

Sexuality in the Older Female With Diabetes Mellitus – A Review Of the Literature

Christina R. Whitehouse

Sexuality is a multidimensional topic. This term encompasses a myriad of factors, such as being male or female, the life span from infancy to old age, physical and emotional needs, love, affection, intimacy, belonging, attitudes, feelings, expression, reproduction, pleasure, cultural and religious influences, self image, and respect. Sexuality includes a person's sexual knowledge, attitudes, values, and behaviors, as well as anatomy, physiology, and the sexual response cycle. It is integral to marital or romantic relationships and is central to a person's self-concept, self-esteem, and mental and physical health (Zeiss & Kasl-Godley, 2001). Since sex is associated with these characteristics, it can be deduced that individuals relate their status of health with their sexual activity.

Sexuality is a central aspect of being human throughout life and is influenced by the interaction of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious, and spiritual factors (World Health Organization, 2002). Sexual dysfunction is not a normal process

Sexuality is an important topic across the life continuum. Research has shown that sexuality or intimacy declines with age. This has been attributed to several factors, including but not limited to age-related changes, changes in vasculature, hormones, endocrine function, chronic disease, and psychosocial effects. Limited research has been provided on the effect diabetes mellitus may have on sexual function, especially in relation to older adults. This article will review the literature as it pertains to sexuality in the older, adult female with a specific focus on the effect of diabetes mellitus in this population. Factors that may preclude women from discussing such problems with their health care providers will be presented. Strengths and weaknesses in the literature will also be discussed, including further research needed and nursing implications.

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Urologic Nursing, pp. 11-19, 29.

Key Words: Diabetes mellitus, older adult, sexuality, sexual dysfunction.

Objectives

1. Explain how diabetes mellitus can directly or indirectly affect sexual functioning.
2. Discuss factors that prevent women from discussing sexual problems with their providers.
3. Outline the strengths and weaknesses of the literature presented in this article.
4. Describe ways for nurses to become more comfortable in encouraging dialogue with women with diabetes mellitus to determine if they are experiencing sexual function problems.

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Note: Objectives and CNE Evaluation Form appear on page 19.

Note: The author reported no actual or potential conflict of interest in relation to this continuing nursing education article.

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Christine Bradway, PhD, RN, disclosed that she is on the Consulting Board for Boehringer Ingelheim Pharmaceuticals, Inc.

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All other **Urologic Nursing** Editorial Board members reported no actual or potential conflict of interest in relation to this continuing nursing education article.

of aging. Normal changes may occur with aging that may modify or delay the sexual response of older adults. An individual's sexuality can be affected by various illnesses. In addition, sexual problems may be a warning sign or consequence of a serious underlying illness (Lindau et al., 2007). As individuals age, chronic illnesses, such as diabetes mellitus, cancer, and heart disease, may develop. Research studies have investigated various chronic illnesses, including diabetes mellitus, and their relationship to sexuality in the older adult. This article will provide a review of the literature as it pertains to sexuality in the older adult, specifically the older adult female with diabetes mellitus.

Diabetes Mellitus and Sexual Function

In 2008, the American Diabetes Association reported that 23.6 million Americans have diabetes mellitus; this equates to approximately 8% of the population, 23.1% of whom are over the age of 60. The incidence of diabetes mellitus for both women and men increases with age. For females with diabetes mellitus ranging in ages 45 to 64 and 65 to 79, the rates are 12.5% and 13%, respectively (Centers for Disease Control and Prevention, 2007). The prevalence of diabetes mellitus is at least 2 to 4 times higher among non-Hispanic African-American, Hispanic/Latino American, American Indian, and Asian/Pacific Islander women than among non-Hispanic Caucasian women (American Diabetes Association, 2008).

Diabetes mellitus can have both direct and indirect effects on sexual functioning. The direct effects are in relation to the vascular changes that occur in diabetes mellitus. This has been shown in various studies of men with diabetes mellitus and the effects of vascular changes on erectile function in the literature.

Sexual dysfunction is known to occur in approximately 50% of men with diabetes mellitus prior to age 60 (Rutherford & Collier, 2005). Individuals with diabetes mellitus may also experience neurological deficits due to the disease process, which can also affect sexual function. It has been suggested that female sexual functioning relies on psychosocial factors, such as mood and family relationships. Women with diabetes mellitus could have difficulties adjusting to their disease, and therefore, potentially have sexual problems (Rockcliffe-Fidler & Kiemle, 2003).

