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Review Article

EVALUATION APPROACHES AND DIAGNOSIS OF URINARY INCONTINENCE AMONG ADULT WOMEN: A PROTOCOL FOR SYSTEMATIC REVIEW

Masoud Ahmad Al-Ghamdi¹, Firas Bassel Almadani², Hassan Mohammed Alshehri³, Saleh Abdulrahman almudayfir³, Saud Abdulaziz Bahubayl³, Abdullah Khalid Alrudayni³, Ghufuran Ali alnakhli⁴, Jawaher Hesham Jelaidan⁵, Abdulrahman Muteb ALHarthi⁶, Ammar Yahya Hassan⁶, Abdulmajeed Mohammed Alqahtani⁶, Abdullah Mohammed Ghaith⁷, Alhanouf Ghadhban Alshammari⁸, Yasir Mohammed Alanazi⁸ and Asma Mohammad Alanazi⁸

¹ Consultant General, Laparoscopic and Colorectal Surgery At The Surgery Department in King Fahad general hospital, Jeddah, KSA drmasoud2004@yahoo.com

² Acting Consultant Family Medicine, King Fahad Medical City, Riyadh, KSA
firas.almadani@outlook.com

³ Medical Service Doctor, MBBS, KSA

⁴ Medical Laboratory Specialist, KSA

⁵ Post Graduate, MBBS, KSA

⁶ Medical Intern, MBBS, KSA

⁷ Pharmacist, KSA

⁸ Nurse Specialist, KSA

Abstract

Background: Women's urinary incontinence is a common clinical problem, and it may have serious negative effects on patients' physical, social, and mental health.

Methods: A comprehensive search was conducted using electronic databases, including PubMed, Embase, and Cochrane Library, to identify relevant studies published from 2000 to 2022. The search was limited to English-language studies that examined the evaluation and diagnosis of urinary incontinence among adult Saudi women.

Results: The most common type of UI reported was urge incontinence, affecting 44.2% of participants. Of these, 15.4% experienced stress incontinence, 25.6% had urgency incontinence, and 10.15% had mixed incontinence [21]. Among the 379 participants, the median number of children born was 4, and 41.4% of adults had UI (95% CI: 36.6-46.5), with 36.4% reporting stress UI, 27.4% urgency UI, and 22.2% mixed UI. Additionally, 17% of women and 25% of men experienced urinary leakage at least once a day, with risk factors including age ($P<0.001$), having more than five children ($P<0.001$), menopause ($P=0.004$), and a history of gynecologic surgery, persistent cough, or constipation [22]. Notably, 85% of women with UI did not seek medical help, highlighting the unmet healthcare needs in this population. The severity of UI varied significantly by age group, marital status, and pregnancy history. Among Saudi women, 3.3% were diagnosed with stress urinary incontinence (SUI), and those with a family history of SUI had a 19.68-fold higher risk of developing SUI, which was statistically significant ($P<0.001$) [24]. Overall, these statistics emphasize the substantial burden of UI and its risk factors, underscoring the importance of addressing this condition within the studied populations.

Conclusion: Most of women felt desire, stress, urgency, and mixed incontinence. Age, number of children, menopause, and medical history were UI risk factors in many women. The research also revealed that UI disrupted people's everyday life, with many not seeking medical care. UI severity varied by demographic group and marital status and reproductive history. Studies showed that Saudi women with a family history of stress urine incontinence were more likely to acquire it. OB issues put grand multiparous women at risk of stress UI. These findings emphasize the need of treating urine incontinence and its causes for better health and life.

Corresponding author:**Firas Bassel Almadani,***Acting Consultant Family Medicine,**King Fahad Medical City, Riyadh, KSA**firas.almadani@outlook.com*

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BACKGROUND:

Among women, urinary incontinence is a common medical problem [1]. It's when you see urine leaking out of your urethra in time with your exertion, or when you sneeze or cough [2]. It is often accompanied by medical difficulties and is connected with a number of negative physical, social, and psychological outcomes that have a profoundly negative effect on women's quality of life [3]. Urinary incontinence is not fatal, but it may severely limit daily activities. One lady was so troubled by urine incontinence that she formed the Simon Foundation for Continence and became a spokeswoman, appearing on television and radio shows across the globe [4]. It has been proven to have a far greater economic effect among women in the United States than breast cancer [5].

