

Sexuality During the Perimenopause

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The perimenopause is a time of physiologic, intrapsychic, and social/cultural changes for middle-aged women, who might require assistance to maintain and enhance their sexuality during this transition. Attending to the biologic, psychological, relational, social, and cultural domains, and encouraging perimenopausal women to address these developmental challenges of midlife facilitates the healthy adaptation to this biologic and social transition. Emphasizing the physiologic changes that affect sexual arousal, and educating about enhancing and attending to arousal, might assist middle-aged women to increasingly enjoy their sexuality.

Introduction

The perimenopause refers to the period of time surrounding the menopause, and includes the years prior to menopause that encompass the change from normal ovulatory cycles to cessation of menses. Menstrual irregularity marks the perimenopause [1]. The perimenopause has been defined by the American Society for Reproductive Medicine, the National Institute of Aging, the National Institute of Child Health and Human Development, and the North American Menopause Society, as the transition from normal ovulatory cycling to the end of menstruation, including the first confirmatory year of amenorrhea, following the final menstrual period [2].

Human sexual response and activities are determined by several factors, in psychological, intrapsychic, interpersonal, social, and cultural contexts. The extent to which the perimenopause affects women's sexual feelings, experiences, and behaviors is unclear. However, sexual changes are more common as women age, and clinicians might note new or increased sexual concerns and questions voiced by their middle-aged patients [3].

In this paper, literature concerning the components of sexuality that might be affected by the perimenopause are reviewed, and a model for intervention and care is offered, with emphasis on the impact of changes in sexual arousal that result in difficulties with desire.

Biologic Changes During Perimenopause

The Massachusetts Women's Health Study identified 47.5 as the median age for the perimenopause. The clinical marker of the start of perimenopause is menstrual irregularity. Speroff [1] suggested that there is a wide range of perimenopausal experiences among women, and clinicians might find patients experiencing menstrual irregularity anywhere from their early 30s to their mid-50s. For most of the perimenopausal transition, estradiol levels have been found to be slightly elevated and drop fairly sharply 6 to 12 months before the menopause. Follicle-stimulating hormone (FSH) levels are high during this transition, and can reach postmenopausal values (>20 IU/L). Luteinizing hormone (LH) levels remain in the normal range until the end of the perimenopause, rising until about a year after the menopause [4,5]. Other symptoms reported during the perimenopause include hot flashes, night sweats, depressive disorders, and changes in sexual responsiveness [6,7]. There is an association between menstrual cycle irregularity, hot flashes, and declining estradiol levels and decreasing frequency of intercourse [8].

Estradiol levels tend to be slightly elevated until 6 to 12 months before follicular growth and development cease [1]. However, sexual comfort and function can be affected as the perimenopause transitions to the menopause, and estradiol levels fall. Women might experience vaginal atrophy, due to reduction in the rate of production and volume of vaginal lubricating fluid, and loss of vaginal elasticity. However, testosterone (T) levels reach a peak for women in their 30s, and then decrease with age [7], with women in their 40s having half of the level of circulating total T of women in their 20s. Dehydroepiandrosterone sulfate (DHEAS) appears to also show an age-related decrease [9]. Sexual dysfunction in women might be a symptom of androgen insufficiency [10].

Although there are studies evaluating the relationship between androgens and sexuality in premenopausal women [11], and in postmenopausal women [12-18], there is a paucity of research evaluating androgens during the perimenopause. In a study of 172 women, researchers found no change in total testosterone or DHEAS during this transition. DHEAS decreases as a function of age and is not related to the final menstrual period. Testosterone remains unchanged during the menopausal years [19].

There is some evidence for the benefit of androgen therapy in oophorectomized and postmenopausal women [18,20]; however, there is minimal evidence concerning the sexual benefit of androgen treatment in perimenopausal women.

pausal women. In a Swedish study of 83 women between ages 40 and 53, the most frequent and strong associations with sexual variables between endogenous androgens and sexuality were found for androstenedione, but not for testosterone or testosterone/sex hormone-binding globulin (SHBG) ratio [21].

