# DOMAINS OF SEXUAL DYSFUNCTION IN WOMEN WITH END STAGE KIDNEY DISEASE TREATED WITH HEMODIALYSIS: A MULTINATIONAL, CROSS-SECTIONAL STUDY

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## Background

Sexual dysfunction may affect 80% of women with chronic kidney disease[1] however, the specific aspects of sexual dysfunction that are most severe (desire, arousal, lubrication, orgasm, satisfaction, and pain) and clinical and demographic factors associated with these individual sexual function domains have not been extensively studied[2]. We evaluate the prevalence and key correlates of individual domains of sexual dysfunction in women treated with hemodialysis, to address patient priorities and aspects of care that are important for quality of life.

## Methods

We conducted a prospective multinational, cross-sectional study involving 1309 women treated with hemodialysis. Individual domains of sexual dysfunction were assessed using the self-reported Female Sexual Function Index (FSFI). Women provided responses anonymously with lower scores in each domain representing greater sexual dysfunction. The individual domain scores were then totaled and multiplied by a predetermined factor to weigh each domain equally. Sociodemographic and clinical correlates of sexual dysfunction within each domain were identified using stepwise multivariable linear regression analyses. Finally, as domain scores were influenced by sexual activity in the FSFI questionnaire (a score of 0 indicated no sexual activity) sensitivity analyses were conducted involving only women who reported being sexually active.

## Results

Of 1309 participants, 659 (50.3%) provided complete responses to FSFI survey questions and 35% reported being sexually active. Compared with respondents, incomplete respondents were older, living without a partner, post-menopausal and were receiving shorter dialysis treatment. **Table 1** displays the baseline characteristics of the overall population and survey respondents. Overall, most respondents reported either no sexual activity or high sexual dysfunction in all measured domains (sexual desire 58.0% of women; arousal 64.0%; lubrication 63.3%; orgasm 75.1%; satisfaction 60.1%; pain 60.7%, **Figure 1**). Respondents who were waitlisted for a kidney transplant reported higher scores, while older respondents reported lower scores. The presence of depression was associated with lower lubrication and higher pain with intercourse [mean difference (95% CI) -0.42 (-0.73 to -0.11), -0.53 (-0.89 to -0.16), respectively] while women who had experienced a previous cardiovascular event reported higher pain [-0.77 (-1.40- to -0.13), **Table 2**]. Among responders, 232 (35.2%) women reported being sexual active consistently in all domains and were included in the sensitivity analysis: 19% had low/no desire; 7.8% had very low/no arousal; 4.7% reported that becoming lubricated was extremely difficult/impossible; 36.2% reported that it was extremely difficult/impossible to reach an orgasm; 9.5% were very dissatisfied with sexual life; 3.0% had very high pain.
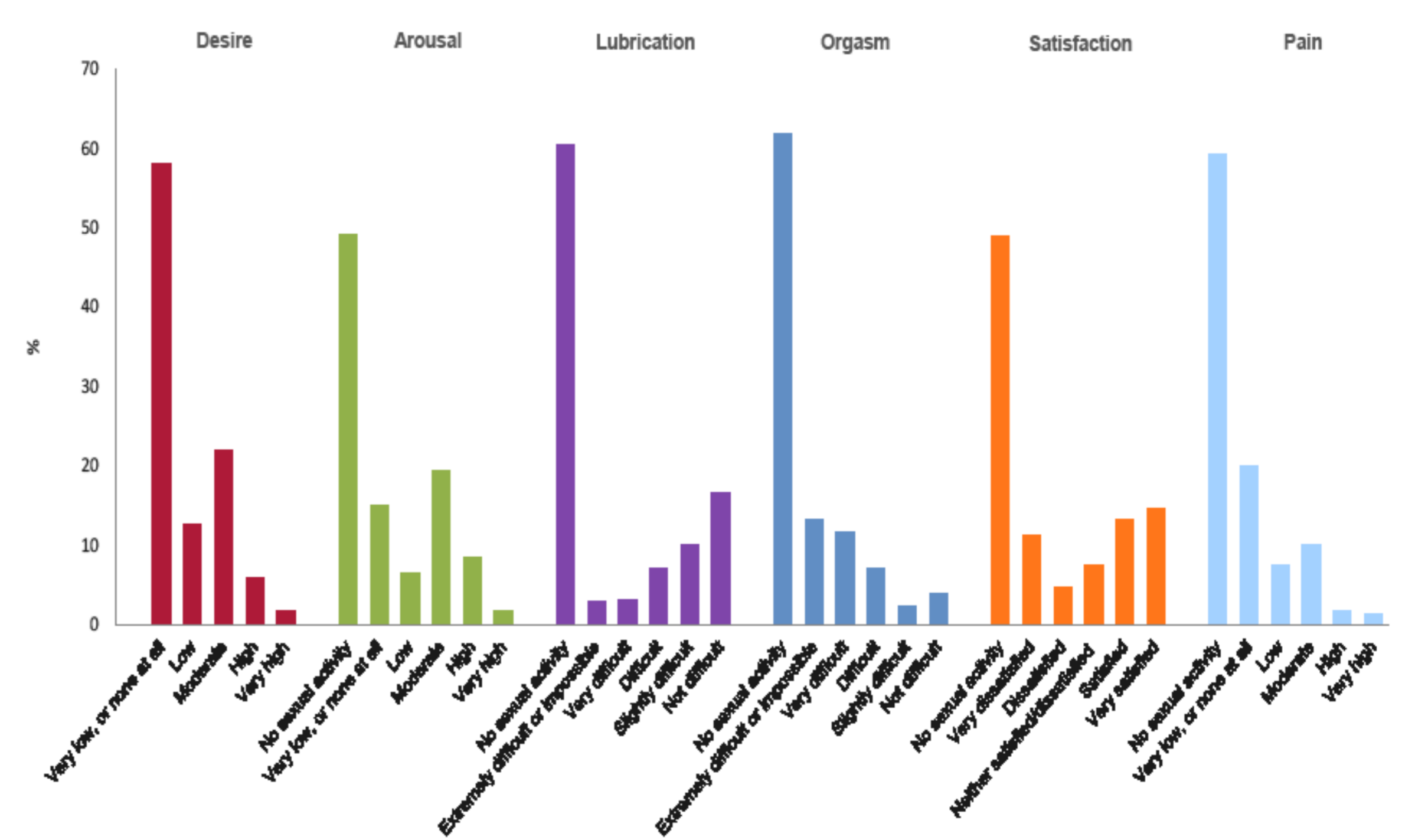
## Conclusion