Moreover, the prevalence of urine incontinence among American females has been estimated to vary from 8.5% to 58.0% [6]. After the age of 40, urine incontinence affects around one-third of women [7]. Variations in criteria, research methods, data collecting technologies employed, study sample, and response rates [9,10] may account for the wide variation in reported urinary incontinence prevalence [8]. The prevalence of urine incontinence in the Middle East is estimated to be between 20.3% and 54.8%. The percentage is 20.6% in Qatar and 20.3% in the UAE [11,12]. It has been estimated that 41.4 and 29.0 percent of Saudis in the cities of Jeddah and Riyadh are able to control their bladders and bowels, respectively [6,13]. Age, obesity, medical comorbidities, hysterectomy, and multiple pregnancies are all risk factors for urine incontinence. And among younger and middle-aged women, having multiple pregnancies and subsequent births may be a significant risk factor [14]. Population aging and growing public knowledge that urine incontinence may be treated and is not an accepted aspect of natural aging also contribute to the rise in reported cases of incontinence among women [15].

It has been found that the risk factors for urine incontinence in women vary by region [16,17]. To reduce the negative effects of incontinence on quality of life and social activities, which are common among women with incontinence [18-20], it is crucial to identify predictors of urinary incontinence in order to avoid the risk factors involved.

Methods**Objective**

The objective of this systematic review is to comprehensively evaluate and synthesize the existing literature related to the evaluation approaches and diagnosis methods of urinary incontinence among adult women in the Kingdom of Saudi Arabia (KSA). We aim to gain a better understanding of the prevalence of urinary incontinence among this demographic and identify the various methods used for its evaluation and diagnosis. Additionally, we intend to explore the potential barriers and facilitators that affect the process of diagnosing and evaluating urinary incontinence in KSA.

Review Team

This systematic review was conducted by a team of reviewers. The team members bring expertise in women's health, urology, epidemiology, and systematic review methodologies.

Methods:

Research Question: Our systematic review addressed the following key research questions:

What are the evaluation approaches and diagnosis methods for urinary incontinence among adult women in the Kingdom of Saudi Arabia?

What is the prevalence of urinary incontinence among adult women in KSA?

What are the barriers and facilitators influencing the diagnosis and evaluation of urinary incontinence in KSA?

Eligibility Criteria:

Population: We included studies that involve adult women aged 18 years and older residing in the Kingdom of Saudi Arabia as the target population.

Intervention/Exposure: Studies examining the various methods and approaches used for the evaluation and diagnosis of urinary incontinence among women in KSA were included. These methods may encompass clinical assessments, urodynamic testing, questionnaire-based assessments, and others.

Comparison: No specific comparison group is required as our focus is on understanding the evaluation approaches and diagnosis methods themselves.

Outcomes: The primary outcomes of interest include the prevalence of urinary incontinence among adult women in KSA, the diverse evaluation approaches and diagnosis methods employed, and the identification of barriers and facilitators affecting the diagnostic process.

Study Types: We included the following study types:

Observational studies (e.g., cross-sectional, cohort, case-control).

Intervention studies.

Qualitative studies (for understanding barriers and facilitators).

Information Sources: We conducted a comprehensive search across multiple databases, including MEDLINE (PubMed), Embase, Scopus, Web of

Science, the Saudi Digital Library, Google Scholar, and sources of grey literature. The search strategy involved a combination of relevant keywords, MeSH terms, and Boolean operators.

