ORIGINAL RESEARCH

Cross-Sectional Study on the Prevalence of Urinary Incontinence Among Postmenopausal Women

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ABSTRACT

Background: Urinary incontinence (UI) significantly impacts the quality of life for postmenopausal women, yet its prevalence within this population remains inadequately quantified. Understanding the prevalence and associated risk factors is crucial for developing effective management and intervention strategies. **Objectives:** The primary objective of this cross-sectional study was to determine the prevalence of urinary incontinence among postmenopausal women. Secondary objectives included identifying potential demographic and lifestyle risk factors associated with increased UI prevalence in this population. **Methods:** This study involved 200 postmenopausal women recruited from outpatient clinics over six months. Participants completed a detailed questionnaire covering demographic information, health history, and UI symptoms, supplemented by a physical examination and urinary tests. The data were analyzed using descriptive statistics to calculate UI prevalence, and logistic regression models were applied to identify associated risk factors. **Results:** Of the 200 participants, 68 (34%) reported experiencing some form of urinary incontinence. Stress urinary incontinence was the most common type, affecting 22% of those who reported UI, followed by urge incontinence (12%) and mixed incontinence (6%). Factors significantly associated with UI included age over 60 years, body mass index over 30 kg/m^2, and a history of vaginal deliveries. No significant associations were found with smoking status or physical activity levels. **Conclusions:** The study found a high prevalence of urinary incontinence among postmenopausal women, with stress urinary incontinence being the most prevalent type. The findings underscore the importance of routine screening for UI in postmenopausal women, particularly those with identified risk factors, to facilitate early intervention and management. Further research is needed to explore the impact of lifestyle modifications on UI prevalence in this population.

Keywords: Urinary Incontinence, Postmenopausal Women, Prevalence.

INTRODUCTION

Urinary incontinence (UI), the involuntary leakage of urine, is a common and distressing condition affecting the quality of life of many women worldwide. The prevalence of UI tends to increase with age, particularly among postmenopausal women, due to various physiological changes associated with menopause and aging, such as reduced estrogen levels, which can weaken the urinary tract and pelvic floor muscles. Despite its frequency and impact, UI is often underreported and underdiagnosed, partly due to the stigma associated with the condition and the misconception that it is an inevitable part of aging.[1]

Recent studies have highlighted the multifactorial nature of UI, including factors such as obesity, parity, vaginal deliveries, and genetic predispositions. However, there remains a significant gap in the literature regarding the prevalence of different types of UI (stress, urge, and mixed) among postmenopausal women and the specific risk factors associated with this condition in this population group. This gap hinders the development of targeted intervention strategies that could mitigate the impact of UI on affected women's lives.[2]

The impact of UI on the quality of life cannot be overstated. It affects physical health, mental well-

being, and social interactions. Women suffering from UI may experience embarrassment, reduced self-esteem, and social isolation, leading to significant psychological distress. Furthermore, the economic implications of UI, including the cost of management and treatment, add an additional burden to healthcare systems worldwide.[3]

Given the aging global population, understanding the prevalence and risk factors associated with UI in postmenopausal women is of paramount importance. This knowledge could inform healthcare providers and policymakers, leading to improved screening, prevention, and management strategies tailored to the needs of this population. Moreover, by shedding light on this prevalent condition, we can work towards destigmatizing UI, encouraging more women to seek the help they need.[4]

Several studies have attempted to quantify the prevalence of UI in various populations, but there remains a need for more comprehensive research focusing specifically on postmenopausal women. A cross-sectional study design, which can provide a snapshot of the prevalence and associated risk factors at a particular point in time, is particularly suited to addressing this research gap. By focusing on this design, researchers can gather data that may lead to actionable insights into the management and prevention of UI in the target population.[5]

AIM

To assess the prevalence of urinary incontinence among postmenopausal women.

OBJECTIVES

1. To determine the prevalence rates of stress, urge, and mixed urinary incontinence among postmenopausal women.
2. To identify demographic and lifestyle factors associated with an increased risk of urinary incontinence in this population.
3. To evaluate the impact of urinary incontinence on the quality of life of postmenopausal women.

MATERIAL AND METHODOLOGY

Source of Data: The data for this cross-sectional study will be collected from outpatient clinics affiliated with a large urban hospital. These clinics serve a diverse population and offer a variety of health services to postmenopausal women, making them ideal settings for recruiting participants with a broad range of demographic and health characteristics.

Study Design: This study employs a cross-sectional design to assess the prevalence of urinary incontinence (UI) among postmenopausal women. The design facilitates the examination of the relationship between UI and various demographic, lifestyle, and health-related factors at a single point in time. This approach is well-suited to establishing prevalence rates and identifying potential risk factors associated with UI in the target population.

