husband was distressed and she missed the sexual feelings that had been so important to her in the past.

A 45-year-old man was seen with his 41-year-old wife. They had been married for 17 years. Eleven years before, she developed a bipolar illness and had periods of depression and mania. She was sexually involved with other men on an indiscriminate and impulsive basis during her manic episodes. The couple had no sexual difficulties during the years of their marriage before the onset of her illness but the lack of sexual interest by the husband had become increasingly evident during the previous decade. His loss of sexual desire did not, for example, extend to looking at other women he considered attractive nor to masturbating several times each week when he was alone. He could not explain his diminished sexual interest in his wife. He clearly proclaimed his continuing love for her and his feeling that her sexual liaisons with other men held little meaning.

TERMINOLOGY

Various words and phrases are used as synonyms for sexual desire, including libido,[2] interest, drive, appetite, urge, lust, and instinct. Low sexual desire is variously referred to as: "sexual apathy," "sexual malaise," and "sexual anorexia"[3] (p. 315). For consistency

with the DSM system and the wording in most literature sources, the term "sexual desire" is used here.

PROBLEMS IN THE DEFINITION OF SEXUAL DESIRE

Sexual desire disorders are enigmatic and difficult to know how to approach therapeutically, and the entire concept of sexual desire provokes some critical questions, as follows:

- What is "normal" sexual desire? Is it on a bell-shaped curve where, like height or weight, some people have a lot, some people have a little, and most people are in the middle? Kinsey and his colleagues attempted to answer this question in saying ". . . there is a certain skepticism in the profession of the existence of people who are basically low in capacity to respond. This amounts to asserting that all people are more or less equal in their sexual endowments, and ignores the existence of individual variation. No one who knows how remarkably different individuals may be in morphology, in physiologic reactions, and in other psychologic capacities could conceive of erotic capacities (of all things) that were basically uniform throughout a population"[4] (p. 209). Zilbergeld and Ellison suggest that "To say that there is more or less of something . . . necessitates a standard of comparison . . . But there are no standards of sexual desire; we do not know what is right, normal, or healthy, and it seems clear that such standards will not be forthcoming"[5] (p. 67). In a clear and practical, but somewhat contrary, statement, LoPiccolo & Friedman offered the view that "In actual clinical practice . . . most cases [of sexual desire disorders] are so clearly beyond the lower end of the normal curve that definitional issues become moot"[6] (p. 110).
- Is sexual desire the same for men as for women? Bancroft thought not. He speculated "that there may be a genuine sex difference in hormone-behavior relationships, with men showing consistent androgen/behavior relationships across studies (particularly androgen/sexual interest relationships), whereas in women 'the evidence for hormone-behavior relationships is much less consistent, and often seemingly contradictory'."[7]
- Does one measure sexual desire subjectively (by thoughts and feelings), or objectively (by actions), or both? Considering only sexual actions or behavior ignores the fact that, sometimes, nonsexual motives govern sexual activity. For example, a person might engage in sexual activity to please a partner, quite apart from satisfying their own feelings of sexual desire.
- Should sexual desire disorders be classified as sexual dysfunctions as they are in DSM-IV?[8] Are they really on the same level as, for example, physiological difficulties such as erection and orgasm problems, or do they represent a totally different category of sexual disorders? Some patients distinguish the two by

Some patients explain that (1) erection and orgasm problems are like automobile engine troubles and (2) that desire difficulties are more like a problem with the starter in that the engine simply does not turn over.

using the ubiquitous North American symbol of the car, explaining that erection and orgasm problems are like engine troubles, whereas a desire difficulty is more like a problem with the starter in that the engine simply does not turn over.

CLASSIFICATION OF SEXUAL HYPOACTIVE DESIRE DISORDERS

Disorders of sexual desire are classified in DSM-IV as "Sexual Desire Disorders." (SDD).[8] This category contains two conditions:

- Hypoactive Sexual Desire Disorder (HSDD or HSD)
- Sexual Aversion Disorder (SAD)

DSM-IV-PC summarizes the criteria for the diagnosis of HSD as: "persistently or recurrently deficient (or absent) sexual fantasies and desire for sexual activity that causes marked distress or interpersonal difficulty" (p. 115), and criteria for SAD as: "(A) persistent or extreme aversion to, and avoidance of, any genital contact with a sexual partner, causing marked distress or interpersonal difficulty" and "(B) the disturbance does not occur exclusively during the course of another mental disorder . . ."[9](p. 116).

The separation of SDDs into two groupings began with DSM-III,[10] and while Sexual Aversion Disorder has received some attention in the literature, it has not been the subject of much research.[9]

HSD, the focus of this chapter, is often not clinically distinguished from other problems with sexual function seen in primary care settings. Separating the two phenomena and determining the chronology of appearance (i.e., whichever developed first) may be extremely important clinically in considering etiology and treatment.

The assessment of low sexual desire is outlined in Figure 9-1.

SUBCLASSIFICATION OF HYPOACTIVE SEXUAL DESIRE DISORDERS: DESCRIPTIONS

Sexual Desire Discrepancy

Identical levels of sexual desire in two people rarely occur. Usually both are interested but one person is more interested than the other. Couples generally "work out" different sexual appetites by mutual acceptance and compromise (or "negotiation").

Although not categorized as a "disorder" in DSM-IV[8] or DSM-IV-PC,[9] one of the ways that a sexual desire problem becomes apparent is when two partners are sexually interested but not at the same level. Identical levels of sexual desire in sexual partners rarely occur. More usual is the fact that both are interested but one person is more interested than the other. Couples generally "work out" different sexual appetites by mutual acceptance and compromise (or "negotiation"). "Such discrepancies have much in common with other relationship difficulties—how to raise children, how often to dine out or have company in, where to spend the vacation, etc. . ."[5] (p. 68).

Occasionally, a desire discrepancy becomes a problem so that it results in a concern brought to a health professional. Couples sometimes focus on sexual problems as a way of obscuring other tensions, but then the history of the couple relationship should indicate a change in sexual interest. If the history of discrepancy dates from early in the relationship (not necessarily the beginning when "limerance" (see p. 182) may be prominent), one has to ask: why is it that these two people are unable to do what most

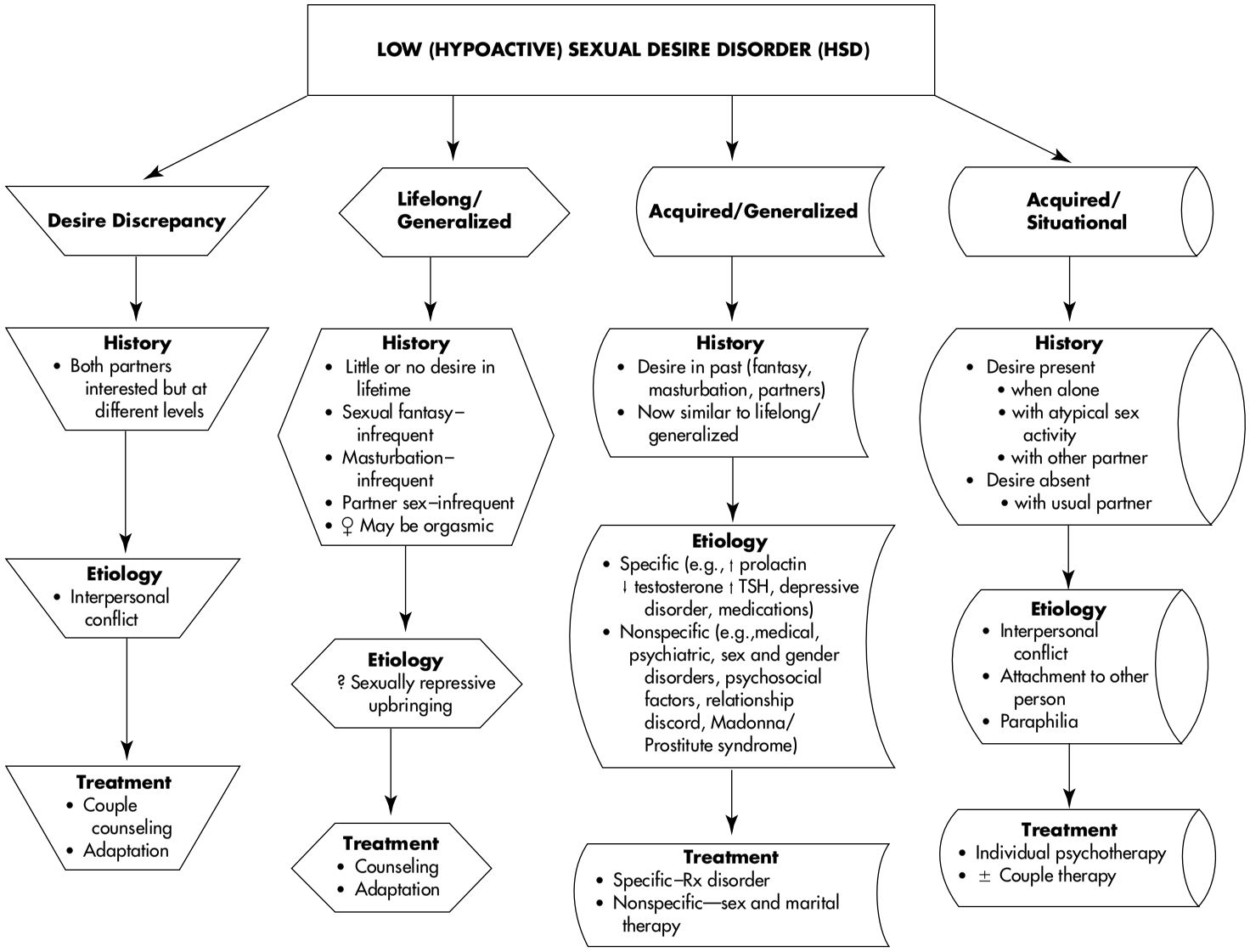

Figure 9-1 Assessment of low sexual desire disorder.

couples seem to do, that is, accept one another and compromise? The search for the answer should begin on a primary care level.

