Sexual Functioning in Older Adults

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This article reviews recent medical and social science literature on sexual functioning in older adults. We provide a broad definition of sexual functioning that includes a range of solo and partnered forms of sexual expression. We identify four determinants of sexual functioning: biologic, psychological, social context (including culture), and interactions of these with each other. Recent literature on the impact of aging and physical health documents some decline in frequency of sexual activity. Interest continues in the role of hormones in male and female sexual functioning. Recent research highlights the role of the social context, especially the presence of a sexual partner and the relationship with that partner, in sexual activity. We discuss variations in sexual functioning by life course events, gender, and race and ethnicity. Relevant results from the Global Study of Sexual Attitudes and Behaviors; Male Attitudes Regarding Sexual Health Survey; and the National Social Life, Health and Aging Project are also reviewed.

Introduction

An understanding of sexual function at older ages is important from many perspectives. First, the number of older adults is notable and growing. The US Census Bureau [1] projects that by the year 2030, almost one in five Americans will be at least 65 years old. In addition, the Census Bureau projects that this age group will more than double its current size of 38.7 million to 88.5 million by the year 2050. The sheer size of this population is of concern to policymakers allocating resources for health care and other services. Furthermore, because sexual function and activity are closely linked with physical health, understanding sexual function in the later life course is important from a medical and biologic standpoint. Poor sexual function can be a marker for serious health conditions. For example, Basson [2] found that erectile dysfunction in men may be a marker for asymptomatic coronary artery disease and generally impaired endothelial function. Nineteen percent of people with HIV/AIDS in the United States are at least 50 years old [3]. Understanding the sexual behavior of older individuals also may uncover protective health benefits in addition to avenues to disease. Laumann and colleagues [4] discovered an association between subjective sexual well-being and happiness. Basson [2] suggested that improved mental state from regained sexual function may be an important component in the treatment and management of many chronic conditions concentrated among older individuals. These findings highlight the importance of integrating the social and biologic sciences into the literature on sexual function.

Despite the importance of sexual function in many professional arenas, the literature lacks a consistent and complete definition of the term and often favors biologic factors over other determinants. We first propose a comprehensive definition of sexual function. Second, we explore determinants of sexual function: biologic, psychological, social, life course, and interactions among these determinants. Finally, we examine variation in sexual function by age, gender, and race and ethnicity.

Defining Sexual Function

A first task is to define the term *sexual function*. Until recently, the published literature had concentrated on sexual dysfunctions, particularly among older men. This reflects the increasing medicalization of sexual functioning from 1990 to the present [5]. Thus, much of the literature deals with erectile dysfunction, capacity for sexual intercourse, and sexual interest. However, a broader perspective is necessary to appreciate the role of sexuality in later life. We need to consider the range of sexual activities, including solo and partnered masturbation and oral sex [6]. Also, a complete definition of sexual function includes objective and subjective components, as "subjective aspects of sexuality (eg, satisfaction with sex) may be just as relevant to quality of life as intercourse frequency" [7]. Laumann and colleagues [8] focus on *subjective sexual well-being* in their survey of men and women from 29 countries, defining it as the "cognitive and emotional evaluation of an individual's sexuality." The term refers to the perceived quality of the person's sexual life and relationships.

The components of a meaningful definition of sexual function may depend to varying degrees on relationship context: the presence of a partner (which may affect frequency of activities such as masturbation) and partner characteristics (ie, physical and mental health) [7]. Furthermore, sexual function in later life may look quite different than sexual function earlier in the life course. Decline in the frequency of sexual intercourse with age in the United States has been well documented [6]. It is usually assumed that this decline produces a decline in the quality of and satisfaction with one's sexual relationship(s). However, quality of sexual life may actually improve with age (eg, to the extent that men gain greater voluntary control over ejaculation, regardless of frequency of activity).