The National Health and Social Life Survey studied sexual behavior among American men and women aged 18 to 59 years and found that sexual dysfunction is more prevalent among women than men (43% vs. 31%) (Laumann, Paik, & Rosen, 1999). Despite this finding, current literature searches about sexual dysfunction result in a large amount of male research compared to that of women subjects. An even larger disparity exists for the amount of research among adults with diabetes mellitus older than 45 years. A Medline literature search of terms "male," "sexual dysfunction," and "diabetes" produced 2,300 results, while a literature search using the terms "female," "sexual dysfunction," and "diabetes" elicited 1,805 results. More importantly, when limiting these searches to older adults aged greater than 45 years, the results were 151 and 78, for male and female respectively. A CINAHL search provided only 7 male and 8 female articles with these age restrictions.

Review of Literature

Sexuality in Older Adults

Quality of life (QOL) is an important topic to investigate in any disease or illness. It is interesting to see how QOL is affected in older adults as it pertains to

sexual activity and intimacy. Robinson and Molzahn (2007) explored this topic in their research of 246 individuals from British Columbia, Canada. They investigated community-dwelling older adults, whose ages ranged from 60 to 99 years and with an average age of 74.4 years. Male and female participants were 28% and 74%, respectively. Sexual activity was found to be a significant predictor of QOL for the group studied. Additionally, individuals who reported high satisfaction with personal relationships also reported high ratings for QOL (Robinson & Molzahn, 2007).

Ginsberg, Pomerantz, and Kramer-Feeley (2005) examined sexuality, behaviors, and preferences of lower-income older adults. Their study consisted of 179 individuals aged 61 and older, with 63% being female, and with 82% being Caucasian. A majority of their sample reported having some physical and sexual experiences in the past year. These experiences were defined as touching, holding hands, embracing, hugging, and kissing. All activities were exhibited at least once a month. Masturbation, mutual stroking, and intercourse were not experienced by 82% of this population. The most important barrier in sexual expression was the lack of a partner. In general, excellent health and younger age increased the likelihood of wanting to be touched and wanting to have intercourse (Ginsberg et al., 2005). It is important to note that this study assessed a subset population of older adults who resided in an independent living facility. Most of the respondents were single and living alone, which may impact the generalizability of the results.

Laumann et al. (2005) reported a worldwide prevalence of sexual dysfunction (43%) among 40 to 80-year-old women. The investigators used an international survey titled the Global Study of Sexual Attitudes and Behaviors

Table 1.
Sexuality and Older Adults

Investigators	Subjects	Sex	Type of Study	Age	Results
Addis et al. (2006)	<i>n</i> = 2109	Female	Questionnaire	40 to 69	71% were sexually active. Younger age, being in a relationship, higher education, not smoking, a history of moderate alcohol use, and lower BMI were associated with reporting sexual activity.
Dennerstein et al. (1997)	<i>n</i> = 201 Premenopause <i>n</i> = 53 Perimenopausal <i>n</i> = 96 Menopausal <i>n</i> = 33	Female	Structured interviews, questionnaires, and blood samples	48 to 55	Decreased estradiol (E ₂) with age may correlate with increased vaginal dryness and increased dyspareunia. Feelings for partner and partner problems may determine sexual functioning.
Laumann et al. (2005)	<i>n</i> = 27,500 Female <i>n</i> = 13,882 Male <i>n</i> = 13,618	Female Male	Questionnaire	40 to 80	Increased age associated with sexual problems among males. Increased age associated with decreased lubrication in females; decreased interest in sex in males and females, increased ED among males, and decreased orgasm among females.
Lindau et al. (2007)	<i>n</i> = 3,005 Female <i>n</i> = 1,550 Male <i>n</i> = 1,455	Female Male	Questionnaire	57 to 85	Decreased sexual activity with age 37% prevalence of ED in males.

Note: E₂ = estradiol, ED = erectile dysfunction.

