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Original Research

From Anatomy to Emotion: How Pelvic Organ Prolapse Reshapes Women's Quality of Life

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Abstract

Background: Pelvic organ prolapse (POP) is a multifactorial condition characterized by the descent of pelvic organs from their normal anatomical position, significantly impacting women's quality of life. In this study, the effects of POP on symptom burden and quality of life were evaluated using the locally validated and reliable Pelvic Floor Distress Inventory-20 (PFDI-20) and Pelvic Floor Impact Questionnaire-7 (PFIQ-7), with the aim of identifying modifiable risk factors. **Methods**: This study included 1506 women who met the inclusion criteria and were admitted to the obstetrics and gynecology outpatient clinics of two tertiary university hospitals. Patients were classified into prolapse (stage $\geq$II) and control (stage I) groups based on the Pelvic Organ Prolapse Quantification (POP-Q system). Symptom burden and quality of life were evaluated via the PFDI-20 and PFIQ-7 questionnaires. **Results**: The median age of the study cohort was 41 (18–70) years, and POP was diagnosed in 510 (33.8%) patients. Compared to women without POP, those with stage $\geq$II POP had significantly higher total and subscale scores on the PFDI-20 and PFIQ-7 ($p < 0.001$). According to multivariate logistic regression analysis, the following factors were significantly associated with an increased the risk of developing POP: age ($\geq$35 years) (odds ratio [OR]: 1.18; 95% confidence interval [CI]: 1.161–1.202), body mass index (BMI) $\geq$25 kg/m^2 (OR: 1.47; 95% CI: 1.410–1.552), waist-hip ratio (WHR) $\geq$0.8 (OR: 3.0; 95% CI: 2.130–4.233), parity $\geq$2 (OR: 3.38; 95% CI: 2.975–3.841), vaginal delivery (OR: 3.75; 95% CI: 2.859–4.941), comorbidity (OR: 2.97; 95% CI: 2.227–3.970), and menopause (OR: 6.85; 95% CI: 5.409–8.683) ($p < 0.001$). In contrast, smoking was associated with a significantly lower risk of developing POP (OR: 0.70; 95% CI: 0.531–0.895; $p = 0.005$). **Conclusions**: These findings emphasize the importance of early detection through regular gynecological examinations, particularly in high-risk populations, and highlight the need for preventive strategies at the community level to reduce the burden of POP and improve women's overall quality of life.

Keywords: menopause; pelvic floor diseases; pelvic organ prolapse; quality of life; vaginal delivery

1. Introduction

Pelvic organ prolapse (POP) is a multifaceted disorder defined by the shifting of pelvic structures away from their typical anatomical location, either descending into or protruding from the vaginal passage, due to a compromise in the integrity of the supportive elements that comprise the pelvic base, including musculature, fascial components, and soft tissue networks [1]. Pelvic floor dysfunction (PFD) refers to a more extensive medical entity encompassing various anatomical and physiological disorders, including bladder control issues, bowel leakage, sexual health disturbances, and POP, stemming from impaired function of the musculature, connective tissues, and neural components forming the pelvic foundation [2]. Although POP is included in the PFD scope, it represents mechanical and anatomical weakness, whereas PFD is a more inclusive and multidimensional concept, including both functional deficiencies and structural impairments [3,4].

The incidence of POP varies according to the diagnostic method used. While symptom-based data indicate a prevalence of 3% to 6% in the community, this rate can be as high as 40% to 50% when assessed by pelvic examination [5]. POP development is closely associated with various risk factors, such as advanced age, a high number of births, a previous record of giving birth vaginally, menopause, obesity, chronic bowel irregularities, persistent coughing, smoking, as well as previous pelvic surgeries [6–9]. This multifactorial nature draws attention to the preventable aspects of POPs, increasing their importance for public health.

POP manifests itself clinically complaints like bladder and bowel control issues, pelvic discomfort, vaginal pressure, and pain during sexual intercourse, which are especially evident in postmenopausal women [10,11]. These symptoms are not limited to physical discomfort; they also deeply influence a person's body perception, self-worth,

social relationships, as well as sexual life, leading to notable reductions in overall well-being [12]. However, many women delay seeking medical help due to embarrassment, seeing the disease as a natural consequence of aging, or misinformation and perceptions, which can lead to years of symptoms and chronic deterioration in daily functioning [13].

Although POP has a well-defined clinical picture in terms of diagnosis and treatment, the effects of the disease on the individual and the symptom profile can vary significantly depending on contextual factors such as sociodemographic characteristics, cultural norms, and access to health services. The current literature tends to ignore these differences and assess the effects of POP on a homogeneous patient group. This study aimed to assess the effects of POP on symptom burden and quality of life in a local context through the validated Pelvic Floor Distress Inventory (PFDI-20) and Pelvic Floor Impact Questionnaire (PFIQ-7) scales and to identify modifiable risk factors and potential areas for early intervention and preventive strategies.