Observers also have called attention to heterosexist bias in conceptualizations and measurement of sexual function [9]. For example, penile–vaginal intercourse is often privileged as "good" sexual function. Thus, research focuses on sexual intimacy in heterosexual relationships, often not including the option of reporting same-sex sexual contacts or relationships. Progress in understanding also has been limited by the lack of a consistent method of measuring sexual function, which creates difficulties in comparing research [9,10•]. Schneidewind-Skibbe and colleagues [10•] documented variation in the definition of sexual intercourse across studies. West and colleagues [11] discussed varying definitions of sexual desire disorders used in research. In many surveys, only those who report sex in the past 12 months are asked about sexual dysfunction, which means that the prevalence of sexual dysfunction may be seriously underestimated [12••].

Some research has documented the variation in meaning of commonly used sexual terms among individuals. This suggests that it is important to complement quantitative surveys and analyses with qualitative work to gain insights into what is meaningful sex [13•]. A study of female partners of men using sexuopharmaceuticals found that these women were characterized by active sexual desire and rejection of the assumption that penile penetration is the only route to sexual satisfaction [13•].

Determinants of Sexual Functioning

In keeping with our call for a broad perspective, we propose that sexual functioning may be influenced by factors representing four domains: biologic, psychological, social context (including partner characteristics), and interactions.

Biologic

Several recent studies report that sexual functioning declines with age, although as noted, the measures used to define sexual function vary across studies. Analyzing data from the Massachusetts Male Aging Study (n = 1085, participants 40–70 years old), Araujo et al. [7] reported that frequency of desire, frequency of erection, and frequency of intercourse/sexual activity declined over the 9-year period of the study. Bancroft [14], considering data from the National Social Life, Health and Aging Project (NSHAP) (n = 3005 men and women, 57–85 years old), also noted the decline in frequency of sexual activity with age. He suggested that two biologic factors were involved, stating, "The presence of chronic medical conditions was associated with reduced sexual activity … although it was not a sufficient explanation for the age-related decreases in activity" [14]. He also suggested that declining levels of testosterone may be related to decreasing sexual desire in men and women. In contrast, Lindau et al. [12••] reported analyses of the NSHAP data and stated, "The frequency of sexual activity (any mutual voluntary activity that involves sexual contact) did not decrease substantially with increasing age through 74 years of age." Self-rated physical health was more strongly associated with reported sexual problems than age, suggesting a biologic relationship. They also pointed out that the prevalence of pain during sex or of men climaxing too quickly actually declined with increasing age.

The incidence of specific sexual dysfunctions increases with age [12••]. Almost one half of men and women reported one "bothersome" sexual problem. Chronic illness is associated with specific sexual dysfunctions, but links between the two vary by gender and age.

Several recent analyses implicate testosterone in the sexual functioning of aging males. We noted the suggestion by Bancroft [14] that declining testosterone levels are related to decreasing levels of sexual desire. Genazzani et al. [15] stated that declining testosterone levels were related to reduced sexual desire and increased erectile dysfunction. They pointed out that low testosterone levels were related to several chronic illnesses, including metabolic syndrome, cardiovascular disease, and type 2 diabetes. Baum and Crespi [16] estimated the prevalence of testosterone deficiency to be 20% in men 60 to 69 years old and up to 50% in men more than 80 years old. They identified many classes of medications that decrease testosterone levels. These authors recommended that physicians test older men for hypogonadism, especially those who report changes that may be symptomatic. As for treatment, both papers recommend transdermal gels and patches. Testosterone replacement is absolutely contraindicated for men suspected of having or diagnosed with carcinomas, polycythemia, severe heart failure, and certain other conditions.

Analyzing the NSHAP data among women 57 to 85 years old with a broad definition, Lindau and colleagues [12••] reported no decline in sexual activity between the ages of 57 and 74. Using a sample of 15,248 Canadian women 35 to 59 years old, Fraser and colleagues [9] reported a 12% decline in participation in sexual intercourse from ages 45 to 49 (92.8%) to ages 55 to 59 (80.8%). Age, race, and smoking were negatively related, and being married, having an "empty nest," and drinking

alcohol were positively related to reporting intercourse in the past 12 months. Neither self-reported health nor physical activity level was related to the outcome. However, health factors were significantly associated with reports of intercourse among women over 50 years of age.