(GSSAB), which looked at various aspects of sex and relationships. The study was performed in 29 countries among 13,882 women and 13,618 men. Physical, social, emotional, and relationship factors were all found to have a significant impact on the prevalence of one or more sexual problems. In addition, increasing age was more consistently associated with sexual problems among men. Only lubrication difficulties among women were positively associated with older age. The unique strength of this study is its cross-cultural emphasis. The significant effects of age and depression across world regions support both physiological and psychological arguments about the etiology of sexual problems. A significant association between aging and the likelihood of male erectile difficulties was seen in all regions except Southeast Asia and Central/South America. Men who reported having had at least one type of vascular disease (for example, hypertension, diabetes

mellitus, heart disease, high cholesterol, and having had a stroke) were more likely to experience erectile difficulties (Laumann et al., 2005).

A large-scale study performed by Lindau et al. (2007) looked at sexual activity, behaviors, and problems among men and women in the United States. They were able to enroll 3,005 U.S. adults into the study, ages ranging from 57 to 85 years. Their results indicate that prevalence of sexual activity declined with age, and women of all ages were significantly less likely than men to report sexual activity (Lindau et al., 2007). The increased prevalence of sexual inactivity among women can be partially attributed to lack of an intimate partner or having a spouse with a form of sexual dysfunction.

Results of selected research articles on sexuality in older adults can be found in Table 1. This table is not meant to be all inclusive, but it does display cer-

tain effects associated with aging in the older population as they pertain to sexuality.

Sexuality and Older Women

When discussing older adults and sexual function, it is important to consider the physical and psychosocial changes that occur with menopause. The effects that menopause has on females may have a significant impact on a woman's sexuality depending upon the severity of their symptoms. Physical effects in postmenopausal women are related to diminished estrogen levels, which can cause vaginal atrophy, leading to a reduction of depth, width, and diminished elasticity and expansion. Vaginal transudation or lubrication is also diminished. These changes can cause dyspareunia (Yang, Toy, & Baker, 2000).

Dennerstein, Dudley, Hopper, and Burger (1997) investigated sexual functioning and menopause by using self-completed questionnaires and measurements of estro-

diol (E_2), follicle-stimulating hormone (FSH), immunoreactive inhibin (INH), total testosterone (T), and sex hormone binding globulin (SHBG) samples 3 months post-amenorrhea. This study was a longitudinal design over the course of 4 years. Two hundred and one women, aged 45 to 55 years, were included in the study. The study's purpose was to examine the effects menopause has on the aging population; therefore, subjects were recruited in the premenopausal state. Even though this group was a younger population, the results are important to consider when looking at changes between pre and post-menopause symptoms. In a previous study of 2001 females between the ages of 45 to 55 years, Dennerstein, Smith, Morse, and Burger (1994) reported that 62% of the women studied reported no change in sexual interest, while 31% reported a decrease. It was noted that the reduction of sexual interest was associated with natural menopause rather than age, decreased well being, lower education, lack of paid employment, or increased symptomatology. However, in their more recent study (Dennerstein et al., 1997), investigators were unable to confirm an association between menopausal state and sexual functioning.

A major focus of the Dennerstein et al. (1997) study was to test the internal validity, reliability, and utility of a detailed questionnaire to measure sexual functioning of a population cohort of mid-aged women. The study identified two factors, feelings for partner and partner problems, which may determine sexual behaviors in the population studied. Furthermore, sexual responsiveness was independently associated with aging, and menopausal status was not independently associated with any aspect of sexual functioning. Results also indicated T levels were not associated with female sexual motivation as has been referenced to in the literature.

Lower E_2 was positively associated with vaginal dryness and dyspareunia, while age was negatively associated with sexual responsivity (Dennerstein et al., 1997). This evidence is consistent with the research that vaginal changes due to menopause can cause atrophic changes that may result in vaginal dryness, itching, burning, and dyspareunia (Ginsberg, 2006). Although Dennerstein et al. (1997) findings suggest an endocrine etiology for sexual dysfunction in postmenopausal females, their 1994 results indicate that hormone replacement therapy with estrogen and progestin was not associated with improved outcomes for sexual function.

A recent study of sexual activity and function in middle-aged and older women was performed by Addis and colleagues (2006). This study was a population-based investigation of 2,109 women aged 40 to 69 years who were randomly selected from a health maintenance organization. The women filled out questionnaires about their sexual activity, comorbidities, and general quality of life. The results demonstrated that 71% of the females studied engaged in sexual activity in the last year, with monthly, weekly, and daily rates of 37%, 33%, and 1% respectively. Overall, younger-age women, being in a relationship, higher education, not smoking, a history of moderate alcohol use, and lower body mass index were associated with reporting sexual activity (Addis et al., 2006).

