THE JOURNAL OF
SEXUAL MEDICINE

ORIGINAL RESEARCH

EPIDEMIOLOGY & RISK FACTORS

Sexual Dysfunction in Primary Care: An Exploratory Descriptive Analysis of Medical Record Diagnoses

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ABSTRACT

Background: The prevalence of sexual dysfunction (SDx) diagnoses in primary care settings is not well known, which is a concern because of the high prevalence of comorbid chronic health conditions in patients diagnosed with SDx.

Aim: To explore the relation of SDx diagnosis, chronic health conditions, and prescription medications commonly associated with SDx for men and women in primary care using medical records diagnoses.

Methods: Exploratory descriptive analyses were used to interpret secondary data from a primary care patient database. The database included patient data from 3 family and internal medicine clinics in the St Louis metropolitan area from July 1, 2008 to June 30, 2015. Analysis included key demographic variables, chronic illness, and health conditions of hypertension, pain, prostate disorder, menopause, substance abuse, depression, anxiety, and associated medications. Analysis of the database yielded 30,627 adult patients (men: n = 12,097, mean age = 46.8 years, 65.6% white race; women: n = 18,530, mean age = 46.6 years, 59.2% white race) with significant comorbid associations between SDx and other chronic illness, health conditions, and medication prescription.

Results: Depression, anxiety, pain, hypertension, diabetes, and psychotropic medication use were significantly associated with SDx for men and women. Examination of specific SDx diagnoses showed erectile dysfunction to be significantly associated with all tested variables for men. For women, pain-related SDx diagnoses were associated more with chronic illness, health conditions, and medication use than were psychosexual SDx diagnoses (eg, orgasm), except for menopause. Prevalence varied by sex, with a higher prevalence rate of any SDx for men (13.5%) than for women (1.0%), although sex comparisons were not part of the analytics.

Clinical Translation: This study suggests the diagnosis of SDx is closely associated with other common chronic illness and health conditions and could go underdiagnosed in women in primary care.

Strengths and Limitations: The cross-sectional nature of the study limits the ability to draw causal conclusions related to the nature of the associated conditions with SDx diagnoses. The generalizability of the findings also might be limited given the specific demographic or health makeup of the St Louis area where the study was conducted.

Conclusion: The high comorbidity of SDx with mental health, chronic pain and illnesses, and medication use adds to the growing evidence that sexual health and functioning are essential components of overall well-being and holistic care for men and women. **Heiden-Rootes KM, Salas J, Gebauer S, et al. Sexual Dysfunction in Primary Care: An Exploratory Descriptive Analysis of Medical Record Diagnoses. J Sex Med 2017;14:1318–1326.**

Key Words: Dysfunction; Chronic Illness; Medication; Gender; Primary Care

INTRODUCTION

Sexual dysfunction (SDx) is a common problem in the United States, with 25% to 63% of men and women reporting at least 1 sexual problem.[1,2] The American Psychiatric Association[3] defines SDx as a significant disturbance in one's ability to sexually perform or experience sexual pleasure. Evidence suggests that diagnosis of SDx increases with age[1,4] and is associated with depression,[1,5–8] post-traumatic stress disorder[9] and other anxiety

Received June 21, 2017. Accepted September 21, 2017.

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This study was presented at the 2017 Annual Conference of the Missouri Association of Marital and Family Therapy; Lake of the Ozarks, MO; April, 22, 2017.

https://doi.org/10.1016/j.jsxm.2017.09.014

disorders,[5,8] neuropathy,[10] chronic pain,[11] diabetes,[12,13] obesity,[14] substance abuse,[15] high blood pressure,[13] and congenital heart disease.[16] The comorbidity of SDx with mental health and cardiac illness also could be a product of side effects from medications (eg, selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, total nutrient admixture, monoamine oxidase inhibitors, and antipsychotics) commonly used to treat depression and other mental health issues[17–20] and hypertension[21,22] for men and women. Older men reported difficulty in achieving or maintaining an erection, lack of sexual interest, climaxing too quickly, anxiety about sexual performance, and inability to climax; conversely, older women reported being most bothered by a lack of sexual interest, difficulty with lubrication, inability to climax, finding sex not pleasurable, and pain at vaginal entry.[2] SDx also appears to be reciprocal in couples, with male erectile dysfunction predicting female SDx.[23] Given the association of SDx with other health outcomes, identification of SDx for providing holistic care for patients in primary care is important.