A couple in their mid-50s wanted assistance because of a difference in sexual desire. In talking with them initially together, they candidly said that this discrepancy existed since they married 30 years ago and both agreed that her desire always had been greater than his. When seen alone, he elaborated on his initial statements by saying that, indeed, there had always been a difference in the amount of sexual activity that each preferred. However, he had not been candid with her in the past about particular sexual practices which he fantasized about and, in fact, had enjoyed with other partners before they married. He anticipated resistance from her in telling her now, but, in fact, found the opposite. The quality of their sexual experiences improved greatly in the following months, even though the quantity changed little. When seen in follow-up six months later, the issue of a sexual desire discrepancy had not disappeared but there was much less concern.

Lifelong and Generalized Absence of Sexual Desire

From a clinical viewpoint, this particular form of sexual desire disorder seems to be found more frequently in women than men. The patient shows little, if any, indication of sexual appetite in thought, feeling, or action, now or in the past. Sexual experiences with a partner occur uncommonly and usually on the initiative of the other person. The patient participates out of recognition of the partner's sexual needs rather than a fulfillment of her own. Vaginal lubrication and orgasm may occur but these are not considered momentous. Masturbation to the point of orgasm might also occur occasionally but without enthusiasm. The motivation for masturbation is often other than sexual, such as wanting to diminish feelings of anxiety or as an aid to inducing sleep. Sexual dreams and fantasies are nonexistent and the patient may describe a response to *romantic* stories in books or movies but not a response to depictions of sexual activity in either. During adolescence, the women thought of herself as different from girlfriends in not being interested in boys, easily fending off sexual propositions, and hardly ever thinking about anything sexual. She sums up her present status by saying that she could live the rest of her life without "sex," and may add that the only reason she is seeking consultation is that, implicitly or explicitly, the viability of her relationship is in jeopardy.

A 27-year-old woman was engaged for six months and considering marriage. She was concerned about her lack of sexual interest and wondered if there was something wrong with her. Primarily, she wanted to know if anything could be done to alter her present sexual situation. She experimented sexually to the point of intercourse on two occasions in the past and had become sexually involved with her husband-to-be shortly after they met. It was apparent that she found these experiences to be neither pleasurable nor repellent.

As a teenager she wondered what other girls found so interesting about boys. Sexual urges were not present then or since. Her interest and energy was directed toward scholastic studies, at which she excelled. She eventually became a successful lawyer, specializing in corporate law.

In a separate interview, her fiancee indicated that while sexual experiences were important to him, he was not willing to forsake the relationship because of this difficulty. In the one-year follow-up interval, they married, and while her sexual desire had not changed, she was active from time-to-time as she sensed an increase in his sexual needs. He preferred more sexual activity but he felt as though they had adapted in other ways.

Acquired and Generalized Absence of Sexual Desire

The major difference between the *acquired* and generalized form of a sexual desire disorder and the *lifelong* and generalized form is that the present status represents a considerable change from the past. In the acquired and generalized form of HSD, the patient describes having been sexually interested and active in the past, but relates much the same feelings about "sex" in the present as the person with the lifelong form. That is, she says that in contrast to the past she does not now have sexual thoughts, fantasies, or dreams and is only infrequently sexually active with a partner or by herself through masturbation. She may also say that her interest level is such that life without "sex" does not represent a problem to her directly, although the opposite is usually true for her partner.

A 47-year-old woman, married for 23 years, described feeling diminished sexual desire since her hysterectomy five years earlier. She never experienced sexual difficulties before. Medical history revealed that she had the surgery because of excessive menstrual bleeding associated with fibroids: her ovaries were also removed and she was on hormone replacement therapy (not including testosterone) since then.

Intercourse continued after her hysterectomy but what she liked most was the closeness and affection that was part of this experience. She had little problem becoming vaginally wet when stimulated but found that intercourse ceased to be sexually gratifying. She was regularly orgasmic in the past but was not so in the present. Vaginal pain with intercourse rarely occurred but when it did it was momentary and disappeared with change in position. Testosterone was given because of her ovariectomy (see below) and she found that, as a result, her sexual desire was substantially enhanced.

Acquired and Situational Absence of Sexual Desire

The most striking feature that differentiates a *situational* desire disorder from one that is *generalized* is the continued presence of sexual desire. The sexual feelings that do exist in the present occur typically when the person is alone and manifest either in thought and/or action (through masturbation), rather than in sexual activity with the patient's

usual partner. The patient characteristically states that there are sexual themes in his or her thoughts and fantasies, and perhaps attraction to people other than the usual partner. Sexual activity with their partner is considerably less frequent than sexual thoughts in general. In addition, the present level of sexual activity often represents a substantial change from the beginning of the relationship when the frequency was much greater. However, as one reviews other relationships in the past, it may become evident that the same sequence of events occurred before. That is, the interviewer might discover that there was a pattern of initial sexual interest in a partner, followed by a gradual diminution of sexual interest, resulting in relative sexual inactivity.

The 24-year-old wife of a 29-year-old man described a concern about her husband's lack of sexual attention to her. They were married for two years. When they first met, she was relieved and pleased to find that she did not have to fend him off sexually and that he was quite prepared to proceed at her pace. When asked about their premarital sexual experiences with one another, she related having had intercourse on many occasions but also thought that she was probably more sexually interested than he.

After their marriage, the frequency of sexual events dropped precipitously. Her overtures were regularly turned aside, to the point where she stopped asking. She wondered whether his lack of interest was a result of her becoming less sexually appealing to him. When seen alone it became clear that far from being sexually neutral, and unknown to his wife, he masturbated several times each week while looking at magazine pictures of nude women.

Significant issues in the history of his family-of-origin suggested that psychotherapy would be the preferred treatment for this man and he was subsequently referred to a psychiatrist. He accepted this outcome but when they were seen six months later in follow-up he had a myriad of reasons for not having followed through on the referral. She was disappointed at the turn of events, but not surprised. When she then voiced her thoughts about leaving him, he became more determined to put aside his reticence to seek assistance.

EPIDEMIOLOGY OF HYPOACTIVE SEXUAL DESIRE DISORDER

Lack of sexual desire, or sexual disinterest, is probably *the most common sexual complaint heard by health professionals*. Studies of the frequency of sexual disorders tend not to distinguish the different *subcategories* of desire disorders, so that separation into syndromes which are lifelong, acquired, situational or generalized are often based more on clinical experience than research.

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The survey completed by Laumann and his colleagues was particularly revealing about the subject of sexual interest in the general population (as distinct from specialty clinics).[12] Interviewers asked respondents: "During the last 12 months has there ever been a period of several months or more when you lacked interest in

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having sex?" Overall, 33% of women and 16% of men answered 'yes.' The most striking data concerning women revealed that 40% to 45% who were separated, black, did not finish high school, and "poor" answered positively (i.e., lacked sexual interest). The equivalent data concerning men were that 20% to 25% who were in the age group 50-59, never married, black, did not finish high school, and "poor" also answered positively. Positive responses were also related to physical health: women and men in "fair" health, 42% and 25% respectively. Fifty eight percent of women in "poor" health, reported lacking sexual interest. These numbers provoke one to think about the definition of "normal" sexual interest and the apparent role of social, educational, and health factors in influencing sexual desire.

Frank and her colleagues' impressive study of "normal" couples found a rate of sexual "disinterest" almost identical to the overall figures reported by Laumann et al[12]: 35% of wives and 16% of husbands.[13]

In one specialty clinic, the frequency of presentation of low-desire problems rose from about 32% of couples in the mid 1970s to 55% in the early 1980s[6] (p. 112). In these same couples, the sex ratio changed so that in the mid-70s, the woman was the identified patient about 70% of the time; in the early 80s, the man was the focus of concern in 55% of cases. The authors summarized the reason for this shift as follows: "Women's greater comfort with their own sexuality allows them to put sufficient pressure on their low-drive husbands to get the couple into sex therapy; this was not true until the woman's movement legitimized female sexuality."

In a report on the frequency of HSD in a population recruited for a study of sexual disorders generally, 30% of the men had HSD as a "primary" diagnosis.[14] The same authors described the frequency in women as similar to that reported by others: between 30% and 50%, although they found the figure to be 89% in their own study. Over one third of the women and almost one half of the men with a "primary" diagnosis of HSD had another sexual disorder as well. The authors concluded the following:

1. HSD was much more common in women than men
2. Men with HSD were significantly older than women
3. Desire disorders usually coexist with other sexual dysfunctions

Little empirical information exists on the epidemiology of specific HSD syndromes. Among men, Kinsey and his colleagues described 147 men (from about 12,000 interviewed) as "low-rating" (defined as under 36 years of age and whose "rates" [of sexual behavior] averaged one event in two weeks or less[4] (p. 207). Another group of men, about half the number, were described as "sexually apathetic" in that "they never, at any times in their histories, have given evidence that they were capable of anything except low rates of activity" (p. 209). About 2% of women interviewed (of almost 8000) had never by their late 40s "recognized any sexual arousal, under any sort of condition"[12] (p. 512).

On the basis of experience in clinical settings that specialize in the assessment and treatment of sexual problems, the lifelong and generalized form of HSD seems very unusual; the acquired and generalized form appears to be the most common among women. Within men who present with HSD, the acquired and situational form seems to be the most usual.

COMPONENTS OF SEXUAL DESIRE

Attempts to understand the nature of sexual desire (other than desire disorders) have been elusive throughout history. In modern times, Levine conceived of sexual desire as having three parts[16]:

1. *Sexual drive*: "a neuroendocrine generator of sexual impulses [that is] . . . testosterone-dependent . . ."
2. *Sexual wish*: "a cognitive aspiration [that] . . . emphasizes the purely ideational aspect of sexual desire . . . The most important element . . . is the willingness to have sex [which, in turn] . . . is a product of psychological motivation." (An example of a reason why a person would be sexually willing, is to feel connected to another person and less alone. An example of the opposite is, because the person may not yet like anyone enough.)
3. *Sexual motive*: a factor "that depends heavily on present and past interpersonal relationships. [And which] . . . seems to be the most important element of desire under ordinary circumstances" (examples of contributors to sexual motivation include the quality of the nonsexual relationship and sexual orientation)

HORMONES AND SEXUAL DESIRE

Biological factors represent one vital component in the understanding of sexual desire generally (in contrast to disorders of sexual desire). Within the biological domain, knowledge of the hormonal influence on sexual desire is clearly critical—if for no other reason than that many people in the general population firmly believe that alterations in hormones explain changes in sexual behavior. Although this relationship is unequivocally true in subprimates, this view minimizes the huge impact of social learning in humans. The enormous quantity of literature on the significance of hormones on sexual desire in men and women was comprehensively reviewed by Segraves, from which much of the information included immediately below was taken.[17]

Men

Much of the evidence concerning the connection between sexual desire and hormones in men derives from situations that involve decreased androgens resulting from surgical and chemical castration, aging, and hypogonadal states. Surgical castration results in a typical sequence of changes: a sharp drop in sexual drive, subsequent loss of the ability to ejaculate, and then a lessening of sexual activity. Regarding the effect of testosterone loss on erections (see Chapter 11), "It appears that erectile problems are secondary to a decrease in libido and not due to a specific effect of androgen withdrawal on the erectile mechanism"[17] (p. 278). Chemical castration mimics this lack of effect on erections.