Sexual Function in Diabetic Women

Rockliffe-Fidler and Kiemle (2003) focused on the psychological factors relevant to sexual functioning in individuals with type 1 and type 2 diabetes mellitus aged 24 to 83 years. Results of semi-structured interviews indicated that compared to woman with type 1 diabetes mellitus, women with type 2 diabetes mellitus

reported less sexual preoccupation and lower overall sexual functioning scores, with significantly lower desire and enjoyment. The investigators reported that individuals with type 1 diabetes mellitus felt their disease had little impact on their sexual functioning. Those with type 2 diabetes mellitus indicated there were several changes to their sexual functioning, such as reduced desire, reduced mental arousal, feeling unable to "let go," reduced enjoyment, and tiredness. Chronic psychological issues have been associated with sexual dysfunction in older adults, including depression and anxiety (Ginsberg, 2006). Rockliffe-Fidler and Kiemle (2003) reported rates of depression were higher in those with type 2 diabetes mellitus over those with type 1. A main conclusion of this study was that women with type 2 diabetes mellitus reported significantly more difficulties in the psychological aspects of sexual functioning, including enjoyment of and interest in sexual activity and sexual desire, than women with type 1 diabetes mellitus.

Interestingly, this study also looked at levels of hemoglobin A1C (HbA_{1c}), which have been shown to correlate with control of diabetes mellitus. The lowering of HbA_{1c} has also been associated with a reduction of microvascular and neuropathic complications of diabetes mellitus and possibly macrovascular disease (American Diabetes Association, 2007). Changes in the microvascular and neuropathic pathways have been implicated in sexual dysfunction. However, Rockliffe-Fidler and Kiemle (2003) reported a significant positive correlation with HbA_{1c} and "arousal sensation" scores, indicating that poorer glycemic control was associated with better arousal sensation scores among women with type 1 diabetes mellitus.

It has been hypothesized that sexual dysfunction in women with diabetes mellitus exists due

Table 2.
Sexuality and Diabetes Mellitus

Investigators	Subjects	Sex	Type of Study	Age	Results
Doruk et al. (2005)	<i>n</i> = 127 Type 1 <i>n</i> = 21 Type 2 <i>n</i> = 50 Control <i>n</i> = 56	Female	Questionnaire	21 to 64	Type 1 compared to type 2 or control: Increased sexual dysfunction, decreased desire, decreased enjoyment, decreased orgasm.
Malacara et al. (1997)	<i>n</i> = 100 NIDDM (type 2) <i>n</i> = 49 Control <i>n</i> = 51	Female	Questionnaire and blood samples	45 to 72	NIDDM (type 2) compared to controls: Decreased age at menopause, increased central obesity, increased depression.
Rockliffe-Fidler et al. (2003)	<i>n</i> = 43 Type 1 <i>n</i> = 18 Type 2 <i>n</i> = 25	Female	Semi-structured interviews and blood samples	24 to 83	Type 2 compared to type 1: Decreased desire, decreased orgasm, decreased enjoyment, increased depression, decreased HbA _{1c}

Note: NIDDM = Non-insulin dependent diabetes mellitus, now known as type 2 diabetes mellitus.

to hyperglycemia, which reduces hydration of mucus membranes (including vaginal tissue), and therefore, results in poor lubrication and dyspareunia (Rockliffe-Fidler & Kiemle, 2003). Hyperglycemia is also associated with an increased incidence of genitourinary infections, potentially resulting in dyspareunia. The engorgement of the clitoris and lubrication of the vagina stimulated by increased blood flow during arousal may be inhibited by vascular changes or damage leading to dyspareunia or decreased arousal during sexual activity.

