



Sexual Dysfunction among Latino men and women with poorly controlled diabetes

## Journal of Health Disparities Research and Practice

Volume 7

Issue 1 *Sexual Health Among Heterosexual  
People of Color Across The Lifespan*

Article 6

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2014

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#### Recommended Citation

Kenya, Sonjia; Lebron, Cynthia N.; Li, Hua; Alonzo, Yisel; Reyes, Ernesto; and Carrasquillo, Olveen (2014) "Sexual Dysfunction among Latino men and women with poorly controlled diabetes," *Journal of Health Disparities Research and Practice*: Vol. 7: Iss. 1, Article 6.

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## Sexual Dysfunction among Latino men and women with poorly controlled diabetes

### Abstract

Latinos are the largest minority population in the United States and are diagnosed with diabetes at nearly twice the rate of non-Hispanic whites. Latinos not only suffer disproportionately from diabetes but also from diabetes related complications, including sexual dysfunction. Much of the existing literature on sexual dysfunction among Latinos with diabetes has focused on erectile dysfunction (ED). There is a dearth of information on sexual functioning among Latina women with diabetes or information on both genders in other sexual domains. Our study examined the prevalence of sexual dysfunction among a cohort of 106 poorly controlled Latino diabetics in South Florida who participated in the Miami Healthy Heart Initiative, an NIH/NLBI sponsored clinical trial addressing diabetes management among Latinos. We explored gender differences in various domains of sexual health and examined the role of poor glycemic control and depression on sexual dysfunction. A large proportion of both genders in our sample met the criteria for sexual dysfunction though females exhibited a greater prevalence than males. Depression affected more than one third of our sample, but we did not find any significant associations between sexual dysfunction and depression. We also did not find a linear correlation between glycemic control and sexual dysfunction. We concluded that interventions are needed to address high rates of sexual dysfunction among Latinos with diabetes with particular emphasis on Latina women, who were much more likely than men to report problems with desire and other areas of sexual functioning. Until effective pharmacologic agents to improve desire among women with diabetes become available, clinicians caring for this population should consider behavioral approaches that may limit the impact of sexual dysfunction.

### Keywords

sexual dysfunction; Latino Sexual Health; Low Sexual Desire; Diabetes Complications

### Cover Page Footnote

The study was supported by an award from NIH/NHLBI R01 HL083857.

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**Journal of Health Disparities Research and Practice**  
**Volume 7, Issue 1 Special Issue, Spring 2014, pp. 53-64**  
© 2011 Center for Health Disparities Research  
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## **Sexual Dysfunction among Latino Men and Women with Poorly Controlled Diabetes**

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### **ABSTRACT**

Latinos are the largest minority population in the United States and are diagnosed with diabetes at nearly twice the rate of non-Hispanic whites. Latinos not only suffer disproportionately from diabetes but also from diabetes related complications, including sexual dysfunction. Much of the existing literature on sexual dysfunction among Latinos with diabetes has focused on erectile dysfunction (ED). There is a dearth of information on sexual functioning among Latina women with diabetes or information on both genders in other sexual domains. Our study examined the prevalence of sexual dysfunction among a cohort of 106 poorly controlled Latino diabetics in South Florida who participated in the Miami Healthy Heart Initiative, an NIH/NLBI sponsored clinical trial addressing diabetes management among Latinos. We explored gender differences in various domains of sexual health and examined the role of poor glycemic control and depression on sexual dysfunction. A large proportion of both genders in our sample met the criteria for sexual dysfunction though females exhibited a greater prevalence than males. Depression affected more than one third of our sample, but we did not find any significant associations between sexual dysfunction and depression. We also did not find a linear correlation between glycemic control and sexual dysfunction. We concluded that interventions are needed to address high rates of sexual dysfunction among Latinos with diabetes with particular emphasis on Latina women, who were much more likely than men

-Kenya et al.

to report problems with desire and other areas of sexual functioning. Until effective pharmacologic agents to improve desire among women with diabetes become available, clinicians caring for this population should consider behavioral approaches that may limit the impact of sexual dysfunction.

