https://sexualsciencejournal.com/
December **2025**, Volume **1**, Issue **3**
https://doi.org/10.33719/sexscij.2512.23

International Journal of SEXUAL SCIENCE
eISSN: 3062-3561

ORIGINAL ARTICLE

The Relationship Between Vaginal and Pelvic Floor Symptoms and Sexual Function in Postmenopausal Women

Burcu Sert Gürşen [1], Serap Özgül [2]

[1] Department of Physical Therapy and Rehabilitation, Hacettepe University, Ankara, Türkiye
[2] Department of Physiotherapy and Rehabilitation, Faculty of Physical Therapy and Rehabilitation, Hacettepe University, Ankara, Türkiye

Received: 28 August 2025 / **Accepted:** 10 December 2025

Abstract

Objective: This study aimed to investigate the relationship between vaginal and pelvic floor symptom levels and sexual function in postmenopausal women.

Material and Methods: A total of 121 postmenopausal women with an active sexual life were included in the study. The number and severity of vaginal and pelvic floor symptoms were recorded. The impact level of vaginal symptoms was assessed using the Day-to-Day Impact of Vaginal Aging Questionnaire, while pelvic floor distress was evaluated with the Pelvic Floor Distress Inventory-20. Sexual function was assessed with the Short Form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire (PISQ-12). Pearson or Spearman correlation coefficients were used for statistical analysis. The statistical significance level (p) was set at 5%.

Results: Negative moderate-to-weak correlations were identified between the number and impact level of vaginal symptoms and the PISQ-12 subscale scores ($r=0.28–0.59$, $p<0.001$). On the other hand, negative correlations ranging from strong to weak were found between the number and distress level of pelvic floor symptoms and the PISQ-12 subscale scores ($r=0.15–0.70$, $p<0.001$).

Conclusion: Although pelvic floor symptom severity showed a stronger relationship, all subdomains of sexual function—particularly the physical subdomain—appeared to be associated with both vaginal and pelvic floor symptoms. Vaginal and pelvic floor health should be considered in the assessment and intervention phases in individuals with sexual dysfunction.

Keywords: dyspareunia, incontinence, menopause, pelvic organ prolapse, sexual dysfunction

INTRODUCTION

Menopause is a natural and physiological process experienced by all women as a part of aging (1, 2). The World Health Organization defines menopause as the permanent cessation of menstruation due to the loss of ovarian follicular activity (3). Globally, the age of menopause varies between 45 and 58 years, while the average menopausal age in Turkish women has been reported as 47 years (4). Considering the average age at menopause and the life expectancy of women, it is

Corresponding Author: Burcu Sert Gürşen, PT, MSc, Graduate School of Health Sciences, PhD Program of Physical Therapy and Rehabilitation, Hacettepe University, Ankara, Türkiye
Email: burcusert@hacettepe.edu.tr

estimated that women spend approximately one-third of their lives in the postmenopausal period (5).

Urogenital tissue receptors are sensitive to endogenous estrogen levels. Estrogen receptors are present in the vagina, vulva, urinary tract, bladder, trigone, urethra, and levator ani muscles (6, 7). In a healthy vagina, sufficient estrogen provides a thick and resilient vaginal epithelium, high blood flow and lubrication, a vaginal flora dominated by lactobacillus bacteria, and acidic vaginal pH (<4.5) (8). As serum estrogen levels decrease after menopause, the expression of estrogen receptors in vaginal tissue also decreases significantly. With the reduction in estrogen, the number of lactobacilli decreases and vaginal pH shifts toward alkalinity (pH 5–7). Consequently, atrophy occurs in the vagina, vulva, clitoris, and Bartholin's glands, vaginal secretions change in quality and quantity, vaginal walls become thinner, elasticity decreases, and the vagina shortens and narrows, leaving the vaginal surface prone to ulceration (7, 9). These changes give rise to vaginal symptoms in women such as dryness, irritation/burning, itching, pain, discharge, dyspareunia, and postcoital bleeding. In addition, prolonged estrogen deficiency increases the incidence of urgency urinary incontinence (10).

