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The aging mind and sexuality: menopausal changes in sexual desire and satisfaction.

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Summary

Evidence that sexual desire impacts post-menopausal women's overall sexual satisfaction point to the importance of conducting research that examines the relation between menopause and sexual desire. There is an age-related decrease in sexual desire among a substantial proportion of women and a high proportion of women experience decreases in desire as they go through the menopausal transition. Results from the few studies designed to be able to parse apart the effects of aging and menopause indicate a decline in sexual desire associated with the menopausal transition that is independent of age. Numerous changes that occur during menopause, both biological and psychological, could account for this decrease. The hallmarks of natural menopause are a decline in ovarian function (and consequent reduction in ovarian hormones) and changes in genital and reproductive anatomy. Hormone-related decreases in vaginal lubrication and/or thinning of genital tissue could negatively impact desire by causing dyspareunia or by lowering a woman's body image or self-esteem. The reduced vasocongestion noted with declining estrogen levels could diminish genital sensations which play an important role in some women's psychological experience of desire and arousal. Menopausal symptoms can adversely impact desire by causing insomnia, lack of energy, difficulty concentrating, anxiety and/or depression. Partner-related factors (e.g., partner's sexual function, length of relationship, relationship quality) play a key role in determining women's sexual desire, and feelings for one's partner have been shown to be a significant predictor in the link between menopause and changes in sexual desire.¹ Women's attitudes towards menopause, her past sexual experiences, how she views herself as a sexual being, and her individual preferences for what elicits desire are all factors that may differentiate those women who are able to pass through menopause without experiencing adverse sexual consequences, and those who are not.

Keywords: sexual desire, sexual satisfaction, menopause, psychological factors

Menopause and sexual satisfaction

Research examining the relationship between menopausal status and sexual satisfaction is limited by the fact that, to our knowledge, no study has used validated or multidimensional indices of sexual satisfaction, and most studies are based on cross-sectional data. With these limitations in mind, findings from studies that have investigated some aspect of sexual satisfaction across age or menopausal transition suggest that it may be more what contributes to sexual satisfaction that changes with age or menopause than it is the actual level of satisfaction. That is, studies indicate that level of satisfaction remains relatively stable across age and menopausal status^{2,3,4} with a high proportion (e.g. 77-84%) of women of all ages reporting being satisfied.^{3,4} The factors that contribute to sexual satisfaction in women, on the other hand, seem to differ with age and/or menopausal status. For instance, Trudel⁵ found that sexual satisfaction was associated with higher marital functioning in younger but not in older women. For younger women, the length of sexual interactions, sexual communication, sexual variety, engaging in mutual fondling, having satisfying orgasms, and being preoccupied with one's own sexual performance were all important factors for level of sexual satisfaction, whereas for older women, good sexual communication was the only variable that was deemed important. Consistent with this, Hartmann and colleagues found that among older women, satisfaction was much more partner-related and less physically-related than for younger women, despite no overall differences in satisfaction,⁶ and Young et al. reported sexual satisfaction was most highly correlated with nonsexual aspects of the relationship among married women aged 50 and older.⁷

In an effort to empirically examine the relative contribution of physical and relational aspects of sexuality to overall sexual satisfaction in menopausal women, Rellini, McDermott, & Meston⁸ interviewed 125 naturally post-menopausal (defined as having amenorrhea for a minimum of 12 months) women on their satisfaction with the following aspects of their sexuality: overall sexual life, sexual desire, sexual arousal, orgasm, emotional closeness during sexual activity, and sexual relationship with their partner. The women ranged in age from 40 to 75



years and were all involved in a sexual relationship. Individual regression analyses were conducted to examine the degree to which satisfaction with both physical aspects of sexuality (i.e., desire, arousal, orgasm) and relational aspects of sexuality (relationship, emotional closeness) predicted their satisfaction with their overall sexual life. Results indicated that satisfaction with physical aspects contributed the largest proportion of the variance in overall satisfaction with sexual desire, arousal, and orgasm, each contributing 34%, 28%, and 25%, respectively. Satisfaction with relational aspects contributed 19% and 4% for sexual relationship and emotional closeness, respectively. Together, satisfaction with both physical and relational aspects of sexuality contributed 45.9% of the total variance in overall sexual satisfaction. When controlling for the contribution of all other satisfaction predictors, desire, orgasm, and sexual relationship were the only variables to provide a unique contribution to the variance, with desire contributing 3.5%, orgasm contributing 1.7%, and sexual relationship contributing 1.4%.