**Keywords:** sexual dysfunction, Latino sexual health, low sexual desire, diabetes complications

## **INTRODUCTION**

Latinos are currently the largest minority group in the United States (U.S. Census Bureau, 2012). Further, they are expected to represent one third of the US population by 2050 (U.S Census Bureau, 2008). In addition, the incidence and prevalence of diabetes in this group is nearly twice the rate of non-Hispanic whites (CDC, 2011). It is estimated that nearly half of all Latinos over 45 years of age suffer from diabetes or impaired glucose tolerance (Cowie et al, 2009). Latinos not only suffer disproportionately from diabetes but also from diabetes related complications (National Alliance for Hispanic Health, 2010). While prior studies have shown that anywhere from 20-75% of adults with diabetes report sexual dysfunction (National Diabetes Information Clearinghouse, 2008) to date much of the existing literature among Latinos has focused on erectile dysfunction (ED). There have been few studies on other sexual domains among both genders with diabetes, far fewer for Latinos. Thus, increasing the knowledge base on sexual health among this rapidly growing and high risk population is of major public health importance.

In this descriptive study we report the prevalence of sexual dysfunction among a cohort of poorly controlled Latino diabetics in South Florida. We also explore gender differences in various domains of sexual health. Poor glycemic control and depression have both been implicated as contributing to higher rates of sexual dysfunction among non-Latinos with diabetes, therefore, the role of these two factors on sexual dysfunction were studied.

## **METHODS**

The Miami Healthy Heart Initiative (MHHI) is a NIH/NLBI sponsored clinical trial examining the impact of a one year community health worker (CHW) intervention on blood pressure, cholesterol and hemoglobin A1c (HbA1c) among 300 Latino diabetics. Participants were recruited from the internal medicine outpatient clinics of Jackson Memorial Hospital (Miami-Dade county public hospital system). To qualify for the study patients had to be between 30-70 years of age, diagnosed with diabetes for at least 6 months and had at least one HbA1c  $\geq 8$  in the past year. Once patients were enrolled in the study, they underwent a comprehensive baseline intake and phlebotomy at the University of Miami Clinical Research Center (Clinical Translational Science Institute, Core and Shared Resources). They were subsequently randomized to a control group or the CHW intervention arm. Patients in the CHW intervention received one year of home visits, telephone contacts and group health education. All interactions between CHWs and patients were tracked.

Within one month of randomization, patients in the CHW arm received a home visit. In order to establish an individualized plan of care, in the initial visits CHWs conducted a structured assessment among these diabetic patients to assess

-Kenya et al.

social, medical, psychological, and community level barriers to optimum health, as well as enablers and facilitators. In this ancillary study we report on data on sexual function that was collected as part of the initial CHW assessment. This study was approved by the Institutional Review Boards at the University of Miami as well as the hospital oversight committees at Jackson Memorial Hospital.

### Measures

To examine potential sexual barriers to optimum health, CHWs administered the Female Sexual Function Inventory (FSFI) on all participants who agreed to have this component of the assessment completed. The FSFI is a widely used validated 19 question Likert scale instrument to assess sexual dysfunction (Rosen et al, 2000). Sexual domains of the FSFI include desire, arousal, orgasm, satisfaction, lubrication and dyspareunia. A strength of using the FSFI in our population is that has been previously validated in Hispanic populations (Blumel et al, 2009; Chedraui, Pérez-López, Mezones-Holguin, San Miguel, & Avila, 2011). Although the FSFI is intended to be used among women, twelve of nineteen questions are gender neutral. Thus, in our assessment we asked these 12 questions of men while excluding the seven questions on lubrication and pain during intercourse. Using paper questionnaires, a CHW read each FSFI item to each participant and recorded each response. A research assistant then entered this information into a password protected database.

Data on glycemic control (HbA1C), demographic characteristics, and length of time with diabetes were obtained from the parent study. CHWs used the Behavioral Risk Factor Surveillance System question to determine prior depression diagnosis (Nelson, Holtzman, Bolen, Stanwyck, & Mack, 2001).

