**DOI:** 10.34057/PPj.2024.43.03.2024-3-2
Pelviperineology 2024;43(3):121-127

# Assessment of the knowledge of urinary incontinence and pelvic organ prolapse in postpartum women - A cross sectional study

Ranjita SHETTY, Diana RODRIGUES, Betty THOMAS

M.S. Ramaiah College of Physiotherapy, M.S. Ramaiah University of Applied Sciences, Bangalore, India

**Citation:** Shetty R, Rodrigues D, Thomas B. Assessment of the knowledge of urinary incontinence and pelvic organ prolapse in postpartum women - A cross sectional study. Pelviperineology 2024;43(3):121-127

## ABSTRACT

**Objectives:** The objective of this study was to evaluate the knowledge of urinary incontinence (UI) and pelvic organ prolapse (POP) among women postpartum.

**Materials and Methods:** The author of the "prolapse and incontinence knowledge questionnaire (PIKQ)" was approached and permission was taken for use and translation of the questionnaire used in this study. An ethical clearance was obtained from ethical committee of Ramaiah Medical College. All participants were screened and those meeting the inclusion criteria were enrolled in the study. The participants were then administered the PIKQ questionnaire and demographic questionnaire that consisted of details of age, educational qualifications and socio-economic status.

**Results:** Sixty-six women were administered the PIKQ. Data analysis of the scores obtained suggested that 6% of the women postpartum had more than adequate knowledge on UI and 42% of women postpartum had more than adequate knowledge on POP. Further analysis demonstrated a good correlation between the PIKQ score and age of the women postpartum who were aged between 30 and 34 years.

**Conclusion:** In the current study, 6% of women postpartum had higher than usual knowledge on UI and 42% had higher than usual knowledge on POP. Women postpartum had limited knowledge about POP and UI. This study emphasizes that a greater understanding of pelvic floor disorders may prove to be beneficial.

**Keywords:** Pelvic floor dysfunction; pelvic organ prolapse; postpartum women; urinary incontinence

**Address for Correspondence:** Diana Rodrigues, Department of Physiotherapy, M.S. Ramaiah University of Applied Sciences, Bangalore, India
**E-mail:** rodriguesdiana10@gmail.com **ORCID ID:** orcid.org/0000-0003-3566-4416
**Received:** 12 March 2024 **Accepted:** 08 November 2024

## INTRODUCTION

Pelvic floor dysfunction (PFD) is a term that refers to a broad range of conditions affecting the structure and function of pelvic organs, including the bladder, urethra, uterus, vagina, rectum, and supporting tissues.[1] Two of the most common types of PFD are urinary incontinence (UI) and pelvic organ prolapse (POP), which significantly affect a woman's physical, emotional, and social well-being. Pelvic floor disorders (PFDs) are prevalent worldwide, yet many women, particularly in developing countries, lack awareness of these conditions.[1]

UI, defined as the involuntary leakage of urine, is one of the most frequent PFDs, with urgency UI (UUI) and stress UI (SUI) being the most prevalent subtypes.[2] UUI occurs with a sudden and intense urge to urinate, often linked to frequent urination and nocturia. Risk factors for UI include childbirth, obesity, aging, and reduced physical activity. Studies suggest that postpartum women are at an increased risk of developing UI, with vaginal delivery identified as a significant contributing factor.[3] Despite the availability of effective conservative treatments, including pelvic floor exercises and lifestyle changes, many women remain unaware of these options, leading to a delay in seeking treatment.[4]

POP occurs when the pelvic organs descend from their normal anatomical position due to the weakening of the pelvic floor muscles and connective tissues. Symptoms may include a feeling of heaviness in the pelvic region, difficulty with urination or defecation, and discomfort during sexual activity.[5] POP is particularly common in women following vaginal delivery, with the risk increasing three-to five-fold after a single vaginal birth.[6] Similar to UI, many women are unaware of the causes, symptoms, and treatment options for POP, leading to significant underreporting and undertreatment of the condition.[7]

In India, the reported prevalence of UI and POP among postpartum women is 10.6% and 1.6%, respectively.[6] However, these figures may underestimate the true burden due to societal stigma, lack of awareness, and cultural barriers that prevent women from seeking help.[7] Literature reviewed suggests that women often consider PFDs to be an inevitable part of aging or childbirth, and many are reluctant to seek medical care due to feelings of embarrassment and fear of invasive treatments.[8] Moreover, studies highlight that a significant knowledge gap exists, particularly among women who do not frequently visit healthcare providers. This lack of understanding can delay diagnosis and treatment, further exacerbating the physical and psychological impact of these conditions.