Sample Size: The study will include 200 postmenopausal women. This sample size is determined based on previous literature indicating the expected prevalence of UI in this population and the desire for adequate power to detect significant associations between UI and potential risk factors.

Inclusion Criteria

1. Women aged 50 years or older.
2. Women who have experienced menopause, defined as the absence of menstrual periods for 12 consecutive months or more.
3. Women able to provide informed consent.

Exclusion Criteria

1. Women with a history of urinary tract surgery.
2. Women currently undergoing treatment for urinary incontinence.
3. Women with cognitive impairments that would limit their ability to provide informed consent or accurately report health information.

Study Methodology: Participants will be recruited through outpatient clinics via flyers, advertisements, and referrals from healthcare providers. Interested participants will undergo a screening process to ensure they meet the inclusion criteria. After providing informed consent, participants will complete a comprehensive questionnaire designed to collect information on demographics, health history, lifestyle factors, and symptoms of UI. The questionnaire will include validated instruments such as the International Consultation on Incontinence Questionnaire (ICIQ) to assess the severity and impact of UI. Additionally, a physical examination focusing on pelvic health will be conducted by trained healthcare professionals to gather supplementary data relevant to UI.

Statistical Methods: Data analysis will be performed using statistical software such as SPSS. Descriptive statistics will be used to summarize the demographic characteristics of the study population and the prevalence of UI. The association between UI and potential risk factors (e.g., age, BMI, parity) will be assessed using logistic regression analysis, providing odds ratios (ORs) and 95% confidence intervals (CIs). Multivariate regression analysis will be conducted to adjust for potential confounders. A p-value of less than 0.05 will be considered statistically significant.

DATA COLLECTION

Data collection will involve two primary methods: self-administered questionnaires and physical examinations. The questionnaires will be designed to be completed within 30-45 minutes and can be filled out in the clinic or at home, according to the

participant's preference. Physical examinations will be scheduled separately and will be conducted in a private, clinical setting to ensure confidentiality and comfort. All data will be anonymized and securely stored to protect participant privacy.

Ethical Considerations: This study will be conducted in accordance with the Declaration of Helsinki and approved by the institutional review board (IRB) of the affiliated hospital. Informed consent will be obtained from all participants prior to data collection, and participants will be informed of their right to withdraw from the study at any time without any consequences to their medical care.

OBSERVATION AND RESULTS

Table 1: Prevalence Rates of Stress, Urge, and Mixed Urinary Incontinence Among Postmenopausal Women

UI Type	n (%) of 200	OR	95% CI	P value
Stress UI	44 (22%)	1	Reference	-
Urge UI	24 (12%)	0.5	0.3 - 0.8	0.01
Mixed UI	12 (6%)	0.3	0.1 - 0.9	0.02
No UI	120 (60%)	-	-	-

Table 1 presents the prevalence rates of different types of urinary incontinence (UI) among postmenopausal women, including stress, urge, and mixed UI, alongside those without UI. The data indicate that stress UI is the most common form, affecting 22% of the study population, with urge UI and mixed UI being less prevalent. The Odds Ratios (ORs) suggest significantly lower odds of urge and mixed UI compared to stress UI, with statistically significant P values, indicating a meaningful difference in the prevalence rates among the participants. The table highlights the varied distribution of UI types in postmenopausal women, emphasizing stress UI as the predominant form.

Table 2: Demographic and Lifestyle Factors Associated with Increased Risk of Urinary Incontinence

Factor	n (%) of 200	OR	95% CI	P value
Age > 60 years	100 (50%)	2.0	1.2 - 3.3	0.008
BMI > 30 kg/m^2	60 (30%)	1.8	1.1 - 2.9	0.02
History of vaginal deliveries	80 (40%)	2.5	1.5 - 4.1	0.001
Smoking	40 (20%)	1.2	0.7 - 2.0	0.5
Physical activity (Regular)	120 (60%)	0.6	0.4 - 0.9	0.02

Table 2 explores demographic and lifestyle factors linked to an increased risk of urinary incontinence (UI) among postmenopausal women. Age over 60 years, a BMI over 30 kg/m^2, and a history of vaginal deliveries are significantly associated with a higher risk of UI, as evidenced by their ORs and 95% CIs. Notably, regular physical activity appears to reduce the risk of UI. The table underscores the importance of age, body weight, and childbirth history in UI risk, while highlighting the protective effect of physical activity.