2. Materials and Methods

2.1 Study Design

This cross-sectional study included 1506 women who fulfilled the inclusion criteria and presented to the obstetrics and gynecology outpatient clinics of two tertiary university hospitals between 2021 and 2024.

2.2 Inclusion Criteria

The study included women who presented with symptoms of pelvic floor dysfunction (e.g., pelvic pain, vaginal fullness, urinary incontinence, frequent urination, fecal incontinence, and difficulty in defecation) or who were evaluated for POP during routine gynecologic examination and whose age, obstetric history, anthropometric measurements, and questionnaire data could be accessed completely from both the hospital information management system and physical archive files.

2.3 Exclusion Criteria

Women who were pregnant, had a past or current history of gynecologic malignancy, had undergone hysterectomy and/or pelvic reconstructive surgery, had active psychiatric illness, or were taking antipsychotic medication were excluded.

2.4 Covariates and Descriptive Data

The demographic and health-related characteristics analyzed were age, number of gravida and parity, number of vaginal deliveries, menopausal status, body mass index (BMI), waist-hip ratio (WHR), smoking, level of schooling (elementary, middle, or higher education), annual income level (low, medium, high), and existing comorbidities. These variables were considered covariates in the intergroup comparisons and multivariate statistical analyses.

2.5 Group Selection

The diagnosis of POP was made via the Pelvic Organ Prolapse Quantification (POP-Q) system. Prolapse severity was classified according to the staging system recommended by the International Urogynecology Association (IUGA) and the International Continence Society (ICS) [14]. According to the POP-Q system, patients with stage II disease and above were defined as the "prolapse group", and patients with stage I disease were defined as the "control group".

2.6 Questionnaire Scales

2.6.1 PFDI-20

The PFDI-20 is a scale with high internal consistency that evaluates symptoms related to PFD and the level of discomfort caused by these symptoms. It consists of three subscales: the Pelvic Organ Prolapse Distress Inventory-6 (POPDI-6), the Urinary Distress Inventory-6 (UDI-6), and the Colorectal-Anal Distress Inventory-8 (CRADI-8). The scores obtained from this scale, consisting of 20 items, range from 0–100 for the subscales and 0–300 in total. Higher scores indicate a greater impact of pelvic floor symptoms on the individual [15].

2.6.2 PFIQ-7

The PFIQ-7 is a scale developed to assess the impact of POP on an individual's quality of life. It consists of three subscales: the Pelvic Organ Prolapse Impact Questionnaire-7 (POPIQ-7), the Urinary Impact Questionnaire-7 (UIQ-7), and the Colorectal Anal Impact Questionnaire-7 (CRAIQ-7). These subscales assess the impact of pelvic floor symptoms on daily activities, social life, and emotional state. The subscale scores range from 0–100, and the total scale score ranges from 0–300. Higher scores indicate a more pronounced impact on quality of life [16].

2.7 Statistical Analysis

The data evaluations were performed via SPSS version 24.0 (SPSS Inc., Chicago, IL, USA). Numerical data were expressed as median (interquartile range), and categorical variables were presented as frequencies and percentages. The assumption of normal distribution was evaluated with the Kolmogorov-Smirnov test; comparisons between the groups in which the data were found not to be normally distributed were made with the Mann-Whitney U test. Categorical variables were analyzed with the Chi-square (χ^2) test. To determine the predictive variables affecting the presence of POP, selected variables identified as statistically relevant ($p < 0.05$) in the univariate analyses were included in the multivariate logistic regression analysis. The odds ratio (OR, 95% confidence interval (CI), and p-values are presented in the regression results. The significance level was accepted as $p < 0.05$.

Table 1. Demographic and obstetric characteristics of the total cohort.

Variables	Total Cohort (n = 1506)
Age (years)	41 [30–51]
BMI (kg/m^2)	27 [24.39–28.90]
WHR	0.90 [0.81–0.96]
Gravida	4 [2–5]
Parity	3 [1–4]
Vaginal delivery (n, %)	1030 (68.4%)
Menopause (n, %)	591 (39.2%)
Comorbidity (n, %)	225 (14.9%)
Medications (n, %)	195 (12.9%)
Smoking (n, %)	357 (23.7%)
Education (n, %)	
Primary school	947 (62.9%)
High school	306 (20.3%)
College/University	253 (16.8%)
Yearly income level (n, %)	
Low	587 (39%)
Medium	828 (55%)
High	91 (6%)

BMI, body mass index, kg/m^2; WHR, waist-to-hip ratio. Data are presented as the median [the first quartile, the third quartile] or count (percentage).

