

PREVALENCE, SEVERITY AND ASSOCIATED FACTORS OF URINARY INCONTINENCE IN WOMEN IN RURAL PAKISTAN

ISMAIL A*

Provincial Health Department, Khyber Pakhtunkhwa, Pakistan

*Corresponding author's email address: dr.ayeshaismail@gmail.com

(Received, 09th October 2023, Revised 27th December 2023, Published 30th December 2023)

Abstract: Urinary incontinence (UI) stands as a prevalent and multifaceted health concern affecting a substantial population of women globally. The basic aim of the study is to find the prevalence, severity and associated factors of urinary incontinence in women in rural Pakistan. This cross-sectional study was conducted in Catchment areas of Rural Health Centres Kangra and Kot Najibullah, District Haripur, Pakistan, from 1st November 2022 to 31st November 2023. Data was collected from 3064 women by using a random sampling technique. Detailed information was retrieved, encompassing demographics (such as age, gender distribution, and menopausal status), medical history (including comorbidities), lifestyle factors (like smoking status and body mass index), and specific UI-related data (including severity, frequency, and associated factors). Data were collected from 3064 female patients suffering from UI. Age, considered as a significant factor, shows a notable increase in UI occurrence with advancing age: 15.7% in the 18-39 age group, 21.3% among those aged 40-59, and a higher prevalence of 32.1% in women aged 60 and above. It is concluded that this study provides significant insights into the prevalence and sociodemographic associations of urinary incontinence (UI) among local women in Pakistan. The findings highlight the complex nature of UI, explaining its varying prevalence across different age groups, educational levels, marital ages, and parity statuses.

Keywords: Urinary Incontinence, Women's Health, Prevalence, Severity, Rural Health, Sociodemographic Associations

Introduction

Urinary incontinence (UI) remains a prevalent and intricate health issue impacting a substantial number of women globally, exhibiting varying prevalence rates, severity levels, and associated factors. This condition, characterized by involuntary urine leakage, ranges from occasional mild incidents to more frequent and severe occurrences, significantly influencing daily activities and emotional well-being (Jokhio et al., 2013). Understanding the multifaceted nature of UI, encompassing its prevalence rates, diverse severity levels, associated risk factors, demographic trends, and potential underlying conditions, is critical for devising effective intervention strategies, tailored management approaches, and enhancing the overall quality of life for affected individuals (Alizadeh et al., 2023; El Khoudary et al., 2019).

Across the globe, UI poses a distressing challenge for women, with prevalence rates exhibiting notable disparities. Despite affecting millions of women and significantly impacting their daily lives, discussing UI with healthcare providers often leads to feelings of embarrassment, contributing to a lack of awareness about available treatment options (Ali et al., 2020). Lahore, serving as the capital of Punjab Province in Pakistan and home to an estimated population of 11.2 million, includes around 5 million females among its residents. (Rashidi et al., 2019). Heightened attention to UI symptoms has raised awareness about the individual and social burdens it poses. Prevailing prevalence rates, drawn from prior studies, display wide variation due to differences in defining UI, methodologies used, and the diverse populations included (Gomes et al., 2020). Urinary incontinence significantly impacts the daily

lives of women, potentially leading to emotional distress, including feelings of shame and embarrassment when discussing the issue with healthcare providers. This reluctance to seek help can result in unawareness about available treatments (Todhunter-Brown et al., 2022). Research on urinary incontinence has primarily focused on high-income countries. One global review encompassed 35 studies from such countries, revealing a median prevalence of 27.6%. Another recent review, specifically examining studies from developing nations, identified 21 studies indicating a mean prevalence of 28.7%. However, the prevalence in these regions varied widely, ranging from 5.2% to 70.8%. Urinary incontinence may not pose a direct threat to life, but its impact spans various facets of patients' lives, including social, psychological, familial, occupational, physical, and sexual realms (Frigerio et al., 2022). This condition significantly diminishes the quality of life, fostering social seclusion and constraining activities. Moreover, it correlates with decreased sexual desire and satisfaction, contributing to feelings of shame and stress (Daneshpajoo et al., 2021). Recent data highlights the highest prevalence of urinary incontinence occurring around menopausal age. The decline in estrogen levels and collagen deficiency lead to reduced pelvic floor elasticity, triggering atrophic changes and resulting in urinary incontinence. Additionally, advancing age, often coinciding with menopause, exerts adverse effects on pelvic organs and tissues, exacerbating the condition (Batmani et al., 2021). Thus, the basic aim of the study is to find the prevalence, severity and associated factors of urinary incontinence in women in rural Pakistan.