The findings from the above preliminary study suggest that *satisfaction with sexual desire* contributes to overall sexual satisfaction among post-menopausal women. Using a validated measure of sexual satisfaction, Rellini, McDermott, and Meston⁸ examined whether actual *levels of sexual desire* might also impact overall sexual satisfaction among post-menopausal women. In this study, 30 premenopausal women (age range 19-49 years) and 63 naturally post-menopausal women (age range 38-75 years) currently in sexual relationships were administered the Female Sexual Function Index,⁹ which includes 5 factor-analytic derived subscales: desire, arousal, lubrication, orgasm, satisfaction, and pain. First, comparisons were made between pre- and post-menopausal women on levels of sexual satisfaction. Significant differences emerged such that post-menopausal women reported significantly lower levels of sexual satisfaction than did premenopausal women. Next, comparisons were made between post-menopausal women who had no sexual concerns (as per FSFI domain and total scores) and those who reported FSFI desire domain scores comparable to those reported by women with hypoactive sexual desire disorder.¹⁰ Post-menopausal women with low

desire domain scores (n = 43) reported significantly lower levels of overall sexual satisfaction than did post-menopausal women with no sexual concerns (n = 20), and the effect was not age related. This finding is consistent with findings from a recent study by Dennerstein et al.¹¹ in which menopausal women with Hypoactive Sexual Desire Disorder were less satisfied with their sexual lives than women with normal desire.

Menopause and sexual desire

From the review above, it appears that both levels of sexual desire and satisfaction with sexual desire contribute to post-menopausal women's overall sexual satisfaction. It is, thus, important to understand whether sexual desire changes with menopause and, if so, the factors that may play a role in the change.

Numerous studies, both cross-sectional and longitudinal, have documented age-related declines in sexual desire among a large proportion of women.¹² A recent study by DeLamater & Sill,¹³ which warrants mention because of the large sample size and upper age range (45 – 94 years) of women studied, found that the percentage of women with low sexual desire increased from less than 5% at ages 45-49 to 59% at ages 80-84. Studies examining sexual desire across the menopausal transition also indicate a substantial proportion of women experience changes in desire with menopause. Based on cross-sectional data from the Melbourne Women's Midlife Health Project of 2001 randomly selected women, Dennerstein et al.¹⁴ reported approximately 16%, 25%, and 35% of pre-, peri-, and post-menopausal women, respectively, reported decreased sexual desire over the prior 12 month period. It is important to note that the majority of pre- (80%), peri- (69%), and post- (63%) menopausal women reported no change in desire over the past 12 month period. A small percentage (less than 6%) in each group reported increases in desire. These findings are consistent with most studies which suggest that, among women who experience a change in desire with menopause, a substantially larger proportion report decreases as opposed to increases in desire.¹⁵

A major challenge for researchers trying to understand the relation between menopause



and sexual desire is disentangling the effects of aging from those of menopause. Two studies that have attempted to separate the effects of aging and menopause on sexual desire warrant specific mention. The first is a Swedish study of 800 naturally menopausal women of different age groups (46, 50, 54) that included pre-, peri-, and post-menopausal women within age groups.¹⁶ Because of the way that age was stratified, although it was a cross-sectional study, the investigator was able to examine the independent impact of both age and menopausal phase. Not surprising, sexual desire difficulties rose with both age and menopausal status. Of particular interest, however, when age was controlled for, the relationship between menopausal phase and decreased sexual functioning remained significant; when stage of menopause was controlled for, the relationship between age and sexual functioning was not significant, indicating an independent contribution of menopausal phase to sexual desire function.

