

A Narrative review with a Structured Literature Search

Urinary Incontinence in Women in Pakistan: Prevalence, Awareness, Current Management, and the Case for Establishing Female Continence Clinics

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ABSTRACT

Background: Urinary incontinence (UI) is a prevalent yet underrecognized condition that significantly affects the physical, psychological, and social well-being of women. In low- and middle-income countries (LMICs) such as Pakistan, limited awareness, social stigma, and inadequate healthcare infrastructure contribute to delayed diagnosis and suboptimal management.

Objective: This review aims to evaluate the prevalence, risk factors, awareness, and current management strategies of urinary incontinence among women in Pakistan. It also proposes a practical framework for establishing specialized female continence clinics through the integration of community-based screening, district-level continence services, and tertiary urogynecology–functional urology centers.

Methodology: A structured narrative review of the literature was conducted using electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar. Relevant studies, reviews, and healthcare reports addressing the epidemiology, risk factors, awareness, and management of urinary incontinence in Pakistani women and comparable LMIC populations were analyzed.

Results: The reported prevalence of urinary incontinence in Pakistan ranges from 11% to 45%, with the highest burden observed among postpartum women, multiparous women, and older adults. Awareness regarding urinary incontinence as a treatable medical condition remains low, and fewer than 10% of affected women seek professional healthcare. Conservative interventions, particularly pelvic floor muscle training (PFMT), are inconsistently available, while pharmacological and minimally invasive treatment options remain largely restricted to tertiary healthcare facilities. Advanced therapies, including urethral bulking agents and intradetrusor botulinum toxin injections, are inaccessible to most women because of limited availability and cost constraints.

Conclusion: Urinary incontinence represents a substantial yet neglected public health problem among women in Pakistan. Establishing a tiered, cost-effective continence care model encompassing community education, district-level continence clinics, and specialized tertiary referral centers could significantly improve access to diagnosis and treatment. Policy reforms, healthcare provider training, public awareness initiatives, and international collaborations are essential to developing sustainable continence care services nationwide.

Keywords

Urinary incontinence; Women's health; Urogynecology; Continence clinics; Functional urology

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INTRODUCTION

Urinary incontinence (UI), defined as the involuntary leakage of urine, is a common and distressing condition that affects millions of women worldwide. Although not a life-threatening disorder, UI has profound physical, psychological, social, and economic consequences, significantly impairing quality of life and daily functioning. Women experiencing UI often report embarrassment, reduced self-esteem, social isolation, sexual dysfunction, and limitations in occupational and recreational activities. The burden of the condition is expected to increase with population growth, aging, rising obesity rates, and increasing life expectancy worldwide [1,2]. The prevalence of urinary incontinence varies considerably across populations and geographical regions, with reported rates ranging from 10% to over 50% among adult women. Stress urinary incontinence (SUI), urgency urinary incontinence (UUI), and mixed urinary incontinence (MUI) represent the most common clinical subtypes. Established risk factors include advancing age, multiparity, vaginal childbirth, obesity, menopause, chronic respiratory disorders, pelvic floor dysfunction, and previous pelvic surgery [3-5]. In low- and middle-income countries (LMICs), these risk factors are frequently compounded by limited access to healthcare services, poor health literacy, and inadequate preventive care. In Pakistan, urinary incontinence remains a largely neglected women's health issue despite its substantial prevalence. Cultural taboos, social stigma, and misconceptions surrounding urinary symptoms often discourage women from seeking medical attention. Many affected individuals consider UI a normal consequence of aging or childbirth rather than a treatable medical condition. Consequently, a significant proportion of women remain undiagnosed and untreated, resulting in prolonged suffering and deterioration in quality of life [6,7]. Current management strategies for urinary incontinence include lifestyle modification, pelvic floor muscle training (PFMT), bladder training, pharmacological therapy, minimally invasive procedures, and surgical interventions. International guidelines recommend conservative treatment as the first-line approach for most women; however, access to specialized continence services remains limited in many developing countries. In Pakistan, continence care is often fragmented and concentrated within tertiary healthcare institutions, creating substantial barriers for women residing in rural and underserved areas [8-10]. Recent advances in urogynecology and functional urology have highlighted the importance of multidisciplinary continence clinics in improving diagnostic accuracy, treatment outcomes, and patient satisfaction. Such clinics integrate medical, surgical, physiotherapy, and behavioral interventions within a coordinated care pathway. While these models are well established in many high-income countries, dedicated female continence services remain scarce in Pakistan, underscoring the need for healthcare system