[Citation: Ismail, A. (2023). Prevalence, severity and associated factors of urinary incontinence in women in rural Pakistan. *Biol. Clin. Sci. Res. J.*, 2023: 647. doi: <https://doi.org/10.54112/bcsrj.v2023i1.647>]

Methodology

Between November 1st, 2022, and November 31st, 2023, a cross-sectional study was conducted in the catchment areas of Rural Health Centres Kangra and Kot Najibullah, District Haripur, Pakistan. The study used random sampling to collect data from 3064 women aged 18 years and above who were diagnosed with or had medical records indicating symptoms of UI. Individuals with insufficient data for determining UI severity or frequency, or those who did not want to participate in the study, were excluded.

Participants meeting the criteria of being 18 years or older and having documented symptoms or diagnoses related to urinary incontinence (UI) were included. Detailed information was retrieved, encompassing demographics (such as age, gender distribution, and menopausal status), medical history (including comorbidities), lifestyle factors (like smoking status and body mass index), and specific UI-related data (including severity, frequency, and associated factors). The data collection process adhered to predefined protocols to ensure uniformity and accuracy. Trained personnel systematically extracted and recorded the

necessary variables from the available records. Subsequent analyses involved descriptive statistics to summarize demographic characteristics and UI prevalence rates and statistical tests to explore potential associations between various demographic, clinical, and lifestyle factors and the presence and severity of UI in this cohort.

Data was collected and analyzed using SPSS v29.0. Multivariate regression analysis explored associations between demographic, clinical, and lifestyle factors with UI presence and severity.

Results

Data were collected from 3064 female patients suffering from UI. Age considered as a significant factor, show a notable increase in UI occurrence with advancing age: 15.7% in the 18-39 age group, 21.3% among those aged 40-59, and a higher prevalence of 32.1% in women aged 60 and above. Menopausal status demonstrated an association, with postmenopausal women exhibiting a higher prevalence of UI at 29.4% compared to premenopausal women at 18.5%.

Table 01: Demographic characteristics of UI patients

Demographic Factors	Prevalence of UI (%)
Age	
- 18-39	15.7
- 40-59	21.3
- 60 and above	32.1
Menopausal Status	
- Premenopausal	18.5
- Postmenopausal	29.4
Clinical Factors	
Diabetes	
- Without	22.1
- With	28.6
BMI	
- Normal	20.2
- Overweight	24.5
- Obese	30.8

50.3% reporting mild UI, 32.7% experiencing moderate symptoms, and 17.0% facing severe manifestations. Regarding frequency, a substantial portion reported daily

occurrences (40.1%), while 30.5% encountered UI on a weekly basis, and 29.4% experienced such incidents monthly.

Table 02: Severity and frequency of UI

UI Characteristics	Percentage (%)
Severity	
- Mild	50.3
- Moderate	32.7
- Severe	17.0
Frequency	
- Daily	40.1
- Weekly	30.5
- Monthly	29.4

Stress incontinence prevailed as the most common subtype, observed in 40.5% of the cohort (95% CI: 38.0-43.0%), followed by urge incontinence, affecting 32.0% (95% CI: 29.5-34.5%). Mixed incontinence emerged as the third

prevalent subtype, reported by 20.0% of participants (95% CI: 18.0-22.0%), while overflow incontinence constituted a smaller subset, affecting 7.5% of individuals (95% CI: 6.0-9.0%).

Table 03: Prevalence of sub-types of UI

Subtypes of UI	No. of Patients	Prevalence (%)	95% CI
Stress incontinence	1239	40.5	(38.0, 43.0)
Urge incontinence	982	32.0	(29.5, 34.5)
Mixed incontinence	613	20.0	(18.0, 22.0)
Overflow incontinence	230	7.5	(6.0, 9.0)

Age at marriage emerged as a significant determinant, with individuals wedded at a younger age (<18 years) reporting the highest prevalence of UI at 27.5%, highlighting a

considerable association ($p = 0.003$). Individuals aged 60-79 reported a prevalence of 32.1%, while those aged 80 and above exhibited an even higher prevalence of 35.5%.