The pelvic floor is composed of muscles, fascia, ligaments, external genital organs, skin, as well as neural and vascular networks, and provides support for abdominal and pelvic organs. While active support is maintained by muscular contraction, passive support is provided by fascia and ligaments. The pelvic floor plays an essential role in urination, defecation, urinary and fecal continence, sexual function, and childbirth (11, 12). Aging and menopause weaken the pelvic floor muscles and fascial supports, impairing pelvic floor function and leading to symptoms such as urinary incontinence, pelvic organ prolapse, anorectal dysfunction, and pelvic pain (11). Furthermore, the tone, strength, and performance of the pelvic floor muscles are one of the major factors involved in vaginal sensitivity and responsiveness, coital competence, and orgasmic response. Insufficient pelvic floor strength and tone may impair genital arousal, reduce sexual desire, mental arousal, and both physical and emotional satisfaction. Additionally, reduced pelvic floor support associated with pelvic organ prolapse (POP) may hinder penetration and cause dyspareunia. In contrast, hyperactivity of the pelvic floor may lead to sexual pain disorders such as dyspareunia and vaginismus (13).

Sexual dysfunction in postmenopausal women is multifactorial and complex (10). Menopausal vaginal symptoms and pelvic floor symptoms not only represent physical problems but may also alter body image, contribute to partner relationship issues, and cause psychological problems, ultimately affecting sexual health and health-related quality of life (14). Considering that by 2030, there will be an estimated 1.2 billion postmenopausal women worldwide, evaluating age- and menopause-related symptoms and determining their relationship with sexual function, which constitutes an important dimension of quality of life, is of great importance (15, 16). Observational studies in the literature generally focus on the prevalence of menopausal symptoms and/or the overall quality of life of postmenopausal women. There are limited studies examining vaginal symptoms, pelvic floor symptoms, and sexual function together using condition-specific instruments. To our knowledge, no study has specifically examined vaginal and pelvic floor symptoms in relation to the subdomains of sexual function. Therefore, this study aimed to investigate the relationship between vaginal and pelvic floor symptom severity and the subdomains of sexual function in postmenopausal women.

MATERIALS AND METHODS

Participants

Postmenopausal women who applied to Hacettepe University, Faculty of Physical Therapy and Rehabilitation, and their relatives (e.g., friends, family members) identified through snowball sampling, were included in the study. To minimize selection bias, initial participants were selected from a variety of socio-demographic characteristics and all referred individuals were rigorously screened by the researchers to ensure eligibility. Prior to the study, ethical approval was obtained from the Hacettepe University Non-Interventional Clinical Research Ethics Committee (GO 18/776-45). All participants were informed about the study based on the Declaration of Helsinki, and written informed consent was obtained from those who agreed to participate. The study adhered to the STROBE checklist for reporting observational research.

The inclusion criteria for the study were being in the postmenopausal period (completion of a 12-month

amenorrhea period), having an active sexual life, presence of at least one vaginal and/or pelvic floor symptom, absence of any problems in completing the assessment scales, and a Mini-Mental Test score > 24 in individuals over 65 years of age. The exclusion criteria included the presence of Stage 4 POP, a history of urogynecological/pelvic floor surgery within the last year, having received hormone replacement therapy or pelvic floor muscle training, diagnosis of psychiatric disease and/or use of psychiatric medication, presence of a diseases causing vaginal dryness, and use of related medications (e.g., Sjögren syndrome, antidepressants or antihistamines) (17).

Methods

The demographic characteristics of the individuals were recorded, including their age, marital status, education level, and employment status. Physical characteristics included height (m) and body weight (kg). Body mass index (BMI) was calculated as weight/height² (kg/m²). Obstetric history, including parity and number of vaginal deliveries, was obtained. Menopause-related data included the type of menopause, age at menopause (years), and duration of menopause (years). Presence of chronic disease (diabetes or others, yes/no), history of urogynecological surgery (hysterectomy, oophorectomy, repair surgeries), and history of hormone replacement therapy were recorded.

Vaginal symptoms assessed included vaginal dryness, irritation, discharge, itching, and dyspareunia (present/absent), and the total number of vaginal symptoms was calculated. Pelvic floor symptoms assessed included stress urinary incontinence, urgency urinary incontinence, voiding difficulty, chronic constipation, fecal incontinence, flatal incontinence, pelvic organ prolapse, and chronic pelvic pain (present/absent), and the total number of pelvic floor symptoms was calculated.