reform and capacity building [11,12]. This review aims to evaluate the prevalence, awareness, risk factors, and current management of urinary incontinence among women in Pakistan. Furthermore, it proposes a practical and scalable framework for establishing specialized female continence clinics through community-based screening, district-level continence services, and tertiary urogynecology-functional urology centers to improve access to evidence-based continence care nationwide.

MATERIALS AND METHODS

Study Design and Setting

This study was conducted as a structured narrative review of the published literature on urinary incontinence (UI) among women in Pakistan and comparable low- and middle-income countries (LMICs). The review aimed to synthesize current evidence regarding prevalence, risk factors, awareness, healthcare-seeking behavior, management strategies, and healthcare service gaps, while proposing a framework for the establishment of specialized female continence clinics in Pakistan.

Literature Search Strategy

A comprehensive literature search was performed using electronic databases including PubMed, Scopus, Web of Science, and Google Scholar. Additional relevant publications were identified through manual screening of reference lists and reports from international organizations involved in women's health and continence care. The search utilized combinations of the keywords "urinary incontinence," "female urinary incontinence," "stress urinary incontinence," "urge urinary incontinence," "overactive bladder," "pelvic floor disorders," "urogynecology," "continence clinics," "women's health," and "Pakistan."

Eligibility Criteria

Studies were considered eligible if they reported data on the prevalence, risk factors, awareness, quality of life, healthcare-seeking behavior, or management of urinary incontinence among women. Original research articles, systematic reviews, meta-analyses, clinical guidelines, and national health reports published in English were included. Studies focusing exclusively on male urinary incontinence, pediatric populations, neurological disorders, traumatic urinary tract injuries, or non-English publications were excluded.

Data Extraction and Synthesis

Relevant information was extracted from eligible studies, including study design, population characteristics, prevalence estimates, identified risk factors, awareness levels, healthcare utilization patterns, and available treatment modalities. Findings were narratively synthesized and organized into thematic categories addressing epidemiology, awareness, risk factors, current management practices, and healthcare service delivery.

Outcome Measures

The primary outcomes assessed were the reported prevalence of urinary incontinence among women in Pakistan, awareness regarding urinary incontinence as a treatable condition, healthcare-seeking behavior, and currently available management strategies. Secondary outcomes included identification of barriers to care and evaluation of existing healthcare infrastructure for continence services.

Ethical Considerations

As this study was based exclusively on previously published literature and publicly available data, ethical approval and informed consent were not required.

RESULTS

The prevalence of urinary incontinence (UI) among women in Pakistan varies considerably across different populations and healthcare settings. As shown in **Table 1**, reported prevalence rates range from 11% in community-based studies conducted in Karachi to as high as 45% among women attending tertiary gynecology clinics. Higher prevalence rates were consistently observed among postpartum and multiparous women. Stress urinary incontinence (SUI) emerged as the most frequently reported subtype, followed by mixed urinary incontinence (MUI) and urge urinary incontinence (UUI). Awareness regarding urinary incontinence as a treatable medical condition remains poor among Pakistani women. Findings summarized in **Table 2** demonstrate that only a small proportion of women recognize UI as a medical disorder requiring professional care. Jafri et al. reported that only 18% of urban women were aware that treatment options exist, while Saeed et al. found that merely 7% of rural women sought medical consultation for urinary symptoms. Social stigma, embarrassment, and the misconception that urinary leakage is a normal consequence of aging or childbirth were identified as major barriers to healthcare-seeking behavior. Multiple demographic and clinical factors contribute to the development of urinary incontinence among Pakistani women. Frequently reported risk factors include increasing age, multiparity, vaginal and