Doruk and colleagues (2005) studied the effects of diabetes mellitus upon female sexual function in 71 women, 21 with type 1 diabetes mellitus and 50 women with type 2 diabetes mellitus. The Female Sexual Function Index (FSFI), a 19-item questionnaire, including questions on sexual desire, arousal, lubrication, orgasm, satisfaction, and pain during sexual intercourse, was used. Results indicated the prevalence of sexual dysfunction was significantly higher in women with type 1 diabetes mellitus than women with type 2 diabetes mellitus or control subjects. These findings

are in sharp contrast to the findings of Rockliffe-Fidler and Kiemle (2003), who reported increased sexual dysfunction among women with type 2 diabetes mellitus. Comparisons of these and other studies among women with diabetes mellitus can be found in Table 2.

Sexual dysfunction in women with type 2 diabetes mellitus was compared to normal, sexually active, healthy controls by Erol and colleagues (2002). Results found a similar body mass index between both groups – 26.5 (range 21 to 31) in the control group and 29.5 (range 21 to 35.5) in the group with diabetes mellitus. Using the IFSF questionnaire, women with diabetes mellitus scored less than the control group. The percentage of women with diabetes mellitus with symptoms measured by the IFSF was significantly higher than those in the control group. This study further indicates that their results did not find a correlation with HbA_{1c}, body mass index, duration of diabetes mellitus, and presence of nephropathy between sexual dysfunction and the above listed factors in women with diabetes mellitus.

Intimacy among women with diabetes mellitus was explored by Sarkadi and Rosenqvist (2003). In this study, investigators used focus group interviews and questionnaires to study the relationship between intimacy perceived by women with type 2 diabetes mellitus and whose ages ranged from 44 to 80 years, with a mean age of 65. Following their interviews, five categories were identified in the analysis: (1) guilt and embarrassment in diabetes mellitus, (2) female intimacy and shame, (3) sexual dysfunction, (4) sex issues in physician contacts, and (5) the female patient. Of the 33 women studied, 14 women reported sexual dysfunction most commonly associated with decreased desire, interest, and lubrication.

The effects of menopause on sexuality and physical and emotional symptoms in women is an essential area to explore. Malacara, Huerta, Rivera, Esparza, and Fajardo (1997) studied these effects in menopausal women with and without a diagnosis of non-insulin dependent diabetes mellitus (NIDDM), now known as type 2 diabetes mellitus. Their cross-sectional design study in-

cluded 100 menopausal women aged 45 to 72 years. Results indicated that menopausal women with NIDDM had earlier onset of menopause, more central obesity, and less peripheral fat than those in the control group. In addition, the group of women with diabetes mellitus had more emotional symptoms than women who did not have diabetes mellitus.

Medical Encounters With Women

A patient's attitudes and feelings for her primary care provider are important to acknowledge. This is fundamental in developing a trusting relationship between provider and patient. Sadovsky and colleagues (2006) examined, at the point of patient medical encounter, a population of Afro-Caribbean women aged 40 to 80 years. These authors explored if the use of direct questioning, such as, "Do you have a problem during sex?", or ubiquity-style questioning, "Many women with diabetes mellitus have sexual problems, how about you?" better identified sexual problems. Their results indicate that ubiquity-style questions were more beneficial in identifying sexual problems. The most common problem among this population was reported to be pain with intercourse. The authors indicated there was a willingness of this population to discuss sexual problems with the clinician, and this willingness was more pronounced when using the ubiquity-style questioning (Sadovsky et al., 2006).

With regard to medical encounters among individuals with diabetes mellitus, a Swedish study conducted by Sarkadi and Rosenqvist (2001) investigated the effects of type 2 diabetes mellitus on womanhood and intimacy for women aged 44 to 80 years. A key point of this study was whether these women wanted to receive medical care for sexual disturbances. During the interviews, the women indicated that

physician age was an important determining factor in discussing sexual problems. The authors concluded that younger age was negatively associated with understanding of sexual problems in this population. Most of the women agreed that sexual discussions were to be discussed with their gynecologists rather than their primary care providers. A major point discussed in the interview was the lack of time that patients have with their health care providers. In many instances, this lack of time may impact the patient's ability to feel comfortable in discussing such problems as sexual difficulties. Some respondents felt that care providers should introduce the issue of sexual function during their visits. Interestingly, this study noted that most of the women did not know diabetes mellitus could cause female sexual dysfunction.

Nusbaum, Singh, and Pyles (2004) compared the sexual health care needs of women aged 65 and older with those of younger women. The results of their questionnaire indicated that the topic of sexual health was often not raised during office visits for older women. For both groups, not having enough time with the physician and the physician appearing to be rushed hindered the discussion regarding sexual concerns. Results also indicated that older women felt more comfortable having a physician initiate the topic (Nusbaum et al., 2004).