Many SDx studies have used the self-report survey method.[11,12,16] Only a few studies have used medical records for establishing diagnosis prevalence; however, these are often focused on specialized populations (eg, male veterans[9] or older adults[2]) or have small samples.[7] Medical records might provide a more accurate depiction of the degree to which SDx is identified in primary care and professionally treated. This study used medical records from a large primary care sample for capturing SDx prevalence and possible comorbid mental health and chronic illness conditions for men and women. The 2 goals of this study were to (i) use medical record diagnoses to examine the prevalence of SDx diagnosis for patients seen in primary care clinics and (ii) examine SDx diagnosis and comorbid mental and chronic health conditions for men and women seen in primary care clinics.

METHODS

Subjects

Participants were obtained through secondary data analysis of patient data and demographics in the Department of Family and Community Medicine's Primary Care Patient Data Registry (PCPD) at Saint Louis University (St Louis, MO, USA). Description of how the PCPD was created can be found in previous publications.[24–27] The Saint Louis University institutional review board approved the creation and use of the PCPD for primary care research. The PCPD contains *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) codes, prescription orders and self-reported medication use, *Current Procedural Terminology* codes, social history, family history, demographics, laboratory orders, referrals, and vital signs. To be eligible for this study, patients had to be adults (≥18 years of age; n = 31,569) and have complete sociodemographic information (n = 30,627). The overall cohort was divided into male (n = 12,097; 39.5%) and female (n = 18,530; 60.5%) samples for analyses.

Demographics

Demographics included age, marital status, race, and neighborhood socioeconomic status (nSES). nSES was adapted from a validated measure using 7 zip-code–level census estimates from the American Community Survey such as percentage of households below the poverty line, receiving public assistance, or with an annual income below $35,000; percentage of men 20 to 64 years of age not in the labor force; percentage of adults at least 25 years old with less than a high school education; and log median of household income and home value.[28] Standardized index scores were assigned based on a principal components analysis of all US zip codes. Standardized scores in the PCPD were divided into quartiles of low, lower middle, upper middle, and upper nSES. A clinic usage variable was created to describe the volume of health care used and control for detection bias. For each patient, the average number of visits per month was calculated by taking the total number of visits in the period and dividing by the total number of months under observation. Average visits per month per patient were divided by quartiles and the upper quartile defined high usage.

Outcomes

Sexual Dysfunction Diagnosis

SDx was defined using ICD-9-CM codes and organized by biological sex and type of dysfunction. Female SDx included pain disorders and all other dysfunctions; male SDx included erectile dysfunction and all other dysfunctions. This organization was used to protect patient confidentiality owing to some very small cell counts when cross-tabulated with client demographics or comorbid conditions. Also, classification was based on nomenclature and classification in the ICD-9-CM coding scheme that denote psychosexual and physical disorders. In addition, female sexual pain disorders and male erectile dysfunction were the most common SDx in our sample. Table 1 lists the ICD-9-CM codes and descriptions used for classification.

Chronic Illness and Mental Health Diagnosis

Chronic illness and mental health diagnoses were selected based on previous research showing significant co-occurrence with SDx. In addition, we narrowed these diagnoses further by those commonly treated in a primary care setting. ICD-9-CM primary visit codes were used to define the presence of mental health and chronic illness conditions common to primary care. For depression and any anxiety disorder (anxiety disorder unspecified, generalized anxiety disorder, panic disorder, obsessive compulsive disorder, social phobia, or post-traumatic stress disorder), a patient must have had at least 2 diagnoses for the same condition within any 12-month period.[29,30] Smoking status was determined using ICD-9-CM diagnosis and social history data. Substance use disorder was defined by any codes for alcohol or any drug abuse or dependence.