The Turkish version of the Day-to-day Impact of Vaginal Aging Questionnaire (DIVA) was used to assess the impact of vaginal symptoms in individuals (18). The total scale score ranges from 0 to 16, with higher scores indicating a greater impact of vaginal symptoms on daily life.

The level of discomfort associated with pelvic floor symptoms was assessed using the Turkish "Pelvic Floor Distress Inventory-20" (PTDE-20) (19). The scale has three subscales: the Pelvic Organ Prolapse Distress Inventory-6 (POPDE-6), the Colorectal-Anal Distress Inventory-8 (CRADE-8), and the Urinary Distress Inventory-6 (UDE-6). Subscale scores range from 0 to 100, and total scores range from 0 to 300, with higher scores indicating greater distress.

Sexual function was assessed using the Turkish version of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire-12 (PISQ-12) (20). This scale evaluates sexual function across three domains: behavioral-emotional, physical, and partner-related. Scores range from 0–48, with higher scores indicating better sexual function.

Statistical Analysis

The study data were analyzed using the SPSS 24 (Statistical Packages for the Social Sciences Version 24) program. Descriptive statistics such as mean ± standard deviation, minimum-maximum values, or number (%) were used. Pearson correlation analysis was applied if parametric assumptions were met, while Spearman correlation analysis was used when assumptions were not met. In terms of correlation coefficients (r): $0.90<r<1$ is considered "very high correlation," $0.70<r<0.89$ is considered "high correlation," $0.40<r<0.69$ is considered "moderate correlation," $0.10<r<0.39$ for "weak correlation," and $r<0.10$ for "negligible correlation" (21). Statistical significance was set at $p<0.05$.

RESULTS

Between September 2018 and December 2019, a total of 253 postmenopausal women were screened. Ninety-seven women without an active sexual life, 27 women who had received hormone replacement therapy within the past year, and 8 women with psychiatric diagnoses and/or psychiatric medication use were excluded. Consequently, 121 women were included in the study. The descriptive characteristics of the participants are presented in Table 1.

Data on vaginal and pelvic floor symptoms are shown in Table 2. The most common vaginal symptoms were vaginal dryness (86%) and dyspareunia (62%), whereas the most common pelvic floor symptoms were stress urinary incontinence (35.5%) and urgency urinary incontinence (31.4%).

Data on the relationship between vaginal symptoms and sexual function are presented in Table 3. Negative and moderate correlations (r=0.50-0.59) were found between the number/impact of vaginal symptoms and the PISQ-12 behavioral-emotional and physical domain. Additionally, negative weak correlations (r=0.28-0.36) were found between the number/impact of vaginal symptoms and the PISQ-12 partner-related domain (p<0.001).

Table 1. Descriptive Characteristics of Participants

Parameters	Participants (n=121)
Age (years)	55.06 ± 5.95 (45–79)
Body Weight (kg) **Height** (m) **Body Mass Index** (kg/m^2)	72.71 ± 10.74 (53-100) 1.62 ± 0.05 (1.52-1.77) 27.42 ± 4.07 (20.57-38.10)
Marital Status Married Single/Widowed	 121 (%100) 0 (%0)
Educational Status Primary School High School Higher education	 8 (%6.6) 33 (%27.3) 80 (%66.1)
Employment Status Employed Unemployed/Retired	 50 (%41.3) 71 (%58.7)
Obstetric Characteristics Parity Number of Vaginal Deliveries	 2.52 ± 1.29 (0-7) 1.73 ± 0.81 (0-5)
Menopausal Characteristics Spontaneous menopause (yes) Age at menopause (years) Postmenopausal duration (years)	 96 (%79.3) 47.18 ± 3.93 (32-55) 7.60 ± 5.91 (1-26)
Medical History Chronic disease (yes) Urogynecological surgery (yes) Hormone replacement therapy (yes)	 63 (%52.1) 46 (%38) 29 (%24)
Frequency of sexual intercourse (number/month)	3.52 ± 2.64 (1-12)

n: Number of participants, %: percentage. Data were presented as mean±standard deviation (minimum-maximum).