3. Results

3.1 Demographic Data of the Total Cohort

According to the findings obtained from clinical evaluations, a total of 996 patients were diagnosed with stage I POP, 426 with stage II POP, 55 with stage III POP, and 29 with stage IV POP. The patients' ages ranged between 18 and 70 years, with a median age of 41 years. The demographic and obstetric characteristics of the total cohort are presented in Table 1.

3.2 Analysis of the Staging and Distribution of POP in Different Anatomical Regions

As shown in Table 2, the severity of anterior vaginal wall prolapse was grade I (45.5%), grade II (43.9%), grade III (6%) and grade IV (4.6%). The severity of posterior vaginal wall prolapse was grade I (53.4%), grade II (28.6%), grade III (13.7%) and grade IV (4.4%). The severity of uterine prolapse was classified as grade I (64.3%), grade II (31%), grade III (3.1%) and grade IV (1.7%).

3.3 Results of the PFDI-20 and PFIQ-7 Scales for the Total Cohort

As shown in Table 3, the median total score obtained from the PFDI-20 questionnaire was 51.04. When the subgroup scores were analyzed, UDI-6 score was 37.5, the CRADI-8 score was 9.37, and the POPDI-6 score was 4.16. The median total score obtained from the PFIQ-7 was 14.28. The UIQ-7 score was 9.52, the CRAIQ-7 score was 4.76, and the POPIQ-7 score was 0. Among the PFDI-20 subgroups, the highest score was obtained from the UDI-6, and among the PFIQ-7 subgroups, the highest score was obtained from the UIQ-7.

3.4 Comparison of Demographic and Obstetric Characteristics of Patients with and without POP

The median age was significantly greater in patients with POP than in those without POP ($p < 0.001$). BMI and WHR were significantly greater in patients with POP than in those without POP ($p < 0.001$). Parity ($p < 0.001$), vaginal delivery ($p < 0.001$), menopause ($p < 0.001$), and comorbidities ($p < 0.001$) were significantly greater in women with POP than in women without POP, and smoking was significantly greater in women without POP ($p = 0.005$) (Table 4).

3.5 Comparison of PFDI-20 and PFIQ-7 Scale Results of Patients with and without POP

Compared with women without POP, women with POP had significantly higher PFDI-20 total scores ($p < 0.001$), UDI-6 scores ($p < 0.001$), CRADI-8 scores ($p < 0.001$), and POPDI-6 scores ($p < 0.001$). Similarly, the PFIQ-7 total score ($p < 0.001$), UIQ-7 score ($p < 0.001$), CRAIQ-7 score ($p < 0.001$), and POPIQ-7 score ($p < 0.001$) were also significantly greater in the POP group (Table 5).

3.6 Multivariate Evaluation of Variables Linked to Varying Degrees of POP

Based on multivariate logistic regression findings, the variables significantly increasing the risk of developing POP were age (≥35 years) (OR: 1.18; 95% CI: 1.161–1.202), BMI (≥25 kg/m^2) (OR: 1.47; 95% CI: 1.410–1.552), WHR (≥0.8) (OR: 3.0; 95% CI: 2.130–4.233), parity (≥2) (OR: 3.38; 95% CI: 2.975–3.841), vaginal delivery (OR: 3.75; 95% CI: 2.859–4.941), comorbidity (OR: 2.97; 95% CI: 2.227–3.970) and menopause (OR: 6.85; 95% CI: 5.409–8.683) ($p < 0.001$). In contrast, the risk of developing POP was significantly lower in smokers (OR: 0.70; 95% CI: 0.531–0.895; $p = 0.005$) (Table 6).

4. Discussion

This study investigated the impact of POP on symptom burden and overall daily functioning through the validated and reliable PFDI-20 and PFIQ-7 scales and analyzed the associations of demographic and obstetric characteristics with POP. Age (≥35 years; $p < 0.001$), BMI (≥25 kg/m^2; $p < 0.001$), WHR (≥0.8; $p < 0.001$), parity (≥2; $p < 0.001$), vaginal delivery ($p < 0.001$), comorbidities ($p < 0.001$) and menopause ($p < 0.001$) significantly increased the risk of developing POP. In contrast, smokers' risk of developing POP was significantly lower ($p = 0.005$). The scores obtained from the PFDI-20 and PFIQ-7 scales and their subgroups were significantly higher in women with stage II POP and above POP ($p < 0.001$).

Table 2. Analysis of prolapse grading and distribution of POP in different anatomical regions.

Prolapse Type (n, %)	Grade I	Grade II	Grade III	Grade IV
Anterior vaginal wall prolapse	288 (45.5%)	278 (43.9%)	38 (6%)	29 (4.6%)
Posterior vaginal wall prolapse	183 (53.4%)	98 (28.6%)	47 (13.7%)	15 (4.4%)
Uterine prolapse	525 (64.3%)	253 (31%)	25 (3.1%)	14 (1.7%)

POP, pelvic organ prolapse.