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In a study of aging, testosterone, and sexual desire, Segraves observed that while there is " . . . a strong relationship between aging and libido, the relationship between libido and androgen activity (in aging men) was low, suggesting that nonendocrinological factors may explain

the decline in sexuality with aging"[17](p. 281). Examples of nonendocrine factors include:

- Marital boredom
- Diminished partner attractiveness
- Chronic illness

The impotence that is seen in hypogonadal men can be explained as "performance anxiety" superimposed on a biogenic desire disorder.

In hypogonadal states, one can witness the effect of testosterone deficiency and subsequently the changes that take place with recovery when a replacement hormone is given. "The clinical literature is consistent in demonstrating a marked reduction in libido and sexual activity in untreated hypogonadal men"[17](p. 281). To the extent that the provision of androgens is successful in hypogonadal men, evidence strongly suggests a primary effect on sexual desire rather than on erectile capacity. The "impotence" that is seen in hypogonadal men can be explained as "performance anxiety" superimposed on a biogenic desire disorder.

Studies of men who have normal levels of testosterone but who are given an extra amount for the treatment of sexual difficulties suggest that ". . .the effects are subtle and of small magnitude if they exist at all"[17] (p. 284).

Studies of the treatment of hypogonadal men show that the sexual benefits of replacement testosterone disappear as the normal range of blood values is approached, indicating the clinically vital suggestion that treating men who have normal testosterone levels for problems relating to sexual responsivity is likely to be ineffective. In fact, studies of men who have *normal* levels of testosterone but who are given an extra amount for the treatment of sexual difficulties suggest that " . . . the effects are subtle and of small magnitude if they exist at all"[17] (p. 284).

An attempt to strictly separate sexual problems into "organic" and "psychogenic" etiology may be an exercise in futility. In one study, all of the men with hyperprolactinemia described difficulties with sexual desire, erection, and/or ejaculation dysfunction. Of particular significance is that some of the sexual problems appeared as situational difficulties. Also, all of the men experienced some improvement with sex therapy, which was provided before the hyperprolactinemia was discovered.

Elevated prolactin levels also reveal significant information about hormones and sexual desire in men (and women). One study demonstrates the futility of attempting to strictly separate sexual problems of "organic" and "psychogenic" etiology.[18] All of the hyperprolactinemic men described difficulties with sexual desire, as well as erection and/or ejaculation dysfunction. Of particular significance is that some of the sexual problems of the men in this group appear as situational difficulties (e.g., dysfunction exacerbated by psychological factors, which improved at times of enhanced arousal). *Furthermore all of the men experienced some improvement with sex therapy, which was provided before the hyperprolactinemia was discovered.*

Women

Two areas of investigation help in understanding the influence of hormonal factors on sexual desire in women:

- The impact of endogenous hormones (e.g., changes during the menstrual cycle and with menopause)
- The effect of exogenous hormones (e.g., oral contraceptives)

The possibility that sexual interests change during the menstrual cycle precipitated attempts to discern a relationship between estrogens and progesterone and sexual activity. A correlation has not been found but some evidence shows that average serum testosterone levels across all phases are related to sexual responsivity[17] (p. 290).

Changes in sexual desire associated with menopause have also been investigated. "A minority of women report some decline in sexual activity . . ."[17] (p. 295) but this could relate to factors other than libido (e.g., health and attractiveness of the woman's partner). Some psychophysiological studies report little or no change in subjective sexual arousal of postmenopausal women. Again, in contrast to naturally occurring menopause, Sherwin and her colleagues demonstrated that diminished sexual desire and sexual fantasy accompanies early menopause resulting from surgical removal of a woman's ovaries.[19] The explanation for this observation appears to be decreased testosterone associated with ovariectomy. She also found that in about 50% of instances of naturally occurring menopause, the ovary continues to secrete testosterone; in the other 50%, testosterone secretion is negligible. She suggests the inclusion of testosterone in replacement hormones after a surgically induced menopause, and also that, when diminished sexual desire occurs coincidentally with naturally occurring menopause, it might be reasonable to add testosterone to an estrogen replacement regimen (see "Treatment of Hypoactive Sexual Desire Disorder" below).[20]

On the subject of the impact of oral contraceptives on sexual desire, "The evidence is unclear, but it does not suggest that [they] have a marked effect on libido apart from other side effects" such as nausea and dysphoria[17] (p. 292). Segraves suggests the following guidelines when faced with a patient using oral contraceptives and complaining of low sexual desire:

1. If diminished sexual desire and other side effects persist beyond the second month of use, it might (by implication) be reasonable to change the preparation
2. If diminished sexual desire is a solitary complaint and began after the initiation of oral contraceptive use, it might be sensible to have a trial period off medications
3. If sexual desire returns "off medications," suggest a different drug

ETIOLOGIES OF HYPOACTIVE SEXUAL DESIRE DISORDER

When considering sexual desire difficulties (rather than sexual desire), it seems best to think of these problems as representing a "final common pathway"[6] (p. 116). The linguistic homogeneity implied by the specific diagnosis of "Hypoactive Sexual Desire Disorder" covers a great deal of etiological heterogeneity. There is no reason to assume that (1) HSD in men arise(s) from the same source(s) as in women, (2) a lifelong pattern is caused by the same problems as those which are acquired, or (3) a situational disorder has the same genesis as the other two. Although HSDs in men and women are now usually considered separately, the same cannot always be said of other subcategories.

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The following were noted in a descriptive examination of differences in men and women seen in a "sex clinic" with a sexual desire complaint[21]:

1. Men were described as significantly older (50 years old versus 33)
2. Women reported a higher level of psychological distress, although both groups focused more on the sexual desire concern

3. Men's desire difficulties seemed less affected by relationship discord or dissatisfaction
4. Women reported more domestic stress

Generalized HSD

Biologically related studies of HSD undertaken by Schiavi, Schreiner-Engel, and their colleagues are at the forefront of investigations into the etiologies of HSD and represent important exceptions to the heterogeneity described above. A controlled investigation was completed on a group of men who demonstrated a "generalized and persistent lack of sexual desire" but who were otherwise healthy.[22] The HSD men were found to have significantly lower total plasma testosterone levels when measured hourly throughout the night. (The determination of free testosterone did not show differences between the HSD men and the controls). When Nocturnal Penile Tumescence (NPT) comparisons were made between the HSD men who did and did not have additional erectile difficulties, those who did showed a marked depression in NPT activity when compared to controls in duration, frequency, and degree. The authors speculated that low sex drive results in impaired NPT or that both result from some central biological abnormality.

A companion study of women with generalized HSD (lifelong [38%] and acquired) who were otherwise healthy found no significant differences from controls on hormonal measures (including testosterone) determined over the menstrual cycle.[23] "It is impressive that these two groups of women, who differed so markedly in their levels of sexual desire, had endocrine milieus so similar." The authors summarized by saying that this and other studies failed "to provide convincing evidence that circulating testosterone is an important determinant of individual differences in the sexual desire of eugonadal women."

Medical Disorders and HSD

Many medical conditions are associated with a loss of sexual desire. These are summarized in Box 9-1.

As described in Chapter 8, sexual problems that are in general associated with medical conditions arise from a variety of sources. A loss of sexual desire in particular can be a result of biological, psychological, or social and interpersonal factors[24] (pp. 356-366). Examples of biological factors include the following:

1. Direct physiological effects of the illness or disability
2. Direct physiological effects of medical treatment and management (e.g., steroid treatment of rheumatoid arthritis)
3. Physical debilitation
4. Bowel or bladder incontinence

Examples of psychological factors include:

1. Adopting the "patient" role (as an asexual person)
2. Altered body image
3. Feelings of anxiety, depression, and anger
4. Fears of death, rejection by a partner, or loss of control
5. Guilt regarding behavior imagined as the cause of a disease or disability
6. Reassignment of priorities

Box 9-1

Common Medical Conditions That May Decrease Sexual Desire

A DISEASES THAT CAUSE TESTOSTERONE DEFICIENCY STATES IN MALES:

castration, injuries to the testes, age-related atrophic testicular degeneration, bilateral cryptorchism, Klinefelter's syndrome, hydrocele, varicocele, cytotoxic chemotherapy, pelvic radiation, mumps orchitis, hypothalamic-pituitary lesions, Addison's disease, etc.

Conditions requiring anti-androgens drugs, e.g., prostate cancer, antisocial sexual behavior, etc.

IN FEMALES:

Bilateral salpingo-oophorectomy, adrenalectomy, hypophysectomy, cytotoxic chemotherapy, hypothalamic-pituitary lesions, Addison's disease, androgen insensitivity syndrome, etc.

Conditions requiring anti-androgen drugs, e.g., endometriosis, etc.

B CONDITIONS THAT CAUSE HYPERPROLACTINEMIA:

pituitary prolactin-secreting adenoma, other tumors of the pituitary, hypothalamic disease, hypothyroidism, hepatic cirrhosis, stress, breast manipulation, etc., and conditions requiring Prl raising medication, e.g., depression, psychosis, infertility, etc.

C CONDITIONS THAT DECREASE DESIRE VIA UNKNOWN MECHANISMS:

hyperthyroidism, temporal lobe epilepsy, renal dialysis, etc.

D CONDITIONS THAT CAUSE ORGANIC IMPOTENCE (**Indirect cause of low sexual desire in men**):

diabetes mellitus, arteriosclerosis of penile blood vessels, venus leak, penile muscular atrophy, Peyronie disease, Lariche's syndrome, steal syndrome, sickle cell disease, priapism, injury to penis, etc.