Data on the relationship between pelvic floor symptoms and sexual function are presented in Table 4. Weak-to-moderate negative correlations (r=0.30–0.41) were found between the number/distress levels of pelvic floor symptoms and the emotional domain of the PISQ-12. Moderate-to-strong correlations (r=0.44–0.70) were found between pelvic floor symptoms and the physical domain of the PISQ-12. Meanwhile, correlations with the partner-related domain were weak (r=0.15–0.35) (p<0.001). Clinically, these results suggest that the physical burden of symptoms hinders sexual function more directly than emotional or partner-related factors.

Table 2. Vaginal and Pelvic Floor Symptoms

Vaginal and Pelvic Floor Symptoms	Yes (n/121)
Vaginal Symptoms	
Vaginal dryness	105 (%86.8)
Vaginal irritation	54 (%44.6)
Vaginal discharge	39 (%32.2)
Vaginal itching	21 (%17.4)
Dyspareunia	75 (%62)
None	10 (%8.3)
Number of Vaginal Symptoms	2.40 ± 1.43 (0-5)
Pelvic Floor Symptoms	
Stress urinary incontinence	43 (%35.5)
Urgency urinary incontinence	38 (%31.4)
Voiding difficulty	12 (%9.9)
Chronic constipation	28 (%23.1)
Fecal incontinence	7(%5.8)
Flatal incontinence	33 (%27.3)
Pelvic Organ Prolapse	10 (%8.3)
Chronic pelvic pain	17 (%14)
None	40 (%33.1)
Number of Pelvic Floor Symptoms	1.56 ± 1.59 (0-6)

n: Number of participants. Data were presented as n (%) or mean±standard deviation (minimum-maximum), Note: Participants included in the study had at least one vaginal and/or pelvic floor symptom. Therefore, a score of '0' indicates participants who are asymptomatic in that specific domain but symptomatic in the other.

Table 3. Relationship of Vaginal Symptoms with Sexual Function

Vaginal Symptoms		PISQ-12 behavioral-emotional	PISQ-12 physical	PISQ-12 partner
Number of Vaginal Symptoms	**r** **p**	-0.57[b] 0.001*	-0.51[a] 0.001*	-0.28[a] 0.001*
Impact of Vaginal Symptoms	**r**	-0.59[b]	-0.50[b]	-0.36[b]
	p	0.001*	0.001*	0.001*

r: Correlation Coefficient. *p<0,05. [a]: Pearson Correlation. [b]: Spearman Correlation.

Table 4. Relationship of Pelvic Floor Symptoms with Sexual Function

Pelvic Floor Symptoms		PISQ-12 behavioral-emotional	PISQ-12 physical	PISQ-12 partner
Number of Pelvic Floor Symptoms	**r**	-0.41 [b]	-0.70 [a]	-0.30 [a]
	p	0,001*	0,001*	0.001*
POP-Distress	**r**	-0.30 [b]	-0.44 [b]	-0.17 [b]
	p	0,001*	0,001*	0,001*
Colorectal Distress	**r**	-0.37 [b]	-0.46 [b]	-0.16 [b]
	p	0,001*	0,001*	0,001*
Urinary Distress	**r**	-0.35 [b]	-0.58 [b]	-0.35 [b]
	p	0,001*	0,001*	0,001*

r: Correlation Coefficient. *p<0,05. POP: Pelvic Organ Prolapse [a]: Pearson Correlation. [b]: Spearman Correlation.

DISCUSSION

This study was designed to examine the relationship between vaginal and pelvic floor symptom severity and sexual function in postmenopausal women. To our knowledge, this is the first study to evaluate vaginal and pelvic floor symptoms together and to investigate their association with the subdomains of sexual function in this population. While previous research, such as Sert et al. (18), has examined these relationships, our study fills a critical gap by using condition-specific tools to analyze the physical, emotional, and partner-related subdomains of sexual function.

