

RESEARCH ARTICLE

Pelvic Floor Distress Inventory (PFDI)-20 Score In Patients With Pelvic Organ Prolaps (POP)

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Abstract

Background : Pelvic organ prolapse (POP) is a common and benign condition in women. It was the fall of one or more components of the vagina and uterus, which allows surrounding organs to herniate into the vaginal area, a disease known as cystocele, rectocele, or enterocele. The PFDI-20 score has been used to evaluate symptoms and quality of life in all POP patients.

Objectives : To analyze the PFDI-20 score in patients with POP.

Method : An observational study involving POP patients was undertaken at RSUP Dr. M. Djamil Padang from December 2023 to January 2024. The variables include demographic information (age, parity, obstetric and gynecological history) gathered from medical records, as well as complaints and POP symptoms obtained through an interview using the Indonesian PFDI-20 score. Data was analyzed univariately and bivariately. Statistical significance was set at $p < 0.05$, and statistical analyzes were conducted using Kruskal-Wallis. The statistical program used for the analysis was SPSS 25.0.

Results : Twenty-eight ladies participated. Their average age was 64.43 years ($SD=10.49$), parity number was 4.5 ($SD=2.2$), and PFDI-20 score was 136.61 ($SD=54.21$). In terms of POP, 53.6% (15) were IV. In terms of prolapse type, all patients had uterine prolapses, with the majority also having cystocele and rectocele (96.4%). Total vaginal hysterectomy (TVH) was performed in 82.1% (23), with over half of the patients undergoing anterior colporrhaphy (AC), posterior colpoperineorrhaphy, or colpocleisis. The majority of the complaints concerned inactive sexual activity (92.0%) and frequency (64.3%). The bivariate analysis with Kruskal Wallis test revealed no statistically significant relationships between PFDI-20 score and degree of POP ($p < 0.05$).

Conclusion : Although we were unable to identify a significant correlation, the PFDI-20 score was demonstrated to be a reliable tool for assessing symptoms and quality of life in all POP patients.

Keywords: Pelvic Organ Prolapse (POP); Pelvic Floor Dysfunction (PFD); Pelvic Floor Distress Inventory (PFDI)-20 Score.

INTRODUCTION

Pelvic organ prolapse (POP) is a frequent and benign illness in women. Although almost half of women who have given birth are found to have POP through physical examination, only 5-20% are symptomatic. The majority of the women had stage II–IV pelvic organ prolapse. Women in the United States have a 13% lifetime probability of having surgery for POP with a recurrence rate requiring repeat surgery reaching 30%. Although POP can affect younger women, the peak incidence of POP symptoms occurs in women aged 70 to 79 years. Given the aging population in the United States, it is expected that by 2050, the number of women experiencing POP will increase by about 50%.¹⁻³

From 2013 to 2016, Dr Soetomo Hospital recorded 200 POP cases, with 38.8% of those aged 60-69 years.⁴ In a 2018 study of postpartum women in Yogyakarta, 46 out of 51 participants (90%) had POP.⁵ Between 2014 and 2018, 33 instances of POP were reported at H. Abdul Moeloek Regional Hospital. The factors linked with the highest risk order were multiparity, older age, menopause, excessive body mass index (BMI > 25 kg/m²), and heavy work.⁶⁻⁷

Pelvic organ prolapse (POP) is the descent of one or more components of the vagina and uterus: the anterior or posterior vaginal wall, the uterus (cervix), or the apex of the vagina (vaginal vault or cuff scar following hysterectomy). This permits surrounding organs to herniate into the vaginal space, a condition known as cystocele, rectocele, or enterocele.¹⁻³ If the diagnosis is described, it includes uterine prolapse in 65%, cystocele in 86%, and rectocele in 90% of the study participants.⁵

Many women with POP have vaginal bulge and pressure, as well as voiding, defecatory, sexual dysfunction and other pelvic floor dysfunction (PFD), which can have a negative impact on their quality of life.¹⁻³ Only five persons (10%) did not have PFD in the form of POP.⁵ A recent study in Spain found that the prevalence of PFD in women is high. Urinary incontinence was reported by 55.8% of the women, fecal incontinence by 10.4%, symptomatic uterine prolapse by 14.0%, and pelvic pain by 18.7%.⁶