Table 3. Results of the PFDI-20 and PFIQ-7 scales for the total cohort.

Variables	Total Cohort (n = 1506)
PFDI-20	51.04 [15.62–139.58]
UDI-6	37.5 [12.50–62.50]
CRADI-8	9.37 [3.12–31.25]
POPDI-6	4.16 [0–45.83]
PFIQ-7	14.28 [0–133.33]
UIQ-7	9.52 [0–23.80]
CRAIQ-7	4.76 [0–38.09]
POPIQ-7	0 [0–71.42]

PFDI-20, Pelvic Floor Distress Inventory-20; UDI-6, Urinary Distress Inventory-6; CRADI-8, Colorectal Anal Distress Inventory-8; POPDI-6, Pelvic Organ Prolapse Distress Inventory-6; PFIQ-7, Pelvic Floor Impact Questionnaire-7; UIQ-7, Urinary Impact Questionnaire-7; CRAIQ-7, Colorectal Anal Impact Questionnaire; POPIQ-7, Pelvic Organ Prolapse Impact Questionnaire-7. Data are presented as the median [the first quartile, the third quartile].

Increasing age is recognized as a key contributing factor to the progression of POP, often resulting in more pronounced clinical manifestations and greater interference with everyday functioning [17]. It has been reported that as age increases, PFDI-20 and PFIQ-7 scores increase, symptoms become more prominent, and quality of life becomes more negatively affected [18]. The POPDI-6 and UDI-6 scores were found to be higher, especially for conditions like pelvic floor disorders and bladder control issues [19]. Similarly, increasing scores in the UIQ-7 and POPIQ-7 subgroups indicate that individuals experience more difficulties in their social life and daily activities as they grow older [20]. Surgical and conservative treatments significantly reduce PFDI-20 and PFIQ-7 scores, alleviating clinical complaints and improving day-to-day functioning, even in the older age group [21]. In our study, in line with the literature, women aged $\geq$35 years were significantly more likely to develop POP ($p < 0.001$). In addition, both the PFDI-20 ($R^2 = 0.422$, $p < 0.001$) and PFIQ-7 ($R^2 = 0.413$, $p < 0.001$) scores increased significantly with increasing age; these findings suggest that the symptom severity of symptoms and functional impairment impact due to pelvic floor dysfunction increase with age.

A high BMI and WHR not only heighten susceptibility to POP but also contribute to more advanced disease progression. The prevalence of POP can reach up to 50% in women with a BMI $\geq$30 kg/m^2 [22]. Furthermore, a high BMI has been shown to contribute to the worsening of POP symptoms and pessary failure [23]. Similarly, the risk of POP is increased by 30% in individuals with a WHR $\geq$0.85 [22]. In particular, POP is more common in individuals with a high BMI, which leads to higher scores in this population [23]. The negative consequences of POP on daily well-being are particularly evident in the areas of social life and physical mobility; this observation is supported by the high scores recorded in the POPDI-6 and POPIQ-7 subgroups [24,25]. In our study, consistent with the literature, the risk of developing POP increased 1.47-fold ($p < 0.001$) in individuals with a BMI $\geq$25 kg/m^2 and approximately 3-fold in those with a WHR $\geq$0.8. Furthermore, a significant increase in PFDI-20 scores ($R^2 = 0.407$, $p < 0.001$) was observed with higher BMI and WHR. Similarly, scores on the PFIQ-7 ($R^2 = 0.430$, $p < 0.001$) also rose notably in parallel with these anthropometric measures.

Research indicates that POP occurs more frequently in multiparous women than in nulliparous women and that, in particular, vaginal delivery significantly increases the risk of POP compared with cesarean section [26]. The need for POP surgery has been reported to increase approximately threefold in women with a parity of five or more [26], and the risk associated with vaginal delivery has been reported to range from 4.85 to 12 times greater than that associated with cesarean section [27]. Smokers have been reported to have a lower risk of POP, which has been attributed to the effects of smoking on estrogen metabolism or a lower BMI [28]. However, another study demonstrated that smoking did not have a significant protective effect on the development of POP and may even have negative effects on the pelvic floor through chronic cough [29]. In our study, consistent with the literature, the risk of developing POP increased 3.75-fold ($p < 0.001$) in individuals with vaginal delivery and 3.38-fold ($p < 0.001$) in individuals with a parity $\geq$2. In contrast, the risk of developing POP was significantly lower in smokers ($p = 0.005$). The lower risk of POP in smokers may be due to the decrease in smoking rates with increasing age.

As the severity of POP increases, its impact on patients' physical discomfort and daily functioning increases markedly. The mean PFDI-20 score in women with stage III POP was 120 ($\pm$55), whereas this value was 80 ($\pm$40) in women with stage I POP [18]. In patients with stage IV POP, the mean PFDI-20 score was 136.6 ($\pm$54.2), indicat-

Table 4. Comparison of demographic and obstetric characteristics of patients with and without POP.