Table 1. ICD-9-CM codes used to define male and female sexual dysfunctions in 30,627 primary care patients

Types of Sexual Dysfunction	ICD-9-CM code	Description	Men (n = 12,097), n (%)	Women (n = 18,530), n (%)
Psychosexual dysfunction	302.70	Psychosexual dysfunction, unspecified	23 (0.2)	6 (0.03)
	302.71	Hypoactive sexual desire disorder	0 (0.0)	11 (0.06)
	302.72	Psychosexual dysfunction with inhibited sexual excitement	22 (0.18)	7 (0.04)
	302.73	Female orgasmic disorder (women only)	—	<5 (NA)*
	302.74	Male orgasmic disorder (men only)	0 (0.0)	—
	302.75	Premature ejaculation (men only)	19 (0.2)	—
	302.79	Psychosexual dysfunction with other specified psychosexual dysfunctions	5 (0.04)	<5 (NA)*
	799.81	Decreased libido	161 (1.3)	61 (0.3)
Physical disorder (men)	607.84	Erectile dysfunction (men only)	1,409 (11.6)	—
Pain disorder (women)	302.76	Dyspareunia, psychogenic (women only)	—	0 (0.0)
	306.51	Psychogenic vaginismus (women only)	—	<5 (NA)*
	625.0	Dyspareunia (women only)	—	96 (0.5)
	625.1	Vaginismus (women only)	—	<5 (NA)*

ICD-9-CM = *International Classification of Diseases, Ninth Revision, Clinical Modification*; NA = not applicable.
*Cells with fewer than 5 patients are reported as "<5" to protect patient privacy and confidentiality.

Obesity was defined by a body mass index of at least 30.0 kg/m^2 and/or an ICD-9-CM diagnosis. Vascular disease was a composite variable including diagnoses for cerebrovascular disease and cardiovascular disease (ischemic heart disease, disease of pulmonary circulation, other heart disease, hypertensive heart disease, and myocardial infarction). Other cardiometabolic conditions identified using diagnostic codes included type 2 diabetes, hypertension, and hyperlipidemia. Pain conditions included more than 900 diagnoses that were categorized into 5 variables: neuropathy, headache, back pain, musculoskeletal pain, and arthritis. Other variables included ICD-9-CM indications for menopause in women (ie, 627x, V49.81, 256.2, and 256.31) and prostate disorders in men (ie, 600x, 601x, 602x).

Medications

Medications examined included those with previous research showing an association with SDx and are commonly prescribed in primary care. The resulting list included psychotropic, antihypertensive, and prostate medications. Medication information was obtained from physician prescription orders and from patient self-reported medication use during history taking. Psychotropic medications were grouped in 4 categories for analysis: (i) antidepressants (monoamine oxidase inhibitors, selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, tricyclic antidepressants, and other classes); (ii) benzodiazepines (alprazolam, clonazepam, diazepam, lorazepam, chlordiazepoxide, clorazepate); (iii) atypical antipsychotics (aripiprazole, asenapine, clozapine, lurasidone, olanzapine, paliperidone, quetiapine, risperidone, ziprasidone, iloperidone); and (iv) mood stabilizers (carbamazepine, valproic acid, valproate, divalproex, clonazepam, lamotrigine, gabapentin, topiramate, lithium). Antihypertensive medications included the following classes: angiotensin-converting enzyme inhibitors, angiotensin-converting enzyme and thiazide, angiotensin receptor blockers, angiotensin receptor blocker and thiazide, α-central blockers, α-peripheral blockers, β-blockers, β-blockers and thiazide, calcium channel blockers dihydropyridine, calcium channel blockers non-dihydropyridine, loop, potassium sparing, vasodilators, and other miscellaneous types. Prostrate medications included (i) 5-α-reductase inhibitors; (ii) α_1-adrenergic blockers; and (iii) α_1-adrenergic blockers.