The prolapse and incontinence knowledge questionnaire (PIKQ), developed by Shah et al.[9] in 2008, is a validated tool for assessing women's knowledge of UI and POP. It has been adapted and validated in multiple languages, including Turkish and Thai, demonstrating good reliability in assessing knowledge across different cultural contexts.[10] Studies using the PIKQ suggest that women with higher knowledge of PFDs are more likely to seek treatment and manage their symptoms effectively. However, most of these studies have focused on women attending specialized urogynecology clinics, leaving a gap in our understanding of knowledge levels among postpartum women in the general population.[2,6,11,12]

Given the limited research on UI and POP in postpartum women in India, this study aims to assess their knowledge of these conditions using the Kannada version of the PIKQ. This study seeks to bridge the knowledge gap by evaluating the extent of understanding about UI and POP among postpartum women and identifying factors that influence their awareness. Understanding these factors is critical for developing targeted interventions that improve awareness, promote early detection, and encourage appropriate treatment.

### Objectives of the Study

1. To assess the knowledge of postpartum women regarding UI and POP using the validated Kannada version of the PIKQ.

2. To explore associations between knowledge levels and socio-demographic factors such as age, education, and socio-economic status.

**Expected outcomes:** This study anticipates revealing significant gaps in knowledge about UI and POP among postpartum women. It is expected that demographic factors like education and socio-economic status will play a role in knowledge levels. Furthermore, the study aims to highlight the need for enhanced patient education programs and public health initiatives to address these knowledge gaps, improve early diagnosis, and reduce the burden of PFDs on postpartum women in India.

## MATERIALS AND METHODS

This cross-sectional, descriptive study aimed to evaluate the knowledge of postpartum women regarding UI and POP. The study was conducted among women within 3 to 12 months postpartum a vaginal delivery, a critical period during which the female body, particularly the pelvic floor, undergoes recovery after childbirth. The objective was to identify key factors influencing their knowledge of these conditions, considering variables such as age, educational background, and socio-economic status.

Based on Aparna D. Shah et al.'s[9] 2008 study titled "a reliable, valid instrument to assess patient knowledge about urinary

incontinence and pelvic organ prolapse", the sample size was calculated assuming an expected population standard deviation of 10. Using a t-distribution, a sample size of 65 was required to estimate the mean with 95% confidence and a precision of 2.5. Accounting for potential non-responses and withdrawals, the sample size was increased by 20%, bringing the final required number of participants to 78.

Participants were recruited from two sources:

1. Hospital medical records department: This was used to identify women who had recently delivered babies.

2. Pediatric department: Women attending postnatal visits for infant vaccinations were approached.

All eligible women were informed of the study's purpose and informed consent was obtained. The PIKQ, translated into Kannada by linguistic professionals and validated with an intra-class correlation coefficient of 0.8, was administered along with a demographic questionnaire.

Women aged 25-49 years who were 3 to 12 months postpartum and could understand, read, and speak English or Kannada were included in the study. Exclusion criteria consisted of women who had undergone a hysterectomy, had a history of UI or POP prior to pregnancy, or had a history of gynaecologic cancer.

Data on participants' knowledge of UI and POP were collected through the PIKQ and demographic forms. In addition to knowledge, factors like age, education, and socio-economic status were analyzed to understand their influence on knowledge acquisition. Educational attainment was categorized into primary, secondary, and tertiary levels, while socio-economic status was determined using the Modified Kuppuswamy scale.