Using a rabbit model to investigate androgen receptor expression in vaginal tissues, Traish *et al.* [22••] found that androgens enhanced nitric oxide (NO) synthase activity and downregulated arginase activity. They theorized that androgens might have a role in modulating the physiology of vaginal tissue, and might contribute to sexual arousal in women.

There is increasing interest among clinicians and patients in assessing androgen levels. However, the clinical and laboratory evaluation for androgen deficiency is technically difficult, questionable for clinical populations, and researchers continue to be unclear about the range of normal laboratory values in sexually nondysfunctional women [23•,24].

Role of Mood in Perimenopausal Sexuality

Healthy sexuality appears to be related to a normal mood. A study of 40- to 60-year-old women found that measures of mood and energy were the best predictors of sexual well-being [13].

Whether and to what extent the perimenopausal transition is associated with depression and mood disorders is debated in the literature. Dennerstein's 1996 review of literature [25] found no increase in incidence of major depression or negative moods associated with menopause. The factors that were associated with depression were surgical menopause, prior depression, poor health status, menstrual problems, social and family stressors, and negative attitudes toward menopause.

An Australian study of 354 women in the menopausal transition found that depression was not related to the menopause transition, FSH, estradiol, inhibin, age, or education. Depressive symptoms decreased with time and were significantly predicted by a history of premenstrual complaints, negative attitudes toward aging and menopause, and parity of one. Negative moods were adversely affected by a history of negative moods, bothersome symptoms, self-rated poor health, negative feelings for partner, being unpartnered, current smoking, low exercise, daily hassles, and high stress [26]. Women's moods improve as they pass through the perimenopause [27••].

A lifetime history of major depression might be associated with an early decline in ovarian function, and women with a history of depression had 1.2 times the rate reaching the perimenopause, compared with women with no history of depression [28]. Prolonged exposure to a hypoestrogenic state has been associated with sexual dysfunction and other conditions [28]. Joffe *et al.* [29] reported that vasomotor symptoms (night sweats and hot flushes) were associated with depression in perimenopausal women.

There is a cohort of middle-aged women who might be more vulnerable to depression at perimenopause. Soares and Cohen [30] note a relationship between the perimenopause and depressive symptoms, particularly among women who report a prior history of depression and/or experience depressive symptoms during periods of great hormonal variability (eg, premenstrual periods and the puerperium).

Role of Social/Cultural/Contextual Factors in Perimenopausal Sexuality

During the perimenopausal years, women can experience changes in roles and responsibilities within their relationships, families, careers, and communities. Insight into social and cultural contexts beyond the biologic and psychological might be helpful in understanding the more subtle challenges affecting well-being and sexuality of the middle-aged woman.

Women's satisfaction with sexual relationships is most closely associated with marital adjustment, and, according to Hawton *et al.* [31], bore no relationship to age. Variables such as having a new partner and being satisfied with one's work had significant positive impact on sexuality and well-being among perimenopausal women, whereas negative life events and increased number of stressors had a deleterious impact on well-being and sexuality. The nonhormonal variables were more significant than the hormonal variables, in terms of sexuality [27••].

For many perimenopausal women, the middle years include their children leaving home, and many women are exhilarated by the freedom that comes with launching children [32]. The departure of the last child from the household leads to positive changes in women's moods and reduced daily hassles, whereas children returning home (referred to as "a revolving door") had an adverse effect on the sexual relationship [33].

Caring for ill or frail family members is stressful, and can be a new and difficult role for the middle-aged woman. The National Alliance for Caregiving estimates that 25 million Americans care for an older or disabled relative. Approximately 80% of caregivers are women, and the average age is 57 years [34]. The stresses of caregiving can impact the middle-aged woman's sense of well-being, which can negatively impact her sexuality. The role as family caretaker is isolating and tiring, and might negatively affect the women's ability to feel free to enjoy the sexual pleasures of their intimate relationships.