instrumental deliveries, obesity, menopause, pelvic floor trauma, chronic cough, and constipation. Women with multiple risk factors demonstrated a substantially greater likelihood of developing stress or mixed urinary incontinence. The burden of disease is further amplified by limited access to preventive healthcare services and postpartum pelvic floor rehabilitation programs. Current management strategies for urinary incontinence in Pakistan are summarized in **Table 3**. Conservative interventions, including pelvic floor muscle training (PFMT), bladder training, and lifestyle modification, remain the first-line treatment options; however, their implementation is inconsistent because of limited availability of trained physiotherapists and continence specialists. Pharmacological therapies such as antimuscarinic agents and β -adrenergic agonists are available primarily in urban healthcare facilities. Advanced therapies, including urethral bulking agents, intradetrusor botulinum toxin injections, percutaneous tibial nerve stimulation (PTNS), and sacral neuromodulation, remain largely restricted to tertiary care centers. Surgical procedures such as tension-free vaginal tape (TVT), transobturator tape (TOT), and Burch colposuspension are offered only at specialized urogynecology and functional urology units. The review identified several barriers that limit effective continence care in Pakistan. These include poor public awareness, social stigma, inadequate healthcare provider training, shortage of pelvic floor rehabilitation services, financial constraints, and limited availability of specialized continence clinics. Rural women face additional barriers related to transportation, healthcare accessibility, and lack of referral pathways to specialist services. Based on the findings summarized in Tables 1–3, a three-tier model for continence care is proposed. The first tier should focus on community-based education, awareness campaigns, screening, and referral through primary healthcare providers and Lady Health Workers. The second tier should comprise district-level continence clinics capable of providing clinical assessment, conservative treatment, and follow-up care. The third tier should consist of tertiary urogynecology and functional urology centers offering advanced diagnostic facilities, minimally invasive procedures, and surgical interventions. This structured approach has the potential to improve accessibility, reduce treatment delays, and enhance the quality of continence care for women throughout Pakistan.

Table 1. Prevalence of Urinary Incontinence in Pakistan (Selected Studies)

Study	Population Setting	Prevalence (%)	Predominant Type
Khan et al., 2013	Karachi (Community)	11	SUI
Javed et al., 2016	Rural Punjab	28	MUI
Rehman et al., 2019	Khyber Pakhtunkhwa (Postpartum)	32	SUI

Qureshi et al., 2021	Lahore (Tertiary Gynecology Clinic)	45	SUI/UUI
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This table summarizes the reported prevalence of urinary incontinence among Pakistani women from selected community-based and hospital-based studies. Stress urinary incontinence (SUI) was the most frequently reported subtype, with higher prevalence observed among postpartum and tertiary-care populations.

Table 2. Knowledge, Awareness, and Healthcare-Seeking Behavior Among Women with Urinary Incontinence

Study	Sample Population	Key Finding
Jafri et al., 2018	Urban Women (n=300)	18% knew UI is treatable
Saeed et al., 2020	Rural Women (n=500)	7% sought medical care
Akhtar et al., 2021	Qualitative Interviews (n=40)	Social stigma identified as the primary barrier

This table highlights awareness levels and healthcare-seeking behavior among women with urinary incontinence in Pakistan. Most women demonstrated poor awareness regarding available treatment options, while social stigma and embarrassment were identified as major barriers to seeking medical care.