The study received approval from the Institutional Ethics Committee of Ramaiah Medical College with ref. no: MSRMC/EC/PG-04/2022. Additionally, permission was obtained from the hospital administration, and all participants were assured confidentiality. The original authors of the PIKQ questionnaire were approached for permission to use and translate the tool for this study.

### Outcome Measure

The primary outcome measure for this study was the PIKQ, a 24-item survey specifically designed to assess knowledge of UI and POP. The questionnaire consists of two scales: The UI scale and the POP scale, each containing 12 questions. These questions cover a range of topics, including epidemiology, pathophysiology, diagnosis, and management of UI and POP. The survey uses a simple response format of "Yes", "No", and "I don't know" for each question.

Each correct response was assigned one point, while incorrect responses, unfilled answers, or "I don't know" responses received zero points. The total scores for each scale (UI and POP) were calculated by summing up the correct answers, with a maximum possible score of 12 on each scale. Higher scores indicated greater knowledge about UI and POP, respectively.

In addition to the knowledge assessment, demographic information was collected, including participants' age, parity (number of childbirths), menstrual status, marital status, annual household income, and the highest level of education attained. The study also asked participants about their employment in the medical field, any personal history of UI and/or POP, whether they had consulted a urologist or urogynaecologist, and whether they had received any treatment for UI or POP.

To assess expertise levels, scores of 80% or higher on the UI scale and 50% or higher on the POP scale were interpreted as demonstrating significant awareness, based on the original scoring guidelines provided by the authors of the PIKQ. These thresholds were set using frequency data from previous studies, where participants scoring at or above these levels were considered to have higher-than-average knowledge about these conditions.

### Statistical Analysis

A descriptive analysis framework was used to summarize the data. Continuous data such as age was summarized as mean and standard deviation (SD). The primary objective of knowledge about UI and POP in postpartum women was summarized as mean and SD in percentage. The normality distribution of age and PIKQ score was assessed. Spearman's correlation test was used to assess the correlation between the age and PIKQ score.

## RESULTS

This study evaluated the knowledge of UI and POP among 66 postpartum women, with a mean age of 28 years (SD ±3), ranging from 25 to 36 years. The demographic characteristics of the study population are described in Table 1.

The participants demonstrated moderate knowledge in both areas, with a mean score of 52% (SD ±18) for UI and 44% (SD ±15) for POP as depicted in Table 2.

**Table 1. Demographic variables of the study population**

| Variables | Valid percent |
|---|---|
| Primiparous women (n=41) | 62% |
| Multiparous women (n=25) | 38% |
| College graduates | 68% |
| High school | 32% |

Notably, 6% of the women exhibited high knowledge of UI (≥80%), while 42% had a relatively higher-than-usual understanding of POP (≥50%).

The data was further analysed to assess the correlation of PIKQ scores based on the age groups. In the age group 25 to 29 there was no significant association between age and PIKQ scores (r=0.001, $p$=0.993).

In the age group 30 to 34 years a moderate positive correlation was observed between age and PIKQ scores (r=0.521, $p$=0.100) in this group, although this relationship did not reach statistical significance. This result may suggest a trend of increasing knowledge with age among these women, though more evidence is required to confirm this finding and is represented in Figure 1.

In the age group 35 to 39 years there was a weak and non-significant correlation (r=0.211, $p$=0.789) was observed in this group, indicating minimal association between age and PIKQ scores among older postpartum women.

The knowledge of UI and POP was further analysed to determine the correlation of PIKQ Scores and primiparous is represented in Table 3 and 4 and multiparous women is represented in Table 5 and 6.

There was a weak correlation between knowledge of UI and POP, age and education. A negative correlation was noted between age and knowledge of POP. It was also observed that education had a weak correlation with knowledge of POP.

The results of the correlation in Table 5 and 6 demonstrated a weak correlation with age, education in multiparous women and knowledge of both UI and POP.