Role of Aging in Perimenopausal Sexuality

Recognizing the developmental shifts of midlife, acknowledging the losses of youth, and adjusting to the current "self" are the challenge of the middlescence. According to Zerbe [35], "Adult development requires moving through particular and essential stages of development, such as launching children, becoming a grandparent, changing a

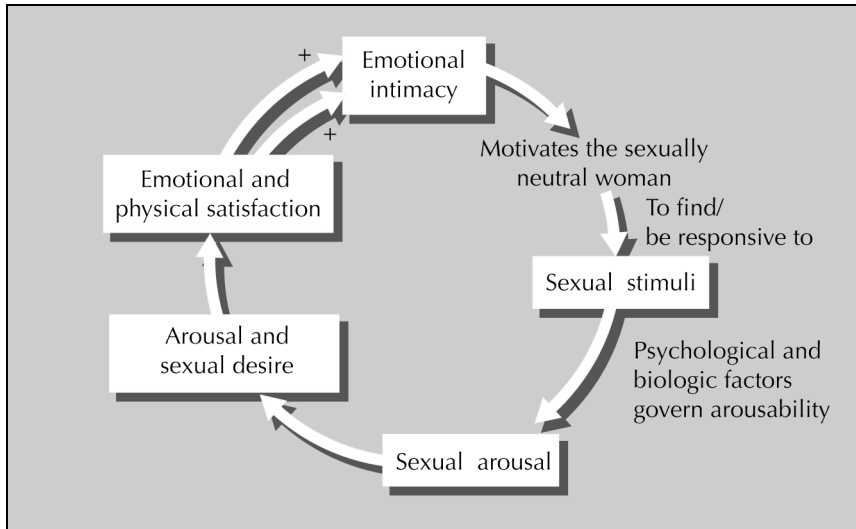


Figure 1. Intimacy-based female sexual response cycle. (Adapted from Basson [41••].)

career, making adjustments in one's marriage, or divorce." Developmental tasks of midlife include the healthy mourning of youth and the youthful body, understanding the meaning of those losses, and accepting that one's own time is limited.

The aging and changing body of the perimenopausal woman can usher discomfort and difficulties that can lead to sexual problems. According to Heiman [36], "During the 20th century, women in Western cultures have generally lived with a physical ideal image of female sexuality that equates sexual attractiveness with slender, youthful, sometimes pubescent, features. The cultural message of sexual beauty is difficult to resist." To the extent that the perimenopausal woman has been affected by society's messages about sexual beauty, youth, and appeal, sexual problems can occur, or longstanding sexual dysfunctions might worsen.

Perimenopause and Sexuality

Sexuality is interdependent with a variety of conditions, including health status, mood, relationship with partner, sexual history, familial expectations, and cultural messages. Although research has focused on biologic aspects of midlife sexuality, components beyond physiology are important as well.

In 1953 Kinsey *et al.* [37] stated that half of the female subjects reported a decrease in sexual response and sexual frequency with menopausal transition, and posited that this decrease was due to the male partner's declining sexual interest. Hallstrom [38] reported an association between menopause and declining sexual interest and decreasing frequency of sexual activities, even when age was held constant. Menopause status was related to lessened desire, expectations that interest in sexual activity declines with age, and noticing decreased arousal, although, in this study, menopause status had less effect on sexuality than other factors did, including physical and mental health, marital status/new partnering, and smoking [39].

In a community sample of 226 Australian women aged 45 to 55, an increase in sexual dysfunction, from 42% to 88%, was noted during the perimenopause [40]. The researchers evaluated mood, FSH, estradiol, serum testosterone, SHBG, and DHEAS, and studied the correlation with these hormone levels and sexuality. Subjects who had menstruated in the previous 3 months were considered to be early menopausal transitioners, and those with 3 to 12 months of amenorrhea were considered to be late menopausal transitioners. These criteria reflect perimenopausal status. The most significant sexual change was a decrease in "sexual responsiveness" reported by the subjects. Sexual responsiveness includes arousal, orgasm, and enjoyment of sexual activities. Responsiveness was negatively associated with age and was independent of hormone levels. Also noted was a decrease in frequency of sexual activities, libido, and sexual feelings toward partner. During the course of this study, a significant increase was noted in vaginal dyspareunia, and also in partners' sexual problems.