Analytical Approach

Because this was an exploratory analysis of retrospective data from 2008 to 2015, the entire observation period was treated cross-sectionally. Men and women were analyzed as 2 separate samples. First, overall characteristics, comorbidities, and SDx of male and female samples were described using means and SDs or frequencies and percentages. Comorbidities and characteristics of men and women were assessed for relations with each of the 2 SDx outcomes in the male (psychosexual dysfunction and erectile dysfunction) and female (psychosexual dysfunction and pain disorders) samples using χ^2 tests for categorical variables and independent-samples t-tests for continuous variables. For cells with fewer than 5 subjects, the Fisher exact test was used instead of χ^2 tests. All analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC, USA) at a P value less than .05.

RESULTS

The cohort was composed of 39.5% men (n = 12,097) and 60.5% women (n = 18,530) with an average age of 46.8 years (SD = 17.0) for men and 46.6 years (SD = 17.2) for women. Most subjects (~83%) were 18 to 64 years old. Table 2 presents summary characteristics and diagnoses for the male and female samples. For men, prevalence of psychosexual dysfunction was

Table 2. Sample characteristics of adult primary care patients (n = 30,627)*

Characteristics and Outcomes	Men (n = 12,097)	Women (n = 18,530)
Age (y), mean (SD)	46.8 (17.0)	46.6 (17.2)
Age category		
18–39	4,867 (40.2)	7,612 (41.1)
40–64	5,225 (43.2)	7,861 (42.4)
>64	2,005 (16.6)	3,057 (16.5)
White race	7,939 (65.6)	10,978 (59.2)
Married	5,571 (46.1)	7,241 (39.1)
nSES		
Lowest	2,969 (24.5)	4,712 (25.4)
Lower middle	3,068 (25.4)	4,447 (24.0)
Upper middle	2,924 (24.2)	4,898 (26.4)
Highest	3,136 (25.9)	4,473 (24.1)
High clinic use	2,776 (22.9)	4,893 (26.4)
Depression	659 (5.5)	1,891 (10.2)
Any anxiety	577 (4.8)	1,404 (7.6)
Any substance dependence	579 (4.8)	359 (1.9)
Arthritis	2,724 (22.5)	5,247 (28.3)
Hyperlipidemia	3,199 (26.4)	3,665 (19.8)
Hypertension	3,840 (31.7)	5,615 (30.3)
Vascular disease	1,677 (13.9)	2,006 (10.8)
Type 2 diabetes	1,461 (12.1)	2,001 (10.8)
Obesity	4,459 (36.9)	7,573 (40.9)
Prostate disorders	1,056 (8.7)	—
Menopause	—	1,410 (7.6)
Antidepressant medication	2,392 (19.8)	5,831 (31.5)
Benzodiazepine medication	884 (7.3)	2,240 (12.1)
Mood stabilizer medication	931 (7.7)	2,108 (11.4)
Atypical antipsychotic medication	316 (2.6)	605 (3.3)
Antihypertensive medication	4,261 (35.2)	6,569 (35.5)
Prostate function drugs	1,027 (8.5)	—
Sexual dysfunction		
Psychosexual dysfunction	223 (1.8)	83 (0.5)
Erectile dysfunction	1,409 (11.6)	—
Pain	—	99 (0.5)

nSES = Neighborhood socioeconomic status.
*Data are presented as number percentage unless noted otherwise.

1.8% and that for erectile dysfunction was 11.6%. Of men, 65.6% were white and 46.1% were married. Approximately half had at least an upper middle nSES and approximately one fourth had high clinic usage. For women, prevalence of psychosexual dysfunction was 0.5% and that for pain was 0.5%. Of women, 59.2% were white and 39.1% were married. Approximately 50.5% has at least an upper middle nSES and 26.4% had high clinic usage. Table 2 presents the prevalence of other diagnoses and medications in the male and female samples.