In 2001, the Pelvic Floor Distress Inventory (PFDI) was established as a reliable tool for assessing the quality of life for women experiencing PFD. PFDI-20, a short form of PFDI, has a strong connection with long-form PFDI, indicating reliability and responsiveness to change. The questionnaire was chosen for its simple and easy-to-understand three-group format, making it suitable for clinical and research application. The PFDI evaluates urinary, colorectal, and POP symptoms.⁸ The PFDI-20 has been translated into other languages and tested for validity, as well as in Indonesian. The validation test results for the questionnaire were gathered from the Indonesian population. The Indonesian PFDI-20 questionnaire was valid and reliable, therefore it can be utilized in the Indonesian population.⁹ The objective of the study was to analyze the PFDI-20 score in patients with POP.

METHODS

This observational study was conducted with POP patients in Desember 2023 - January 2024 in RSUP Dr. M. Djamil Padang. The patients were recruited consecutively. Data collection occurred once the patients were recruited and informed consent was acquired. Later, professional observers conducted interviews. The degree of POP is based on POP-Q system (Figure 1).¹⁰

To examine the presence and impact of PFDI, we employed the Indonesian PFDI-20, which has been validated and used in a population similar to ours.⁹ The PFDI-20 contemplates different perspectives and includes 20 items divided into 3 symptomscales: symptoms of pelvic organ prolapse (POPDI-6 subscale) (questions 1 to 6); colorectal-anal symptoms (CRADI-8 subscale) (questions 7–14); and urinary symptoms (UDI-6 subscale) (questions 15–20). Each question uses the following 0–4 response format, categorized into four levels of dysfunction: none, a little, moderate, or a lot. The minimum score for each subscale is 0 and the maximum is 100 points, referring to minimum and maximum dysfunction. The total score of the PFDI-20 is the sum of the three subscales, with a maximum score of 300. A high score suggests that there are more symptoms and that they cause more trouble.⁸⁻⁹

Stages are based on the maximal extent of prolapse relative to the hymen, in one or more compartments.

Stage 0: No prolapse; anterior and posterior points are all -3 cm, and C or D is between $-TVL$ and $-(TVL - 2)$ cm.

Stage I: The criteria for stage 0 are not met, and the most distal prolapse is more than 1 cm above the level of the hymen (less than -1 cm).

Stage II: The most distal prolapse is between 1 cm above and 1 cm below the hymen (at least one point is -1 , 0, or $+1$).

Stage III: The most distal prolapse is more than 1 cm below the hymen but no further than 2 cm less than TVL.

Stage IV: Represents complete procidentia or vault eversion; the most distal prolapse protrudes to at least $(TVL - 2)$ cm.

Abbreviations: C, cervix; D, posterior fornix; TVL, total vaginal length.

Figure 1. Pelvic Organ Prolapse Quantification (POP-Q) system.^{2,10}

Each variable in this research was analyzed univariately descriptively by calculating the distribution, frequency, percentage, mean and standard deviation to determine the characteristics and compatibility of the research subjects. Statistical significance was set at $p < 0.05$, and all statistical analyzes were conducted using one-way ANOVA/Kruskal-Wallis. The statistical program used for the analysis of the information has been SPSS 25.0.

RESULT

Twenty eight women participated. Their mean age was 64.43 years (SD=10.49), mean parity number was 4.5 (SD = 2.2), and mean PDFI-20 score was 136.61 (SD=54.21). Regarding degree of POP, 53.6% (15) were IV. Regarding the type prolapse, all patients had uterine prolaps, most of them also had cystocele and rectocele (96.4), and only two patients (7.1%) had cervical elongation. From the surgery performed, 82.1% (23) undergone total vaginal hysterectomy (TVH), 42.9% (12) undergone anterior colporrhaphy (AC), 46.4% (13) undergone posterior colpoperineorrhaphy, 50.0% (14) undergone colpocleisis, each 3.6% (1) undergone sarcospinosus fixation (SSF) and Manchester-Fothergill technique. (Table 1)

Most of the complaints were inactive sexual activity (92.0%) and frequency (64.3%), the less complaints were nocturia (25.0%), urgency and stress incontinens (14.3%, respectively), frequency incontinens and dysuria (7.1%, respectively), urge incontinens, using pads/diaper/extra panties, and hematuria (3.6%). Limitation of physical activity, continue incontinens, incontinens when sexual activity, enuresis, and history of UTI in a recently year were not occurred in this study. The bivariate analysis with Kruskal Wallis test showed there was not statistically significant associations between PDFI-20 score with degree of POP ($p < 0.05$) (Table 1 and 2).