Bancroft [14] stated that the role of hormones in declining frequency of sexual activity among women is not clear. Menopause clearly complicates the picture; it involves physiologic changes, cessation of fertility, negative attitudes toward menopause/postmenopausal women, and increased vulnerability to depression. According to Genazzani and colleagues [15], in postmenopausal women with hypoactive sexual desire disorder, testosterone administered by transdermal patch increases sexual desire, number of satisfactory sexual events, and self-reported sexual function.

Kingsberg [17] pointed to physiologic changes related to menopause that may negatively impact female sexual functioning. Declining estrogen levels may result in vaginal dryness and atrophy due to the diminished blood flow; these in turn may cause dyspareunia. These may be treated with a variety of over-the-counter vaginal lubricants [18]. Diminished vasocongestion also produces changes in the tissue lining the vagina. Changes in the clitoris, including shrinkage, decrease in perfusion, and diminished engorgement during sexual arousal, may affect sexual functioning. Estrogen (replacement) therapy may prevent urogenital atrophy.

Psychological

Psychological factors may be as important as or even more important than physiologic factors for sexual function [14,17]. First, psychological factors can impact the ways in which other determinants of sexual function are expressed. In the instance of sexual desire, for example, emotional and interpersonal motivation mediates the effects of sexual drive, which is produced by neuroendocrine mechanisms [19]. Motivation also mediates the effects of attitudes about sexuality, another component of sexual desire. "Driven by emotional or interpersonal factors," Kingsberg [17] wrote, motivation is "characterized by the willingness of a person to behave sexually with a given partner." Motivation also plays an important role in sexual function in that it can compensate for diminished physiologic desire for sexual activity (eg, as the result of declining testosterone levels) or result in sexual drive not being acted upon because of depression, anxiety, or anger with partner.

Psychological conditions such as depression also play an important role in sexual function. Not only is depression a risk factor for sexual dysfunction [20], the medications associated with treating it, particularly selective serotonin reuptake inhibitors, are associated with sexual dysfunctions such as anorgasmia, erectile dysfunction, and diminished libido that may persist after medication use is discontinued [21].

In addition, psychological factors are independently related to sexual function. Self-perception theory argues that individuals "make attributions about their own attitudes, feelings, and behaviors by relying on their observations of external behaviors and the circumstances in which those behaviors occur" [17]. Self-perception theory may be applicable to a situation in which a woman observes that she is receptive to her partner's initiations of sexual activity, but she herself is never the initiator. The woman thus perceives that because she engages in sexual activity only in response to her partner, she herself has low sexual desire [17].

Social context

Social context also plays a crucial role in sexual function—a role that has often been neglected in medical literature. The first area of social context that deserves attention is romantic and sexual relationship characteristics. The availability of a partner is itself an important factor for sexual function. Lindau et al. [12••] found in their survey of Americans 57 to 85 years old that although rates of sexual activity of male respondents were higher than those of female respondents, the difference in these rates was much smaller when examining men and women with a sexual partner. The difference in overall rates of sexual activity between men and women is explained largely by the relative shortage of men, which is in turn due to disparity in ages between spouses (men tend to be older than their partners), as well as improved longevity among women, which results in a shortage of men in later life. Relationship factors are important because in many cases, it is difficult to isolate sexual function from the relationship in which it occurs, and the presence or absence of a potential partner may affect desire.

In addition, characteristics of romantic relationships themselves are important determinants of sexual function. Byers [22] found that sexual satisfaction and relationship satisfaction change together, which is contrary to the hypotheses that changes in relationship satisfaction affect sexual satisfaction, or vice versa. Furthermore, Byers [22] found that changes in intimate communication between partners explained part of the change in concomitant sexual and relationship satisfaction. In addition, relationship duration may affect sexual frequency. Call et al. [23] found that the habituation to sex occurred as relationship duration increased, resulting in a decline in sexual frequency. The increase in relationship duration occurs at the same time as an individual's age, confounding the relationship between sexual activity and aging. However, sexual frequency decline is not synonymous with a decline in sexual satisfaction.