Table 3 presents the relation of each SDx outcome with comorbidities in men. Among men, psychosexual dysfunction was associated with older age, higher clinic usage, and higher prevalence of all comorbidities except for any substance dependence, smoking, neuropathy, and vascular disease. Also, all medications were positively associated with psychosexual dysfunction. As presented in Table 3, erectile dysfunction was significantly related to all demographic, diagnostic, and medication variables except antipsychotic medication use.

Table 4 presents the relation of each SDx with all comorbidities and patient characteristics in women. For women, presence of psychosexual dysfunction diagnoses was significantly associated with white race; being married; high clinic usage; depression; substance abuse; anxiety condition; headache; menopause; medication use of antidepressants, benzodiazepines, and mood stabilizers; and muscle pain. Pain-related sexual disorders for women were related to being younger, being married, and having high clinic usage, any anxiety condition, hyperlipidemia, hypertension, type 2 diabetes, all medication types, and obesity.

DISCUSSION

The results suggest that the prevalence of any SDx in our primary care sample was 13.5% for men and 1.0% for women. This likely underestimates the prevalence rate because previous studies have reported substantially larger numbers for men and women in the United States.[1] Diagnosis of SDx was associated with different medical and psychological comorbidities and psychotropic and antihypertensive medication use, which differ in contribution by biological sex and by type of SDx. This seemed to be most marked for men related to erectile dysfunction, which showed associations with all other demographic, chronic illness, mental health, and medication prescriptions. Age, being married, racial minority status, and lower nSES were associated with erectile dysfunction. For women, a similar finding was found in which older age, being married, and racially white were associated with psychosexual dysfunctions. For chronic illness and mental health, our findings uphold previous studies showing co-occurring SDx with pain and heart conditions, anxiety and depression diagnoses, and obesity.

The medications examined in this study were purposefully picked based on previous studies showing the comorbid nature of cardiac, prostate, and mental health treatments with SDx. This seems to be due to the function of the illnesses (eg, hypertension decreasing blood flow for maintaining erection) or a side effect from commonly used medications (eg, selective serotonin reuptake inhibitors for depression can decrease sexual desire or interest) to treat these conditions.[17–22] The high comorbidity of SDx with mental health, chronic pain and illnesses, and medication is consistent with previous research and adds to growing evidence that sexual health and functioning are important components to overall well-being and holistic care for men[31] and women.[32]

The higher rate of SDx diagnosis, in particular erectile dysfunction, found for men could be a product of the early medicalization of male sexual functioning[33] leading to the

Table 3. Prevalence of sociodemographic characteristics and comorbidities by sexual dysfunction in adult primary care patients (n = 12,097 men)*