Table 1. Demographics and Clinical Characteristics of POP Patients.

Variables	n (%) or mean \pm SD
Age (year)	64.43 \pm 10.49
Parity (n)	4.5 \pm 2.2
PDFI-20 Score	136.61 \pm 54.21
Degree of POP	28 (100.0)
I	6 (21.4)
II	1 (3.6)
III	6 (21.4)
IV	15 (53.6)
Type of prolaps	
Uterine prolaps	28 (100)
Cystocele	27 (96.4)
Rectocele	27 (96.4)
Cervical elongation	2 (7.1)
Surgery performed	
Total vaginal hysterectomy (TVH)	23 (82.1)
Anterior colporrhaphy (AC)	12 (42.9)
Posterior colpoperineorrhaphy	13 (46.4)
Colpocleisis	14 (50.0)
Sarcospinosus fixation (SSF)	1 (3.6)
Manchester-Fothergill technique	1 (3.6)
Complaints	
Sexual activity	
– Active	2 (7.1)
– Inactive	26 (92.9)
Frequency	
– Yes	18 (64.3)



- No	10 (92.9)
Nocturia	
- Yes	7 (25.0)
- No	21 (75.0)
Urgency	
- Yes	4 (14.3)
- No	24 (85.7)
Urge Incontinens	
- Yes	1 (3.6)
- No	27 (96.4)
StresIncontinens (SUI)	
- Yes	4 (14.3)
- No	24 (85.7)
Frequency Incontinens	
- Yes	2 (7.1)
- No	26 (92.9)
Pads/diapers/extra panties	
- Yes	1 (3.6)
- No	27 (96.4)
Limitation of physical activity	
- Yes	0 (0)
- No	28 (100)
Continue Incontinens	
- Yes	0 (0)
- No	28 (100)
Incontinens when sexual activity	
- Yes	0 (0)
- No	28 (100)
Eneuresis	
- Yes	0 (0)
- No	28 (100)
Dysuria	
- Yes	2 (7.1)
- No	26 (92.9)
Hematuria	
- Yes	1 (3.6)
- No	27 (96.4)
History of UTI in a recently year	
- Yes	0 (0)
- No	28 (100)

Table 2. Relations between PDFI-20 Score with POP degree.

Degree of POP	N	Min-max	Mean	SD	95% CI	p-value
I	6	50 – 175	95,83	48,520	44,91 – 146,75	0,067*
II	1	-	75,00	-	-	
III	6	75 – 200	137,50	46,771	88,42 – 186,58	
IV	15	100 – 250	156,67	51,293	128,26 – 185,07	
Total	28		136,61	54,212	115,59 – 157,63	

*Kruskal Walllis test

DISCUSSION

In this study, we found the mean age of POP patient swas 64.43 ± 10.49 . A study of POP patients with cystocele reported an average age prevalence of 66.70 ± 9.03 .¹¹ RSCM has an average POP prevalence of 58.23 ± 9.97 years.¹² A case report in NTB in 2021 described a 58-year-old case P5A0 with grade IV cystocele, grade IV uterine prolapse, and grade IV rectocele who underwent total vaginal hysterectomy and high levatorplasty.¹³ A prospective study in 20 women with posthy sterectomy vault prolapse of stage 2 and above reported the mean age to be 54.8 years.¹⁴ In contrast to this study, the majority of Yogyakarta's research subjects (90%) experienced POP between the ages of 20 and 35.⁵ PFD also had a younger average prevalence (33.00 ± 4.73 years).¹⁵