### Data Analysis

Prior to data analysis, the database and questionnaires were compared and data entry was reviewed for accuracy by another research assistant. Scores for the four domains of the FSFI that could be applied to both genders (desire, arousal, orgasm, satisfaction) were calculated by adding up the questions applicable to each domain and the sum was multiplied by the domain factor indicated in the scoring instructions (Rosen et al, 2000). Lower scores indicate greater dysfunction. A total score of overall sexual functioning was also computed by adding the sum of the four domains used in the study.

We used medians and frequencies to describe the general demographics of the study population as well as summary scores for FSFI domains. We did not adjust for age or marital status. We used bivariate tables to examine association between HbA1c and diagnosed depression on sexual function and also stratified data by gender. In the tables, diabetes control was dichotomized and those with HbA1c > 8 were considered as having poor control. T tests were used to test the

-Kenya et al.

relationships of FSFI scores with depression and gender differences. Pearson and Spearman correlation coefficients were used to examine linear association of FSFI scores with HbA1c. Statistical analyses were performed using SAS version 9.2 (SAS Institute Inc, 2004). All of reported *p*-values are two-sided with a type I error rate (alpha) of 0.05.

## RESULTS

### Study Population Characteristics

Of the 150 participants randomized to the CHW intervention arm, CHWs were able to conduct baseline assessments on 110. Of these, 106 participated in the FSFI portion of the intake. Demographic characteristics, as well as CHW interactions, among these 106 MHHI participants are shown in table 1. Slightly over half (54%) were female and married or living with a significant other. Given the increasing heterogeneity of Miami's Latino population (The Hispanic Community Health Study/Study of Latinos), less than 30% of our sample self-identified as Cuban. Participants identified their ethnicity from a large variety of countries including Puerto Rico, Mexico, Dominican Republic, Ecuador, Columbia, Guatemala, Peru, Brazil, Argentina, Venezuela, and Honduras with none of these groups representing over 15% of our sample. Consistent with MHHI inclusion criteria, participants' age ranged from 37 to 68. Slightly over a third of the sample (36%) self-reported that they had been previously diagnosed with depression by a health care provider.

**Table 1:** *Sample Demographics including HbA1c, Depression, years living with diabetes, and CHW interactions*

<i>Gender</i>	N
Male	47 (46%)
Female	59 (54%)
	Mean / Median
<i>Age (range 37-68)</i>	55.8 / 55.5
<i>Years living with diabetes</i>	11.8 / 11
<i>Education</i>	N
Less than high school	42 (40%)
High school level	36(34 %)
College level or higher	28(26 %)
<i>Marital Status</i>	
Married	47 (44.3%)
Living with Sig Other	10 (9.4%)
Separated or Divorced	30 (28.3%)

Widowed	6 (5.7%)
Single/ Never Married	13 (12.3%)
<i>HbA1c</i>	
<8	26 (25%)
≥8	80 (75%)
<i>Depression Diagnosis</i>	
Yes	38 (36%)
<i>Patient and CHW Interactions</i>	<i>Average # over 12 months</i>
Home visits	5
Telephone Contacts	24
Group Education Sessions	2

*Gender differences in desire and sexual functioning*

As shown in table 2, women exhibited a greater prevalence of sexual dysfunction (lower scores) than men. While, men tended to score higher in all of the domains of the FSFI, it was large differences in the sexual desire domain that drove much of the observed gender difference in the total sex functioning score. In fact 84% of women reported having none or very few episodes of sexual desire in the last months versus 45% of men ( $p<.05$ ). Further, while 82% of men described having moderate to very high levels of sexual desire in the past month, only 30% of women described having such levels of desire ( $p<.05$ ).