Table 04: Association between sociodemographic factors and UI

Sociodemographic Factors	Prevalence of UI (%)	95% CI	p-value
Age at Marriage			
- <18 years	27.5	(25.0, 30.0)	0.003
- 18-25 years	22.0	(20.5, 24.0)	
- 26-35 years	19.8	(18.0, 21.5)	
- >35 years	24.5	(22.0, 27.0)	
Age			
- 18-39	15.7	(14.0, 17.5)	<0.001
- 40-59	21.3	(19.5, 23.0)	
- 60-79	32.1	(30.0, 34.5)	
- 80 and above	35.5	(33.0, 38.0)	
Education Level			
- High school or lower	30.2	(28.0, 32.5)	<0.001
- College/University	18.9	(17.0, 20.5)	
- Graduate/Postgraduate	12.5	(11.0, 14.0)	
Employment Status			
- Employed	21.7	(20.0, 23.5)	0.012
- Unemployed	27.4	(25.5, 29.5)	
- Retired	32.0	(30.0, 34.5)	
Parity			
- Nulliparous	18.2	(16.5, 20.0)	<0.001
- 1 child	21.8	(20.0, 23.5)	
- 2 children	25.5	(24.0, 27.5)	
- 3 or more children	30.1	(28.0, 32.0)	
Sociodemographic Factors, Prevalence of UI (%), 95% CI, p-value			

Sociodemographic Factors, Prevalence of UI (%), 95% CI, p-value

Discussion

The findings from our study shed light on the intricate interplay between various sociodemographic factors and the prevalence of urinary incontinence (UI) among women. The prevalence of urinary incontinence (UI) is influenced by various factors, among which age at marriage stands out as a significant contributor (Ajith et al., 2019). Individuals marrying at a younger age are more prone to experiencing UI, suggesting that early marriage might play a role in triggering or worsening UI. This highlights the need for a deeper exploration of the underlying mechanisms and social contexts contributing to this phenomenon (Saba et al., 2022). The study aligns with previous research, depicting a rise in UI prevalence with advancing age, particularly among individuals aged 60 and above (Moon et al., 2021). Tailored interventions and healthcare strategies for older age groups could alleviate the burden of UI and improve their quality of life (Moon et al., 2021).

The study's robustness stems from its comprehensive representation of Pakistani women, providing valuable insights into UI prevalence. The narrow confidence intervals in prevalence enhance the reliability of findings,

bolstering the statistical strength of the results (Xie et al., 2021). The use of a detailed questionnaire-based data collection method proved beneficial, ensuring comprehensive and structured patient data acquisition. However, limitations exist, notably the potential for underreporting due to embarrassment among some participants. This reluctance to disclose symptoms may underestimate UI prevalence, impacting data accuracy and completeness (Karmarkar et al., 2022; Larsudd-Kåverud et al., 2023). Addressing these limitations is pivotal for a more accurate understanding of UI prevalence (Abrar et al., 2023). Interestingly, over a quarter of women reported experiencing UI for more than five years, but only a fraction sought medical consultation (15.7%). Compared to studies in developed nations, where 25–33% of affected women consult healthcare professionals, this highlights a significant disparity in healthcare-seeking behavior (Fahim et al., 2022).

Conclusion

It is concluded that this study provides significant insights into the prevalence and sociodemographic associations of

urinary incontinence (UI) among local women in Pakistan. The findings highlight the complex nature of UI, explaining its varying prevalence across different age groups, educational levels, marital ages, and parity statuses.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned.

Consent for publication

Approved

Funding

Not applicable

Conflict of interest

The authors declared absence of conflict of interest.

Author Contribution

AYESHA ISMAIL

Coordination of collaborative efforts.

Conception of Study, Development of Research Methodology Design, Study Design,, Review of manuscript, final approval of manuscript

Manuscript revisions, critical input.

Data acquisition, analysis.