E CONDITIONS THAT CAUSE DYSPAREUNIA (**Indirect cause of low sexual desire**):

IN FEMALES:

urogenital estrogen-deficiency syndrome—normal age-related menopause, surgical menopause, chemical menopause, irradiation of ovaries; endometriosis, pelvic inflammatory disease, vaginitis, herpes, vaginismus, cystitis, etc.

IN MALES:

herpes, phymosis, post-ejaculatory syndrome, etc.

F ALL MEDICAL CONDITIONS THAT CAUSE CHRONIC PAIN, FATIGUE, OR MALAISE (**Indirect cause of low desire**):

arthritis, cancer, obstructive pulmonary disease, chronic cardiac and renal insufficiency, shingles, peripheral neuropathy, trigeminal neuralgia, chronic infections, traumatic injuries, etc.

(Modified from Kaplan HS: *The sexual desire disorders,* New York, 1995, Brunner/Mazel, p. 286. Reprinted with permission.)

Examples of social and interpersonal factors include:

1. Communication difficulties regarding feelings or sexuality
2. Difficulty initiating "sex" after a period of abstinence
3. Fear of physically damaging an ill or disabled partner
4. Lack of a partner
5. Lack of privacy

Gynecologic and urologic disorders have a particular association with HSD. Testicular and ovarian disorders can have direct effects on sexual desire (see previous section in this chapter on "Hormones and Sexual Desire" and "Treatment of Hypoactive Sexual Desire" below). Indirect effects on sexual desire can also result from structural disorders occurring in both body systems. Given the fact that one of the major functions of both the gynecologic and urologic systems is sexual, it is hardly surprising that when one function goes awry, sexual function goes awry as well. This may easily result in the patient being discouraged and experiencing a concomitant (but secondary) loss of sexual desire.

Hormonal Disorders and HSD

(See previous section in this Chapter on "Hormones and Sexual Desire" and "Treatment of Hypoactive Sexual Desire Disorder" below.)

Psychiatric Disorders and HSD

The relationship between psychiatric disorders and loss of sexual desire has not been so carefully studied as loss of sexual desire with medical disorders. On a clinical basis, it seems that the association between the two is exceedingly frequent. Of all psychiatric disorders in which a loss of sexual desire is an accompaniment, depression has unquestionably received most attention. Other aspects of depression have been scrupulously scrutinized in the past but this has been only recently true of its sexual ramifications.

the sexual behavior of the subjects whose depression remitted with treatment did not change but what was altered was the level of satisfaction derived from sexual experiences. Investigators included that ". . . the traditional notion of loss of sexual interest in depressed outpatients is not manifested behaviorally, but rather reflects the depressed patient's cognitive appraisal of sexual function as less satisfying and pleasurable."[25]

The twin issues of depression and sexual desire were carefully studied in 40 depressed men before and after treatment that did not include antidepressant drugs (thus avoiding the potentially confusing factor of the effect of medications).[25] Contrary to the expected diminution in sexual desire, the authors found that the initial level of sexual *activity* engaged in by the subjects was *not* different than the controls. The sexual behavior of those subjects whose depression remitted with treatment, did not change, but what *was* altered was the level of *satisfaction* derived from sexual experiences. They concluded that" . . . the traditional notion of loss of sexual interest in depressed outpatients is not manifested behaviorally, but rather reflects the depressed patient's cognitive appraisal of sexual function as less satisfying and pleasurable." When subjects who did not remit, or only partially remitted, were included in the analysis, there was a "modest" improvement in the level of sexual activity and "drive." The authors found the variability of sexual function in depressed men in this study particularly interesting.

Schreiner-Engel and Schiavi looked at the association of psychiatric disorders and low sexual desire from a different perspective and found that HSD patients (men and

women) had significantly elevated lifetime prevalence rates of affective disorder compared to controls.[26] None of the patients or controls had a diagnosable illness at the time of the study and there were no differences found in lifetime diagnoses of anxiety or personality disorders. In 88% of the HSD men, and all of the HSD women, loss of sexual interest occurred at the time of, or following, the onset of the initial episode of depression. The authors speculated on the possibility that central monoaminergic processes were involved in both HSD and depression.

Medications and HSD

The influence of drugs looms large among the various biological factors that can negatively influence sexual desire. This subject has been reviewed in detail by Segraves who acknowledges the limitations in information that often exists,[3] such as:

1. Bias due to dependence on case reports and questionnaire studies
2. Inconsistent use of terminology
3. A focus on the sexual function of men (and relative neglect of women)
4. Reliance on volunteered (rather than requested) information about sexual side-effects
5. Lack of clarity about effects on different phases of the sex response cycle

Drugs that are said to cause HSD are noted in Appendix III and Box 9-2.

Drug-related information seems to change more rapidly than any other material in health care; thus new drugs are promoted for old diseases and side-effects of older drugs become more apparent. The result of the rapid pace of change in information about sexual side effects of drugs is the requirement that health professionals remain informed. An example of this change is the appearance of a negative impact on sexual desire of the Selective Serotonin Reuptake Inhibitors (SSRIs).[27]

Other Sexual and Gender Identity Disorders and HSD

Other sexual and gender identity disorders may be associated with a loss of sexual desire. Of particular significance is the simultaneous occurrence of another sexual dysfunction that may be a cause or a result of HSD. Determining the order of appearance of the two problems is crucial. If the other sexual function difficulty preceded the loss of sexual desire, successful treatment of the former would likely result in disappearance of the latter.

A couple in their late 20s and married for five years was referred because the woman was sexually disinterested. Detailed inquiry of this complaint revealed that, unknown to her husband, she regularly fantasized about sexual activity and masturbated to the point of orgasm using a vibrator several times each month. Her lack of sexual desire was specific to sexual activity with her husband and dated from about two years before. In the first three years of their marriage, both freely initiated sexual activity and she usually become highly aroused but never reached the point of orgasm. She became physically and psychologically uncomfortable, so much so that she decided that "it was better not to start what (she) couldn't finish." By her own description, she refused to become aroused at the *beginning* of their

sexual encounters by deliberately "turning off" her sexual desire. Her husband was relieved to discover her interest in masturbation and that she was orgasmic. He was eager to find ways in which that experience could be incorporated into their love-making as a couple.

Box 9-2 **Commonly Used Pharmacologic Agents That May Decrease Sexual Desire**

A ANTI-ANDROGEN DRUGS*:

Cyproterone* and Depo-provera* (for sex offenders), Flutamide* (for prostate cancer in men, virilizing syndromes in women, precocious puberty in boys, etc.), Lupurin,* a gonadotropin releasing hormone analog (for prostrate cancer, used together with Flutamide, also for endometriosis in women); cytotoxic chemotherapeutic agents* (Adriamycin, Methotrexate, Cytotoxin, Fluorouracil, Cisplatin, etc.)

B PSYCHOACTIVE DRUGS:

1. *Sedative-Hypnotics:* loss of desire dose-related: in low doses, disinhibition may cause increase in desire; high doses and chronic use reduce desire. Alcohol; Benzodiazepines (Valium, Ativan, Xanax, Librium, Halcion, etc); Barbiturates (phenobarbital, amytal, etc.); Chlorol hydrate, Methaqualone, etc.
2. *Narcotics** (Heroin, Morphine, Methadone, Meperidine, etc.)
3. *Anti-Depressants:* (Dopamine blocking and serotonergic) SSRIs* (Prozac, Zoloft, Paxil); Tricyclics (Tofranil, Norpramin, Amitriptyline, Aventyl, Clomipramine*); MAOIs* (Nardil, Marplan), Lithium carbonate, Tegretol.
4. *Neuroleptics (increase Prl):* Phenothiazine (Thorazine,* Thioridazine) Prolixin,* Stelazine, Mellaril, etc.); Haldol,* Sulpiride.*
5. *Stimulants:* loss of desire is dose-related: low, acute doses may stimulate libido; high doses and chronic use reduce sex drive. (Dexadrine, Methamphetamine, Cocaine).

C CARDIAC DRUGS:

1. *Antihypertensives:* (Hydrochlorothiazide,* Chlorthalidone,* Methyldopa,* Spironolactone,* Reserpine,* Clonidine, Guanethidine,* etc.)
2. *Cardiac Drugs:* Beta adrenergic blockers* (Inderal, Atenolol, Timolol, etc.); Calcium blockers** (Nifedipine, Verapramil, etc.)

D DRUGS THAT BIND WITH TESTOSTERONE:

1. Tamoxifen, Contraceptive agents, etc.

E MISCELLANEOUS DRUGS: Cimetidine* (for peptic ulcer); Pondimin* (serotonergic appetite suppressor); Diclorphenamine, Methazolamide (for glaucoma); Clofribrate, Lovastatin (anticholesterol); Steroids (chronic use for inflammatory conditions), (Prednisone, Decadron, etc.).

All the drugs listed have been reported to result in the loss of sexual desire and/or in erectile problems. However, the frequency with which sexual side effects occur varies considerably, and the drugs that have a very high incidence of decreased libido have been marked with.

**Long-acting calcium channel blockers are more likely to decrease desire and impair erection than the short-acting preparations.

(Modified from Kaplan HS: *The sexual desire disorders,* New York, 1995, Brunner/Mazel, p. 287. Reprinted with permission.)