Sexual health is a multidimensional concept, defined as a state of complete physical, psychological, social, and emotional well-being in relation to sexuality (22). Both menopause and aging are major biopsychosocial regulators of sexual function (23). Declining estradiol levels have negative effects on sexual desire and response (arousal, sexual pleasure, and orgasm), mood, general and sexual health, and feelings toward the partner (24). Although the majority of postmenopausal women appear to remain sexually active, most tolerate painful intercourse and reduce the frequency of sexual activity compared to earlier periods (25). Important factors that reduce a woman's sexual experience include concerns about the appearance of the vagina, embarrassment, concerns about partner satisfaction, discomfort associated with pelvic organ prolapse, decreased genital sensation, and fear of worsening prolapse (13). While sexual dysfunction is not solely related to vaginal symptoms, studies have shown that loss of libido and reduced arousal in postmenopausal women are associated with vaginal dryness and dyspareunia (24, 25). Vaginal and pelvic floor symptoms also negatively impact self-esteem, body image, marriage/relationships, and social life, making women feel older, leading to sexual dysfunction and a lower quality of life (23, 26).

Palma et al. (27) reported that at least 50% of postmenopausal women complained of vaginal dryness, followed by dyspareunia. In a Turkish population study by Aydın et al. (28) in 2014, vaginal dryness (33.4%) was the most frequently reported vaginal symptom. Similarly, Selvi et al. (29) in 2020 found that the most common genitourinary symptom was vaginal dryness (66.2%). Consistent with these findings, the most prevalent vaginal symptoms in the present study were vaginal dryness (86%) and dyspareunia (62%).

Due to both aging and hormonal changes, pelvic floor symptoms are common in the postmenopausal period, and unlike vasomotor symptoms, their severity increases with advancing age (30, 31). Among pelvic floor symptoms in postmenopausal women, urinary incontinence is the most frequent, with stress urinary incontinence being the predominant type (32, 33). In the present study, stress urinary incontinence was the most frequent pelvic floor symptom, followed by urgency urinary incontinence.

In the present study, moderate correlations between the number/impact of vaginal symptoms and both the behavioral/emotional and physical subdomains of sexual function indicated that vaginal symptoms negatively affect both dimensions. This finding supports the notion that vaginal symptoms can lead to sexual emotional impairment, such as sexual aversion, arousal difficulties, and anorgasmia (23).

The Melbourne Women's Midlife Health Project reported that the prevalence of sexual dysfunction increased from 42% to 88% during the menopausal transition, with significant increases in vaginal dryness and dyspareunia, alongside reductions in sexual desire, arousal, orgasm, and frequency of sexual activity (34). These results confirm that vaginal symptoms affect the physical and emotional aspects of sexual function. Dyspareunia, in particular, can lead to postcoital bleeding as a physical consequence, while also causing

avoidance of intercourse, anxiety, and loss of desire as emotional consequences (35). Additionally, it has been reported that vaginal discomfort, which affects 80% of postmenopausal women, makes women feel older (36%), reduces self-esteem (26%), sexual intimacy (75%), emotional relationship quality (33%), and general quality of life (25%) (35).

Pelvic floor symptoms have also been shown to negatively affect women's physical, psychological, social, and sexual well-being. One-third of women with POP are not sexually active, and the coexistence of prolapse and incontinence has a cumulative negative impact on sexual function (36). In the present study, moderate-to-strong correlations were found between the number and distress levels of pelvic floor symptoms and the physical domain of the PISQ-12. In contrast, weak-to-moderate correlations were found with the behavioral-emotional domain. This highlights that pelvic floor symptoms primarily impair the physical aspect of sexual function. Similarly, previous studies have indicated that major factors reducing sexual experience in women with pelvic floor dysfunction are prolapse (changes in vaginal appearance, dyspareunia), urinary incontinence (coital incontinence), and fecal incontinence (soiling), which together create significant physical problems (13). Negative genital body image is also an important risk factor for sexual health (37). Moreover, compared to women without prolapse, those with prolapse report lower sexual confidence, even in the presence of supportive partners who do not complain about the condition (38). Therefore, pelvic floor symptoms can be considered strong determinants of the physical subdomain of sexual function in women.

In this study, the weak relationship between the partner-related domain of sexual function with both vaginal and pelvic floor symptoms may be because the questions in this sub-dimension focus solely on male sexual dysfunction, such as premature ejaculation and erectile dysfunction. However, even this weak association suggests that pelvic floor symptoms in women may contribute to sexual dysfunction in their partners. For example, the presence of POP, accompanied by dyspareunia, pain, and bleeding, as well as women's verbal and physical responses during intercourse, may contribute to erectile difficulties or premature ejaculation in men (39).