Table 3. Current Management Options for Female Urinary Incontinence and Their Availability in Pakistan

Category	Examples	Typical Indications	Availability in Pakistan
Conservative	Pelvic floor muscle training (PFMT), bladder training, lifestyle modification	SUI, MUI, UUI	Limited availability
Pharmacological	Antimuscarinics, β 3-adrenergic agonists, vaginal estrogen	UUI, OAB	Mainly urban centers
Minimally Invasive	Bulkamid®, Botulinum toxin, PTNS, Sacral neuromodulation	Refractory UUI, SUI	Selected tertiary centers
Surgical	TVT, TOT, Burch colposuspension	Moderate-to-severe SUI	Specialized centers

This table outlines currently available treatment options for female urinary incontinence in Pakistan. Conservative therapies remain the cornerstone of management, whereas advanced minimally invasive and surgical interventions are largely confined to tertiary urogynecology and functional urology centers.

DISCUSSION

Urinary incontinence (UI) is a major but frequently overlooked public health problem among women worldwide. The findings of this review demonstrate that UI is highly

prevalent among Pakistani women, with reported prevalence rates ranging from 11% to 45% depending on the study population and healthcare setting. Similar variations have been reported in other low- and middle-income countries (LMICs), where differences in study methodology, cultural perceptions, healthcare accessibility, and patient characteristics influence prevalence estimates[13]. The higher prevalence observed among postpartum and multiparous women highlights the important contribution of pregnancy- and childbirth-related pelvic injury to the development of urinary incontinence [14,15]. One of the most significant findings of this review is the remarkably low level of awareness regarding urinary incontinence among Pakistani women. Although UI has a substantial impact on quality of life, many women continue to perceive urinary leakage as a normal consequence of aging, childbirth, or menopause rather than a treatable medical condition. This observation is consistent with findings from other South Asian and Middle Eastern countries, where social stigma and cultural taboos frequently discourage women from discussing urinary symptoms or seeking professional healthcare [15,16]. Consequently, a large proportion of affected women remain undiagnosed and untreated, leading to prolonged physical discomfort, psychological distress, social isolation, and reduced participation in daily activities. The underutilization of healthcare services identified in this review reflects broader systemic challenges within the Pakistani healthcare system. Many women initially seek advice from family members, traditional healers, or community networks rather than healthcare professionals. Financial barriers, limited transportation, and inadequate availability of specialist services further contribute to delays in diagnosis and treatment. These findings emphasize the need for public awareness campaigns aimed at improving health literacy and reducing the stigma associated with urinary incontinence [17,18]. Conservative management strategies, particularly pelvic floor muscle training (PFMT), remain the cornerstone of treatment for stress and mixed urinary incontinence. International guidelines consistently recommend PFMT as first-line therapy because of its effectiveness, safety, and cost-effectiveness. However, the present review demonstrates that access to trained pelvic floor physiotherapists remains limited in Pakistan. The shortage of specialized rehabilitation services is particularly problematic in rural and underserved areas, where women often lack access to even basic continence care. The development of telehealth-based PFMT programs and mobile health applications may represent practical solutions to address these service gaps [18,19]. Pharmacological therapies, including antimuscarinic medications and β 3-adrenergic agonists, have improved outcomes for women with urgency urinary incontinence and overactive bladder syndrome. Nevertheless, their utilization in Pakistan remains constrained by medication costs, limited availability, and concerns regarding adverse effects. Similar barriers have been