Women with end-stage kidney disease report severe dysfunction across a range of sexual experiences, which may be associated with medical comorbidity. The low response rate and important differences between respondents and incomplete respondents may reduce the generalizability of our findings to all women on hemodialysis. Nevertheless, our data suggest that further quantitative and qualitative studies are required to evaluate the impact of overall sexual dysfunction and its individual domains on patient quality of life in the hemodialysis setting.

References:
1. Strippoli GF, Vecchio M, Palmer S, De Berardis G, Craig J, Lucisano G, et al. Sexual dysfunction in women with ESRD requiring hemodialysis. Clin J Am Soc Nephrol 7(6):974-81, 2012
2. Navaneethan SD, Vecchio M, Johnson DW, Saglimbene V, Graziano G, Pellegrini F, et al. Prevalence and correlates of self-reported sexual dysfunction in CKD: a meta-analysis of observational studies. Am J Kidney Dis 56(4):670-85, 2010.

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### Table 1 Socio-demographic, clinical and dialysis related characteristics of women who responded and those who did not respond to FSFI questionnaire

| Characteristic | Overall (n=1309) | Respondents (n=659) | Non respondents (n=650) | P value* |
|---|---|---|---|---|
| Age (year) | 62.8±15.4 | 58.8±15.3 | 66.8±14.5 | <0.001 |
| Highest school education, n (%) | | | | 0.30 |
| ≤5 years | 605 (46.2) | 304 (46.1) | 301 (46.3) | |
| 5-8 years | 456 (34.8) | 233 (35.4) | 223 (34.3) | |
| >3years | 177 (13.5) | 90 (13.6) | 87 (13.4) | |
| Depression score (CES-D scale) | 20.8±11.3 | 20.7±11.3 | 20.9±11.3 | 0.82 |
| Location of dialysis clinic, n (%) | | | | <0.001 |
| Europe | 1024 (78.2) | 453 (68.7) | 571 (87.8) | |
| South America | 285 (21.8) | 206 (31.3) | 79 (12.2) | |
| Living without partner, n (%) | 633 (49.3) | 287 (44.2) | 346 (54.6) | <0.001 |
| Waiting list for kidney transplant, n (%) | 159 (12.1) | 104 (15.8) | 55 (8.5) | <0.001 |
| Occupational status, n (%) | | | | 0.002 |
| Employed | 106 (8.1) | 60 (9.1) | 46 (7.1) | |
| Unemployed | 224 (17.1) | 131 (19.9) | 93 (14.3) | |
| Receiving pension | 958 (73.2) | 453 (68.7) | 505 (77.7) | |
| Previously had children, n (%) | 975 (74.5) | 504 (76.5) | 471 (72.5) | 0.002 |
| Menopause, n (%) | 905 (69.1) | 410 (62.2) | 495 (76.2) | <0.001 |
| Comorbid condition, n (%) | | | | |
| Diabetes mellitus | 295 (22.5) | 144 (21.9) | 151 (23.2) | 0.65 |
| Hypertension | 786 (60.0) | 402 (61.0) | 384 (59.1) | 0.78 |
| Prior cardiovascular event† | 103 (7.9) | 49 (7.4) | 54 (8.3) | 0.56 |
| Kidney transplant | 35 (45.5) | 25 (48.1) | 10 (40.0) | 0.51 |
| Primary renal disease, n (%) | | | | 0.10 |
| Diabetic nephropathy | 189 (14.7) | 111 (17.2) | 78 (12.2) | |
| Hypertensive nephrosclerosis | 287 (22.4) | 137 (21.2) | 150 (23.5) | |
| Other | 806 (63.0) | 398 (61.5) | 410 (64.2) | |
| Current or former smoker, n (%) | 223 (17) | 151 (22.9) | 72 (11.1) | <0.001 |
| Clinical characteristics | | | | |
| Interdialytic weight gain (kg) | 2.1±0.9 | 2.0±0.9 | 2.1±0.9 | 0.02 |
| Time on dialysis (months) | 41.8 (18.3-76.8) | 40.0 (17.0-77.7) | 43.6 (20.3-75.4) | 0.58 |
| Duration of dialysis (min/session) | 231.0±22.4 | 233.5±23.9 | 228.4±20.5 | <0.001 |
| Single pool Kt/V | 1.6±0.3 | 1.6±0.3 | 1.6±0.3 | 0.34 |
| Systolic blood pressure (mmHg) | 128.6±18.8 | 130.2±19.2 | 127.0±18.3 | 0.02 |
| Hemoglobin (g/L) | 10.9±1.3 | 10.9±1.3 | 10.9±1.3 | 0.68 |
| Serum ferritin (µg/L) | 420.0 (239.0-660.0) | 454.5 (276.0-686.0) | 375.0 (211.5-609.5) | <0.001 |
| Serum albumin (g/L) | 3.8±0.4 | 3.9±0.4 | 3.8±0.5 | 0.004 |
| LDL cholesterol (mmol/L) | 101.3±34.7 | 100.2±37.8 | 102.0±32.6 | 0.20 |
| Medication, n (%) | | | | |
| Beta blocker | 473 (36.1) | 257 (39.0) | 216 (33.2) | 0.05 |
| ACE inhibitor | 385 (29.3) | 217 (32.9) | 166 (25.5) | 0.003 |
| Angiotensin receptor blocker | 156 (11.9) | 89 (13.5) | 67 (10.3) | 0.07 |
| Erythropoietin | 1192 (91.1) | 601 (91.2) | 591 (90.9) | 0.89 |
| Lipid lowering therapy | 381 (29.1) | 193 (29.3) | 188 (28.9) | 0.88 |
| Antidepressant | 86 (6.6) | 42 (6.4) | 44 (6.8) | 0.77 |
| Antipsychotic | 42 (3.2) | 14 (2.1) | 28 (4.3) | 0.03 |
| Anxiolytic | 241 (18.4) | 153 (23.2) | 88 (13.5) | <0.001 |