Variables	Grade I (n = 996)	Grade II/III/IV (n = 510)	*p* value
Age (years)	33 [27–44]	51 [46–56]	<0.001[b]
BMI (kg/m^2)	26.17 [24.14–27.34]	29.85 [27–32.03]	<0.001[b]
WHR	0.87 [0.80–0.91]	0.99 [0.90–1.06]	<0.001[b]
Gravida	3 [2–4]	5 [4–6]	<0.001[b]
Parity	2 [1–3]	4 [3–5]	<0.001[b]
Vaginal delivery (n, %)	597 (59.9%)	433 (84.9%)	<0.001[a]
Menopause (n, %)	241 (24.2%)	350 (68.6%)	<0.001[a]
Comorbidity (n, %)	99 (9.9%)	126 (24.7%)	<0.001[a]
Smoking (n, %)	258 (25.9%)	99 (19.4%)	0.005[a]
Education (n, %)			
Primary school	544 (54.6%)	403 (79%)	<0.001[a]
High school	228 (22.9%)	78 (15.3%)	0.001[a]
College/University	224 (22.5%)	29 (5.7%)	<0.001[a]
Yearly income level (n, %)			
Low	372 (37.3%)	215 (42.2%)	0.070[a]
Medium	547 (54.9%)	281 (55.1%)	0.948[a]
High	77 (7.4%)	14 (2.7%)	<0.001[a]

Data are presented as the median [the first quartile, the third quartile] or count (percentage).[a], Chi-squared test; [b], Mann-Whitney U test.

Table 5. Comparison of PFDI-20 and PFIQ-7 scale results of patients with and without POP.

Variables	Grade I (n = 996)	Grade II/III/IV (n = 510)	*p* value
PFDI-20	32.29 [11.45, 51.04]	156.25 [139.58, 167.70]	<0.001[a]
UDI-6	25 [8.33, 37.5]	75 [62.5, 79.16]	<0.001[a]
CRADI-8	3.12 [3.12, 9.37]	31.25 [31.25, 34.37]	<0.001[a]
POPDI-6	4.16 [0, 4.16]	50 [45.83, 54.16]	<0.001[a]
PFIQ-7	4.76 [0, 14.28]	138.09 [123.80, 157.14]	<0.001[a]
UIQ-7	4.76 [0, 9.52]	28.57 [23.80, 38.09]	<0.001[a]
CRAIQ-7	0 [0, 4.76]	38.09 [33.3, 42.85]	<0.001[a]
POPIQ-7	0 [0, 0]	71.42 [66.6, 76.19]	<0.001[a]

Data are presented as the median [the first quartile, the third quartile]. [a], Mann-Whitney U test.

Table 6. Multivariate analysis for risk factors associated with varying degrees of POP.

Variables	OR	95% CI	*p* value
Age (years) (≥35 *vs.* <35)	1.18	1.161–1.202	<0.001
BMI (kg/m^2) (≥25 *vs.* <25)	1.47	1.410–1.552	<0.001
WHR (≥0.8 *vs.* <0.8)	3.00	2.130–4.233	<0.001
Menopause	6.85	5.409–8.683	<0.001
Parity (≥2 *vs.* 1)	3.38	2.975–3.841	<0.001
Vaginal delivery	3.75	2.859–4.941	<0.001
Comorbidity	2.97	2.227–3.970	<0.001
Smoking	0.70	0.531–0.895	0.005

CI, confidence interval; OR, odds ratio.

ing that the symptom burden increases significantly in advanced stages of the disease [18]. The POPDI-6, UDI-6, and PFIQ-7 subscales also reflect a greater burden of urinary and colorectal symptoms in patients with advanced POP [30]. In our study, consistent with the literature, the PFDI-20 ($p < 0.001$) and PFIQ-7 ($p < 0.001$) scores increased significantly with increasing POP stage.

Urinary incontinence is most common in patients with anterior prolapse, whereas defecation is difficult in patients with posterior prolapse, and vaginal fullness is com-

mon in patients with uterine prolapse. Significant increases in CRADI-8 scores have been reported, especially in women with anterior-posterior-apical (APC)-type prolapse [31]. Natural tissue repair has become preferable in POP surgery in recent years because of its anatomical and functional success. Natural tissue repair has been reported to be effective for anterior prolapse, with low recurrence rates and minimal surgical morbidity during long-term follow-up [32]. Transvaginal repairs with natural tissue in posterior prolapse provide anatomical correction and significant improvements in symptoms such as defecation problems [33–35]. In uterine prolapse, natural tissue repair offers an effective treatment option with low complication rates, high patient satisfaction, and successful anatomical results [36,37]. It has been reported that PFDI-20 and PFIQ-7 scores, which are high before surgery, decrease significantly after surgery in women operated on for POP [38].

