

Pelvic Physical Therapy Distance Journal Club
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Laura Scheufele, PT, DPT, WCS

Relationship between pelvic floor muscle strength and sexual dysfunction in postmenopausal women: a cross-sectional study. de Menezes Franco M, Driusso P, Bø K, et al. *Int Urogynecol J*. 2017; 28(6):931-936. doi: 10.1007/s00192-016-3211-5.

Introduction: Sexual dysfunction defined as disturbance in any phases of sexual response (desire/excitement, orgasm, sexual satisfaction) or the presence of pain during sexual intercourse causing personal distress or interpersonal challenges. Prevalence reported between 38 to 85.2% and is noted to increase with age. The main changes after menopause are decreased sexual desire, reduced vaginal lubrication, anorgasmia, and dyspareunia. Studies have shown that estrogen deficiency may contribute to reduced function of PFM in postmenopausal women.

Aim/Primary Aims: Evaluate the relationship between PFM strength and sexual function in postmenopausal women. The relationship between reported UI and sexual function also evaluated.

Study Design/Format: Cross-sectional clinical trial

Subjects: Women recruited on local radio and at the health center. After receiving information about the study and agreeing to be evaluated for eligibility screening, all women who met inclusion criteria included.

Materials and Methods:

-**Inclusion criteria:** Heterosexual women who were postmenopausal for maximal of 10 years. (Postmenopausal defined as per World Health Organization: cessation of menstrual cycle for more than 12 months) Had to currently be sexually active with intercourse. (Sexual intercourse defined as penile penetration of the vagina in the previous 4 weeks.)

-**Exclusion criteria:** Diabetes mellitus and any reported thyroid disease, intolerance of or discomfort during the examination to evaluate PFM strength, allergy to gel or latex condoms, prolapse greater than stage 1, and inability to contract the PFM as assessed by vaginal palpation.

-**Measurements:** Validated Questionnaires: FSFI, International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-UI SF).

-**PFM strength:** Blinded physiotherapist (blinded from questionnaire responses) confirmed contraction ability with digital palpation. Circular closing around examining fingers with movement in a cranial ventral direction considered correct contraction.

-Strength then assessed 5 minutes later using Peritron vaginal manometry inserted above level of hymenal ring (Peritron: previously found to have good intrarater and moderate interrater reliability)

- 3 MVCs requested with 30 second intervals between each trial.
- Mean pressure of the three MVCs used in analysis.

Statistical Analysis: Sample size of 108 determined to be able to detect difference of 8 cmH₂O using Peritron, with standard deviation of 15. For allocation of subjects to each group the researchers assumed a ratio of approximately 2.5 subjects with sexual dysfunction for each participant without. Statistical power of 80% and alpha 0.05 were used (G*Power analysis program).

- Data analyzed using SAS software version 9.2. Relationship between two quantitative variables (FSFI score and ICIQ-UI SF score) quantified using Spearman's rank correlation coefficient (ρ): values between 0.10 and 0.29 considered to indicate weak correlation, 0.30 and 0.49 a moderate correlation, and 0.50 and 1 a strong correlation.
- Fisher's exact test used to compare variables between the sexual dysfunction versus no dysfunction groups: age, BMI, marital status, number of vaginal births, number of nulliparous women, number of women with UI complaints.
- Pearson's chi-squared test used to compare use of hormone therapy between the groups
- Mann-Whitney test for independent samples used to compare PFM strength between women with and without sexual dysfunction.

Results: 113 women fulfilled eligibility criteria and included in study. (Of original 154 recruited, 2 eliminated for lack of PFM contraction ability and 39 because they had not been sexually active in the previous 4 weeks)

- Table 1 is demographics of the 2 groups. No statistical difference between groups
- Table 2 shows mean domain scores of FSFI (max score of 6 for each category) and all domains (desire, arousal, lubrication, orgasm, satisfaction, pain) significantly lower in sexual dysfunction group. Also shows mean PFM strength, which was also significantly lower in dysfunction group. (mean maximum voluntary contraction pressure cmH₂O with sexual dysfunction=30.3 vs 41.8 without sexual dysfunction.)
- Table 3 is type and severity of UI in both groups. Question 6 of ICIQ-UI SF used to determine type of UI. Median ICIQ-UI SF score for all participants 4(range 0-69.2)
- Table 4: looks at correlation between ICIQ-UI SF score and FSFI domain scores and total score for all 113 subjects: No significant difference in severity of UI between groups, but weak negative correlation between total ICIQ-UI SF and FSFI domain scores.

