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Gender Differences in Sexual Interest or Activity among Adults with Symptomatic Heart Failure

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Abstract

Context: Problems with sexual function can have a detrimental effect on quality of life. Symptomatic heart failure has been associated with problems with sexual function, although the majority of reports are focused on men and erectile dysfunction. Understanding women's perception of and gender differences in problems with sexual function in heart failure could yield new insights.

Objectives: To determine the gender differences in reporting and bothersomeness of problems with sexual function, defined as sexual interest or activity.

Methods: Observational, cross-sectional study of adults with symptomatic heart failure from three health systems participating in a clinical trial. Eligible participants completed baseline surveys of symptom prevalence and bothersomeness. Logistic regression modeling was used to identify patient-level factors associated with problems with sexual interest or activity.

Results: Among 314 patients with heart failure, we found large differences in reporting a problem with sexual function or interest in men (62.4%, $n = 154/247$) compared with women (37.9%, $n = 25/66$, $p = 0.0004$). When the symptom was reported, both men and women found it equally bothersome; 73.4% of men and 64.0% of women responded that this problem bothered them quite a bit or very much ($p = 0.33$). After adjusting for age, marital status, and income, men relative to women were still more likely to report problems with sexual function (OR 3.5, 95% CI 1.8–6.8).

Conclusion: While men more commonly reported problems with sexual function, both genders were similarly highly bothered by this problem. These findings support the need for further research to assess and manage this symptom in both men and women with heart failure.

Keywords: heart failure; sexual interest; symptom

Introduction

SEXUAL FUNCTION is highly important to people but is understudied among those with chronic illnesses such as heart failure. Heart failure affects over 5.7 million people in the United States.[1] Patients with heart failure may experience sexual problems for a variety of reasons, including concurrent vascular disease, medications, shortness of breath, and fatigue.[2–6] Patients with heart failure who complain of sexual dysfunction report lower quality of life.[3] However, despite a high prevalence of problems with sexual function in heart failure and concomitant poor quality of life in the few studies published,[3,5,6] research on sexual function in heart failure is limited.

Prior research on sexual function in heart failure has focused on erectile dysfunction, and few studies have examined the prevalence or severity of the problem in female patients.[3,5,7,8] One study from Norway demonstrated that men were more likely to report sexual dysfunction.[2] Yet, the scope of the problem in an economically and ethnically diverse sample of patients with symptomatic heart failure has not been described.

This study examines baseline data from a large, ethnically, and socioeconomically diverse sample of patients with symptomatic heart failure participating in an intervention trial aimed at improving psychosocial well-being and quality of life. Over the course of the intervention, complaints of problems with sexual interest and function were frequent.

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Subjectively, the majority of these complaints seemed to come from the male participants, underscoring the need for a systematic evaluation of possible gender differences in complaints about sexual dysfunction. Accordingly, the objective of this study was to determine how problems with sexual function, defined here as a report of ''problems with sexual activity or interest,'' differed by gender and whether gender differences persisted after adjusting for other correlates of sexual function. We also examined for gender differences across other symptoms to understand if the gender differences were also observed across other symptoms.

Methods

Participants and setting

Patients with heart failure ($N = 314$) participated in a randomized clinical trial of a symptom management and psychosocial care intervention (Collaborative Care to Alleviate Symptoms and Adjust to Illness; CASA). Patients were identified using administrative data from three sites: an academic University-affiliated health system, a safety net hospital for the city and county of Denver, and a Veteran's Affairs Health Care System. Eligibility criteria included the following: (1) at least 18 years of age; (2) able to read and understand English; (3) had consistent access to a telephone; (4) had a primary care provider willing to facilitate intervention-related medical recommendations; (5) had a current diagnosis of heart failure with at least one of the following: (a) hospitalization primarily for heart failure (including current), (b) take at least 20 mg oral furosemide or equivalent daily in a single or divided dose, (c) brain natriuretic peptide (BNP) ≥100 or NT-proBNP ≥500, or (d) left ventricular ejection fraction ≤40%; (6) Kansas City Cardiomyopathy Questionnaire–Short Form (KCCQ-SF) score ≤70; and (7) bothered by at least one of the following symptoms recently: (a) pain, (b) depression, (c) fatigue, or (d) breathlessness. Patients were excluded if they had a diagnosis of dementia, active substance abuse or dependence (defined by either a diagnosis of abuse or dependence, an AUDIT-C ≥8, or self-reported substance abuse in the past three months), diagnosis of schizophrenia or bipolar disorder, comorbid metastatic cancer, a nursing home resident, or a recipient of a heart transplant or left ventricular assist device. Patients provided informed consent for study participation. This study was approved by the Colorado Multi-Institutional Review Board.