One of the major advantages of this study is the inclusion of an extensive participant pool and the thorough evaluation of contributing determinants related to POP. Furthermore, the use of validated scales to measure symptom severity and its impact on daily functioning increases the reliability of the findings. Few existing studies have explored symptomatology associated with POP in a sociodemographic context. This study contributes to the literature, as it is one of the few studies examining the relationships between POP and regional and cultural factors. Although the clinical assessment methods used to diagnose POP are standardized, subjective symptom reports may reveal individual differences. The cultural differences and health literacy levels of the women included in the study could influence their questionnaire responses.

5. Conclusions

In conclusion, given the substantial burden of POP on women's health and daily functioning, early detection through regular gynecological examinations is crucial, especially in populations with high birth rates and in postmenopausal women. Annual check-ups and postpartum follow-ups can enable early recognition of POP symptoms, allowing timely intervention. These findings emphasize the importance of raising awareness of POP risk factors and implementing preventive strategies at the community level. Healthcare providers can make a significant contribution to reducing the burden of POP and improving women's overall quality of life by promoting regular screening and addressing modifiable risk factors. This study provides valuable guidance for optimizing POP screening and prevention strategies and informs future research and clinical practice focused on improving women's daily functioning.

Availability of Data and Materials

Data generated and analyzed during the study are available from the corresponding author. However, such data are not publicly available.

Author Contributions

SK, CT, AMB, DT, and CET: protocol/project development, data collection, data analysis, article writing. All authors were involved in drafting the manuscript or revising it critically for important intellectual content. All authors read and approved the final manuscript and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

The study was approved by the Non-Interventional Clinical Research Ethics Committee of the Kafkas University Faculty of Medicine (27/03/2024, 80576354-050-99/424). This study complied with the recommendations of the Declaration of Helsinki for human biomedical research. All patients or their families/legal guardians gave their informed consent for inclusion before they participated in the study.

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Conflict of Interest

The authors declare no conflict of interest.

References

[1] Gao J, Li Y, Hou J, Wang Y. Unveiling the depths of pelvic organ prolapse: From risk factors to therapeutic methods (Review). Experimental and Therapeutic Medicine. 2024; 29: 11. https://doi.org/10.3892/etm.2024.12761.

[2] Bonis M, Lormand J, Walsh C. Immediate effects of exercise and behavioral interventions for pelvic floor dysfunction and lumbopelvic pain. journal of women's health physical therapy. 2020; 44: 54–62. https://doi.org/10.1097/JWH.0000000000000165.

[3] Muraleedharan KL, Nisa Sushilal CM, Unnikrishnan P, Muraleedharan A, Krishnarajabhatt HS. Ayurveda management of cystocele, uterine prolapse and weak pelvic floor strength-A case report. Journal of Ayurveda and Integrative Medicine. 2023; 14: 100775. https://doi.org/10.1016/j.jaim.2023.100775.

[4] Toktar LR, Orazov MR, Samsonova IA, Kamarova ZN, Li KI, Pak VE, *et al*. New markers of pelvic organ prolapse. Voprosy Ginekologii, AkušErstva i Perinatologii. 2023; 22: 98–102. https://doi.org/10.20953/1726-1678-2023-2-98-102.

[5] Muche HA, Kassie FY, Biweta MA, Gelaw KA, Debele TZ. Prevalence and associated factors of pelvic organ prolapse among women attending gynecologic clinic in referral hospitals of Amhara Regional State, Ethiopia. International Urogynecology Journal. 2021; 32: 1419–1426. https://doi.org/10.1007/s00192-021-04710-4.

[6] Putra HK, Callista ZA, Zulkarnain M. Analysis of risk factors with the degree of pelvic organs prolapse at Dr. Mohammad Hoesin general hospital palembang. Bioscientia Medicina: Journal of Biomedicine and Translational Research. 2021; 5: 915–918. https://doi.org/10.32539/bsm.v5i4.366.

[7] Ansari MK, Sharma PP, Khan S. Pelvic organ prolapse in perimenopausal and menopausal women. Journal of Obstetrics and

Gynecology of India. 2022; 72: 250–257. https://doi.org/10.1007/s13224-021-01524-8.

[8] Abdur-Raheem FZ, Fehintola AO, Bola-Oyebamji BS, Ajiboye AD, Ayegbusi AO, Babalola OE, *et al*. Pelvic organ prolapse quantification profile of women in Ile-Ife, Nigeria: determinants and symptom correlation. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2024; 13: 1925–1933. https://doi.org/10.18203/2320-1770.ijrcog20242055.

[9] Gillor M, Saens P, Dietz HP. Demographic risk factors for pelvic organ prolapse: do smoking, asthma, heavy lifting or family history matter? European Journal of Obstetrics & Gynecology and Reproductive Biology. 2021; 261: 25–28. https://doi.org/10.1016/j.ejogrb.2021.04.006.