Discussion: Main finding: High percentage of women with sexual dysfunction identified in this study: 72%. Women without sexual dysfunction had significantly stronger PFM. UI prevalence and severity were similar between women with and without dysfunction, but there was a weak negative correlation between UI severity and sexual function. All domains of FSFI lower in women with dysfunction. In the desire domain, a score of less than 3 is an established cut off value to differentiate women with hypoactive sexual desire disorder. In the sexual dysfunction group this score average was 2.4.

PFM thought to play important role in sexual function. Pubococcygeus and iliococcygeus muscles contribute to involuntary contractions during orgasm. Some authors have stated that higher PFM strength could lead to better involuntary contractions of PFM and to increased arousal and orgasmic response. This study found that women with sexual dysfunction had weaker PFM, but because the study is cross sectional unable to establish cause and effect relationship.

A 2015 systematic review (Ferreira, et al) that assessed if PFMT improved sexual function, but only 2/8 studies included investigated sexual function as primary outcome, 10 different tools used to evaluate sexual function, and PFMT varied greatly in intensity and duration. Most studies indicated improvement in at least 1 variable in sexual function but concluded that results needed to be interpreted with caution and called for more high-level research.

Prevalence of UI in sexual dysfunction group of 48.1% is consistent with prevalence range reported in literature between 19%-50%. No significant difference in ICIQ-UI SF scores between groups, and small negative correlation between desire, arousal, satisfaction, and pain domains of FSFI in women with incontinence than in those women without. Most of the women who had UI reported as moderate, which could have contributed to weak correlation between sexual function and impact of UI on QoL. No significant difference in severity of Ui between groups, but this could be secondary to small number of women in each level of severity; therefore the UI results should be interpreted with caution.

Strengths: Used reliable and valid instruments to evaluate PFM strength and sexual function and a single examiner conducted all the examinations.

Weaknesses: The FSFI is a screening tool and thus does not allow a complete diagnosis of sexual dysfunction. Distress not assessed, nor was data collected regarding medications that may have had impact on sensory function or hormone treatment causing anovulation. (Could have assessed follicle-stimulating hormone level). Women were excluded if could not contract pelvic floor muscles correctly, which could have represented weaker PFM, but only 2 women eliminated, and thus the impact on data results would be minimal. Excluded women with organ prolapse > stage 1, but no mention of how this was assessed. Small numbers of women in each UI severity categories.

Clinical Application: Education of patients on benefits on PFMT, adding additional motivation. A potential foot in the door to discussion about PFM weakness and PFD. Evidence to support primary referral for sexual dysfunction.

Questions:

- 1) Do you think the outcome would have been the same if they did not exclude based on organ prolapse grade?
- 2) Are you using specific outcome tools for sexual dysfunction?
- 3) Do you see postmenopausal patients specifically for sexual dysfunction, or is it more of a secondary finding? What is most common complaint?

Other Resources:

Sartori DVB, Kawano PR, Yamamoto HA, Guerra R, Pajolli PR, Amaro JL. Pelvic floor muscle strength is correlated with sexual function. *Investig Clin Urol.* 2021 Jan;62(1):79-84. doi: 10.4111/icu.20190248. Epub 2020 Nov 9. PMID: 33258326; PMCID: PMC7801170.

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Ferreira CH, Dwyer PL, Davidson M, De Souza A, Ugarte JA, Frawley HC. Does pelvic floor muscle training improve female sexual function? A systematic review. *Int Urogynecol J.* 2015 Dec;26(12):1735-50. doi: 10.1007/s00192-015-2749-y. Epub 2015 Jun 14. PMID: 26072126.