Data expressed with a plus/minus sign were mean ± SD. Medians were expressed with interquartile range. Numbers may not sum to group totals or percentages may not total 100% where data for the variable are missing. ACE, angiotensin-converting enzyme; CES-D, Center for Epidemiological Studies-Depression; LDL, low density lipoprotein
*P value for comparison between who responded and those who did not respond to FSFI questionnaire
†Prior cardiovascular event included myocardial infarction, stroke or transient ischemic attack, or coronary or other revascularization surgery as assessed by the treating physician

### Figure 1 Prevalence of sexual problems in women who responded to the FSFI questionnaire (N=659)



### Table 2 Correlates of individual domains of the Female Sexual Function Index (N=659), displayed as multivariate adjusted mean difference*

| Correlates | DESIRE | AROUSAL | LUBRICATION | ORGASM | SATISFACTION | PAIN |
|---|---|---|---|---|---|---|
| Age, per year increase | -0.05 (-0.05 to -0.04) | -0.05 (-0.06 to -0.05) | -0.07 (-0.08 to -0.05) | -0.06 (-0.07 to -0.05) | -0.05 (-0.06 to -0.04) | -0.06 (-0.08 to -0.05) |
| Wait list for transplant | 0.45 (0.21 to 0.70) | 0.73 (0.38 to 1.08) | 0.71 (0.30 to 1.13) | 0.75 (0.33 to 1.17) | 0.58 (0.15 to 1.00) | 0.86 (0.37 to 1.34) |
| Occupation | | | | | | |
| Employed | - | 1.00 | - | 1.00 | - | - |
| Retired | - | -0.49 (-0.93 to -0.04) | - | -0.63 (-1.17 to -0.09) | - | - |
| Unemployed | - | -0.11 (-0.58 to 0.36) | - | -0.20 (-0.77 to 0.36) | - | - |
| Depression (CESD score ≥18) | - | - | -0.42 (-0.73 to -0.11) | - | - | -0.53 (-0.89 to -0.16) |
| Prior cardiovascular event | - | - | - | - | - | -0.77 (-1.40 to -0.13) |

Data expressed as mean change and 95% confidence interval.
*The multivariate model included age, depression symptoms (CES-D score ≥ 18), pregnancy, occupational and menopause status, experience of a prior cardiovascular event (including myocardial infarction, stroke or transient ischemic attack, or coronary or other revascularization surgery as assessed by the treating physician), neurologic conditions (spinal cord lesions, multiple sclerosis, Parkinson disease, or Alzheimer disease), previous kidney transplant, wait-listing for kidney transplant, anxiolytics medication, time on dialysis, mean arterial pressure and serum phosphorus