[10] Seifalian A, Stanciu PI, Digesu A, Khullar V. Graphene-based nanocomposite materials to provide a surgical solution for the condition of pelvic organ prolapse. Medical Hypotheses. 2024; 189: 111398. https://doi.org/10.1016/j.mehy.2024.111398.

[11] Nguyen HV, Ngo DT, Lieu DV, Tran TT. Combination of anterior and posterior vaginal mesh implants and delorme procedure in a 94-year-old female with pelvic organ prolapse. Nigerian Postgraduate Medical Journal. 2024; 31: 170–172. https://doi.org/10.4103/npmj.npmj_32_24.

[12] Bradley CS, Brown HW, Shippey SS, Gutman RE, Andy UU, Yurteri-Kaplan LA, *et al*. Generic health-related quality of life in patients seeking care for pelvic organ prolapse. Female Pelvic Medicine & Reconstructive Surgery. 2021; 27: 337–343. https://doi.org/10.1097/SPV.0000000000001069.

[13] Freeman R. Margie Polden Memorial Lecture: the changing face of obstetrics and pelvic floor dysfunction. Journal of Pelvic, Obstetric and Gynaecological Physiotherapy. 2024; 135: 118–123. https://doi.org/10.62399/wbrq7297.

[14] Bump RC, Mattiasson A, Bø K, Brubaker LP, DeLancey JOL, Klarskov P, *et al*. The standardization of terminology of female pelvic organ prolapse and pelvic floor dysfunction. American Journal of Obstetrics and Gynecology. 1996; 175: 10–17. https://doi.org/10.1016/s0002-9378(96)70243-0.

[15] de Arruda GT, dos Santos Henrique T, Virtuoso JF. Pelvic floor distress inventory (PFDI)—systematic review of measurement properties. International Urogynecology Journal. 2021; 32: 2657–2669. https://doi.org/10.1007/s00192-021-04748-4.

[16] Barber MD, Walters MD, Bump RC. Short forms of two condition-specific quality-of-life questionnaires for women with pelvic floor disorders (PFDI-20 and PFIQ-7). American Journal of Obstetrics and Gynecology. 2005; 193: 103–113. https://doi.org/10.1016/j.ajog.2004.12.025.

[17] Ron NJ, Dolbinski SC, Hodonicky EG, Middlebrook DO, Olmstead SR, Olsen SL, *et al*. Associations between running mechanics, functional lower extremity strength, and stress urinary incontinence in parous female runners. Journal of Women's & Pelvic Health Physical Therapy. 2024; 48: 147–153. https://doi.org/10.1097/jwh.0000000000000302.

[18] Sari YM, Sari MP. Pelvic Floor Distress Inventory (PFDI)-20 score in patients with Pelvic Organ Prolaps (POP). Andalas Obstetric and Gynecology Journal. 2024; 8: 693–702. https://doi.org/10.25077/aoj.8.2.693-702.2024.

[19] Levy G, Zines Y, Paz-Levy D, Zaidin A, Shemer O, Beck A, *et al*. Epidemiology analysis of pelvic floor medicine center in southern israel using PFDI-20 and PISQ-12 quality of life questionnaires. Asploro Biomed Journal of Clinical Case Reports. 2020; 3: 191–201. https://doi.org/10.36502/2020/ASJBCCR.6211.

[20] Šumak R, Serdinšek T, But I. Long-term follow-up of native tissue anterior vaginal wall repair: does the POP-Q stage really reflect patients' satisfaction rate? International Urogynecology Journal. 2020; 31: 2081–2088. https://doi.org/10.1007/s00192-020-04353-x.

[21] Szymczak P, Grzybowska ME, Sawicki S, Futyma K, Wydra DG. Perioperative and long-term anatomical and subjective outcomes of laparoscopic pectopexy and sacrospinous ligament suspension for POP-Q stages II-IV apical prolapse. Journal of Clinical Medicine. 2022; 11: 2215. https://doi.org/10.3390/jcm11082215.

[22] Si K, Yang Y, Liu Q, Wang Q, Yin S, Dai Q, *et al*. Association of central and general obesity measures with pelvic organ prolapse. Obstetrics & Gynecology. 2025; 145: 108–114. https://doi.org/10.1097/AOG.0000000000005758.

[23] Nebel S, Creveuil C, Briex M, Fauvet R, Villot A, Pizzoferrato AC. How satisfied are women 6 months after a pessary fitting for pelvic organ prolapse? Journal of Clinical Medicine. 2022; 11: 5972. https://doi.org/10.3390/jcm11195972.