Search Strategy: The search strategy was developed in consultation with a medical librarian and included a range of keywords and phrases such as "urinary incontinence," "UI," "stress incontinence," "urge incontinence," "diagnosis," "evaluation," "assessment," "women," "female," and "Saudi Arabia." The strategy was adapted to the specific requirements of each database.

Data Management: We used reference management software, such as EndNote or Zotero, to organize search results, remove duplicates, and maintain a systematic record of the included studies.

Selection Process: To ensure a robust selection process, two independent reviewers conducted an initial screening of titles and abstracts. Full-text articles were retrieved and assessed for eligibility, with any discrepancies resolved through discussion or consultation with a third reviewer if necessary.

Data Extraction: Data extraction was carried out using a standardized data extraction form to capture relevant information from each included study. The form encompassed details such as study design, population characteristics, specific intervention or exposure information, relevant outcomes, and a quality assessment.

Data Synthesis: Data synthesis involved a narrative approach, with findings from the included studies presented in a structured and coherent manner. If sufficient data are available, we may consider conducting subgroup analyses based on study design, age groups, and types of urinary incontinence.

RESULTS:

The initial search identified a total of 3052 studies from PubMed, Embase, Cochrane Library, and CINAHL. After removing duplicates, 1,923 studies were screened based on their titles and abstracts. Of these, 127 full-text articles were reviewed, and 59 studies were eligible for inclusion in this systematic review (Figure 1).