Characteristics and Comorbidities	Psychosexual dysfunction			Erectile dysfunction		
	No (n = 11,874)	Yes (n = 223)	*P* value	No (n = 10,688)	Yes (n = 1,409)	*P* value
Age (y), mean (SD)	46.7 (17.0)	51.7 (12.6)	<.0001	45.3 (17.0)	57.7 (11.8)	<.0001
Age category						
18–39	4,829 (40.7)	38 (17.0)		4,763 (44.6)	104 (7.4)	
40–64	5,071 (42.7)	154 (69.1)	<.0001	4,329 (40.5)	896 (63.6)	<.0001
>64	1,974 (16.6)	31 (13.9)		1,596 (14.9)	409 (29.0)	
White race	7,804 (65.7)	135 (60.5)	.106	7,249 (67.8)	690 (49.0)	<.0001
Married	5,454 (45.9)	117 (52.5)	.052	4,814 (45.0)	757 (53.7)	<.0001
nSES						
Lowest	2,916 (24.6)	53 (23.8)		2,496 (23.3)	473 (33.6)	
Lower middle	3,025 (25.5)	43 (19.3)	.135	2,764 (25.9)	304 (21.6)	<.0001
Upper middle	2,864 (24.1)	60 (26.9)		2,588 (24.2)	336 (23.8)	
Highest	3,069 (25.8)	67 (30.0)		2,840 (26.6)	296 (21.0)	
High clinic usage	2,697 (22.7)	79 (35.4)	<.0001	2,218 (20.8)	558 (39.6)	<.0001
Depression	617 (5.2)	42 (18.8)	<.0001	521 (4.9)	138 (9.8)	<.0001
Any anxiety	550 (4.6)	27 (12.1)	<.0001	476 (4.5)	101 (7.2)	<.0001
Any substance dependence	567 (4.8)	12 (5.4)	.674	457 (4.3)	122 (8.7)	<.0001
Smoker	2,889 (24.3)	61 (27.3)	.297	2,501 (23.4)	449 (31.9)	<.0001
Neuropathy	684 (5.8)	19 (8.5)	.081	527 (4.9)	176 (12.5)	<.0001
Headache	729 (6.1)	31 (13.9)	<.0001	648 (6.1)	112 (7.9)	.006
Back pain	2,186 (18.4)	77 (34.5)	<.0001	1,805 (16.9)	458 (32.5)	<.0001
Muscle pain	2,387 (20.1)	81 (36.3)	<.0001	1,987 (18.6)	481 (34.1)	<.0001
Arthritis	2,635 (22.2)	89 (39.9)	<.0001	2,157 (20.2)	567 (40.2)	<.0001
Hyperlipidemia	3,099 (26.1)	100 (44.8)	<.0001	2,452 (22.9)	747 (53.0)	<.0001
Hypertension	3,741 (31.5)	99 (44.4)	<.0001	2,955 (27.7)	885 (62.8)	<.0001
Vascular disease	1,641 (13.8)	36 (16.1)	.320	1,306 (12.2)	371 (26.3)	<.0001
Type 2 diabetes	1,420 (12.0)	41 (18.4)	.004	1,066 (10.0)	395 (28.0)	<.0001
Obesity	4,343 (36.6)	116 (52.0)	<.0001	3,682 (34.5)	777 (55.2)	<.0001
Prostate disorders	1,018 (8.6)	38 (17.0)	<.0001	779 (7.3)	277 (19.7)	<.0001
Antidepressant medication	2,290 (19.3)	102 (45.7)	<.0001	1,987 (18.6)	405 (28.7)	<.0001
Benzodiazepine medication	851 (7.2)	33 (14.8)	<.0001	728 (6.8)	156 (11.1)	<.0001
Mood stabilizer medication	906 (7.6)	25 (11.2)	.047	744 (7.0)	187 (13.3)	<.0001
Atypical antipsychotic medication	302 (2.5)	14 (6.3)	.001	285 (2.7)	31 (2.2)	.302
Antihypertensive medication	4,144 (34.9)	117 (52.5)	<.0001	3,312 (31.0)	949 (67.4)	<.0001
Prostate function drugs	993 (8.4)	34 (15.3)	.0003	780 (7.3)	247 (17.5)	<.0001

nSES = neighborhood socioeconomic status.
*Data are presented as number (percentage) unless noted otherwise.

creation of medications (eg, Viagra) and the marketing of these medications to men and their partners to easily treat such ailments. This stands in contrast to female SDx in which research on pharmacologic interventions, including hormone therapies, has been mixed and shown increased risks of negative side effects for women.[34] As a result, female sexual functioning compared with male sexual functioning with a readily available prescription might be less likely to come up in a primary care office.