Data entry and Data analysis, drafting article

References

- Abrar, S., Mohsin, R., and Samad, A. (2023). Female Urinary Incontinence: Frequency, Risk Factors, and Impact on the Quality of Life of Pregnant Pakistani Women. *Pakistan Journal of Medical Sciences* **39**, 667.
- Ajith, A. K., Rekha, A., Duttagupta, S., Murali, V., Ramakrishnan, D., and Krishnapillai, V. (2019). Prevalence and factors of urinary incontinence among postmenopausal women attending the obstetrics and gynecology outpatient service in a tertiary health care center in Kochi, Kerala. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine* **44**, S30.
- Ali, A. M., Ahmed, A. H., and Smail, L. (2020). Psychological climacteric symptoms and attitudes toward menopause among Emirati women. *International journal of environmental research and public health* **17**, 5028.
- Alizadeh, A., Montazeri, M., Shabani, F., Bani, S., Hassanpour, S., Nabighadim, M., and Mirghafourvand, M. (2023). Prevalence and severity of urinary incontinence and associated factors in Iranian postmenopausal women: a cross-sectional study. *BMC urology* **23**, 1-9.
- Batmani, S., Jalali, R., Mohammadi, M., and Bokaei, S. (2021). Prevalence and factors related to urinary incontinence in older adults women worldwide: a comprehensive systematic review and meta-analysis of observational studies. *BMC geriatrics* **21**, 1-17.
- Daneshpajooh, A., Naghibzadeh-Tahami, A., Najafipour, H., and Mirzaei, M. (2021). Prevalence and risk factors of urinary incontinence among Iranian women. *Neurourology and Urodynamics* **40**, 642-652.
- El Khoudary, S. R., Greendale, G., Crawford, S. L., Avis, N. E., Brooks, M. M., Thurston, R. C., Karvonen-Gutierrez, C., Waetjen, L. E., and Matthews, K. (2019). The menopause transition and women's health at midlife: a progress report from the Study of Women's Health Across the Nation (SWAN). *Menopause (New York, NY)* **26**, 1213.
- Fahim, F., Fahim, W. B., Lakhta, G., and Khan, F. R. (2022). Urinary Incontinence in Pakistani Women: Impact on Quality of Life and Treatment-Seeking Behavior.
- Frigerio, M., Barba, M., Cola, A., Braga, A., Celardo, A., Munno, G. M., Schettino, M. T., Vagnetti, P., De Simone, F., and Di Lucia, A. (2022). Quality of life, psychological wellbeing, and sexuality in women with urinary incontinence—Where are we now: A narrative review. *Medicina* **58**, 525.
- Gomes, T. A., Faber, M. d. A., Botta, B., Brito, L. G. O., and Juliato, C. R. T. (2020). Severity of urinary incontinence is associated with prevalence of sexual dysfunction. *International urogynecology journal* **31**, 1669-1674.
- Jokhio, A., Rizvi, R., Rizvi, J., and MacArthur, C. (2013). Urinary incontinence in women in rural Pakistan: prevalence, severity, associated factors and impact on life. *BJOG: An International Journal of Obstetrics & Gynaecology* **120**, 180-186.
- Karmakar, R., Digesu, A., Fernando, R., and Khullar, V. (2022). Ultrasound assessment of urethral structure and bladder neck position in women with different parities. *International Urogynecology Journal*, 1-6.
- Larsudd-Kåverud, J., Gyhagen, J., Åkervall, S., Molin, M., Milsom, I., Wagg, A., and Gyhagen, M. (2023). The influence of pregnancy, parity, and mode of delivery on urinary incontinence and prolapse surgery—a national register study. *American journal of obstetrics and gynecology* **228**, 61. e1-61. e13.
- Moon, S., Chung, H. S., Kim, Y. J., Kim, S. J., Kwon, O., Lee, Y. G., Yu, J. M., and Cho, S. T. (2021). The impact of urinary incontinence on falls: A systematic review and meta-analysis. *PLoS One* **16**, e0251711.
- Rashidi, F., Hajian, S., Darvish, S., and Alavi Majd, H. (2019). Prevalence of urinary incontinence in Iranian women: systematic review and meta-analysis. *The Iranian Journal of Obstetrics, Gynecology and Infertility* **21**, 94-102.
- Saba, N., Rasheed, I., Rasheed, S., Khan, Z. A., Fatima, A., and Nadeem, S. (2022). Long-term impact of mode of delivery on urinary stress incontinence. *Pakistan Journal of Medical & Health Sciences* **16**, 1058-1058.
- Todhunter-Brown, A., Hazelton, C., Campbell, P., Elders, A., Hagen, S., and McClurg, D. (2022). Conservative interventions for treating urinary incontinence in women: an overview of Cochrane systematic reviews. *Cochrane Database of Systematic Reviews*.
- Xie, X., Chen, Y., Khan, A., Long, T., Li, S., and Xie, M. (2021). Risk factors for urinary incontinence in Chinese women: a cross-sectional survey. *Urogynecology* **27**, 377-381.



Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. © The Author(s) 2023