Sexual responsiveness

The Basson model (Fig. 1) of female sexual response describes women's sexual desire as largely responsive, rather than spontaneous. In this model, it is proposed that if a woman is intimately connected with her partner and is receptive to sexual stimulation, in the presence of sexual and/or sensual stimulation, she will first become aroused. The sensation of arousal will trigger desire. This, in turn, prompts her to seek further sexual stimuli [41••]. This is a paradigm shift from the linear model of sexual response offered by Masters and Johnson and by Kaplan, in which sexual desire is a spontaneous sexual hunger or drive [42,43].

During the perimenopause, physiologic changes can occur that can impair women's ability to experience arousal. These include changing hormone levels and declining vascular flow to genital tissue. As described by Basson [44], women might notice a decline in sexual responsiveness. This can contribute to difficulty accessing

Table 1. Psychosocial/psychosexual tasks of perimenopause

Domain	Task
Biologic	Understand and adjust to changes in sexual arousal Maintain awareness of subtle indications of arousal
Psychological	Adjust to/treat the physical changes and challenges of aging, including depressive symptoms, mourning for losses of youthfulness
Relational	Maintain/enhance relationship with partner
Societal/cultural	Critically evaluate (and accept or reject as appropriate) society's messages concerning sexuality, appearance, and appeal
Societal/cultural	Develop role in family and community that is appropriate

Table 2. Identifying and enhancing arousal

Hormonal treatments	Estrogen Testosterone (might enhance arousal)
Increase foreplay	Educate patient and partner Warm, sensual bathing
Lubrication	Water-based lubricants*
Erotica	Films, literature, art
Vibrators	On-line commercial options
EROS-CTD [†]	Clitoral therapy device
Arousogenic agents (in clinical trials for women)	PDE-5 inhibitors Adrenergic antagonists Dopamine agonists

*Astroglide (Biofilm, Vista, CA); Slippery Stuff (Wallace-O'Farrell, Puyallup, WA); Wet (Trigg laboratories, Valencia, CA); KY Liquid (Johnson & Johnson, New Brunswick, NJ).
[†]Urometrics, Anoka, MN.
PDE—phosphodiesterase type 5.

desire, which might attenuate the sexual response process. In addition, if these changes precipitate anxiety or serve as a reminder of aging, women's ability to relax and respond might be impaired, which can negatively impact the ability to sexually respond, leading to a vicious cycle, and compounding difficulties accessing arousal and desire.

Recommendations for care

Caring for the perimenopausal patient who expresses concern about sexuality includes assessment of sexual complaints within the contexts of biologic, psychological, relational, and social conditions impacting the woman. Assisting the woman to appreciate the developmental tasks of the middle years, within the various domains, facilitates the adjustments that challenge the perimenopausal woman and contribute to sexual difficulties (Table 1).

A woman's ability to attend and adapt to changes in physiologic arousal, described by Dennerstein *et al.* [40] as "sexual responsivity," facilitates the ability to appreciate and stay connected to physiologic triggers that lead to accessing sexual desire. It might be helpful to educate the patient and her partner about the perimenopausal physiologic changes that impact arousal and desire, so that the couple can develop strategies for enhancing the sensation and awareness of arousal (Table 2). Offering specific suggestions regarding accessing arousal will assist women in adjusting to perimenopause changes, and maintain and enhance their sexual satisfaction.

Conclusions

The perimenopause is a life transition, in which physiologic, psychological, and social factors potentially interfere with women's prior sexual responsiveness, and for which adaptation might be necessary, to maintain sexual satisfaction. The time of the perimenopause is dynamic, replete with physiologic, intrapsychic, and social/cultural changes for women and for their partners. The perimenopausal woman might request assistance to maintain and enhance her sexuality during this transition. Attending to the biologic, psychological, relational, social, and cultural domains, and encouraging perimenopausal women to address the developmental challenges of midlife, might allow them to maintain their sexual life throughout this life transition. Attending to the domain of sexual responsiveness and assisting the middle-aged woman to identify and enhance the sensations of arousal will increase her sense of desire and help her adapt to the changes that might impact her sexuality.

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