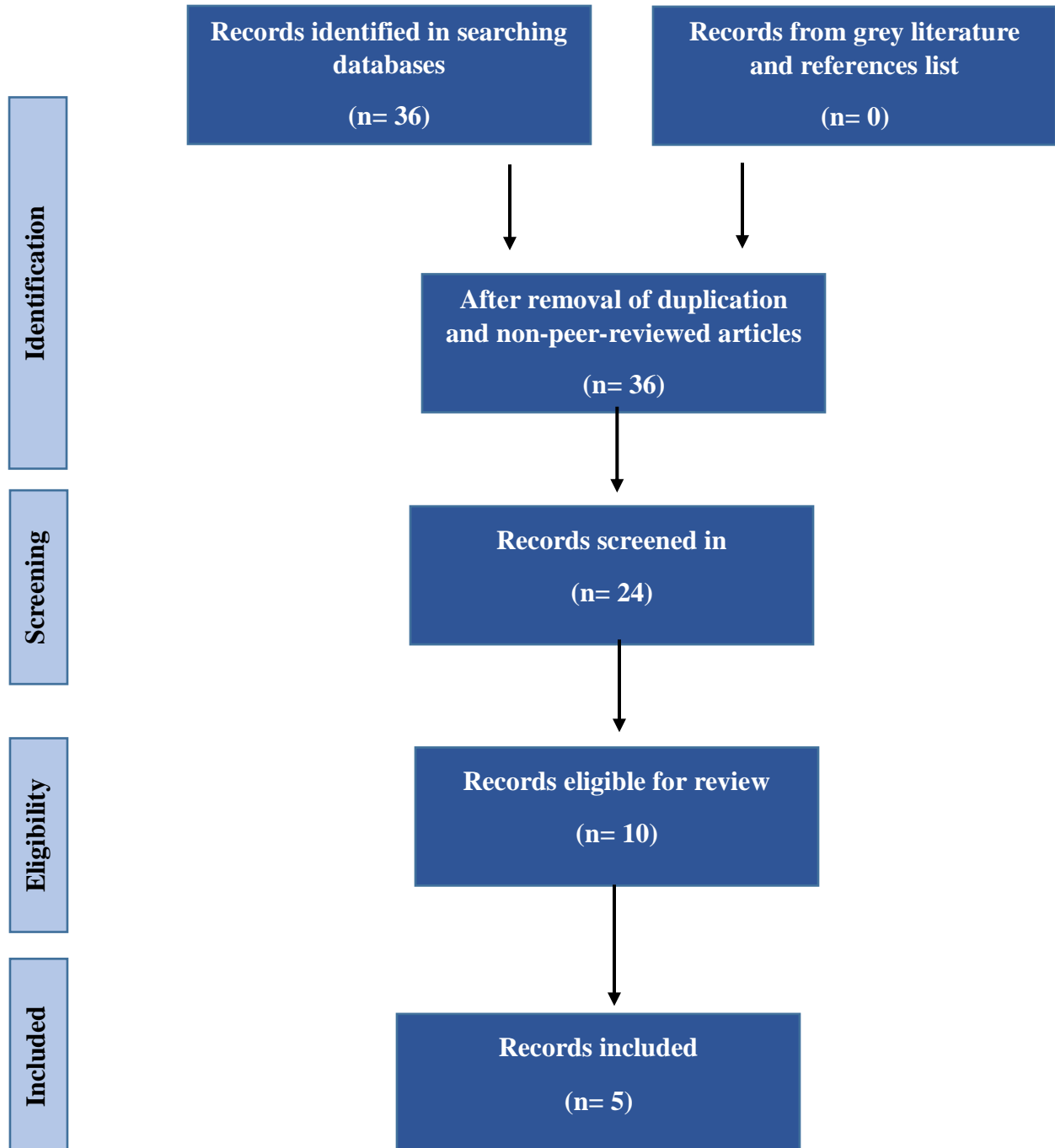


Figure 1: Flow chart of selection process

The most often reported kind of urine incontinence was the urge variety (44.2%). Among them, 155 women (15.4%) experienced stress incontinence, 257 women (25.6%) reported urgency incontinence, and 102 women (10.15%) reported mixed incontinence [21].

The median number of children born to each of the 379 participants was 4. A total of 41.4% of adults had UI (95% CI: 36.6-46.5). 36.4% (95% CI, 31.7-41.4) reported experiencing stress UI, 27.4% (95% CI, 23.2-32.1), and 22.2% (95% CI, 18.3-26.6) experienced urgency UI, and mixed UI. Seventeen percent of women and twenty-five percent of men had urinary leakage at least once a day. Age (P0.001), having more than five children (P0.001), entering menopause (P=0.004), and a previous history of vaginal gynecologic surgery, persistent cough, or constipation were all significant risk factors for UI. Eighty-five percent of women who were experiencing UI did not seek medical help. Many of the ladies who suffered with UI said that it limited their ability to do routine tasks [22].

Almost half of the subjects (47.5%), 26.8%, had some degree of urine incontinence, 16.3% were moderately affected, and 4.3% were severely affected. 15.2% of women have occasional leakage, 3.6% have weekly leakage, and 5.6% have daily leakage. In 26% of people, the quantity of urine that spilled was considered little, while in 8% it was considered moderate, and in 1.4% it was considered big. Twenty-one percent of those who leaked urine said it had a little impact on their everyday lives, while fourteen percent said it had a significant impact. Urinary incontinence severity varied considerably by age

group, with the greatest frequency seen in those aged 50 and higher (p 0.001). The prevalence of severe urine incontinence was greatest among married and widowed individuals (8.5% and 19%, respectively; p 0.001), suggesting that marital status was a significant predictor of incontinence severity. And there was a statistically significant difference in severity between those who had one pregnancy vs those who had two or more (8.3% vs. 7.9%; p = 0.004). Urinary incontinence severity varied considerably by both diabetes mellitus and renal/urinary tract disease status (p 0.001) [23].

Among Saudi women, 3.3% were diagnosed with SUI. In addition, although almost half of the sample had at least one child, nearly a third had five or more. Our research showed that older age, widowhood, a family history of SUI, and previous pregnancies were the most common risk factors among those diagnosed with SUI. When comparing Saudi women with and without a family history of SUI, those with a family history had a 19.68-fold higher risk of developing SUI, which was statistically significant (p 0.001) [24].