Psychosocial Issues and HSD

Psychosocial causes of low sexual desire include the following[6] (pp. 119-129):

1. Religious orthodoxy (a factor that is "oversimplified at best")
2. Anhedonic or obsessive-compulsive personality style (accompanied by usual difficulties of displaying emotion and discomfort with close body contact)
3. Primary sexual interest in other people of the same sex
4. Specific sexual phobias or aversions (after sexual assault as an adult or child[28])
5. Masked paraphilia (perversion)
6. Fear of pregnancy
7. "Widower's syndrome" (sexual function difficulties, usually in the areas of desire or erection, in a man after his wife has died, resulting from attachment to his wife or the unfamiliarity of sexual activity with a new partner)
8. Relationship discord (cause, effect, or coexistence with HSD may be difficult to determine)
9. Lack of attraction to a partner
10. Poor sexual skills in the partner ("lousy lover")
11. Fear of closeness and inability to fuse feelings of love and sexual desire (especially in men [see "Acquired and Situational Absence of Sexual Desire" above])

Relationship Discord and HSD

On the basis of clinical impression, relationship discord and HSD seem to be frequently related to each other. When two sexual partners who love each other and have *no* sexual concerns are engaged in a dispute, it is commonplace to declare a sexual moratorium until the conflict resolves. It is as if one says to the other, 'I'm angry at you and don't feel like going to bed with you while I have these feelings'. It is logical to theorize that some instances of acquired HSD that are nonspecific in origin may represent submerged anger about which the person is unaware. Experimental evidence exists for the idea of suppressed sexual desire in the presence of anger.[29] Such theorizing may provide direction for clinical care. This observation about anger may, in some instances, relate to the finding that when woman with and without HSD were compared, the former "reported significantly greater dissatisfaction with nearly every reported relationship issue."[30]

It is logical to theorize that some instances of acquired HSD that are nonspecific in origin may represent submerged anger about which the person is unaware.

In the concluding chapter to their multi-authored book on the subject of Sexual Desire Disorders, Leiblum and Rosen summarized the views of contributors generally, saying that " . . . relationship conflicts are viewed by the majority of our contributors as the single most common cause of desire difficulties"[31] (p. 452). From personal clinical experience, they found that women partners "were more aware of and less willing to tolerate relationship distress, and consequently that desire in women is more readily disrupted by relationship factors" (p. 449). At the same time, humility was suggested with treatment because all-too-often less marital discord resulted without any accompanying change in sexual desire (p. 451).

Madonna/Prostitute Syndrome and HSD

Freud described a man choosing one woman for love and another for sexual activity and seemingly unable to fuse the two.[2] He referred to this idea as the Madonna/Prostitute syndrome. It seems especially applicable today to many young men who relate experiences consistent with an acquired and situational form of HSD.

Multiple Etiological Factors in HSD

Sometimes HSD seems to result from the operation of only one of the factors described above: a hormone deficiency or the onset of a debilitating illness. More often than not, the onset (especially of the acquired form) can probably best be explained by multiple factors.[32]

A couple in their late 20s explained that during the two years before their marriage and the three years before she became pregnant their sexual experiences were mutually initiated, frequent, pleasurable, and free of problems. After the delivery of her child, attempts at intercourse were painful for her. Her husband knew of this but persisted in approaching her sexually. After telling him of her discomfort on one occasion, she felt she had little alternative but to "put up with it," until finally she became quite disinterested and "shut down."

Both partners described her as a person who could not candidly and frankly talk about her feelings, especially when she was angry. Being forthright was discouraged in her family-of-origin, particularly by her alcoholic father who was verbally abusive to her when she said something he found unpleasant. It seemed that the current sexual difficulties were superimposed on some issues concerning her personality and problems in their relationship as a couple. The treatment program centered on her expressiveness, as well as "communication" and sexual issues. Her ability to talk openly about her feelings improved dramatically. Her husband was upset with himself as he discovered the extent of her vaginal and psychological discomfort and his own insensitivity. As their sexual experiences resumed, she discovered that her dyspareunia disappeared. However, although lovemaking was more frequent than before, her previous sexual urge did not return.

INVESTIGATION OF HYPOACTIVE SEXUAL DESIRE DISORDER

Given the etiological heterogeneity and therapeutic complexity of HSD, *careful investigation of the complaint and establishing the correct subcategory is often the most important contribution that can be made by a primary care clinician.*

Given the etiological heterogeneity and therapeutic complexity of HSD, careful investigation of the complaint and establishing the correct subcategory is often the most important contribution that can be made by a primary care physician.

Scrutinizing the history of the patient and couple is usually the most revealing part of the examination. Concerns about sexual desire usually surface in the context of a couple's relationship. The patient often appears unruffled, and the partner seems the one who is more distressed. The patient becomes upset secondarily if the partner is implicitly or explicitly threatening to dissolve the relationship. Sexually interested

women who are partners of disinterested men may also describe doubts about themselves and wonder if they are the source of the difficulty, thinking (for example) that they are sexually unappealing. The disinterested person often does not express worry about himself or herself but more about the unfulfilled sexual needs of the partner.

Occasionally, the disinterested partner seeks help. The reason is often a feeling of sexual abnormality because such patients compare themselves, for example, to (1) how they felt in the past, (2) friends and partners, and (3) depictions of "sex" on TV and the movies.

Complaints about sexual desire are infrequent in patients without partners. One exception is when a person believes that their lack of sexual interest contributed to a disrupted previous relationship and is apprehensive about it happening again.

History

Comprehensive assessment of a complaint about sexual desire involves asking an initial open-ended question, followed by specific inquiry concerning at least three areas:

- Sexual behavior
- Psychological manifestations of sexual stimuli
- Body changes in response to sexually arousing stimuli

Specific issues to inquire about, and suggested questions include the following:

1. Duration (see Chapter 4, "lifelong versus acquired")

Suggested Question: "**HAS A FEELING OF LOW SEXUAL DESIRE ALWAYS BEEN PART OF YOUR LIFE OR WAS THERE A TIME WHEN THIS WAS NOT A PROBLEM?**"

2. Sexual behavior with the usual partner (see Chapter 4, "generalized versus situational")

Suggested Question when Talking with a Heterosexual Man/Woman: "**ABOUT HOW OFTEN ARE YOU AND SHE/HE SEXUALLY INVOLVED WITH EACH OTHER?**"

Additional Suggested Question when Talking with a Heterosexual Man/Woman: "**WHAT KIND OF THOUGHTS DO YOU HAVE BEFORE OR DURING YOUR SEXUAL EXPERIENCES?**"

3. Sexual behavior with other partners of the opposite sex (see Chapter 4, "generalized versus situational")

Suggested Question: "**HAVE YOU HAD SEXUAL EXPERIENCES WITH OTHER WOMEN/MEN SINCE YOU'VE BEEN IN THIS RELATIONSHIP?**"

4. Sexual behavior with other partners of the same sex (see Chapter 4, "generalized versus situational")

Suggested Question: "**ARE YOU SOMETIMES SEXUALLY AROUSED BY THOUGHTS OF OTHER MEN/WOMEN?**

Additional Suggested Question if the Answer is, "yes": "**APART FROM THOUGHTS, HAVE YOU HAD SEXUAL EXPERIENCES WITH OTHER MEN/WOMEN?**"

5. Sexual behavior through masturbatory sexual activity (see Chapter 4, "generalized vs. situational")

Suggested Question: "**HOW FREQUENTLY DO YOU STIMULATE YOURSELF OR MASTURBATE?**"

6. Psychological manifestations—fantasy (see Chapter 4, "generalized versus situational")

Suggested Question: "**HOW OFTEN DO YOU HAVE SEXUAL DAYDREAMS (OR FANTASIES)?**"

Additional Suggested Question: "**WHAT DO YOU FANTASIZE ABOUT WHEN MASTURBATING?**" ALSO: "**WHAT DO YOU FANTASIZE ABOUT WHEN YOU'RE IN THE MIDST OF A SEXUAL EXPERIENCE WITH ANOTHER PERSON?**"

7. Psychological manifestations—response to pictures with a sexual theme (see Chapter 4, "generalized versus situational")

Suggested Question: "**WHAT DO YOU THINK ABOUT AND FEEL SEXUALLY WHEN YOU SEE A PICTURE OR MOVIE THAT HAS A SEXUAL THEME?**

8. Psychological manifestations—response to stories in literature (see Chapter 4, "generalized versus situational")

Suggested Question: "**WHAT DO YOU THINK ABOUT AND FEEL SEXUALLY WHEN YOU READ STORY IN WHICH SOMETHING SEXUAL OCCURS?**"

9. Body change—genital swelling [erection or vaginal lubrication] (see Chapter 4, "description")

Suggested Question when Talking with a Man/Woman: "**WHEN YOU THINK ABOUT SOMETHING SEXUAL, WHAT HAPPENS TO YOUR PENIS/VAGINA?**"

Additional Suggested Question: "**DOES IT BECOME HARD/DO YOU BECOME WET?**"

10. Psychological accompaniment (see Chapter 4, "patient and partner's reaction to problem")

Suggested Question: "**WHEN YOU ARE SEXUALLY UNINTERESTED, WHAT THOUGHTS ARE GOING THROUGH YOUR MIND?**"

Addition Question: "**HOW DOES YOUR WIFE (HUSBAND, PARTNER) REACT?**"

Patients who regard answers to questions about sexual desire as private should *not* be expected to discuss these aspects of the topic (at least initially) in the presence of their partner (see Chapter 6). When a couple is interviewed together and someone is asked a question about something generally regarded as private, the fact of not answering the question might, itself, be revealing (i.e., if one partner does not want to answer a question about masturbation, the non-answer might convey to the other partner that there is secret information). Under such circumstances, it is best to avoid the question altogether. The clinician must be careful not to unwittingly coerce someone to disclose private information to a partner. Information that was obtained when someone was seen alone may emerge at a later time when a couple is seen together but this should occur only if the patient who previously asked for privacy takes the initiative.

Questions about thoughts and sexual fantasies (with masturbation or with a partner) are often regarded by patients as even more private than actual behavior. As a result, there may be obvious reticence to talk about what occurs in one's mind. Information about thoughts and sexual fantasies can be enormously revealing from a diagnostic point of view, since it may, for example, indicate a complete absence of sexual thought, a sexual desire for someone else, or, a different sexual orientation than what the person's behavior may have suggested.

Physical Examination

The potential significance of the physical examination in HSD is signaled by the patient's history. Considering the four subcategories described above, the acquired and generalized *loss* of sexual desire is the principal form in which a diagnostic physical examination is required. The major contrasting element separating the acquired/generalized pattern from the others is widespread change. Ordinarily one would not expect to find physical abnormalities with the other three forms because of the absence of such change: discrepancy in sexual desire, as well as situational and lifelong/generalized disorders. With a desire discrepancy, interest continues to exist by both partners in the present as it was in the past, but it is nevertheless problematic because the two people function at different levels. Where sexual desire is situationally absent, interest continues as before except for one particular situation. In the lifelong/generalized form, if a physical abnormality existed it would also have been lifelong, a circumstance that is possible (e.g., a congenital disorder) but at the same time usually obvious.