Second, the specific characteristics of an individual's sexual partner also play an important role. Individual partner characteristics such as physical and mental health status not only impact sexual function in their own right but also interact with the characteristics of the

other partner in the relationship. Asymmetries may exist in how partner characteristics, particularly the partner's sexual function, affect men and women in relationships [10•]. For example, Lindau et al. [12••] found that male physical health problems were the top reason for sexual inactivity for women and men. Furthermore, sexual activity may need to be modified because of a sexual dysfunction in one or both partners, but this does not mean sexual activity must stop altogether. For example, erectile dysfunction and vaginal lubrication problems may make vaginal intercourse undesirable but may lead to alternative sexual activity, such as oral sex. However, a mismatch in libido between partners may negatively affect sexual function and relationship quality [13•].

Finally, cultural experiences and cohort effects are important factors in sexual expression. Different cohorts of older Americans (ages 57–85 years) came of age in very different social, political, and technological surroundings. The oldest individuals experienced adolescence before or during the Great Depression, whereas the youngest grew up among the turmoil of the sexual revolution of the 1960s. Over this nearly 30-year period, increases in age at first marriage, divorce, cohabitation, and out-of-wedlock births, as well as declines in fertility and age at sexual debut have changed American family and sexual mores. In addition, improved contraceptive technology coupled with more widespread legislative and social acceptance of more liberal sexual values led to a further separation of sex from reproduction, which may be particularly pertinent to analyses of sexual activity beyond the reproductive years.

Much of this section on social context has focused on how variations in context impact sexual function, but commonalities also exist. Laumann et al. [8] discovered in their analyses of the Global Study of Sexual Attitudes and Behaviors that associations among subjective sexual well-being and physical health, mental health, sexual practices, and relationship context were consistent in a broad variety of countries from each major world region. In addition, the authors found that men reported higher levels of subjective sexual well-being regardless of sociocultural context. They also established an overall correlation between subjective sexual well-being and happiness in men and women. These findings suggest that amid substantial variation in social and cultural context, commonalities pointing to a universal sexual experience may exist.

Interactions

Biologic, psychological, and social factors rarely operate in isolation from one another. For example, one pathway in which physical health impacts sexuality is through diabetes, which is associated with decreased sexual function [24]. Whereas type 1 diabetes has a strong biologic component, nonbiologic factors can be important mediators on diabetes' impact on the individual. For example, among individuals with type 1 diabetes, positive coping behaviors in response to stress and social factors such as marital status and education contribute to regimen compliance and subsequent diabetes control [25]. It is impossible to identify all the potential interactions and feedback mechanisms that may affect sexual function. Moreover, these interactions and feedback mechanisms have not been adequately studied. Researchers and clinicians must be aware of the complex series of mediators that can impact sexual function. A broad assessment may be necessary to identify proximal and distal factors of sexual function for individuals and couples.

Changes in Sexual Function

Life course events

Whereas sexual function largely is thought to decline with increasing age [4,12••], sexual function over the course of the life course cannot be characterized solely as declining. First, Araujo et al. [7] noted that trends in sexual function in later life are nonlinear, contrary to some earlier research. Fraser et al. [9] provided one explanation for this finding—that midlife developmental factors could positively and negatively impact sexual function. Positive changes in sexual function can be attributed to factors such as increased sexual agency, no fear of pregnancy for women, and children being out of the house. Negative changes in sexual agency can result from assuming caregiving roles for parents, changes in employment and financial status, and confronting illness and death. In addition, midlife and later life can be times of partnership transitions via separation and divorce and new union formation.

Another explanation for the nonlinear relationship between age and sexual function is differing trajectories for specific sexual dysfunctions later in the life course. Lindau et al. [12••] pointed out that although erectile difficulties are more prevalent at older ages, the prevalence of pain, and, among men, climaxing too quickly are more common at younger ages. Lindau et al. [12••] also found that physical health is more important for predicting sexual dysfunction than chronological age solely, suggesting that measures of "biologic age" may be more useful than chronological age for examining some aspects of sexual function and managing sexual dysfunction in later life. These findings suggest that additional considerations need to be made when examining life course changes concomitant with increasing age.