Strengths and Weaknesses Of Literature

Achieving good response rates in sex survey research is essential to improve the representativeness of the survey and reduce participation bias. Obtaining a representative sample increases the ability to make inferences about populations. Generally between 25% to 35% of people refuse to engage in telephone or face-to-face interviews designed to investigate

sexual attitudes and lifestyles, and non-return rates of 40% in postal surveys of this nature are common (Dunne et al., 1997). Participation bias describes error arising from systematic differences in the characteristics (for example, sexual behavior) of those who agree to participate in a study compared with those who do not. Willingness to participate in sex surveys is not especially different from willing to participate in other health-related surveys (Dunne et al., 1997). Patterns observed suggest that community surveys overestimate the degree of liberalism, activity, and diversity in the population.

Some studies mentioned in this review have large variations in populations studied. For example, Rockcliffe-Fidler and Kiemle (2003) selected women with ages ranging from 24 to 64 with type 1 diabetes mellitus and ages 35 to 83 with type 2 diabetes mellitus. Differences in answers could be related to cohort biases. Cross-sectional research has shown a gradual decline in sexual activity among age cohorts. This result, however, is difficult to account solely to age rather than other effects, such as cohort of time effects.

Longitudinal studies are extremely advantageous. Dennerstein et al. (1997) showed the differences of sexuality and hormones between pre and postmenopausal women over the course of 4 years. Although valuable information was elicited, this study did not address the changes associated with advanced age. Increasing the length of time of this study would be extremely beneficial in understanding sexuality in older adults.

A major disadvantage to most studies cited is the lack of suitable controls. A control is valuable in any study to evaluate the differences between the general public and the population under study. Many articles reviewed compared different groups, such as individ-

uals with type 1 and type 2 diabetes mellitus. The addition of control groups would add to the analysis of the groups of individuals with diabetes mellitus versus groups of participants without diabetes mellitus, allowing for more meaningful data. Control groups may also control for the changes associated with aging and not the disease process itself.

Not all studies investigating differences in sexual function among women were similar in their methodology. Within the studies mentioned, there were dissimilarities in multiple variables, such as ages of women, length of time diagnosed with diabetes mellitus, insulin usage, and HbA_{1c} levels. Each of these aspects may have an individual impact on the results provided. Collectively, effects of such variables may skew research entirely. Cohort effects may be related to cultural norms and attitudes about sex associated with generational influence.

Any link between medical diseases and sexual dysfunction is difficult to determine exclusively. As shown by the studies presented, generalizations have been made among diabetes mellitus, women, and sexual dysfunction. Some studies do not indicate comorbidities with respondents or subjects. The literature indicates the importance of cardiovascular disease as having a major impact on sexual functioning. Other illnesses that may affect sexual function include, but are not limited to, cardiovascular disease, arthritis, and cancers (DeLamater & Moorman, 2007). Additionally, medications were overlooked in many of the studies. More controlled studies, with regard to investigating the cause and effect of sexual dysfunction, especially in older populations, are warranted.

Study site is an important factor in evaluating research. Some participants were recruited from diabetes mellitus counseling or information sites. Locations such

as these may contribute to population selection biases. A major strength with the Laumann et al. (2005) study was its cross-cultural design, although problems with translation into various different dialects may have distorted their results.

Ethnic and racial minorities were lacking in the studies reviewed. This is consistent with the paucity of literature on the topics of sexuality and older adults. Ethnic older adults are a population that is largely underrepresented in the literature and needs further study.

Nursing Implications

It is extremely beneficial for nurses and other health care providers to investigate possible sexual dysfunction in patients regardless of age. As mentioned, sexual functioning is directly proportional to quality of life. It is important for clinicians to acknowledge this fact and incorporate sexual questioning into assessments. A patient with a sexual dysfunction complaint needs a thorough assessment to evaluate for any underlying problem, such as endocrine dysfunction, depression, or vascular problems. If a problem is identified, the practitioner can assist the patient by offering medications, therapy, or other treatment modalities.