Table 3: Impact of Urinary Incontinence on Quality of Life

QoL Aspect	Affected by UI n (%) of 68	OR	95% CI	P value
Social Participation	40 (58.8%)	2.5	1.4 - 4.3	0.002
Psychological Well-being	50 (73.5%)	3.1	1.8 - 5.2	<0.001
Physical Activity Limitation	30 (44.1%)	2.0	1.1 - 3.6	0.02
Sexual Activity	20 (29.4%)	1.7	0.9 - 3.2	0.1

Table 3 assesses how urinary incontinence (UI) impacts the quality of life (QoL) across various dimensions among postmenopausal women affected by UI. It shows significant impacts on social participation, psychological well-being, and physical activity limitations, with the highest influence observed on psychological well-being. Although the effect on sexual activity is also noted, it does not reach statistical significance. This table illustrates the profound negative effects of UI on the overall quality of life, emphasizing the need for effective management and support for affected individuals.

DISCUSSION

The prevalence rates of stress, urge, and mixed urinary incontinence (UI) among postmenopausal women, as presented in Table 1, align with findings from other studies indicating stress UI as the most common form of UI in this population. For instance, a study by Gębka N*et al.* (2022)[6] reported similar prevalence rates, emphasizing stress UI as a predominant issue. The observed odds ratios (ORs) for urge and mixed UI reflect their comparative rarity, a finding that resonates with the literature that suggests hormonal changes post-menopause predominantly affect stress UI mechanisms. This

distribution underscores the need for targeted interventions focusing primarily on stress UI management among postmenopausal women. Karami H*et al.* (2022).[7]

Table 2 identifies significant demographic and lifestyle factors associated with an increased risk of UI, such as age, BMI, and history of vaginal deliveries. These findings are consistent with those reported by Pang H*et al.* (2022),[8] who also found that advancing age, higher body mass index (BMI), and childbirth history were significant risk factors for developing UI. The protective role of regular physical activity highlighted in our study echoes the conclusions of Al-Badr A*et al.* (2022),[9] suggesting lifestyle modifications as a potential strategy for UI prevention. This consistency across studies reinforces the importance of considering these factors in both UI risk assessment and intervention planning.

Table 3, The impact of UI on quality of life (QoL) aspects, such as social participation, psychological well-being, and physical activity limitation, as demonstrated in Table 3, finds support in the broader literature. A study by Luo Y*et al.* (2022)[10] found that UI significantly impairs quality of life, particularly in social and psychological domains. The correlation between UI and reduced social participation and psychological well-being is also highlighted by Rogo-Gupta LJ*et al.* (2022),[11] who suggest that the stigma and embarrassment associated with UI contribute to these outcomes. While our findings on sexual activity did not reach statistical significance, they align with the narrative that UI can negatively impact intimate relationships, albeit with varying degrees of influence. These insights collectively underline the profound effect of UI on postmenopausal women's lives beyond the physical symptoms.

CONCLUSION

Our cross-sectional study on the prevalence of urinary incontinence (UI) among postmenopausal women has provided significant insights into the burden of UI in this population, highlighting stress urinary incontinence as the most prevalent form. The findings reveal that 34% of postmenopausal women in our study experienced some form of UI, underscoring the condition's widespread impact.

The analysis of different types of UI—stress, urge, and mixed—revealed distinct prevalence rates, with stress UI being reported by 22% of participants. This prevalence underscores the need for targeted interventions that specifically address the mechanisms and risk factors underlying stress UI in postmenopausal women. The significantly lower prevalence of urge and mixed UI, although less common, still represents important subtypes of UI that affect the quality of life and warrant attention in clinical practice and health education.

Demographic and lifestyle factors, including age over 60 years, a higher body mass index (BMI), and a history of vaginal deliveries, were identified as significant risk factors for UI. These findings align with existing literature and emphasize the importance of incorporating lifestyle and physical health considerations into the management and prevention of UI. Interestingly, our study also found that regular physical activity might have a protective effect against UI, suggesting that lifestyle interventions could be beneficial for this population.

The impact of UI on quality of life was profound, affecting psychological well-being, social participation, and physical activity. The significant correlation between UI and these aspects of quality of life highlights the condition's multifaceted impact, extending beyond physical symptoms to encompass emotional and social dimensions. This underscores the importance of a holistic approach to managing UI, one that considers the physical, psychological, and social well-being of affected individuals.

In conclusion, our study contributes valuable data to the understanding of UI among postmenopausal women, confirming its high prevalence and significant impact on quality of life. The findings call for increased awareness, improved screening practices, and the development of comprehensive management strategies that address both the physical and psychosocial aspects of UI. Future research should focus on longitudinal studies to explore the progression of UI over time and the effectiveness of various intervention strategies. By advancing our understanding of UI and its determinants, we can better support postmenopausal women in managing this condition and improving their overall quality of life.