The acquired and generalized loss of sexual desire is the principal form in which a diagnostic physical examination is required.

If a physical examination is part of the evaluation of acquired and generalized loss of sexual desire, what does one look for? Before attempting to answer this question, one must ask what loss of sexual desire represents. Is it, in fact, a disorder? Or is it a syndrome (a collection of symptoms resulting from several causes)? In most instances, the answer seems to be the latter. In that sense, loss of sexual desire resembles other phenomena such as loss of appetite for food, or fatigue (both are accompaniments of many different medical and psychiatric disorders from cancer to depression and neither are associated with any *specific* physical findings on examination).

When the complaint is loss of sexual desire and the history does not suggest a specific cause, one looks for evidence of generalized and previously unrecognized disease (e.g., renal or cardiac disease) in a physical examination. One would search also for the physical changes associated with abnormalities in endocrine function. The main endocrine disorders would be hypoandrogen states and hypothyroidism. Physical signs of low testosterone in men are often delayed; in women, they are often absent. Signs of hypothyroidism may be subtle. Since generalized disease and endocrine disorders can coexist, the presence of the former does not necessarily mean that the explanation for sexual desire loss has been found and that a search for an accompanying endocrine disorder is, therefore, unnecessary.

Laboratory Studies

Since HSD is occasionally a result of a hormonal deficiency, laboratory studies usually become part of the evaluation process. In men, this should always involve a determination of the patient's serum testosterone and prolactin levels. Segraves[17] (p. 285) justifies this policy in the following ways:

- Low cost
- Possibility of overlooking treatable cause of a low desire complaint
- Difficulty in distinguishing psychological from endocrinological causation on the basis of history alone
- Negligible risk (i.e., venipuncture)

He further emphasizes the importance of too quickly attributing the cause of low desire to interpersonal discord, since low sexual desire may, itself, *result* in relationship conflict. In an effort to determine the cause of a low testosterone level and because of the negative feedback loop in relation to the pituitary gland, a follow-up test should be performed to determine the patient's Luteinizing Hormone (LH) status. Other clinicians propose a somewhat different format. Kaplan suggests that LH testing should coincide with testing for testosterone, free testosterone, prolactin, total estrogens, and thyroid status (for men)[33] (p. 289). Kaplan, and Rosen & Leiblum, suggest that Follicle Stimulating Hormone (FSH) be measured as well.[32,33]

On the subject of laboratory investigation of sexual desire complaints in women, Segraves suggested that " . . . extensive endocrinological assessment of every case of inhibited sexual desire in females is not indicated"[17] (pp. 298-99). He adds that, since many gynecological conditions may interfere with sexual desire in nonspecific ways (e.g., causing dyspareunia), correction of the condition may be sufficient to reverse the sexual problem. As well, low sexual desire might occur in postmenopausal women as a result of uncomfortable or painful intercourse associated with the diminished vaginal lubrication. This symptom commonly accompanies atrophic vaginitis and is caused by lack of estrogen stimulation to a woman's vagina (see Chapter 13). The unusual patient with the complaint of diminished sexual desire but who also describes absent menstrual periods and galactorrhea should have a serum prolactin determination test performed. Kaplan differed from Segraves in suggesting that the hormone profile described in the previous paragraph be used in women as

well as men; the one exception being that estradiol be determined instead of total estrogens[33] (p. 289).

Unrecognized, untreated, or uncontrolled medical and psychiatric disorders may become evident during the investigation of a sexual problem. Common sense dictates that, ordinarily, attention to the sexual problems be delayed until these other disorders are under control. Examples include the following[6]:

- Depression
- Alcohol or drug dependence
- Spouse abuse
- Active extramarital relationships
- Severe marital distress with imminent separation or divorce

TREATMENT OF HYPOACTIVE SEXUAL DESIRE DISORDER

Patients with HSD usually appreciate the primary care clinician's initial step of encouraging them to temporarily stop struggling with attempts at sexual experiences and to simply enjoy being affectionate with their partner.

In many circumstances, the most important role of the primary care health professional is to carefully delineate the subcategory of desire difficulty and the possible etiology. While carrying out this task, patients with HSD, regardless of cause, will usually appreciate the primary care clinician's initial step of encouraging them to agree to temporarily stop struggling with attempts at *sexual experiences* (no matter how favorable the circumstances) and to simply enjoy being *affectionate* with their partner. The history of the couple often reveals that affectionate exchanges were common in the past but abandoned with the onset of the desire difficulties, since affection was interpreted as a prelude to an unwanted (and often refused) sexual encounter. Affection without the "threat" of any sexual consequence is usually a relief and something that is highly desired by the disinterested partner. This arrangement is easily accomplished in primary care, and the agreement is best made with both partners together so that there is no misinterpretation of directions or mutual blame.

Specific Treatment Approaches

Specific treatment of a sexual desire disorder will result from the discovery of a specific cause. Limits to the involvement of a particular health professional depends on that person's skills and pattern of practice. An illustration of a specific cause is that of testosterone deficiency. For example, Sherwin showed that testosterone is beneficial in the loss of sexual desire associated with surgically induced menopause as a result of bilateral oophorectomy.[19] Also, testosterone may be helpful in medically induced menopause that results from the use of some cytotoxic agents and radiation in treatment of various cancers.[34-36] A second and more complex example of a specific etiology is the discovery and treatment of prostate cancer. In this instance, sexual counseling has a major role in program of care and would likely focus on "here-and-now" issues. The treatment program may involve the coordinated work of a nonpsychiatric physician and sex-specialist or mental health professional with interest and skills in the area of sexual rehabilitation. A third and potentially even more intricate example of a specific cause is loss of sexual desire after

sexual trauma. Counseling is pivotal in treatment and might well extend to past issues in the patient's life. The ongoing care of such a patient would optimally be undertaken by a health care professional with psychotherapy skills and comfort in talking about sexual issues.

Nonspecific Treatment Approaches

Nonspecific methods for the treatment of a sexual desire disorder must be used if, as is often the case, specific explanatory factors cannot be pinpointed. Some clinicians and patients find that self-help books are useful in the initial care of a patient with nonspecific HSD.[37] Unfortunately, few such books exist.

The subcategory of HSD should be considered in nonspecific treatment objectives and methods.

Sexual Desire Discrepancy

Differences in sexual desire among sexual partners are so common as to possibly be universal. Considered from that perspective, one might then consider such differences to be "normal" rather than "pathological." The epidemiology of discrepancies in sexual desire should be conveyed to patients—not to delegitimize their complaint but to help them understand that other nonsexual issues may be significant contributors to the problem.

Primary care health professionals can assist partners in the following ways:

1. Understanding the role of extraneous influences on their sexual experiences (e.g., fatigue and preoccupation, especially in relation to the parenting of young children)
2. Talking candidly about the sexual expectations that each may have of the other
3. Appreciating the significance of "transition activities" (see following paragraph)
4. "Negotiating" a sexual activity compromise

Even before attempting to alter facets of sexual desire, attention should be paid to the role of "transition activities" (e.g., sporting activities or dinners alone). "It is no secret that modern living produces tremendous tension which often inhibits sexual interest, excitement, and performance . . . The type of transitions employed are of little moment, the important thing being that they help move [the patient] from a tense, pressured state to one which feels more comfortable and in which he or she is more open to sexual stimuli . . . When [transition activities] are done together [with a partner], they can function as a bridge into a shared building of arousal and enjoyable sexual activity"[5] (p. 95).

Viewing sexual desire discrepancies in the same way as other relationship discrepancies " . . . suggests a focus on both partners, rather than the more common practice of working only on the partner with less interest . . . we (try) to increase the desire of the one while at the same time trying to decrease that of the other"[5] (p. 68).

Careful history-taking sometimes reveals that a difference in sexual desire actually represents a *diminution* on the part of one partner. This apparent decrease may actually represent a lowering of sexual desire to the patient's usual level after an initial period of "limerance," (the passionate intensity of a new romantic relationship). A sexual

desire discrepancy may then appear as a desire disorder that is acquired and generalized.

Lifelong and Generalized Absence of Sexual Desire

Altering a lifelong absence of sexual desire is exceedingly difficult at any level of care, primary or otherwise. If the major treatment purpose is one of substantially enhancing the patient's level of sexual desire, an approach at any level will likely, in ordinary circumstances, not be productive. However, one reasonable treatment objective is the reversal of any concomitant sexual dysfunction. For example, a woman patient with this form of HSD may also be anorgasmic. While becoming orgasmic may not result in much change in her sexual desire level, sexual events may become more pleasurable for her and as a result cause less tension in the couple's relationship. (In instances of low sexual desire, disappointment usually follows an expectation that an improvement in the *quality* of sexual experiences results in an increase in the *quantity*). In the absence of an associated sexual dysfunction, treatment to help the couple *adapt* to this situation could be potentially quite beneficial. Even accomplishing this objective can be difficult and time-consuming and is probably best undertaken by a sex-specialist with counseling skills, or a mental health professional comfortable and skilled in talking about sexual and relationship issues.

Acquired and Generalized or Situational Absence of Sexual Desire

Psychological Treatment Methods

Nonspecific treatment methods for HSD are usually psychologically based, involve counseling or psychotherapy, and involve individuals or couples. Techniques vary and include:

- Psychodynamic and interpersonal approaches[16,39,40]
- Cognitive and behavioral methods[6,41,42]
- Systems and interactional approaches[43,44]

Unfortunately, little consensus exists concerning treatment approaches to nonspecific HSD. Also, not all health professional groups have the requisite interest, knowledge, or training in the use of these various treatment techniques. The situational absence of sexual desire requires psychologically-based treatment methods only.

Hormonal Treatment: Men

Hormonal treatments have been used for nonspecific HSD. For example, some men who complain of "impotence" have an HSD rather than an erectile difficulty. Physicians will sometimes attempt a trial of testosterone for their male patients with the general concern of "impotence" without ascertaining whether a desire disorder exists and is, in fact, primary. Segraves is unequivocal in his opinion: "Some physicians routinely prescribe exogenous testosterone to men with sexual complaints without determining baseline values or even monitoring the serum testosterone response to exogenous androgens. There is little justification for such an approach"[17] (p. 288). Beyond this opinion, physicians must be concerned about exogenous testosterone accelerating the growth of an existing but occult prostatic cancer or the risk of prostate cancer development.[45]

HORMONAL TREATMENT: WOMEN

There is considerable controversy over the use of androgens in the treatment of a sexual desire disorder in postmenopausal women. (Kaplan is adamant in saying that testosterone "has no place in the treatment of *premenopausal* women" (italics added) with normal testosterone levels)[33] (p. 278).