Measures

At the time of study enrollment, patients completed a sociodemographic survey, including detailed information on their ethnicity, gender, marital status, and insurance/payer details (e.g., Medicare, Medicaid, Private insurance, Self-Pay, Colorado Indigent Care Program). Patients then completed baseline measures that included symptoms selected from the Memorial Symptom Assessment Scale (pain, lack of energy, cough, dry mouth, nausea, drowsiness, numbness, problems with sleep, shortness of breath, problems with sexual interest or activity, or constipation). These symptoms were selected as they are physical symptoms that occur commonly or are bothersome in heart failure.[9–11] We also asked participants to name their first, second, and third most distressing symptom.[12] Patients also completed an assessment for the presence of depression (PHQ-9) and anxiety (GAD-7).[13]

Analyses

SAS 9.4© was used for all analyses. We used simple descriptive statistics, frequencies, and means for participant level variables, including age, gender, socioeconomic status, and baseline survey results. We compared categorical variables using chi-square tests (or Fisher's exact tests if cell size <5) and continuous variables using *t* tests (or Wilcoxon tests if distribution was not normal) examining for differences in symptom reporting across gender, ethnicity, and socioeconomic factors. We performed correlation tests to test for colinearity in potential covariate variables. Variables with correlation of $p < 0.25$ were then included in a logistic regression model to determine the independent association of gender on the variable of interest, problems with sexual interest or activity.

Results

Of 1593 patients contacted about the study, 259 could not be reached, 173 were ineligible, and 836 refused participation. A total of 317 patients were enrolled and randomized. Participants ($n = 314$) were aged 65.6 (±11.4) years on average, male (79%) and Caucasian (70.6%), African American (19.7%), or Latino (10.3%) (Table 1). Participants had been diagnosed with congestive heart failure on average for 104.7 (±109) months or about 8–9 years. The majority of participants had not graduated from college (68.7%) and had an annual income of under $30,000 (56.8%).

Sexual interest

Men reported trouble with sexual interest or activity far more commonly than women, 62.4% ($n = 154$) versus 37.9% ($n = 25$) ($p = 0.0004$). Overall, 45% ($n = 112$) of men reported moderate to severe distress due to problems with sexual interest or activity versus 24% (16) of women. No women reported problems of lack of sexual interest or activity as the first or second most distressing symptom. For men, 6.4% ($n = 20$) reported this as the most distressing symptom and 2.3% ($n = 7$) as the second most distressing symptom. When asked to report their third most distressing symptom, 4.7% ($n = 13$) of men and 1% ($n = 3$) of women named problems with sexual interest or activity.

Among those who reported problems with sexual interest or activity, both genders were equally highly distressed by this symptom. Of the 25 women and 154 men who reported problems with this symptom, 73.4% of men and 64.0% of women reported that this problem bothered them quite a bit or very much ($p = 0.33$).

In addition to gender, the main variable of interest, we identified other variables associated with differences in problems with sexual interest or activity at a $p < 0.25$[14]: age, marital status, and income. In multivariate modeling adjusting for these variables, we found that men were still more likely to report problems with sexual interest or activity relative to women (OR 3.5, 95% CI 1.8–6.8) (Table 2). Participants who had moderate to severe anxiety or depression also had higher independent associations with reported