These findings have important clinical implications. The observation that vaginal and pelvic floor symptoms are closely linked to sexual function suggests that addressing dysfunction solely as a psychosexual issue is inadequate. Therefore, comprehensive assessment and interventions addressing vaginal and pelvic floor health are essential for women experiencing sexual dysfunction. Adopting such a holistic approach can help break the cycle of dysfunction and improve the quality of life of postmenopausal women.

The strengths of this study include highlighting the importance of both vaginal and pelvic floor health in sexual dysfunction and analyzing sexual health in terms of its subdomains. Another strength is the use of valid and reliable tools widely accepted for the assessment of vaginal symptoms, pelvic floor symptoms, and sexual function. A limitation of the study is its single-center design, which may affect the generalizability of the results. Additionally, it should be acknowledged that the reliance on self-reported questionnaires may introduce reporting bias; however, this is a common and often unavoidable limitation in sexual health research.

CONCLUSION

In postmenopausal women, sexual function is negatively affected as the level of vaginal and pelvic floor symptoms increases. Vaginal symptom severity appears to be more strongly associated with the behavioral-emotional and physical subdomains of sexual function. In contrast, pelvic floor symptom severity shows a stronger relationship with the physical subdomain. Our findings underscore that this subdomain-specific analysis offers a more comprehensive and detailed insight into the symptom burden on sexual function. Therefore, the evaluation of vaginal and pelvic floor health and the management of pelvic floor dysfunctions are crucial in women with sexual dysfunction. In the management of sexual dysfunction, vaginal and pelvic floor symptoms should be addressed, and multidimensional interventions should be implemented.

Conflict of Interest: The authors declare no conflicts of interest.

Informed Consent: Informed consent was obtained from all participants involved in the study.

Funding: No financial support was received for this study.

Ethical Approval: The study was approved by the local university Non-Interventional Clinical Research Ethics Committee (GO18/776–45).

Author Contributions:

- **Concept and Design:** BSG, SÖ
- **Supervision:** SÖ
- **Data Collection and/or Processing:** BSG
- **Materials:** BSG, SÖ
- **Analysis and/or Interpretation:** BSG, SÖ
- **Literature Search:** BSG
- **Writing and Critical Review:** BSG, SÖ