Other than specific research, Sherwin speculates that testosterone may be helpful to women who report diminished libido *beginning* in the perimenopausal time period.[20] Kaplan also suggests that physiological doses (of testosterone) present little risk and that "a brief trial is justified in postmenopausal women with a global loss of libido whose T (testosterone) levels are abnormally low . . . or in the low-normal ranges. (She considered 20-25 ng/dl to be the lower limit of normal levels according to her clinical experience and a survey of medical texts)[33] (p. 279).

In contrast to the encouragement of Sherwin and Kaplan, Segraves regards the use of testosterone in the care of women with a sexual desire disorder to be "clearly experimental"[17] (pp. 294-5) and suggests caution for the following reasons:

1. The studies have not been properly controlled
2. Doses used exceed physiological levels
3. Side effects can be unpleasant
4. There is lack of clarity about the effect on sexual desire of variations in androgens within the normal physiological (versus subphysiological) range that women experience

Others have also been circumspect about promoting testosterone for the care of postmenopausal women with a sexual desire disorder because of evidence for its possible role in the development of breast cancer. Dorgan and her colleagues conducted a prospective study that involved examining blood that was donated up to 10 years before. Women who subsequently developed breast cancer (compared to healthy controls) had significantly higher serum levels of the adrenal androgens dehydroepiandrosterone (DHEA), its sulfate (DHEAS), and its metabolite 5-androstene-3β,17β-diol (ADIOL).[46,47]

There is concern about the role of sex steroids in the etiology of cardiovascular disease in postmenopausal women, particularly over the potentially negative effect of testosterone on lipid levels. Sherwin et al. reviewed the literature on this subject and concluded that "the evidence that testosterone decreases HDL (high density lipoprotein cholesterol) and increases LDL (low density lipoprotein cholesterol) is impressive." She nevertheless found a different result in her own subjects.[48] She compared the effect of different hormone treatment approaches on the lipoprotein lipid profiles of three groups of women who had undergone total hysterectomy and bilateral salpingo-oophorectomy: a combined estrogen-androgen preparation (containing 150 mg of testosterone enanthate), estrogen alone, and an untreated group. She reported "no between-group differences in total cholesterol, triglycerides, high-density lipoprotein, or low-density lipoprotein values. Nor was the low density/high density lipoprotein ratio significantly different between groups. . . ."

Research findings on the effect of testosterone on lipids in postmenopausal women are contradictory. Phillips and his colleagues found that free testosterone (in contrast

to total testosterone) was significantly related (positively) with coronary artery disease in a group of 60 postmenopausal women undergoing coronary angiography.[49] The authors speculated that an elevated free testosterone level might be a risk factor for coronary atherosclerosis.

In her research on women who experienced surgically induced menopause, Sherwin considered the possibility of an equal and opposite effect of each hormone (estrogen and androgens) that masked the effect of testosterone alone.[48] Another study found that testosterone prevented (to a small degree) the rise in HDL cholesterol that was seen in oophorectomized women given estrogen alone.[50] The same authors found in yet another study that testosterone decreased LDL cholesterol.[51] The complexity of the issue was further illustrated by the unpublished finding that estrogen alone and estrogen-testosterone implants resulted in lower LDL and increased HDL cholesterol but that estrogentestosterone implants in heavy smokers produced a fall in HDL cholesterol.[52] Some speculate that the mode of administration of the hormones may have a role in explaining the contradictory findings.[48]

Testosterone seems beneficial to women with an androgen deficit as a result of surgically (and probably medically) induced menopause and diminished sexual desire. There is no reported evidence that testosterone is useful in the treatment of sexual desire difficulties in men or postmenopausal women who have experienced a naturally occurring menopause. Some evidence exists that it may be harmful.

In summary, testosterone seems beneficial to women with an androgen deficit as a result of surgically (and probably medically) induced menopause and diminished sexual desire. There is *no* reported evidence that testosterone is useful in the treatment of sexual desire difficulties in men or postmenopausal women who have experienced a naturally occurring menopause. Some evidence exists that it may be harmful.

TREATMENT OUTCOME OF HYPOACTIVE SEXUAL DESIRE

Despite the enormity of the problem of HSD in extent (in the general population) and depth (in the individual), the voluminous scientific literature on the subject, and the many treatment approaches that have been described (often with confidence in their utility), there is not a great deal of information concerning treatment results. The two existing long-term follow-up studies of treatment of low sexual desire are generally quite discouraging. De Amicis et al. found that three years after treatment, "desire for sexual contact and frequency of sexual contact, clearly demonstrate a lack of sustained success for both men and women."[53] Despite the absence of change in the specific problem, both men and women reported continued improvement in "satisfaction in [the] sexual relationship," and women also reported persistent improvement in the "frequency of orgasm through masturbation and genital caress." Hawton et al. reported on a prospective follow-up study of sex therapy undertaken for various sexual disorders.[54] Treatment occurred between one and six years earlier and at least one partner was interviewed in 75% of cases. The effects of treatment in instances of "female impaired sexual interest," "showed a *marked deterioration* (italics added) . . . when compared with post-treatment outcome. This finding is accentuated by the fact that even post-treatment outcome for this problem was relatively modest."

There are only a handful of controlled treatment studies of HSD. O'Carroll reviewed the only eight that he could find that met his (gradually expanding) inclusion criteria for his search.[7] These included two psychotherapy studies, three drug or hormone

studies, and three studies that combined the two methods. Of this review, he concluded that "if only studies which had specified (and analyzed) a discrete subject group who presented with low sex interest had been accepted, one would have been left with a single controlled treatment study which used only ten subjects!"

The one study about which O'Carroll wrote compared ten men with HSD to ten men with erectile dysfunction.[55] All initially had normal testosterone levels and all were treated with high-dosage testosterone or placebo using a double-blind crossover design. The HSD men responded with a significantly increased level of frequency of sexual thoughts. O'Carroll concluded that "high dosage testosterone treatment may have a modest role to play in the treatment of some eugonadal men who present with low sex interest."[7]

Leiblum and Rosen reviewed factors associated with treatment outcome found by those who presented case histories in their multi-authored book "Sexual Desire Disorders."[56] Success was particularly linked (p. 453) to desire problems affecting men who were in their 30s, 40s, and 50s and who reported concomitant sexual dysfunctions (especially erectile difficulties) and, in the case of couples, commitment to the marriage (despite relationship discord) and the treatment process (p. 454). Unsuccessful outcome of treatment was especially evident (p. 454) when there were secrets in the marital relationship, history of chronic alcoholism, religious orthodoxy, history of depression, organic erectile dysfunction, and "major body image problems."

INDICATIONS FOR REFERRAL FOR CONSULTATION OR CONTINUING CARE BY A SPECIALIST

Etiological heterogeneity of HSD means that therapeutic versatility is a necessity. The required range of skills will not likely be in the armamentarium of all primary care clinicians. Referral may become necessary and the kind of health professional to whom a referral is made will depend on the knowledge and skills of each and the apparent cause of the disorder.

Specific Causes of HSD

The capabilities of the primary care clinician may or may not encompass the treatments required for patients with specific causes of HSD. One or several visits with a consultant from a different discipline may be needed and may be all that is necessary. However, in complex circumstances it may also be advisable to complement one's own care (over an extended time period) with that of another health professional who has different skills.

- One example of a specific cause of HSD that sometimes requires only a consultation is the diagnosis of major depression. While most patients with this diagnosis are entirely cared for by primary care health professionals, in some instances, physicians in primary care might provide antidepressant medication and psychotherapy to the patient after consultation and advice from a psychiatrist or psychotherapist.
- Another example of a specific cause of HSD that may require more than simple consultation is the loss of sexual desire associated with the diag-

nosis and treatment of prostate cancer. This situation may require asking the advice of a medical specialist and the continuing cooperative efforts of the primary care clinician and a sex-specialist with counseling skills.

- A third example of a specific cause of HSD that may involve ultimate transfer of the patient to another health professional is that of sexual trauma (see "Sexual Sequelae of Child Sexual Abuse in Adults: Sexual Issues and Questions" in Chapter 8). A primary care professional may provide acute care but the needs of the patient may require ongoing intensive care from a mental health professional who has psychotherapeutic skills and is also comfortable with sexual topics.

Nonspecific Causes of HSD

The care of an individual or couple where HSD is a concern, and for which no explanation has become apparent after investigation, reasonably suggests referral—at least for brief consultation, and often for continuing care. Despite the great frequency of the problem in the general population, nonspecific HSD is, *generally, not* a disorder amenable to care at the generalist level. *Careful subclassification and investigation are the most important responsibilities of the primary care clinician when considering nonspecific HSD, and they will determine the direction of referral*. In most instances, the most helpful professional is a sex therapist or sexual medicine specialist with counseling skills.

- Desire discrepancies occasionally do not respond to intervention at the primary care level. Consideration might then be given to referral to a mental health professional who is also comfortable with couples and in talking about sexual issues. Even then, referral should probably be reserved for circumstances that, if they continue, may threaten the continuity of the relationship.
- HSD that is lifelong and generalized often presents with questions about the continuity of a current relationship. Care of the patient or couple who appear in these complex and potentially turbulent circumstances should be undertaken by a sex therapist or sexual medicine specialist with a mental health professional background.
- The acquired and generalized form of HSD arises from several sources (see above) and the apparent origins (there may be more than one) influence the direction of referral. Because (1) the nature of such complaints are perplexing and intricate, (2) etiological clarity is often lacking, (3) disappointment and (often) anger is generated by the sexual change, and (4) because the partners are usually disappointed when they discover that expectations of return to previous sexual desire status often is not realized, treatment at the primary care level is not suggested. In most instances sex therapists or sexual medicine specialists, should be involved in treatment, at least on a consultation level if not in the continuing care of such individuals or couples.
- HSD that is acquired and situational occurs for a multiplicity of reasons and each one requires a different referral approach. For example, some instances are clearly a result of relationship discord, and the appropriate

person to be caring for such a couple would be a mental health professional interested in relationship therapy. Other instances may represent a disorder such as the Madonna/Prostitute Syndrome (discussed earlier in this chapter), for which treatment is quite intricate and warrants referral to a mental health professional for continuing care. Yet other cases are a result of sexual issues specific to a couple (e.g., odors) and in that instance, should be referred to a sex therapist.