[24] Shakhaliev RA, Kubin ND, Nikitina TP, Ionova TI, Shkarupa DD. Comprehensive assessment of the quality of life in patients with pelvic organ prolapse before surgical treatment: A prospective cohort observational study. Gynecology. 2024; 26: 216–222. https://doi.org/10.26442/20795696.2024.3.202920.

[25] Belayneh T, Gebeyehu A, Adefris M, Rortveit G, Gjerde JL, Ayele TA. Pelvic organ prolapse surgery and health-related quality of life: a follow-up study. BMC Women's Health. 2021; 21: 4. https://doi.org/10.1186/s12905-020-01146-8.

[26] Deng S, Jiang Q, Zhang Y. Application of transperineal pelvic floor ultrasound in postpartum pelvic organ injury and prolapse in women. American Journal of Translational Research. 2024; 16: 4830–4839. https://doi.org/10.62347/HFEQ7335.

[27] Åkervall S, Al-Mukhtar Othman J, Molin M, Gyhagen M. Symptomatic pelvic organ prolapse in middle-aged women: a national matched cohort study on the influence of childbirth. American Journal of Obstetrics and Gynecology. 2020; 222: 356.e1–356.e14. https://doi.org/10.1016/j.ajog.2019.10.007.

[28] Schulten SFM, Claas-Quax MJ, Weemhoff M, van Eijndhoven HW, van Leijsen SA, Vergeldt TF, *et al*. Risk factors for primary pelvic organ prolapse and prolapse recurrence: an updated systematic review and meta-analysis. American Journal of Obstetrics and Gynecology. 2022; 227: 192–208. https://doi.org/10.1016/j.ajog.2022.04.046.

[29] Fitz FF, Bortolini MAT, Pereira GMV, Salerno GRF, Castro RA. PEOPLE: Lifestyle and comorbidities as risk factors for pelvic organ prolapse—a systematic review and meta-analysis PEOPLE: PElvic Organ Prolapse Lifestyle comorbiditiEs. International Urogynecology Journal. 2023; 34: 2007–2032. https://doi.org/10.1007/s00192-023-05569-3.

[30] Ai F, Mao M, Zhang Y, Kang J, Zhu L. Effect of generalized anxiety disorders on the success of pessary treatment for pelvic organ prolapse. International Urogynecology Journal. 2018; 29: 1147–1153. https://doi.org/10.1007/s00192-018-3562-1.

[31] Ma C, Kang J, Xu T, Zhang Y, Ma Y, Zhu L. The impact of personality traits on pessary treatment outcomes in patients with pelvic organ prolapse. International Urogynecology Journal. 2021; 32: 859–864. https://doi.org/10.1007/s00192-020-04595-9.

[32] Sharifiaghdas F. Trans-Obturator approach and the native tissue in the treatment of high stage prolapse of the anterior vaginal wall: midterm results of a new surgical technique. Urogynecology Journal. 2020; 18: 97–102. https://doi.org/10.22037/uj.v0i0.5619.

[33] Monti M, Fischetti M, Santangelo G, Galli V, Clemente F, Giannini A, *et al*. Urinary incontinence in women: state of the art and medical treatment. Minerva Obstetrics and Gynecology. 2021; 73: 135–139.https://doi.org/10.23736/S2724-606X.20.04635-3.

[34] Marino G, Frigerio M, Barba M, Melocchi T, De Vicari D, Braga A, *et al*. Native tissue posterior compartment repair for isolated posterior vaginal prolapse: anatomical and functional outcomes.

Medicina (Kaunas). 2022; 58: 1152. https://doi.org/10.3390/medicina58091152.

[35] Arcieri M, Battello G, Graziano A, Alfarè Lovo M, Restaino S, D'Antonio F, *et al*. The outcome of early perineal rehabilitation in obstetric anal sphincter injuries: a single-center experience. Archives of Gynecology and Obstetrics. 2025. (online ahead of print) https://doi.org/10.1007/s00404-024-07906-3.

[36] ba M, Cola A, Costa C, De Vicari D, Amatucci N, Melocchi T, *et al*. Outcomes of uterosacral ligaments suspension for uterovaginal prolapse native-tissue repair: over 1000-patient single-center study. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2024; 301: 206–209. https://doi.org/10.1016/j.ejogrb.2024.08.020.

[37] Arcieri M, Morlacco A, Montebelli F, Mancini M, Soligo M, Restaino S, *et al*. Sacrocolpopexy after sub-total hysterectomy vs. sacral hysteropexy for advanced urogenital prolapse: a propensity-matched study. International Journal of Gynecology & Obstetrics. 2023; 163: 847–853. https://doi.org/10.1002/ijgo.14959.

[38] Zhao X, Niu J, Liu Y. Strengthen the sacral ligament and paravagina by equilibrium control severe pelvic organ prolapse. Frontiers. 2023; 9: 1054008. https://doi.org/10.3389/fsurg.2022.1054008.