The most comprehensive study of sexual functioning and menopause to date,¹⁷ referred to as the Melbourne Women's Midlife Health Project, was an 8-year, prospective study of a community-based sample of Australian-born women aged 45-55 years at study entry. Assessments were conducted annually; measurements included hormonal assays, menstrual diaries, and a validated sexual functioning questionnaire. Results from this study indicated that as women passed through the menopausal transition, ratings of sexual desire (measured as frequency of sexual thoughts/fantasies and whether or not they had engaged in masturbation) declined, with a substantial drop occurring around three years before amenorrhea was reported. Findings suggested that the decrease in sexual desire was attributable to the menopausal transition as opposed to aging. Based on a comprehensive review of population-based studies on menopause and sexual function, Dennerstein, Alexander, and Kotz¹⁸ also concluded there was an age-related decline in sexual functioning among women, but an added incremental decline associated with the menopausal transition.

Factors linking menopause and changes in sexual desire

If sexual desire decreases with menopause in a large proportion of women, and the decrease is independent of the effects of aging, it is important to understand the myriad potential factors that are unique to menopause that may account for the adverse changes. The hallmark of natural menopause is a decline in ovarian function (and consequent reduction in circulating estradiol and androgen levels) and changes in genital and reproductive tissues (for review, see Graziottin & Leiblum¹⁹). The quantity of total estrogen available after menopause depends on the intensity and rate of ovarian exhaustion and the amount of adipose tissue.¹⁹ Given both of these factors vary considerably between women, this could explain the variability in why some women do and some women don't report a decline in sexual interest with menopause. Indeed, longitudinal data from the Melbourne Women's Midlife Health Project indicated that decreased desire was significantly linked to declining ovarian function (as indicated by increased FSH, decreased estradiol and inhibin).

The biological changes that accompany menopause could adversely impact sexual desire via a number of mechanisms. The decline in ovarian hormones leads to an attenuated vasocongestive response during sexual activity,¹⁹ and a dramatic increase in vaginal dryness from early to late menopause, followed by a progressive decline during post-menopause. The increase in vaginal dryness could directly negatively impact sexual desire by causing pain during sexual activity. The prevalence of dyspareunia increases dramatically during menopause and is significantly associated with vaginal dryness and low estradiol levels.²⁰ The decrease in vaginal lubrication and genital engorgement during sexual activity could also directly adversely affect women's sexual desire by diminishing sexual sensations that may play a role in what triggers a woman's sexual desire. For example, if the sensations of genital fullness, throbbing, and lubrication are important cues for triggering desire in women, and if these sensations decline significantly with menopause, it is likely that a woman's experience of sexual desire would be negatively impacted. Changes in genital tissue such as thinning of the vaginal walls and decreased length and flexibility of the



vagina could also directly impact sexual desire by increasing the likelihood of sexual pain. Less directly, such genital changes, as well as changes in breast size or fat distribution which occur among many women who go through menopause, could impair desire by negatively impacting a woman's overall body-image or self-esteem. An unpublished study by Thureau (1996) found that midlife women who reported lowered attractiveness with age also reported lowered desire, while women who reported increased attractiveness reported a greater likelihood of desiring and enjoying sex. Consistent with this finding, in a longitudinal study of 280 women aged 35-55, most women who experienced decreased sexual desire over the past year partially attributed their change in desire to the menopause-related physical changes.¹⁵ From a checklist of symptoms they were experiencing, weight gain, feeling less attractive, and changes in breast size were particularly relevant. It has been suggested in the clinical literature that negative body image can adversely impact sexual responding in women by causing them to attend more to body-related concerns during sex than to pleasurable sexual sensations²¹ – a situation Masters and Johnson referred to as "spectatoring".²²