SUMMARY

The problem of low sexual desire or Hypoactive Sexual Desire Disorder (HSD) requires subclassification into syndromes that denote at least four possibilities:

- A desire discrepancy
- A disorder that is lifelong and generalized
- A disorder that is acquired and generalized
- A disorder that is acquired and situational

In general, low or absent sexual desire is the most common sexual complaint heard by health professionals, and about one third of women and one sixth of men answering a community survey report having had this experience for several months during the last year. Testosterone seems to be the "libido hormone" for men and women in that withdrawal of this substance has profound effects on sexual desire in both. Elevated Prolactin has a similar effect. HSD seems to arise from many different sources, hence the application of the term: *final common pathway*. When compared to normal controls, biologically related studies of healthy people with HSD have found some testosterone determinations and nocturnal penile tumescence differences in men, but no differences in women. HSD is associated with the following:

- A variety of general medical conditions
- Gynecologic and urologic disorders
- Psychiatric disorders
- Substance abuse
- Other sexual and gender identity disorders
- Intrapersonal difficulties
- Relationship discord

The investigation of HSD requires history-taking, physical examination for generalized disorders, and selective laboratory studies. The most valuable contribution of primary care professionals to patients with HSD is correct subclassification and investigation of the etiology. Treatment of HSD depends on the reason for the disorder. The more specific the etiology, the more specific the treatment, and the more specific the treatment, the more might be reasonably undertaken in primary care—alone or together with another health professional. Nonspecific HSD (apart from the problem of a desire discrepancy) generally requires referral to a health

professional who specializes in the counseling and therapy of people with sexual difficulties.

REFERENCES

1. Levine SB: *Sexual life: a clinician's guide*, New York, 1992, Plenum Press.
2. Freud S: The transformations of puberty: [3] the libido theory. In Freud S: *On sexuality: three essays on the theory of sexuality and other works*, Middlesex, 1905/1977, Penguin Books, pp. 138-140.
3. Segraves T: Drugs and desire. In Leiblum SR, Rosen RC (editors), *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 313-347.
4. Kinsey AC, Pomeroy WB, Martin CE: *Sexual behavior in the human male*, Philadelphia and London, 1949, W.B. Saunders.
5. Zilbergeld B, Ellison CR: Desire discrepancies and arousal problems in sex therapy. In Leiblum SR, Pervin LA (editors): *Principles and practice of sex therapy*, ed 1, New York, 1980, The Guilford Press, pp. 65-101.
6. LoPiccolo J, Friedman JM: Broad-spectrum treatment of low sexual desire: integration of cognitive, behavioral, and systematic therapy. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 107-144.
7. O'Carroll R: Sexual desire disorders: a review of controlled treatment studies, *J Sex Res* 28:607-624, 1991.
8. *Diagnostic and statistical manual of mental disorders*, ed 4, Washington, 1994, American Psychiatric Association.
9. *Diagnostic and statistical manual of mental disorders*, ed 4, *primary care version*, 1995, Washington, American Psychiatric Association.
10. *Diagnostic and statistical manual of mental disorders*, ed 3, 1980, Washington, American Psychiatric Association.
11. Kaplan HS: *Sexual aversion, sexual phobias, and panic disorder*, New York, 1987, Brunner/Mazel, Inc.
12. Laumann EO et al: *The social organization of sexuality: sexual practices in the United States*, Chicago, 1994, The University of Chicago Press, pp. 35-73.
13. Frank E, Anderson C, Rubenstein D: Frequency of sexual dysfunction in normal couples, *N Engl J Med* 299:111-115, 1978.
14. Segraves KB, Segraves RT: Hypoactive sexual desire disorder: prevalence and comorbidity, *J Sex Marital Ther* 17:55-58, 1991.
15. Kinsey AC et al: *Sexual behavior in the human female*, Philadelphia and London, 1953, W.B. Saunders.
16. Levine SB: Intrapsychic and individual aspects of sexual desire. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 21-44.
17. Segraves T: Hormones and libido. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 271-312.
18. Schwartz MF, Bauman JE, Masters WH: Hyperprolactinemia and sexual disorders in men, *Biol Psychiatry* 17:861-876, 1982.
19. Sherwin BB, Gelfand MM, Brender W: Androgen enhances sexual motivation in females: a prospective, crossover study of sex steroid administration in the surgical menopause, *Psychosom Med* 47:339-351, 1985.
20. Sherwin BB: Menopause and sexuality, *Can J Obstet/Gynecol Women's Health Care* 4:254-260, 1992.
21. Donahey KM, Carroll RA: Gender differences in factors associated with hypoactive sexual desire, *J Sex Marital Ther* 19:25-40, 1993.
22. Schiavi RC et al: Pituitary-Gonadal function during sleep in men with hypoactive sexual desire and in normal controls, *Psychosom Med* 50:304-318, 1988.
23. Schreiner-Engel P et al: Low sexual desire in women: the role of reproductive hormones, *Horm Behav* 23:221-234, 1989.

24. Bullard DG: The treatment of desire disorders in the medically ill and physically disabled. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York,1988, The Guilford Press, pp. 348-384.
25. Nofzinger EA et al: Sexual function in depressed men, *Arch Gen Psychiatry* 50:24-30, 1993.
26. Schreiner-Engel P, Schiavi RC: Lifetime psychopathology in individuals with low sexual desire, *J Nerv Ment Dis* 174:646-651, 1986.
27. Segraves T: Overview of sexual dysfunction complicating the treatment of depression, *J Clin Psychiatry* 10:4-10, 1992.
28. Becker JV: *Impact of sexual abuse on sexual functioning*. In Leiblum SR, Rosen RC (editors): *Principles and practices of sex therapy: Update for the 1990s*, ed 2, New York, 1989, The Guilford Press, pp. 298-318.
29. Bozman AW, Beck JG: Covariation of sexual desire and sexual arousal: the effects of anger and anxiety, *Arch Sex Behav* 20:47-60, 1991.
30. Stuart FM, Hammond DC, Pett MA: Inhibited sexual desire in women, *Arch Sex Behav* 16:91-106, 1987.
31. Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press.
32. Rosen RC, Leiblum SR: Hypoactive sexual desire, *Psychiatr Clin North Am* 18:107-121, 1995.
33. Kaplan HS: *The sexual desire disorders: dysfunctional regulation of sexual motivation*, New York, 1995, Brunner/Mazel.
34. Kaplan HS, Owett T: The female androgen deficiency syndrome, *J Sex Marital Ther* 19:3-24, 1993.
35. Feldman JE: Ovarian failure and cancer treatment: incidence and interventions for the premenopausal woman, *Oncol Nurs Forum* 16:651-657, 1989.
36. Chapman RM: Effect of cytotoxic therapy on sexuality and gonadal function, *Semin Oncol* 9:84-94, 1982.
37. Williams W: *Rekindling desire: bringing your sexual relationship back to life*, Oakland, 1988, New Harbinger Publications Inc.
38. Nichols M: Low sexual desire in lesbian couples. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 387-411.
39. Scharff DE: An object relations approach to inhibited sexual desire. In Lieblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 45-74.
40. Apfelbaum B: An ego-analytic perspective on desire disorders. In Leiblum SR, Rosen RC (editors), *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 75-104.
41. Rosen RC, Leiblum SR: A sexual scripting approach to problems of desire. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 168-191.
42. Lazarus AA: A multimodal perspective on problems of sexual desire. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 145-167.
43. Schwartz MF, Masters WH: Inhibited sexual desire: the Masters and Johnson Institute treatment model. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 229-242.
44. Verhulst J, Heiman JR: A systems perspective on sexual desire. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988 The Guilford Press, pp. 243-267.
45. Gann et al: Prospective study of sex hormone levels and risk of prostate cancer, *J Natl Cancer Institute* 88: 1118-1126, 1996.
46. Dorgan JF et al: Relation of prediagnostic serum estrogen and androgen levels to breast cancer risk, *Cancer Epidemiol Biomarkers Prev* 5:533-539, 1996.

47. Dorgan JF et al: Relationship of serum dehydroepiandrosterone (DHEA), DHEA sufate, and 5-androstene-3β,17β-diol to risk of breast cancer in postmenopausal women, *Cancer Epidemiol Biomarkers Prev* 6:177-181, 1997.
48. Sherwin BB et al: Postmenopausal estrogen and androgen replacement and lipoprotein lipid concentrations, *Am J Obstet Gynecol* 156:414-419, 1987.
49. Phillips GB, Pinkernell BH, Jing T-Y: Relationship between serum sex hormones and coronary artery disease in postmenopausal women, *Arterioscler Thromb Vasc Biol* 17: 695-701, 1997.
50. Farish E et al: The effects of hormone implants on serum lipoproteins and steroid hormones in bilaterally oophorectomized women, *Acta Endocrinol* 106: 116-120, 1984.
51. Fletcher CD et al: Long-term hormone implant therapy- effects on lipoproteins and steroid levels in postmenopausal women, *Acta Endocrinol* 111:419-423, 1986.
52. Sands R, Studd J: Exogenous androgens in postmenopausal women, *Am J Med* 98(suppl 1A):76S-79S, 1995.
53. De Amicis LA et al: Clinical follow-up of couples treated for sexual dysfunction, *Arch Sex Behav* 14:467-489, 1985.
54. Hawton K: Long-term outcome of sex therapy, *Behav Res Ther* 24:665-675, 1986.
55. O'Carroll R, Bancroft J: Testosterone therapy for low sexual interest and erectile dysfunction in men: a controlled study, *Br J Psychiatry* 145:146-151, 1984.
56. Leiblum SR, Rosen RC: Conclusion: Conceptual and clinical overview. In Leiblum SR, Rosen RC (editors): *Sexual desire disorders*, New York, 1988, The Guilford Press, pp. 446-458.