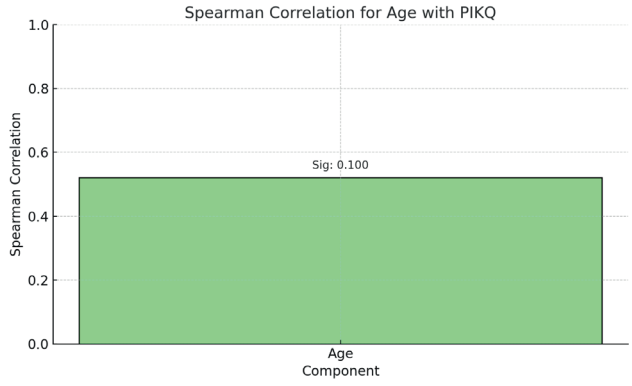


**Figure 1.** Association between age 30 to 34 years and PIKQ scores
*PIKQ: Prolapse and incontinence knowledge questionnaire*

**Table 2. Descriptive data of mean and standard deviation of knowledge scores in postpartum women**

| Component of PIKQ | Mean score (in percentage) | Standard deviation (in percentage) |
|---|---|---|
| Knowledge of urinary incontinence | 52% | 18% |
| Knowledge of pelvic organ prolapse | 44% | 15% |

PIKQ: Prolapse and incontinence knowledge questionnaire

**Table 3. Correlation of UI and primiparous women**

| | Age | Education |
|---|---|---|
| Knowledge of UI in primiparous correlation | 0.086 | 0.375 |
| Coefficient sig. (2 tailed) | 0.0592 | 0.016 |

UI: Urinary incontinence

**Table 4. Correlation of POP and primiparous women**

| | Age | Education |
|---|---|---|
| Knowledge of POP in primiparous correlation | -0.197 | 0.270 |
| Coefficient sig. (2 tailed) | 0.216 | 0.87 |

POP: Pelvic organ prolapse

**Table 5. Correlation of UI and multiparous women**

| | Age | Education |
|---|---|---|
| Knowledge of UI in multiparous correlation | 0.233 | 0.142 |
| Coefficient sig. (2 tailed) | 0.262 | 0.498 |

UI: Urinary incontinence

| Table 6. Correlation of POP and multiparous women | | |
|---|---|---|
| | **Age** | **Education** |
| Knowledge of POP in multiparous correlation | 0.246 | 0.091 |
| Coefficient sig. (2 tailed) | 0.236 | 0.664 |
| POP: Pelvic organ prolapse | | |

## DISCUSSION

The present study aimed to assess the knowledge of UI and POP among postpartum women. The results indicated that only 6% of participants demonstrated a high level of knowledge regarding urinary incontinence, while 42% showed a higher-than-usual understanding of POP. This finding aligns with Chen et al.[11], who reported a significant knowledge gap about PFDs among women. Additionally, a systematic review by Fante et al.[13] corroborated this notion, emphasizing the limited awareness of these conditions among women and highlighting the pressing need for increased education and outreach.

Further analysis was performed to determine the correlation between age and PIKQ scores among postpartum women. The study found no significant correlation between the awareness of UI and POP in the age group of 25-29 years (r=0.001, $p$=0.993). This result is consistent with Prudencio et al.[14], who concluded that young women possess minimal knowledge about pelvic floor anatomy and function. Interestingly, a moderate positive correlation was observed among women aged 30-34 years (r=0.521), although it did not reach statistical significance ($p$=0.100). Conversely, women aged 35-39 years displayed a weak, non-significant correlation with knowledge of UI and POP (r=0.211, $p$=0.789). This suggests that while age may not be a robust determinant of knowledge of PFDs in postpartum women, there is a potential trend indicating increasing knowledge levels as women mature through their 30s.

To explore the relationship between knowledge of UI and POP and educational status, the study compared average PIKQ scores among women with different educational backgrounds: Those who completed schooling up to the 8$^{th}$ standard, 12$^{th}$ standard, and college graduates. The results indicated that college graduates had higher PIKQ scores than those with lower educational qualifications, with all women scoring above 80% in knowledge being college graduates. This finding suggests that lower educational attainment is associated with a lack of knowledge regarding UI and POP. This aligns with Chen et al.[11], who also identified a link between lower educational qualifications and non-proficiency in knowledge about UI and POP.

Since most participants in the study belonged to lower socio-economic strata, a deeper analysis of socio-economic status was not conducted. However, the clear trend emerged that those women with higher knowledge levels were primarily college graduates, indicating that education plays a crucial role in enhancing awareness.