Gender

Just as important differences in sexual function according to life course events are found, important differences between men and women must be examined. Lindau et al. [12••] reported that among those who had sex in the past

12 months, the most frequently reported sexual dysfunctions for women were low desire (43%), difficulty with vaginal lubrication (39%), and inability to climax (34%). The most frequently reported sexual dysfunctions for men were erectile difficulties (37%).

As these numbers suggest, asymmetries in male and female sexual function trajectories may exist at older ages [13•]. Kingsberg [17] found that sexual dysfunction among women decreases with age and that women at midlife or in later life may even describe their sexuality as "getting better all the time," which may be due in part to an expansion of noncoital sexual activities. However, Vares et al. [13•] found that for some women, the importance of penile–vaginal penetration increases over the later life course.

The overwhelming focus of research and writing on male sexual function in later life is erectile dysfunction [4] and the medical interventions to treat it. Vares et al. [13•] suggested that whereas many women experience a positive change in sexual function associated with sociocultural factors, such as increased sexual agency, physical decline results in declines in sexual function among men. Research, however, has not adequately examined the impact of sociocultural factors on men's sexual function. Tiefer [5] and others identified an "excessive" focus on medical causes and interventions of sexual function and dysfunction. This overemphasis on biologic and medical components of sexual function has led to a neglect of psychological, social, life course, and other factors of great importance for sexual function in later life. However different they may be individually, female and male sexual trajectories interact in the heterosexual dyad, as noted previously. More research needs to be completed to assess these interactions and the biopsychosocial factors that impact sexual function for men and women.

Race and ethnicity

Important differences in sexual function by race and ethnicity also exist. Although the literature is scarce, Laumann et al. [4] discovered differential effects of various comorbidities on erectile dysfunction by race and ethnicity. The authors posited that this may be due to differences in health-seeking behaviors by race and ethnicity, as well as different genetic endowments that affect susceptibility to sexual dysfunction via different risks of various comorbidities. As in other areas of salience for physical and social health, minorities are underrepresented, particularly minority women. Studies including and focusing on sexual function among minority subpopulations in later life are desperately needed.

Conclusions

Our review of the current literature on sexuality and aging reveals a diverse body of work reflecting complementary and at times competing perspectives. There continues to be a heavy emphasis on the study of biologic aspects of sexuality in later life and a predominance of work reflecting a medical perspective. At the same time, no consensus exists regarding the definition and measurement of sexuality in later life.

Dependence on biologic processes and indicators of sexual functioning has contributed to the widespread assumption that sexual function declines as people age. However, as we have suggested, some aspects decline, but others improve, and which aspects decline may vary by gender.

Recent quantitative and qualitative work highlights the importance of social context for understanding sexual functioning in the later life course. An obvious and important aspect is the presence or absence of a sexually functioning partner. Again, gender is implicated in that the lower rate of sexual activity among older women reflects in part the absence of a partner. To say this, of course, is to privilege partnered genital sexual activity. Although heterosexual intercourse may be the most common sexual activity for many individuals, for some, nongenital activities may be as satisfying and allow for continued physical intimacy after some illness or impairment.

Carrying this line of reasoning one step further, what is currently considered sexual dysfunction may not be dysfunction. *Dysfunction* is often defined as obstacles or impairments to genital activity that leads to orgasm (eg, erectile dysfunction, dyspareunia, and orgasmic disorder). These may lead to an unwanted cessation of activity for some but may lead to regular participation in alternate and satisfying activities in others. The simple incidence of "dysfunction" may not correspond to the number of individuals who are dissatisfied with or frustrated by their sexual functioning.

A pressing need clearly exists for more research in this area. We are especially in need of research that is interdisciplinary, that uses more than a biologic/medical perspective. We also need research on representative samples of people from racial and ethnic minority populations.

Practitioners who work with aging populations should incorporate assessments of sexual functioning into their practice routines. These assessments should include not only physical functioning but assessment of psychological and relationship aspects relevant to the person's or couple's sexual functioning. As we pointed out at the beginning of this article, people are living longer, and more of them want to maintain healthy sexual functioning.

Disclosures

No potential conflicts of interest relevant to this article were reported.

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