**Table 2:** *Desire and other Sexual Domains by Gender*

FSFI Domains	Male (N=49)	Female (N=57)
	Median (SD)	Median (SD)
Desire*	4.2 (1.4)	1.2 (1.5)
Arousal	2.7 (2.6)	0.9 (2.0)
Orgasm	2.2 (1.9)	0.0 (2.0)
Satisfaction	1.6 (2.3)	1.2 (2.3)
Total Score*	8.9 (6.6)	4.4 (7.1)

\*differences between genders significant  $p<0.05$

Though sexual arousal was also very low among both genders, women scored much lower than men on all four FSFI items that measured arousal. Almost half (45%) of men reported never or almost never feeling sexually aroused during the previous four weeks compared to 65% of women. Just 32% of women experienced moderate to very high levels of arousal during the past four weeks versus 49% of men. Three-quarters (75%) of women and almost half (47%) of men felt very low or no confidence about their ability to become



sexually aroused. Only 26% of females and 40% of males were always or almost always satisfied by their level of sexual arousal.

Nearly half (47%) of men never or almost never had an orgasm in the past four weeks compared to 58% of women. Forty percent of men and 30% of women were moderately or very satisfied with the emotional closeness they felt with their partner. Similarly, 46% of men and 40% of women were satisfied with their sexual relationships. Less than half of men (42%) and women (43%) reported being moderately or very satisfied with their sex life.

#### *The role of depression and glycemic control on sexual dysfunction*

Although more than one third of our sample had a depression diagnosis, we did not find any significant association between depression and any of the FSFI domains or with total FSFI scores. In addition, as women were more likely to be depressed than men, we examined whether depression mediated the lower prevalence of desire among women. However, regardless of depression status women scored lower than men in the desire and total FSFI score. Similarly, we also did not find a linear correlation between glycemic control and any FSFI domain score or total score.

**Table 3:** *Depression, Gender, and Sexual Functioning*

FSFI Domains	Depressed Men (N=14)	Depressed Women (N=24)
	Median (SD)	Median (SD)
Desire	5.4 (1.6)	1.2 (1.5)
Arousal	3.5 (2.5)	.75 (1.8)
Orgasm	1.6 (1.9)	0.0 (1.9)
Satisfaction	0.8 (2.5)	0.8 (2.2)
Total Score	9.85 (6.9)	2.6 (6.5)

## **DISCUSSION**

In this descriptive study we provide data on sexual dysfunction among male and female Latino subjects with diabetes. We found that a large proportion of both Latino men and women with diabetes had sexual dysfunction on at least some measures of the FSFI such as sexual satisfaction. This finding is consistent with prior literature finding a high prevalence of sexual dysfunction among both women and men with diabetes. Based on our review of the peer reviewed literature, we believe this is one of the first empiric analysis conducted in the United States examining sexual functioning among Latinos living with diabetes.

Consistent with studies among the non-diabetic population, we also found that Latinas with diabetes reported much lower sexual desire than men. Even among non-Latinos, there has been very limited information on gender

differences in sexual desire among those with diabetes. Instead, most of the research on sexual dysfunction among men with diabetes has focused primarily on erectile performance (Wing et al, 2010; Giugliano et al, 2010; Selvin, Burnett, & Platz, 2007). Thus, this is also one of the first studies to quantify gender differences in sexual desire among persons with diabetes not only among Latinos, but for any group.

Unlike previous studies, (Bonierbale & Tignol, 2003) we did not find a correlation between depression and sexual dysfunction in our Latino cohort. Our study assessed whether patients had been diagnosed with depression and not whether patients were actively depressed. Though the prevalence of depression in this cohort is similar to other studies of Latinos, (González, Haan, & Hinton L, 2001) it is possible that undiagnosed depression may have impacted our findings. Similarly, if a large proportion of those with a prior history of depression were being successfully treated, it may diminish the impact of depression on sexual functioning (Bonierbale & Tignol, 2003). We also found that glycemic control was not correlated with sexual functioning. We must caution that to be eligible for our study patients had to have evidence of recent poor glycemic control (HbA1C > 8 at least once in past year). Thus, our finding that glycemic control was not correlated with sexual dysfunction may not be applicable to subjects whose diabetes has been under very good control for several years.