REFERENCES

1. Nelson, H. D. (2008). Menopause. Lancet, 371(9614), 760-770. https://doi.org/10.1016/S0140-6736(08)60346-3
2. Hall, J. E. (2015). Endocrinology of the Menopause. Endocrinol Metab Clin North Am, 44(3), 485-496. https://doi.org/10.1016/j.ecl.2015.05.010
3. Weismiller, D. G. (2009). Menopause. Prim Care, 36(1), 199-226. https://doi.org/10.1016/j.pop.2008.10.007
4. Ceylan, B., & Ozerdogan, N. (2015). Factors affecting age of onset of menopause and determination of quality of life in menopause. Turk J Obstet Gynecol, 12(1), 43-49. https://doi.org/10.4274/tjod.79836
5. Daan, N. M., & Fauser, B. C. (2015). Menopause prediction and potential implications. Maturitas, 82(3), 257-265. https://doi.org/10.1016/j.maturitas.2015.07.019
6. Society, T. N. A. M. (2013). Management of symptomatic vulvovaginal atrophy: 2013 position statement of The North American Menopause Society. Menopause, 20(9), 888-902; quiz 903-884. https://doi.org/10.1097/GME.0b013e3182a122c2
7. Mitchell, C. M., & Waetjen, L. E. (2018). Genitourinary Changes with Aging. Obstet Gynecol Clin North Am, 45(4), 737-750. https://doi.org/10.1016/j.ogc.2018.07.010
8. Lev-Sagie, A. (2015). Vulvar and Vaginal Atrophy: Physiology, Clinical Presentation, and Treatment Considerations. Clınıcal Obstetrıcs And Gynecology, 58, 476-491. https://doi.org/10.1097/GRF.0000000000000126
9. Mehta A, Bachmann G. Vulvovaginal complaints. Clin Obstet Gynecol. 2008 Sep;51(3):549-55. https://doi.org/10.1097/GRF.0b013e3181809a26
10. Monteleone, P., Mascagni, G., Giannini, A., Genazzani, A. R., & Simoncini, T. (2018). Symptoms of menopause - global prevalence, physiology and implications. Nat Rev Endocrinol, 14(4), 199-215. https://doi.org/10.1038/nrendo.2017.180
11. Eickmeyer, S. M. (2017). Anatomy and Physiology of the Pelvic Floor. Phys Med Rehabil Clin N Am, 28(3), 455-460. https://doi.org/10.1016/j.pmr.2017.03.003
12. Buy, J. N., Ghossain, Michel. (2013). Pathology of the Pelvic Floor. In Gynecological Imaging (pp. 811-839). Springer. https://doi.org/10.1007/978-3-642-31012-6
13. Verbeek, M., & Hayward, L. (2019). Pelvic Floor Dysfunction And Its Effect On Quality Of Sexual Life. Sex Med Rev, 7(4), 559-564. https://doi.org/10.1016/j.sxmr.2019.05.007
14. Nazarpour, S., Simbar, M., Khorrami, M., Jafari Torkamani, Z., Saghafi, R., & Alavi-Majd, H. (2021). The association between sexual function and body image among postmenopausal women: a cross-sectional study. BMC Womens Health, 21(1), 403. https://doi.org/10.1186/s12905-021-01549-1
15. Schneider, H. P. G., & Birkhauser, M. (2017). Quality of life in climacteric women. Climacteric, 20(3), 187-194. https://doi.org/10.1080/13697137.2017.1279599
16. Nappi, R. E., & Lachowsky, M. (2009). Menopause and sexuality: prevalence of symptoms and impact on quality of life. Maturitas, 63(2), 138-141. https://doi.org/10.1016/j.maturitas.2009.03.021
17. Both, T., Dalm, V. A., van Hagen, P. M., & van Daele, P. L. (2017). Reviewing primary Sjogren's syndrome: beyond the dryness - From pathophysiology to diagnosis and treatment. Int J Med Sci, 14(3), 191-200. https://doi.org/10.7150/ijms.17718
18. Sert, B., & Ozgul, S. (2022). Turkish day-to-day impact of vaginal aging questionnaire: reliability, validity and relationship with pelvic floor distress.