There are numerous menopausal symptoms reported in the literature including: hot flashes, night sweats, dizzy spell, headaches, breast tenderness, backaches, shortness of breath, nervous tension, irritability, and dry eyes/nose/mouth. Some of these, such as vasomotor symptoms (e.g., hot flashes and perspiration), are more clearly linked to hormonal decline than others. Based on prospective data from 438 women who participated in the Melbourne Women's Midlife Health Project, Dennerstein, Dudley, Hopper, et al.²³ reported that the percentage of women who reported five or more of a list of 33 potential menopausal symptoms increased from 40% in pre-menopause to 56% in late peri- and two years post-menopause. Menopausal symptoms could indirectly impact sexual desire by causing difficulty sleeping, decreasing energy, causing difficulties with concentration, or leading to anxiety or depression, all of which adversely impact well-being. Indeed, increased number of menopausal symptoms has been associated decreased with well-being,²⁴ and decreased well-being has

been associated with decreased sexual desire among mid-aged women.¹⁴ Not inconsistent, feeling good or more confident and more healthy or energetic has been associated with increases in sexual desire for some midlife women (45-55 years).¹⁴ Of particular note, incidence of depressed mood is higher among peri- and post-menopausal women than pre-menopausal women⁴ and depression is a significant risk factor for impaired sexual desire among mid-aged women.²⁵

Given that sexual difficulties also increase with age in men,¹² it is likely that during the time a woman undergoes the menopausal transition, partner-related sexual problems become more prevalent. Indeed, data from the Melbourne Women's Midlife Health Project showed that over six annual assessments in which a large portion of women experienced decreased sexual desire, there was a significant increase in partner-related sexual problems.²⁶ Undeniably, a partner's sexual function can adversely impact a woman's sexual desire and satisfaction. In a sample of women 45-69 years, Pfeiffer et al.²⁷ reported that 20% of those who reported decreased sexual function attributed the decrease to their spouse's lack of interest or sexual dysfunction. Although perhaps more a function of aging than menopause per se, changes in partner availability, marital status, and length of relationship also impact women's sexual desire. Cross-sectional data from the Melbourne Women's Midlife Health Project indicated that among those women who experienced decreased desire, approximately 23% cited partner-related variables, including lack of interest of the partner, ill health, or absence of a partner.¹⁴ Partner availability was also linked to decreased sexual desire in two longitudinal studies; one including 474 Danish women born in 1936 who were followed for 10 years,²⁸ and a second of women aged 46-71 who were followed for six years at two-year intervals.²⁹ Decreased partner availability due to divorce, partner death, or chronic illness of partner has an obvious negative impact on the sexuality among aging women. However, there is also an increased fear of losing a partner among mid-life and older women,³⁰ which may make women more sexually obliging to their partner and this, in turn, could negatively impact their sexual desire. A study among women diagnosed with hypoactive



sexual desire disorder showed that compared with younger women, the older women felt it more necessary to comply with their partners' sexual wishes, reported a greater fear of losing their partner because of their own sexual problems, and were more willing to change and get treatment for their own sexual difficulties.⁶

Increased length of relationship has been negatively associated with sexual enjoyment and frequency,^{3,31} and increased sexual interest has been associated with a new sexual partner.¹⁴ Numerous other relationship factors including partner's supportiveness throughout the menopausal transition, communication, and affection all impact relationship quality which, in turn, can impact women's sexual desire.²⁵ Based on data from the Melbourne Women's Midlife Health Project, Dennerstein et al.¹ reported that feelings for one's partner (How much passionate love do you feel for your partner? Are you satisfied with your partner as a lover?) was a significant predictor in the relation between menopause and changes in sexual desire.

Individual variables such as a woman's attitude towards sexuality and menopause, her past sexual experiences, how she conceptualizes herself as a sexual being, and the specific factors that elicit sexual desire for her could all impact whether or not she experiences a change in sexual desire and satisfaction with menopause. Koster & Garde²⁸ found that anticipation at age 40 of decreased sexual desire as a consequence of menopause predicted actual decreases in desire at age 51. It is well known that expectancies about performance can impact sexual arousal in women,³² and Koster & Garde's²⁸ study suggests that expectancies about desire can impact subsequent desire in menopausal women. Related, negative stereotypes at pre-menopause about menopause predicted a depressed mood subsequently during menopause.³³ And, Pfeiffer & Davis²⁹ found that past enjoyment and interest in sex were positively related to present sexual desire among mid to late aged women. With regard to a woman's sexual self-schema, if a woman's view of herself as a sexual being is closely tied to her reproductive abilities, then clearly the cessation of menstruation could have a negative impact on her sexual self-worth - more so than, for example, a woman who connects her sexuality with

career success and achievement. Sexual self-views or schemas would necessarily be influenced by culture. In a study of early menopausal Italian women, Nappi and Veneroni³⁴ found that women who were seeking help at a menopause clinic for sexual symptoms differed from a matched group of women seeking help for menopausal symptoms in that they ascribed greater importance to the value of beauty in their lives, and to the importance of motherhood.