The analysis further revealed notable differences in knowledge levels between primiparous and multiparous women. Primiparous women showed a slightly better understanding of urinary incontinence, evidenced by a correlation of 0.086 with age and a coefficient significance of 0.0592 for education. However, the knowledge of POP among primiparous women was weaker, with a negative correlation of -0.197. In contrast, multiparous women demonstrated a weak correlation with both UI (0.233) and POP (0.246), indicating that their experiences of childbirth may not significantly enhance their knowledge about these conditions.

These findings suggest that while childbirth experience may contribute to some degree of knowledge about UI among primiparous women, multiparous women may not necessarily gain additional insights regarding either condition with subsequent pregnancies. This lack of awareness in both groups underscores the need for targeted educational interventions that address the unique challenges and knowledge gaps faced by postpartum women, regardless of their parity.

Both UI and POP are prevalent conditions that remain under-discussed and under-treated among postpartum women. Low awareness is likely a significant factor contributing to the reluctance to seek medical attention for these disorders. The World Health Organization's 2$^{nd}$ International Consultation on Incontinence underscores the necessity of raising awareness and education around these conditions. Implementing educational and motivational programs specifically targeting UI and POP could empower women with the knowledge they need, ultimately fostering increased healthcare-seeking behaviors.

In this study, few women reported experiencing UI or POP or sought therapy for these conditions. Literature indicates that individuals are more likely to pursue medical attention for health issues when symptoms become particularly bothersome. Hence, creating awareness about health issues is vital for encouraging behavioral changes, reducing illness indicators, and improving adherence to therapy, particularly in chronic conditions.

Recent research emphasizes the importance of increasing knowledge and education regarding PFDs among women,

especially during the postpartum period. Nur Farihan et al.[12] highlighted a significant gap in awareness of UI and POP among pregnant women, advocating for targeted educational programs to bridge this knowledge gap. Similarly, Haylen et al.[15] emphasized the critical role of patient education in effectively managing PFDs and reducing the stigma associated with these conditions.

Geoffrion et al.[16] demonstrated that a workshop-based learning program focused on UI and POP led to improvements in both knowledge and quality of life for participants, with sustained positive outcomes at a three-month follow-up. Moreover, a study by Mahishale and Parikh[17] in Belgaum, Karnataka, found a high prevalence of PFDs and a significant lack of knowledge about PFD rehabilitation, further emphasizing the need for education and rehabilitation services to empower women to seek timely care.

The consensus across these studies is clear: Healthcare professionals should prioritize awareness campaigns and education about UI, POP, and pelvic floor rehabilitation to improve health outcomes and encourage women to seek appropriate care. With only 5.6% of women demonstrating knowledge of pelvic floor rehabilitation in some studies, comprehensive awareness programs covering both prevention and management of PFDs are urgently needed.[17] Empowering women through knowledge can significantly enhance their health-seeking behaviors and overall well-being, leading to improved quality of life.

### Study Limitations

The present study has several limitations. Firstly, reliance on "self-reported outcomes" poses a potential bias risk, necessitating the recommendation for more objective measures in future research. Additionally, the author's role in participant selection and assessment may introduce bias, warranting a more rigorous selection process in subsequent research. Moreover, the study's uneven distribution of participants' education levels, with a higher percentage of graduate degrees, compromises generalizability. Lack of control over confounding variables, including age, education, and socio-economic status, may have impacted the study's outcomes. Further studies with larger sample sizes could provide stronger evidence of these associations.

## CONCLUSION

In conclusion, this study reveals varying levels of knowledge among postpartum women regarding UI and POP. Educational attainment, age groups, and limited awareness highlight the need for targeted interventions to improve understanding. Initiatives promoting awareness and education are vital for empowering women to seek appropriate healthcare and addressing the low prevalence of therapy utilization. Health professionals should prioritize educational programs to enhance women's knowledge and encourage proactive healthcare-seeking behaviours.