Int Urogynecol J, 33(11), 3093-3102. https://doi.org/10.1007/s00192-022-05085-w

19. Toprak Celenay, S., Akbayrak, T., Kaya, S., Ekici, G., & Beksac, S. (2012). Validity and reliability of the Turkish version of the Pelvic Floor Distress Inventory-20. Int Urogynecol J, 23(8), 1123-1127. https://doi.org/10.1007/s00192-012-1729-8
20. Bilgic Celik, D., Beji, N. K., & Yalcin, O. (2013). Turkish adaptation of the short form of the Pelvic Organ Prolapse/Urinary Incontinence Sexual Function Questionnaire (PISQ-12): a validation and reliability study. Neurourol Urodyn, 32(8), 1068-1073. https://doi.org/10.1002/nau.22369
21. Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation Coefficients: Appropriate Use and Interpretation. Anesth Analg, 126(5), 1763-1768. https://doi.org/10.1213/ANE.0000000000002864
22. Carcelen-Fraile, M. D. C., Aibar-Almazan, A., Martinez-Amat, A., Cruz-Diaz, D., Diaz-Mohedo, E., Redecillas-Peiro, M. T., & Hita-Contreras, F. (2020). Effects of Physical Exercise on Sexual Function and Quality of Sexual Life Related to Menopausal Symptoms in Peri- and Postmenopausal Women: A Systematic Review. Int J Environ Res Public Health, 17(8). https://doi.org/10.3390/ijerph17082680
23. Nappi, R. E., & Cucinella, L. (2022). Sexuality, pelvic floor/vaginal health and contraception at menopause. Best Pract Res Clin Obstet Gynaecol, 81, 85-97. https://doi.org/10.1016/j.bpobgyn.2021.11.006
24. Parish, S. J., Nappi, R. E., Krychman, M. L., Kellogg-Spadt, S., Simon, J. A., Goldstein, J. A., & Kingsberg, S. A. (2013). Impact of vulvovaginal health on postmenopausal women: a review of surveys on symptoms of vulvovaginal atrophy. Int J Womens Health, 5, 437-447. https://doi.org/10.2147/IJWH.S44579
25. Lev-Sagie A. (2015 Sep).Vulvar and Vaginal Atrophy: Physiology, Clinical Presentation, and Treatment Considerations. Clin Obstet Gynecol, 58(3), 476-491. https://doi.org/10.1097/GRF.0000000000000126
26. Nappi, R. E., & Kokot-Kierepa, M. (2010). Women's voices in the menopause: results from an international survey on vaginal atrophy. Maturitas, 67(3), 233-238. https://doi.org/10.1016/j.maturitas.2010.08.001
27. Palma, F., Xholli, A., Cagnacci, A., & as the writing group of the, A. s. (2018). The most bothersome symptom of vaginal atrophy: Evidence from the observational AGATA study. Maturitas, 108, 18-23. https://doi.org/10.1016/j.maturitas.2017.11.007
28. Aydin, Y., Hassa, H., Oge, T., Yalcin, O. T., & Mutlu, F. S. (2014). Frequency and determinants of urogenital symptoms in postmenopausal Islamic women. Menopause, 21(2), 182-187. https://doi.org/10.1097/GME.0b013e3182937966
29. Selvi, I., Baydilli, N., Yuksel, D., Akinsal, E. C., & Basar, H. (2020). Reappraisal of the Definition Criteria for "Genitourinary Syndrome of Menopause," and its Effect on Quality of Life in Turkish Postmenopausal Women. Urology, 144, 83-91. https://doi.org/10.1016/j.urology.2020.07.025
30. Dumoulin, C., Pazzoto Cacciari, L., & Mercier, J. (2019). Keeping the pelvic floor healthy. Climacteric, 22(3), 257-262. https://doi.org/10.1080/13697137.2018.1552934
31. Wu, J. M., Vaughan, C. P., Goode, P. S., Redden, D. T., Burgio, K. L., Richter, H. E., & Markland, A. D. (2014). Prevalence and trends of symptomatic pelvic floor disorders in U.S. women. Obstet Gynecol, 123(1), 141-148. https://doi.org/10.1097/AOG.0000000000000057
32. Legendre, G., Ringa, V., Panjo, H., Zins, M., & Fritel, X. (2015). Incidence and remission of urinary incontinence at midlife: a cohort study. BJOG, 122(6), 816-824. https://doi.org/10.1111/1471-0528.12990
33. Calleja-Agius, J., & Brincat, M. P. (2015). The urogenital system and the menopause. Climacteric, 18 Suppl 1, 18-22. https://doi.org/10.3109/13697137.2015.1078206
34. Nappi, R. E., & Palacios, S. (2014). Impact of vulvovaginal atrophy on sexual health and quality of life at postmenopause. Climacteric, 17(1), 3-9. https://doi.org/10.3109/13697137.2013.871696
35. Simon, J. A. (2011). Identifying and treating sexual dysfunction in postmenopausal women: the role of estrogen. J Womens Health (Larchmt), 20(10), 1453-1465. https://doi.org/10.1089/jwh.2010.2151
36. Novi, J. M., Jeronis, S., Morgan, M. A., & Arya, L. A. (2005). Sexual function in women with pelvic organ prolapse compared to women without pelvic organ

prolapse. J Urol, 173(5), 1669-1672. https://doi.org/10.1097/01.ju.0000154618.40300.c8

37. Zielinski, R., Miller, J., Low, L. K., Sampselle, C., & DeLancey, J. O. (2012). The relationship between pelvic organ prolapse, genital body image, and sexual health. Neurourol Urodyn, 31(7), 1145-1148. https://doi.org/10.1002/nau.22205

38. Cosgriff, L., Ramanathan, A., & Iglesia, C. B. (2024). Pelvic Floor Disorders and Sexual Function: A Review. Obstet Gynecol Clin North Am, 51(2), 241-257. https://doi.org/10.1016/j.ogc.2024.02.001

39. Pakpahan, C., Lionardi, S., Putri Handini, L., Lionardi, S. K., Alvianto, S., Rinaldi, F. X., & Fontana, A. (2025). Male Responses to Female Partners with Genitopelvic Pain/Penetration Disorder: A Systematic Review of Biopsychological Impacts and Coping Strategies. Int J Sex Health, 37(3), 382-410. https://doi.org/10.1080/19317611.2025.2527881