Table 1. Participant Characteristics $N = 314$

	Men% (n) unless otherwise noted	*Women% (n) unless otherwise noted*	*Total% (n) unless otherwise noted*
Age (mean ± SD)	66.6 ± 10.6	61.7 ± 13.6	65.5 (±11.4)
Recruitment site			
Safety net hospital	8.0 (25)	5.4 (17)	13.4 (42)
Tertiary Academic Center	12.8 (40)	13.7 (43)	26.4 (83)
Veteran's Affairs Medical Center	58.2 (182)	2.2 (7)	60.2 (189)
Race			
African American	12.5 (39)	7.7 (24)	19.7 (63)
Caucasian	60.4 (189)	11.8 (37)	70.6 (226)
Native American	2.6 (8)	0	2.5 (8)
Other	3.5 (11)	1.6 (5)	5.1 (16)
Ethnicity			
Hispanic	8.0 (25)	2.6 (8)	10.3 (33)
Non-Hispanic	70.9 (223)	18.5 (58)	89.5 (281)
Relationship status			
Never married	8.3 (26)	1.3 (4)	9.6 (30)
Separated	3.5 (11)	0.6 (2)	4.2 (13)
Divorced	25.0 (78)	4.8 (15)	29.7 (93)
Widowed	7.7 (24)	4.2 (13)	11.8 (37)
Living with partner	4.2 (13)	1.9 (6)	6.1 (19)
Married	30.5 (95)	8.0 (25)	38.7 (120)
Education			
Less than high school	3.5 (11)	2.6 (8)	6.1 (19)
High school graduate/GED certificate	19.2 (60)	5.1 (16)	24.3 (76)
Some college	30.8 (96)	7.4 (23)	38.3 (120)
College graduate	14.4 (45)	3.5 (11)	17.9 (56)
Postgraduate work	11.2 (35)	2.2 (7)	13.4 (42)
Income level			
≤$20,000 annually	31.5 (94)	11.1 (33)	41.3 (127)
$20,001–$30,000	14.1 (42)	2.0 (6)	15.5 (48)
$30,001–$40,000	7.7 (23)	1.3 (4)	8.7 (27)
$40,001–$50,000	8.4 (25)	2.4 (7)	10.3 (32)
$50,001–$60,000	7.4 (22)	0.7 (2)	7.7 (24)
$60,001–$70,000	2.7 (8)	1.3 (4)	3.9 (12)
>$70,000	8.1 (24)	1.3 (4)	9.0 (28)
Preferred not to answer			5.1 (16)
Months since heart failure diagnosis (mean ± SD)	104.2 ± 111.8	106.0 ± 109.8	104.7 (±109.5)

Table 2. Logistic Regression Modeling: Patient Level Factors Associated with Reports of Problems with Sexual Interest or Activity

	Odds ratio	*95% confidence limits*		p
Age	0.98	0.96	1.01	0.16
Male gender	4.03	2.01	8.05	<0.0001
Separated	5.83	0.68	50.21	0.11
Widowed	0.07	0.02	0.21	<0.0001
Never married	0.46	0.19	1.14	0.09
Divorced	0.48	0.25	0.90	0.02
Married/domestic partner	1.0 (ref)			
Upper income	2.18	0.76	6.29	0.14
Middle income	1.0 (ref)			
Lower income	0.9	0.49	1.66	0.73
Smoker	1.3	0.64	2.83	0.43
Moderate anxiety/ depression	2.71	1.44	5.08	0.002

problems with sexual interest or activity (OR 2.71, 95% CI 1.44–5.08). Participants who reported being widowed, had never married, or were divorced were less likely to have reported problems with sexual interest or activity.

Gender differences across other symptoms

We found no significant gender differences across most of the other symptoms we surveyed, including lack of energy, the most prevalent symptom (93.6%), shortness of breath (90.7%), drowsiness (73.2%), difficulty sleeping (66.1%), dry mouth (66.1%) numbness (65.2%), cough (55.9%), constipation (39.3%), and nausea (31.6%). We did find significant gender differences in the reporting of pain, 77.7% of men ($n = 192$) versus 89.4% ($n = 59$) of women reported problems with pain ($p = 0.03$). (Table 3).

Discussion

Overall, we found complaints about sexual problems in about half the participant population. However, men were

Table 3. Unadjusted Gender Differences for Presence of Symptoms

Symptom reported	*Males* (n = *247*), % (n)	*Females* (n = *66*), % (n)	p
Lack of energy	93.1 (230)	95.5 (63)	0.490
Shortness of breath	91.5 (226)	87.9 (58)	0.368
Pain	77.7 (192)	89.4 (59)	0.035
Drowsiness	73.3 (181)	72.7 (48)	0.928
Difficulty sleeping	64.4 (159)	72.7 (48)	0.203
Dry mouth	64.4 (159)	72.7 (48)	0.203
Numbness	65.2 (161)	65.2 (43)	0.996
Problems with sexual interest or activity	62.4 (154)	37.9 (25)	0.0004
Cough	55.9 (138)	56.1 (37)	0.978
Constipation	36.8 (91)	48.5 (32)	0.085
Nausea	30.4 (75)	36.4 (24)	0.352