POP occurs when supportive tissues in the vagina and uterus fail, causing pelvic organs to descend via the vaginal outlet. Estrogen receptors are found in all structural components that support pelvic organs, including uterosacral ligaments, vagina, and pelvic floor muscles. Pelvic connective tissue's biomechanical qualities are influenced by its total collagen content and ratio of particular collagen isoforms.^{1,7} Aging is a complex process linked to the prevalence of POPs. As we age, our fascia tissue becomes more prone to rupture. The pelvic floor fascia weakens over time. Organ prolapse is more prevalent in adulthood, particularly among the elderly. Age cannot changedon a regular basis.^{1,12}

Women with vaginal prolapse have lower collagen levels in their genitourinary tissue than those without, independent of menopause status. During menopause, estrogen levels drop to their lowest levels. Low estrogen levels lead to increased type III collagen and decreased type I/III collagen ratios. During menopause, immature collagen is generated, making it more vulnerable to endogenous proteases and reducing connective tissue strength and durability. The modifications will impact the subepithelial, uterosacral, and cardinal ligaments, leading to POP.^{1,7,12}

We also discovered that the average parity number was 4.5 (SD = 2.2), the degree of POP was 53.6% (15) IV, the mean PDFI-20 score was 136.61 (SD = 54.21), the most type of prolaps were uterine prolaps, cystocele, and rectocele. Preoperative stage III or stage IV prolapse are risk factors for recurrent prolapse in women under the age of 60 who underwent vaginal surgery for POP.² In line, the mean parity was 3.5 in vault prolapse of

stage 2 or above^{7,14}; all women experienced varied degrees of cystocele, rectocele, and vault prolapse; and the PFDI-20 score varied from 88 to 152, with a mean of 123.00 ± 22.711 .¹³⁻¹⁴

Women who had 5 or more births had a 6x higher risk of grade II-IV POP and a 10x higher risk of severe POP, indicating a clear link between improved parity and POP. Stretch overload, ripping, and multiple deliveries are the primary obstetric factors contributing to POP development. In comparison to nulliparas, the prolapse risk increased dramatically with increasing parity in women who had one, two, or three or more vaginal births compared to cesarean delivery. It also was associated with a considerably higher incidence of vaginal prolapse to the hymen or beyond.^{1,7,16} Vaginal birth promotes to POP by injuring the levator ani muscle. Excessive straining can stretch the pudendal nerve and induce neuropathy. One of the pathologies of POP is weakening of the levator ani muscles.¹⁻³

Most of the complaints were inactive sexual activity and frequency. POP symptoms vary considerably because it involves numerous anatomic and functional components. These symptoms are classified into five basic categories: bulging symptoms, urine symptoms, bowel symptoms, sexual symptoms, and pain. It rarely causes serious morbidity but can significantly reduce quality of life.^{1,8} The most often performed operation in this study was total vaginal hysterectomy (TVH). It was recommended because some women had extensive uterine prolapse at an average age of menopause. TVH is one of the options for treating uterine prolapse in this scenario. Anterior and posterior colpoperineorrhaphy, colpocleisis, and SSF were frequently performed on POP patients with rectocele and cystocele.¹⁻³ The Manchester-Fothergill procedure was recommended for cervical elongation repair.¹⁷

We discovered no significant relationship between PFDI-20 score and POP degree ($p > 0.05$). This is in contrast to prior research, which generally demonstrated a link between PFDI-20 scores and the occurrence of POP.^{4,7-10,12-16} We acknowledge that this could be due to the study's small sample size and the design employed. Another limitation is that we only conducted one interview about PFDI-20 scores. It would be preferable for future study to conduct interviews and evaluate the PFDI-20 scores before and after POP adjustment with a larger sample.

CONCLUSION

Pelvic organ prolapse (POP) is a common and benign condition in women. Pelvic organ prolapse (POP) is the descent of one or more vaginal and uterine components: the anterior or posterior vaginal wall, the uterus (cervix), or the vaginal apex (vaginal vault or cuff scar after hysterectomy). This allows surrounding organs to herniate into the vaginal space, resulting in cystocele, rectocele, or enterocele. The risk variables include age, parity, and the severity of POP itself. POP symptoms vary greatly since it involves many anatomical and functional components. These symptoms are divided into five categories: bulging,



urine, bowel, sexual, and pain. Although we could not detect a significant link, the PFDI-20 score was proven to be a trustworthy instrument for assessing symptoms and quality of life in all POP patients.

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