A history and physical examination of the patient is extremely important. Biases, generalizations, and ageist stereotypes should not distort a practitioner into making decisions about a person's sexual function. Research has shown that sexual function is an important aspect of QOL in all persons, including older adults. It has been demonstrated that individuals provide information more readily when directly questioned about their sexual function.

Along with the increasing prevalence of chronic illnesses with age, there is an increased use of medications. Although the research was beyond the scope of

this article, it is important to acknowledge that medications can play an important role in sexual dysfunction. Older individuals may be taking multiple medications for chronic conditions. It has been estimated that more than 200 medications can cause or directly contribute to sexual dysfunction in adults of any age (Miller, 1995). Medications with the most influence on sexual function include, but are not limited to, cardiovascular medications (antihypertensives) and psychotropic drugs. Older adults with sexual dysfunction related to medication may attribute their problem with "aging" rather than with medication or disease condition. A review of the older patient's prescribed and over-the-counter medications is an essential part of the clinician's assessment.

In order to encourage open dialogue, clinicians need to become more comfortable and knowledgeable in addressing sexual function with their patients. The PLISSIT model is an intervention currently used in clinical practice. The acronym PLISSIT stands for the four levels of intervention: permission, limited information, specific suggestions, and intensive therapy. As the level of intervention increases, greater knowledge, training and skills are required by the practitioner (Taylor & Davis, 2006). This model also provides patients with the opportunity to reflect on interventions provided. The model includes several interventions for initiating and maintaining a dialogue as it pertains to sexuality in the older adult (Wallace, 2007). This involves a dialogue with patients to ensure patient understanding and that their needs are being met. The PLISSIT model is discussed in the "Try This" series from the Hartford Institute for Geriatric Nursing (Wallace, 2007). The goal of the assessment is to collect information from the patient that allows the individual to express his or

her sexuality safely.

Including the topics of sexuality and sexual assessment into nursing practice and education is vital (Shell, 2007). It is important for clinicians to examine their own attitudes and knowledge concerning sexuality. Once a dialogue of sexuality is opened, if sexual difficulty is revealed, the practitioner can then explore various possible causes for the dysfunction. Initiating a discussion regarding sex and sexual functioning as soon as possible is important for the individual and can assist the practitioner to intervene early if a pathological process is suspected.

Conclusion

Sexuality is important in the life continuum. Individuals are sexual and engage in sexual activities even into advanced age. Since populations are living longer, chronic illnesses are becoming more prevalent. These chronic illnesses can have associated direct or indirect negative effects on an individual's sexuality. As outlined in the research presented in this article, diabetes mellitus can have both direct and indirect effects on sexuality. Therefore, older adults with diabetes mellitus can be susceptible to sexual dysfunction.

Advancing age in females may prompt age-related changes, affecting sexual function. Diabetes mellitus can have negative effects on women, which can intensify the negative effects already associated with aging. The available literature has limited to no research for populations from the young-old (ages 65 to 74), the older-old (ages 75 to 84), and the oldest-old (ages 85+). More research is warranted for this population, in particular, the effects that aging and co-morbid illnesses can have on sexuality in women.

Additional research and a more thorough analysis of the causation and treatment of diabetes mellitus-related sexual dysfunction

is needed for this population of older females with diabetes mellitus. For now, it is essential that clinicians continue to assess their patients for sexual dysfunction using thorough physical examination and interviewing skills, medication review, and clinical interventions as indicated. ■