There is wide variability in what triggers sexual desire in women. Rosemary Basson's³⁵ model of the female sexual response illustrates how numerous factors, both biological and psychological can influence women's sexual desire and response. It also demonstrates that spontaneous desire, such as sexual thoughts and conscious wanting and fantasizing, can augment the cycle, but numerous other intimacy-based factors are key components in what elicits desire. Understanding myriad factors that elicit desire in women and how they might change with menopause could provide insight into the precise mechanisms by which desire changes with menopause in some women and not in others.

Recently, McCall and Meston³⁶ examined whether differences existed between pre- and post-menopausal women with and without desire concerns in the triggers or cues that elicit sexual desire. Pre- (n = 65) and post- (n = 60) menopausal women were administered the Cues for Sexual Desire Scale (CSDS)³⁷ which comprises four factor analytic derived subscales of 15 items each: (1) Love/ Emotional Bonding Cues (e.g., "feeling a sense of commitment," "your partner expressed interest in hearing about you") (2) Erotic/Explicit Cues (e.g., "engaging in heavy petting," "you experience genital sensations (e.g., increased blood flow to genitals)"), (3) Visual/Proximity Cues (e.g., "seeing someone dressed sexy," "seeing/talking with someone famous"), and (4) Implicit/Romantic Cues (e.g., "laughing with a partner," "dancing closely"). Comparisons between groups indicated that, after controlling for potential age effects, post-menopausal women reported more cues of Love/Emotional Bonding associated with sexual desire compared to pre-menopausal women. There were no differences between pre- and post-menopausal women on Erotic, Visual, or Romantic cues. The higher endorsement of



Love/Emotional Bonding cues among post-menopausal women may reflect life changes that often occur during the time of menopause such as fewer daily demands (e.g., attaining financial stability, meeting career goals, children living at home, etc.) that may allow for more privacy and focus on relationships. Indeed, women who report increases in sexual desire with menopause cite more independence with children leaving home,³⁸ and having more privacy¹⁴ as reasons for their enhanced desire.

Comparisons between post-menopausal women who reported no sexual concerns ($n = 21$) and post-menopausal women who reported low sexual desire ($n = 30$) (as established by the FSFI⁹) were also conducted. Not surprising, post-menopausal women who reported desire concerns reported fewer cues on all the domains, but significant differences were noted only for Erotic and Romantic cues. Although highly speculative, the decrease in Erotic cues among post-menopausal women with desire concerns may reveal a group of women for whom genital sensations (e.g., lubrication, engorgement) were important for facilitating desire and became diminished with menopause. Of course, longitudinal research is needed to appropriately determine whether these women's levels of desire decreased with menopause, whether the importance they attributed to erotic cues changed with menopause, and whether the two are linked. Why Romantic/Implicit cues were significantly lower among post-menopausal women with versus without desire concerns is unclear. However, this finding is consistent with research among mid-aged women showing a relationship between wanting to change partner's qualities, including wanting one's partner to be more romantic and affectionate, and experiencing a decreased sexual desire.³⁹

Conclusions

Sexual satisfaction and sexual desire are linked in post-menopausal women, and desire decreases with menopause in a substantial proportion of women. The biological changes that occur during menopause could impact sexual desire either directly, by causing pain during sexuality, or via numerous more indirect mechanisms such as negatively affecting mood, energy, and/or body-image. Both partner-related

factors and individual factors such as a woman's sexual self-concept, her attitude towards menopause, her past sexuality, and her individual preference for what triggers desire could all play a role in determining whether menopause increases, decreases, or has no meaningful impact on her level of sexual desire and her overall concept of sexual satisfaction.



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