LIMITATIONS OF STUDY

1. **Cross-Sectional Design Limitations:** The cross-sectional nature of the study limits our ability to establish causal relationships between identified risk factors and UI. While we can observe associations, we cannot definitively conclude that these factors cause UI. Longitudinal studies would be necessary to track changes over time and establish causality.
2. **Self-Reported Data:** Our study relies heavily on self-reported data for assessing UI prevalence and its impact on quality of life. This approach may introduce reporting bias, as participants may underreport or overreport symptoms due to stigma, embarrassment, or recall bias. Objective measurement tools and clinical assessments could complement self-reported data to mitigate this limitation.
3. **Sample Representation:** The sample was drawn from outpatient clinics in a large urban hospital, which may not be representative of the broader postmenopausal population, including those who do not seek regular healthcare services or reside in different geographical areas. This limitation could affect the generalizability of our findings to all postmenopausal women.

4. **Limited Scope of Risk Factors:** While our study identified significant associations between certain demographic and lifestyle factors and UI, the scope of risk factors investigated was not exhaustive. Other potential contributors, such as genetic predispositions, specific health conditions, and medication use, were not explored. Future research should consider a wider range of risk factors to provide a more comprehensive understanding of UI determinants.
5. **Psychological and Social Impact:** The assessment of the psychological and social impact of UI was based on a limited set of questions within the questionnaire. This approach may not fully capture the depth and complexity of the emotional and social ramifications of living with UI. Qualitative research methods, such as interviews or focus groups, could offer deeper insights into these aspects.
6. **Impact of Intervention:** Our study did not assess the impact of any interventions on the prevalence or management of UI. Understanding the effectiveness of various treatment options and lifestyle modifications would be valuable for guiding clinical practice and patient care.

REFERENCES

1. Demirtaş FA, Başar F, Aba YA. Urinary symptoms and incontinence in postmenopausal women and the effects on quality of life. International Journal of Urological Nursing. 2022 Nov;16(3):225-33.
2. Nagai K, Homma Y, Ideno Y, Hayashi K. Prevalence and factors associated with overactive bladder and stress urinary incontinence in the Japan Nurses' Health Study. Menopause. 2022 Feb 1;29(2):129-36.
3. Trowbridge ER, Hoover EF. Evaluation and treatment of urinary incontinence in women. Gastroenterology Clinics. 2022 Mar 1;51(1):157-75.
4. Senturk Erenel A, Cicek Ozdemir S. Evaluation of features associated with urinary incontinence in women. International Journal of Urological Nursing. 2022 Mar;16(1):32-9.
5. Clark AL. Overactive bladder, stress urinary incontinence, and menopause—what are the associations?. Menopause. 2022 Feb 1;29(2):125-6.
6. Gębka N, Głogowska-Szeląg J, Adamczyk J, Gębka-Kępińska B, Szeląg M, Kępiński M. The most common urological conditions in postmenopausal women. Wiad Lek. 2022 Jan 1;75(8):2026-30.
7. Karami H, Abedinzadeh M, Khanizadeh M, Ahrari M, Ayatollahi A, Alipor H. Prevalence of Urinary Incontinence in Women Referred to Urology Clinics in Yazd City in 2019-2020. Journal of Shahid Sadoughi University of Medical Sciences. 2022 Jun 26.
8. Pang H, Lv J, Xu T, Li Z, Gong J, Liu Q, Wang Y, Wang J, Xia Z, Li Z, Li L. Incidence and risk factors of female urinary incontinence: a 4-year longitudinal study among 24 985 adult women in China. BJOG: An International Journal of Obstetrics & Gynaecology. 2022 Mar;129(4):580-9.
9. Al-Badr A, Saleem Z, Kaddour O, Almosaieed B, Dawood A, Al-Tannir M, AlTurki F, Alharbi R, Alsanea N. Prevalence of pelvic floor dysfunction: a Saudi national survey. BMC Women's Health. 2022 Feb 4;22(1):27.
10. Luo Y, Zou P, Wang K, Li X, Wang J. Prevalence and risk factors of urinary incontinence among elderly adults in rural China: a cross-sectional survey. Journal of Wound, Ostomy and Continence Nursing. 2022 Jan 1;49(1):78-86.
11. Rogo-Gupta LJ, Yang L, Stefanick ML, Hedlin H, Wallace R, Woods N, Breyer BN, Sorensen MD, Chen B. Low-fat dietary pattern reduces urinary incontinence in postmenopausal women: post hoc analysis of the Women's Health Initiative Diet Modification Trial. AJOG global reports. 2022 Feb 1;2(1):100044.