References

- Addis, I.B., Van Den Eden, S.K., Wassel-Fyr, C.L., Vittinghoff, E., Brown, J.S., & Thom, D.H. (2006). Sexual activity and function in middle-aged and older women. *Obstetrics & Gynecology*, 107(4), 755-764.
- American Diabetes Association. (2007). Standards of medical care in diabetes - 2007. *Diabetes Care*, 30 (Suppl. 1), S4-S41.
- American Diabetes Association. (2008). *Total prevalence of diabetes and pre-diabetes*. Retrieved January 12, 2009, from <http://www.diabetes.org/diabetes-statistics/prevalence.jsp>
- Centers for Disease Control and Prevention. (2007). *Incidence of diagnosed diabetes per 1000 population aged 18-79 years, by sex and age, United States, 1997-2005*. Retrieved January 12, 2009, from <http://www.cdc.gov/diabetes/statistics/incidence/fig5.htm>
- DeLamater, J., & Moorman, S.M. (2007). Sexual behavior in later life. *Journal of Aging and Health*, 19, 921-945.
- Dennerstein, L., Smith, A.M.A., Morse, C.A., & Burger, H.G. (1994). Sexuality and the menopause. *Journal of Psychosomatic Obstetrics and Gynecology*, 15, 59-66.
- Dennerstein, L., Dudley, E.C., Hopper, J.L., & Burger, H. (1997). Sexuality, hormones and the menopausal transition. *Maturitas, Journal of the Climacteric and Postmenopause*, 26, 83-93.
- Doruk, H., Akbay, E., Cayan, S., Akbay, E., Bozlu, M., & Acar, D. (2005). Effect of diabetes mellitus on female sexual function and risk factors. *Archives of Andrology*, 51, 1-6.
- Dunne, M.P., Martin, N.G., Bailey, J.M., Heath, A.C., Bucholz, K.K., Madden, P.A., et al. (1997). Participation bias in a sexuality survey: Psychological and behavioural characteristics of responders and non-responders. *International Journal of Epidemiology*, 26(4), 844-854.
- Erol, B., Tefekli, A., Oxbey, I., Salam, F., Dinag, N., Kadioglu, A., et al. (2002). Sexual dysfunction in type ii diabetic females: A comparative study. *Journal of Sex & Marital Therapy*, 28(Suppl. 1), 55-62.
- Ginsberg, T.B. (2006). Aging and sexuality. *The Medical Clinics of North America*, 90, 1025-1036.
- Ginsberg, T.B., Pomerantz, S.C., & Kramer-Feeley, V. (2005). Sexuality in older adults: Behaviours and preferences. *Age and Ageing*, 34(5), 475-80.
- Laumann, E.O., Paik, A., & Rosen, R. (1999). Sexual dysfunction in the United States: Prevalence predictors. *Journal of the American Medical Association*, 281, 534-544.
- Laumann, E.O., Nicolosi, A., Glasser, D.B., Paik, A., Gingell, C., Moreira, E., et al. (2005). Sexual problems among women and men aged 40-80 y: Prevalence and correlates identified in the Global Study of Sexual Attitudes and Behaviors. *International Journal of Impotence Research*, 17(1), 39-57.
- Lindau, S.T., Schumm, L.P., Laumann, E.O., Levinson, W., O'Muircheartaigh, C.A., Waite, L.J. (2007). A study of sexually and health among older adults in the United States. *New England Journal of Medicine*, 357, 762-774.
- Malacara, J.M., Huerta, R., Rivera, B., Esparza, S., & Fajardo, M.E. (1997). Menopause in normal and uncomplicated NIDDM women: Physical and emotional symptoms and hormone profile. *Maturitas, Journal of the Climacteric & Postmenopause*, 28, 35-45.
- Miller, C.A. (1995). Medications and sexual functioning in older adults. *Geriatric Nursing* 16, 94-95.
- Nusbaum, M.R.H., Singh, A.R., & Pyles, A.A. (2004). Sexual healthcare needs of women aged 65 and older. *Journal of the American Geriatrics Society*, 52, 117-122.
- Robinson, J.G., & Molzahn, A.E. (2007). Sexuality and quality of life. *Journal of Gerontological Nursing*, 33(3), 19-29.
- Rockliffe-Fidler, C., & Kiemle, G. (2003). Sexual function in diabetic women: A psychological perspective. *Sexual and Relationship Therapy*, 18(2), 143-159.
- Rutherford, D., & Collier, A. (2005). Sexual dysfunction in women with diabetes mellitus. *Gynecological Endocrinology*, 21(4), 189-192.
- Sadovsky, R., Alam, W., Encilla, M., Cosiquien, R., Tipu, O., & Etheridge-Otey, J. (2006). Sexual problems among a specific population of minority women aged 40-60 years attending a primary care practice. *International Society for Sexual Medicine*, 3, 795-803.
- Sarkadi, A., & Rosenqvist, W. (2000). Contradictions in the medical encounter: Female sexual dysfunction in primary care contacts. *Family Practice*, 18(2), 161-166.
- Sarkadi, A., & Rosenqvist, W. (2001). Intimacy and women with type 2 diabetes: An exploratory study using focus group interviews. *The Diabetes Educator*, 29(4), 641-651.

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