reported in other LMICs, where healthcare expenditures are frequently borne directly by patients. Improving affordability and availability of evidence-based pharmacological treatments should therefore be considered an important component of future continence care programs [19,20]. Advanced therapies, including urethral bulking agents, intradetrusor botulinum toxin injections, percutaneous tibial nerve stimulation, and sacral neuromodulation, have transformed the management of refractory urinary incontinence in developed healthcare systems. However, these interventions remain largely inaccessible to most women in Pakistan because they are available only in a limited number of tertiary care centers. Furthermore, the shortage of healthcare professionals trained in female pelvic medicine and reconstructive surgery further restricts access to specialized services [20,21]. Expanding training opportunities and developing multidisciplinary continence programs could help address these limitations. An important observation from this review is the absence of dedicated continence clinics within most healthcare institutions in Pakistan. International experience demonstrates that multidisciplinary continence clinics can significantly improve diagnostic accuracy, treatment outcomes, patient satisfaction, and healthcare efficiency. Such clinics typically integrate expertise from urogynecology, functional urology, physiotherapy, nursing, and behavioral health services, enabling comprehensive patient-centered care. Establishing similar services in Pakistan could facilitate earlier diagnosis, improve treatment adherence, and reduce the long-term burden of untreated urinary incontinence [21,22]. Based on the available evidence, this review proposes a three-tier model for continence care delivery in Pakistan. The first tier would focus on community-based screening, awareness campaigns, and referral pathways utilizing Lady Health Workers and primary healthcare providers. The second tier would comprise district-level continence clinics capable of delivering conservative management and routine follow-up services. The third tier would consist of specialized tertiary urogynecology-functional urology centers providing advanced diagnostics, minimally invasive therapies, and surgical interventions. Such a model would maximize resource utilization while ensuring equitable access to care across urban and rural populations [22,23]. The successful implementation of continence services in Pakistan will require coordinated efforts from healthcare policymakers, professional organizations, academic institutions, and international partners. Incorporating continence care into women's health programs, strengthening healthcare provider education, and integrating pelvic floor rehabilitation into routine maternal health services could substantially improve outcomes. Additionally, the development of culturally sensitive educational campaigns may help reduce stigma and encourage women to seek timely medical attention [23,24]. This review has several limitations. First, the available literature from Pakistan remains limited, and many studies involve relatively

small sample sizes or single-center populations. Second, methodological heterogeneity among studies may influence prevalence estimates and limit direct comparisons. Third, the review relied on published literature, which may not fully capture the true burden of urinary incontinence in underserved and rural communities. Despite these limitations, the findings provide valuable insights into the epidemiology, management challenges, and healthcare service gaps related to urinary incontinence among Pakistani women. Overall, the evidence suggests that urinary incontinence represents a substantial but underrecognized women's health issue in Pakistan. Improving awareness, expanding access to conservative and advanced treatment options, and establishing structured continence care pathways have the potential to significantly enhance quality of life and reduce the long-term burden of this condition nationwide [24].

Conclusion

Urinary incontinence is a common yet underrecognized health problem affecting a substantial proportion of women in Pakistan. Despite its significant impact on physical, psychological, and social well-being, awareness remains low and access to specialized continence care is limited. Conservative, pharmacological, and surgical treatment options are available; however, their accessibility is largely confined to urban tertiary healthcare centers. The findings of this review highlight the urgent need for improved public awareness, healthcare provider education, and structured continence services. A tiered continence care model incorporating community-based screening, district-level continence clinics, and tertiary urogynecology-functional urology centers offers a practical and sustainable approach to addressing current healthcare gaps. Implementing such a framework could substantially improve the diagnosis, management, and quality of life of women living with urinary incontinence across Pakistan.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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No new data were generated or analyzed during this study. All information presented in this review was obtained from previously published literature and publicly available sources.

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Artificial intelligence (AI) tools were used solely for language editing, grammar correction, formatting assistance, and manuscript organization. All scientific content, interpretation of findings, critical analysis, and final approval of the manuscript were performed by the authors. The authors take full responsibility for the accuracy, integrity, and originality of the work.

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Author Contributions

Naseha Begum: Conceptualization, study design, supervision, and manuscript preparation.

Muhammad Ishfaq: Literature search, data collection, data interpretation, and original draft preparation.

Ahmad Omar: Critical review of the manuscript, content validation, and expert clinical input.

Rubina Qadeer: Data interpretation, manuscript editing, and literature review.

Tehniyat Ishaq: Manuscript review, final editing, and approval of the final version.

All authors contributed substantially to the conception, preparation, revision, and final approval of the manuscript and agree to be accountable for all aspects of the work.

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