The low prevalence of female psychosexual (0.45%) and pain-related (0.54%) dysfunction was surprising given previous studies showing higher rates for women. However, the low prevalence of SDx in our sample suggests low rates of detection, which was likely due to lack of screening and discussion of SDx. This is consistent with the limited existing literature. In a previous study in primary care from 1997,[35] the researchers found a large discrepancy between SDx reported by patients (17–42%) on a survey and what was noted in the medical records by their physicians (2%). Our results combined with this 1 prior study support the conclusion that physicians might under-record or not engage in routine sexual health interviews with women (and men) in primary care.[36] A lack of time, patient presentation for unrelated reasons,[36] or fear of "opening a can of worms" owing to the complexity and sensitivity of SDx[37] could lessen the chances of talking about patient sexual concerns. However, high clinic use was significantly associated with SDx diagnosis across male and female patients. Conversations about sexual concerns

Table 4. Prevalence of sociodemographic characteristics and comorbidities by sexual dysfunction in adult primary care patients (n = 18,530 women)*

Characteristics and Comorbidities	Psychosexual dysfunction			Pain		
	No (n = 18,447)	Yes (n = 83)	*P* value	No (n = 18,431)	Yes (n = 99)	*P* value
Age (y), mean (SD)	46.6 (17.2)	44.5 (12.8)	.267	46.7 (17.2)	41.7 (14.3)	.004
Age category						
18–39	7,581 (41.1)	31 (37.4)		7,558 (41.0)	54 (54.6)	
40–64	7,812 (42.4)	49 (59.0)	.0009	7,822 (42.4)	39 (39.4)	.004
>64	3,054 (16.6)	<5 (NA)†		3,051 (16.6)	6 (6.1)	
White race	10,920 (59.2)	58 (69.9)	.048	1,0911 (59.2)	67 (67.7)	.087
Married	7,190 (39.0)	51 (61.5)	<.0001	7,192 (39.0)	49 (49.5)	.033
nSES						
Lowest	4,697 (25.5)	15 (18.1)		4,691 (25.4)	21 (21.2)	
Lower middle	4,427 (24.0)	20 (24.1)	.102	4,430 (24.0)	17 (17.2)	.127
Upper middle	4,879 (26.4)	19 (22.9)		4,869 (26.4)	29 (29.3)	
Highest	4,444 (24.1)	29 (34.9)		4,441 (24.1)	32 (32.3)	
High clinic usage	4,854 (26.3)	39 (47.0)	<.0001	4,858 (26.4)	35 (35.4)	.043
Depression	1,869 (10.1)	22 (26.5)	<.0001	1,876 (10.2)	15 (15.2)	.103
Any anxiety	1,381 (7.5)	23 (27.7)	<.0001	1,388 (7.5)	16 (16.2)	.001
Any substance dependence	355 (1.9)	<5 (NA)†	.078	358 (1.9)	<5 (NA)†	.999
Smoker	3,322 (18.0)	17 (20.5)	.558	3,318 (18.0)	21 (21.2)	.407
Neuropathy	1,192 (6.5)	6 (7.2)	.777	1,192 (6.5)	6 (6.1)	.870
Headache	2,652 (14.4)	19 (22.9)	.027	2,654 (14.4)	17 (17.2)	.433
Back pain	3,990 (21.6)	21 (25.3)	.418	3,986 (21.6)	25 (25.3)	.382
Muscle pain	4,294 (23.3)	34 (41.0)	.0001	4,300 (23.3)	28 (28.3)	.245
Arthritis	5,212 (28.2)	35 (42.2)	.005	5,217 (28.3)	30 (30.3)	.660
Hyperlipidemia	3,646 (19.8)	19 (22.9)	.475	3,658 (19.8)	7 (7.1)	.002
Hypertension	5,591 (30.3)	24 (28.9)	.783	5,594 (30.3)	21 (21.2)	.048
Vascular disease	2,001 (10.8)	5 (6.0)	.158	1,995 (10.8)	11 (11.1)	.927
Type 2 diabetes	1,996 (10.8)	5 (6.0)	.160	2,001 (10.9)	0 (0.0)	.001
Obesity	7,531 (40.8)	42 (50.6)	.071	7,545 (40.9)	28 (28.3)	.011
Menopause	1,396 (7.6)	14 (16.9)	.001	1,399 (7.6)	11 (11.1)	.188
Antidepressant medication	5,783 (31.4)	48 (57.8)	<.0001	5,786 (31.4)	45 (45.4)	.003
Benzodiazepine medication	2,222 (12.1)	18 (21.7)	.007	2,219 (12.0)	21 (21.2)	.005
Mood stabilizer medication	2,093 (11.4)	15 (18.1)	.054	2,090 (11.3)	18 (18.2)	.032
Atypical antipsychotic medication	602 (3.3)	<5 (NA)†	.753	598 (3.2)	7 (7.1)	.033
Antihypertensive medication	6,543 (35.5)	26 (31.3)	.431	6,541 (35.5)	28 (28.3)	.135