Our findings have important implications for clinical practice. Given the high proportion of patients having sexual dysfunction, clinicians taking care of Latino with diabetes need to obtain a careful sexual history that includes questions on sexual dysfunction. In particular, low levels of sexual desire among women are particularly problematic. Prior studies have suggested that low dose testosterone, may help women without diabetes with low sexual desire (The Medical Letter, 2010). Estrogens have also been found to increase sexual desire among postmenopausal, females without diabetes (The Medical Letter, 2010). Some females that experience reduced sexual desire while taking antidepressants have benefitted from the norepinephrine reuptake inhibitor bupropion (The Medical Letter, 2010). Whether these therapies improve desire among women with diabetes is unknown. Long term side effects of these medications on women have also not been well explored (The Medical Letter, 2010). Ongoing clinical trials for other drugs to increase female desire are also in progress (clinicaltrials.gov). Over the counter products such as topical arousal gels and vaginal moisturizers and lubricants have also been shown to improve sexual functioning among some women (The Medical Letter, 2010). Testing for low testosterone among men with diabetes who screen positive for sexual dysfunction has also been widely recommended. Our study did not collect data to determine if participants were using prescription or over the counter products to address sexual functioning. Future investigations that provide such data would enhance our

understanding of how such products impact sexual functioning among people with diabetes.

In addition, social support has been shown to significantly improve management of diabetes (Glasgow & Toobert, 1988; Garay-Sevilla, 1995; Griffith, Field, & Lustman, 1990). However, low sexual desire may have a negative impact on intimate relationships and thus limit social support that could improve diabetes management particularly among Latinas. Therefore, it is important to identify low desire among Latinas with diabetes. Behavioral interventions which focus on pelvic floor exercises and relaxation and breathing techniques could be a potential strategy (Trudel & Saint Laurent, 1983). Stress reduction techniques that reduce emotional problems may also be an appropriate strategy for such women (Laumann, Paik, & Rosen, 1999).

Our study was also limited by the fact that all patients, whether or not they used insulin, were analyzed as one group. However, it was not possible to stratify patients based on insulin use because some patients had been prescribed insulin but were non-adherent and others previously took insulin until they achieved an HbA1c level that no longer warranted medication. During the study, some insulin naive participants became insulin dependent, as a result of improved healthcare access facilitated by their CHW. Future studies would benefit from eliciting a comprehensive history of insulin use, as this would help determine whether an association exists between glucose lowering medications and sexual dysfunction.

In addition to the caveats discussed above, we note that we did not simultaneously collect comparative data among men and women without diabetes. However, previous studies have used the FSFI to assess sexual functioning among healthy Latin women in other countries and our population of females reported higher levels of sexual dysfunction (Blumel et al, 2009, Chedraui et al, 2010). While the levels of dysfunction we report are much higher than for the general population and Latinas in other countries, it is important to note that females in our sample experienced similar levels of sexual dysfunction as other non-Latin women with diabetes who live in the U.S. (Wing et al, 2013)

Secondly, the FSFI was initially developed for women. For our study we selected the FSFI because it has been used extensively in Hispanic populations and the majority of items can be applied to both genders. Compared to other instruments, the FSFI is also easier to administer as part of a comprehensive intake battery (only 19 questions). However, there does exist a critical need for Spanish sexual dysfunction instruments for men which do not primary focus on ED. Lastly, our finding on high levels of sexual desire among Latino men with diabetes may also be partially explained by cultural norms and the social desirability bias (Fisher, 1993). Given that our data is all self-reported, Latino men may be reporting what they believe are socially acceptable norms as a coping mechanism.

## CONCLUSION

In summary, our study is one of the first to report on multiple domains of sexual dysfunction among both male and female Latinos with diabetes. We found a high proportion of both men and women reporting sexual dysfunction. Diabetes has reached epidemic proportions among this rapidly growing population. Thus data such as this is crucial in developing targeted interventions. Latinas in particular were much more likely than men to report problems with sexual desire. Clinicians caring for such populations should be encouraged to assess sexual dysfunction in this group and utilize the information to develop individualized treatment plans. In particular, until better pharmacologic agents to improve sexual desire among women are available, clinicians need to consider behavioral approaches that may limit the impact of this condition among Latinas living with diabetes.

## ACKNOWLEDGEMENTS

The study was supported by an award from NIH/NHLBI R01 HL083857.

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