nearly twice as likely to complain about problems with sexual activity or interest compared with women. The only other symptom that demonstrated gender differences was pain, and the difference in prevalence was relatively small. Interestingly, both men and women were equally bothered by the sexual problems when they reported it. Our findings on the high overall prevalence of problems with sexual interest or activity are consistent with those previously reported in patients with advanced or symptomatic heart failure, although few have examined gender differences.[2–6] The study of heart failure patients in Norway demonstrated that male gender was associated with a higher likelihood of perceived difficulties with sex (OR 3.08, 95% CI 2.10–4.43) following an acute hospitalization.[2] In a nationally representative sample of older adults, poor physical health generally was associated with increased sexual dysfunction. In another large population-based sample of adults under the age of 59, women reported a higher prevalence of sexual dysfunction (43%) compared with men (31%). The population-based prevalence rates for women are very similar to our findings, whereas the prevalence of sexual dysfunction for men in the general population was much lower than for our sample of men with heart failure, suggesting a gender-specific cause such as erectile dysfunction may be responsible for the differences we found. Overall, the measures and methods for how sexual problems were defined vary considerably across studies making comparisons challenging.[15] Regardless, our findings have important research and clinical implications outlined below.

Research implications

We need more understanding of the scope and etiology of sexual problems because this is a common complaint that can impact quality of life. We need to further elucidate to what extent the gender differences we found are driven by a physiologic cause (e.g., erectile dysfunction or vaginal dryness due to vascular disease) or psychologic cause (e.g., erectile dysfunction due to psychologic causes, lack of desire, or depression). Furthermore, we must consider the role of societal context for the gender differences we found in sexual complaints. For instance, the availability and pervasiveness of male erectile dysfunction treatments have helped to normalize sexual dysfunction for men, which may lead to more willingness to report the symptom or even to recognize the symptom as a problem. Consideration of sexual function and performance play an important role in the treatment discussions for men with prostate cancer, yet, future sexual function or satisfaction is rarely discussed when women are considering long-term chemoprevention in breast cancer.[16–18] These societal influences and cues may impact women's willingness to report sexual dysfunction.

Clinical implications

For clinicians, recognizing that sexual problems can be hard to bring up for both providers and patients,[19] implementing a brief screening tool[20] at the time of patient intake can provide an opportunity for further discussion. Even clinicians feel ill equipped to manage sexual dysfunction, acknowledging the symptom and making appropriate referrals can be an important first step, to help improve quality of life for patients with symptomatic heart failure. We recommend this for both male and female patients, as this symptom was present in both groups, and men and women found it equally bothersome when problems with sexual interest or activity were reported.

Limitations

This study explores the baseline complaints of a cohort of symptomatic heart failure patients, who have elected to enroll in a clinical trial and may not represent all symptomatic heart failure patients. However, patients were recruited from multiple practice settings with ethnic and socioeconomic diversity, a considerable strength of this sample population. In addition, this is one of the largest studies of symptoms in heart failure patients to date. Despite these considerable strengths, one limitation to this research is that we did not ask further detailed questions about the nature of the sexual problem or complaint and therefore could not distinguish erectile dysfunction from lack of interest or problems with orgasm. It is possible that erectile dysfunction was the underlying cause of the significant gender differences we found. We also did not ask patients whether they were sexually active. Patients who were widowed or divorced were less likely to complain about sexual problems. This may be due to lack of an available partner. We also do not know how each patient may have defined sexual activity for themselves when they responded to our survey. If we consider a broad definition of sexual activity not exclusive to intercourse (e.g., masturbation), relationship status may be less relevant to the question. Further study of the status of relationships, availability of a partner, and clarity of what constitutes sexual activity is warranted.

Conclusions

Men were more likely to report complaints about sexual activity. However, when women had complaints, they were just as bothered by the symptom. Further research is needed to understand the symptom of sexual complaints (or dysfunction) among people with chronic serious illnesses such as heart failure and how it varies by gender. Integrating routine screening, treatment, or referral of sexual function should be

considered in the symptom assessment of patients with symptomatic heart failure.

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