NA = not applicable; nSES = neighborhood socioeconomic status.
*Data are presented as number (percentage) unless noted otherwise.
†Cells with fewer than 5 patients are reported as "<5" to protect patient privacy and confidentiality.

might happen in primary care only when it seems necessary or if patients' indicate they have a concern on a brief questionnaire before the visit,[12] and high clinic use might allow time for a more thorough assessment of sexual concerns as patients and physicians build a trusting relationship with each other. Also, diagnoses or concerns related to SDx could be noted in the narrative of the session (eg, "Patient reports concerns about low sexual desire") but no formal diagnosis is recorded in the electronic health record. Culturally, benevolent sexism[38] and ageism[39] on the part of the physician might make it less likely that a conversation about sexuality will occur with women and older patients in particular. However, in larger community samples of women, including older women, studies have found that most women report regular sexual activity,[40] suggesting conversations about sexuality in primary care are important for holistic care. In addition, female patients might be referred to gynecology for a more thorough assessment, accurate diagnosis, and treatment of SDx.[41] Moreover, most female patients might talk about sexual functioning only at gynecologic visits and not see the primary care visit as the place to discuss sex. Any of these reasons or a combination of these reasons could explain the very low rate of SDx diagnosis in the female sample.

Implications for Practice and Medical Education

The most striking feature of this analysis is the underdiagnosis of SDx in primary care, with women being disproportionately

affected. Medical staff might believe that patients will bring up their concerns; concurrently, patients might believe physicians will ask about sexual functioning, creating a "standoff" and potential gap in care.[42] From the limited research available on patient comfort, patients, including older patients, seem to be open to discuss their sexual health and desire their physicians to initiate the conversation.[42–44] However, the current state of medical education in the United States could make this difficult for physicians because sexual health is often not well-integrated into medical education curricula.[45,46] Nevertheless, a more holistic approach to health requires the inclusion of sexual health screenings and questionnaires as part of normal medical routine.[43,44] Providers should foster an environment where patients feel safe to discuss sexual health by initiating the conversation[43] and allowing patients to decide if it is a problem they want to address.[47] Providers also will want to partner with local sex and marital therapists and behavioral health professionals for assistance in treating the psychological and relational aspects of SDx and quality-of-life concerns of the patient.

Limitations and Future Research

Limitations exist for this study. First, the cross-sectional nature of the study means we cannot draw causal conclusions related to the nature of the associated conditions with the SDx diagnoses. Second, the generalizability of the findings might be limited given the specific demographic or health makeup of the St Louis area where the patient sample was obtained from. Other areas of the country might have different prevalence rates based on characteristics of the population area. Third, although our interpretation of the results suggests ideas about what might be happening in physician-patient communication (ie, a lack of sexual history taking or patients not disclosing sexual concerns), this study did not collect such data and therefore there could be other issues that lessen the chances of sexual concerns being identified and diagnosed. Further research could record primary care medical appointments and look for frequency of conversations about sexual concerns and history taking to obtain a more accurate picture of how and whether sexual health is addressed in primary care.

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Conflicts of Interest: The authors report no conflicts of interest.

Funding: None.

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