## ETHICS

**Ethics Committee Approval:** The study received approval from the Institutional Ethics Committee of Ramaiah Medical College with ref. no: MSRMC/EC/PG-04/2022.

**Informed Consent:** Informed consent was obtained from all individual participants included in the study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

## FOOTNOTES

### Contributions

Concept: R.S., D.R., B.T.; Design: R.S., D.R., B.T.; Data Collection or Processing: R.S., D.R., B.T.; Analysis or Interpretation: R.S., D.R., B.T.; Literature Search: R.S., D.R.; Writing: R.S., D.R.

## DISCLOSURES

**Conflict of Interest**: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Financial Disclosure:** The authors received no financial support for the research, authorship, and/or publication of this article.

## REFERENCES

1. Grimes WR, Stratton M. Pelvic Floor Dysfunction. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024.
2. Mandimika CL, Murk W, Mühlhäuser McPencow A, et al. Knowledge of pelvic floor disorders in a population of community-dwelling women. Am J Obstet Gynecol. 2014; 210: 165.e1-5.e9.
3. DeMaagd GA, Davenport TC. Management of urinary incontinence. Pharm Ther. 2012; 37: 345-61H.
4. Shitu AW, Wana EW, Darebo TD, Mune ZB. Delay in seeking treatment and associated factors among women with pelvic organ prolapse in Wolaita zone, Southern Ethiopia: Hospital based mixed method study. BMC Womens Health. 2023; 23: 191.
5. Aboseif C, Liu P. Pelvic Organ Prolapse. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024.

6. Rohilla DM, Tyagi DS. Prevalence of pelvic floor dysfunction in postpartum womenmain article. Indian Obstet Gynaecol. 2020; 10.

7. Ngarambe C, Peng D. Female urinary incontinence: a systematic overview and non-surgical treatment. Int J Reprod Contracept Obstet Gynecol. 2015; 4: 527-39.

8. Hägglund D, Wadensten B. Fear of humiliation inhibits women's care-seeking behaviour for long-term urinary incontinence. Scand J Caring Sci. 2007; 21: 305-12.

9. Shah AD, Massagli MP, Kohli N, Rajan SS, Braaten KP, Hoyte L. A reliable, valid instrument to assess patient knowledge about urinary incontinence and pelvic organ prolapse. Int Urogynecol J Pelvic Floor Dysfunct. 2008; 19: 1283-9.

10. Komon W, Manonai J, Kijmanawat A, et al. Validation of the Thai version of the prolapse and incontinence knowledge questionnaire (PIKQ). Int Urogynecology J. 2022; 33: 3045-52.

11. Chen CCG, Cox JT, Yuan C, Thomaier L, Dutta S. Knowledge of pelvic floor disorders in women seeking primary care: a cross-sectional study. BMC Fam Pract. 2019; 20: 70.

12. Nur Farihan M, Ng BK, Phon SE, Nor Azlin MI, Nur Azurah AG, Lim PS. Prevalence, knowledge and awareness of pelvic floor disorder among pregnant women in a tertiary centre, Malaysia. Int J Environ Res Public Health. 2022; 19: 8314.

13. Fante JF, Silva TD, Mateus-Vasconcelos ECL, Ferreira CHJ, Brito LGO. Do women have adequate knowledge about pelvic floor dysfunctions? A systematic review. Rev Bras Ginecol Obstet. 2019; 41: 508-19.

14. Prudencio CB, Nava GT de A, Souza BR de, Carr AM, Avramidis RE, Barbosa AMP. Knowledge of pelvic floor disorders in young women: a cross-sectional study. Fisioter Em Mov. 2022; 35: e35607.

15. Haylen BT, de Ridder D, Freeman RM, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. Int Urogynecology J. 2010; 21: 5-26.

16. Geoffrion R, Robert M, Ross S, et al. Evaluating patient learning after an educational program for women with incontinence and pelvic organ prolapse. Int Urogynecol J Pelvic Floor Dysfunct. 2009; 20: 1243-52.

17. Mahishale A, Parikh Z. Knowledge and Awareness of Pelvic Floor Disorders and Rehabilitation in postpartum women: An observational study. J Health Allied Sci. 2024.