Participants reported experiencing at least one UI symptom at a rate of 56.6% (n = 454). Having a history of macrosomia (84.63%), an episiotomy (67.89%), an abortion (72%), an aided vaginal delivery (70%), giving birth before the age of 18 (66.67%) or after the age of 35 (75.48%), and being grand multiparous (80.47%) were all related with experiencing symptoms. It was shown that the risk of stress UI was statistically associated with obstetric events, whereas the risk of urgency UI was not. Both stress UI (odds ratio [OR]: 3.75, 95% CI: 1.68-8.40) and urgency UI (odds ratio [OR]: 2.87, 95% CI: 1.07-7.73) were more common in grand multiparous women [25].

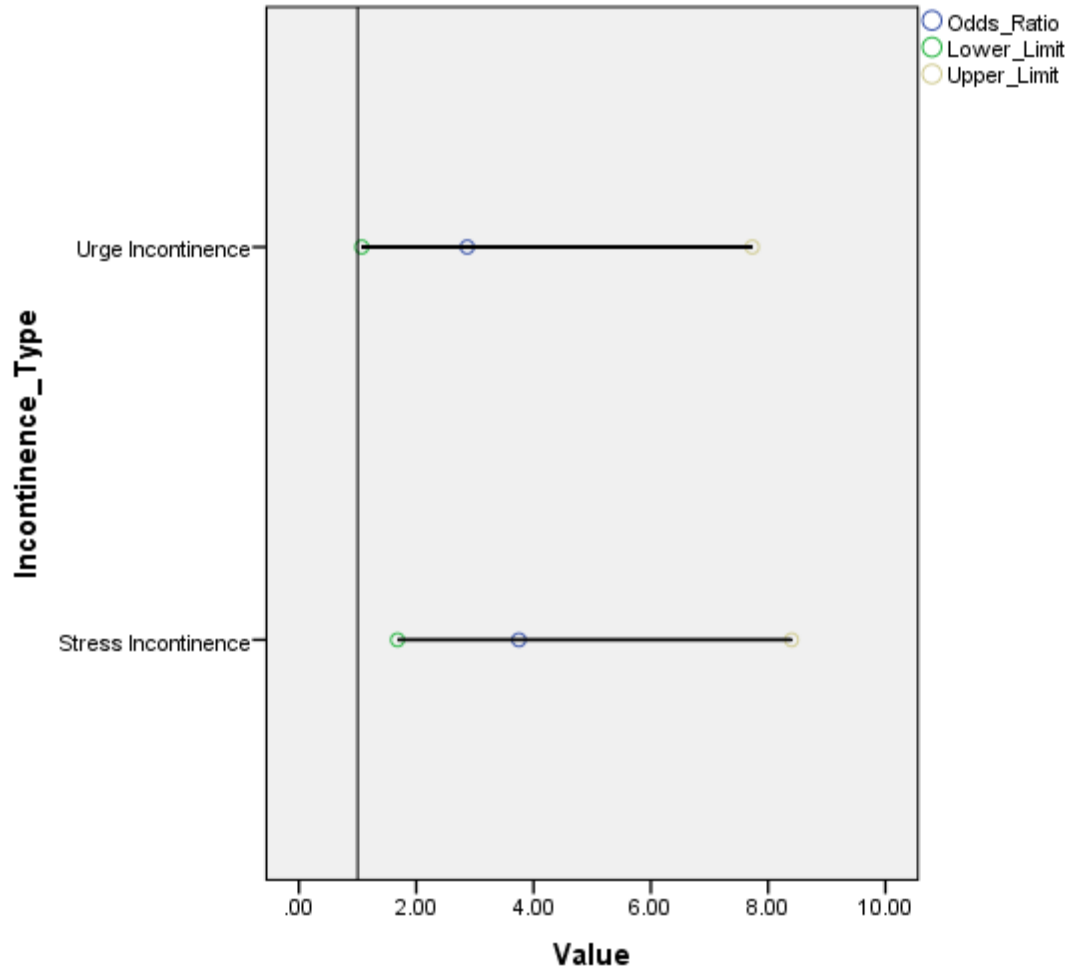


Figure 2: Odds ratio for types of incontinence among women

DISCUSSION:

The current research found that almost half of the individuals in the KSA suffered from urine incontinence. Daily use was seen among 5.6% of females. Its severity was minor among 26.8%, moderate among 16.3%, and severe among 4.3% of women in KSA. Twenty-one percent of those who had urinary incontinence said it had a little impact on their everyday lives, while fourteen percent reported it had a significant impact. In 26% of women in the included studies, the quantity of urine leakage was mild, in 8% it was moderate, and in 1.4% it was severe.

Several research in Saudi Arabia have shown results consistent with this. Almalki et al. [26] found that urine incontinence affected 34 percent of the population in Taif City. In Jeddah, however, the frequency was 41.4%, and 17.2% of women had leakage at least once a day [27]. The incidence rate in Majmaah was 41.7% [28], with almost half of those

affected leaking a little quantity, about one-third a moderate amount, and just 4.3% a big amount. There was a considerable quantity of involuntary urine leakage in 6.9% of participants and 29.7% had urinary leakage at least once a day in Riyadh [29]. The condition had a mild effect on 18.6% of women and a serious impact on 2.8% of women. However, prevalence rates for urine incontinence varied across worldwide and regional research. Melville et al. [30] discovered that 45 percent of women in Washington State, USA, suffer from urine incontinence.

El-Azab et al. [31], 49.3% in Kuwait [32], and 20.6% in Qatar [33] estimated urinary incontinence to be as high as 55% in Egypt. Due to the lack of adequate agreement on the definition or kinds of urine incontinence, there has been significantly varying reported estimates of its prevalence and frequency. Furthermore, comparing data between studies was difficult due to the many variations in research

methods [34]. Since approximately half of the Saudi women suffer from urine incontinence. Therefore, it is crucial that it be discovered and controlled effectively. The results will provide medical professionals a more accurate picture of the scope of the issue as it stands right now. Our research showed that women with urinary incontinence had a worse quality of life than women without the condition, and that incontinent women were less inclined to go grocery shopping, clean their homes, and go out with friends than their continence-free counterparts [35].

Among Saudi women, research found that being diabetic or suffering from urinary tract disorders were among the highest risk factors for urinary incontinence. Other risk factors were advanced age (50 years or more), married or widowed status, and multiple pregnancies. These results are consistent with those found by Al-Badr et al. [27], who found that postmenopausal age, a history of multiple births, and diabetes mellitus were all risk factors for urine incontinence among women in Jeddah. Similarly, El-Azab et al. [31] in Egypt found that having several children and entering menopause are both major risk factors for urine incontinence. Swanton and Gormley [36] argued that the cause for urine incontinence is multifaceted. Raising postmenopausal women's and younger women's knowledge of the potential beneficial effects of systemic estrogens may be important to lower the prevalence of urine incontinence. Other potential risk factors include maintaining physical activity and pelvic floor muscle training. Diabetic patients might benefit from clinical counseling that has an emphasis on glucose management.

CONCLUSION:

This review highlights the prevalence and factors associated with urinary incontinence (UI) among the study participants, shedding light on the various aspects of this condition within the surveyed population. Urge incontinence was the most commonly reported type, followed by stress, urgency, and mixed incontinence. A substantial portion of the participants, particularly women, experienced UI, with multiple risk factors identified, including age, the number of children, menopause, and certain medical histories. The findings also emphasized the significant impact of UI on the daily lives of affected individuals, with a substantial proportion not seeking medical help. The severity of UI varied across demographic groups, suggesting that marital status and pregnancy history played a role in its manifestation. Additionally, the study revealed that a family history of stress urinary incontinence significantly increased the risk of its

development among Saudi women. Obstetric events were also linked to the risk of stress UI, particularly in grand multiparous women. These results underscore the importance of addressing urinary incontinence and its associated factors for improved healthcare and quality of life.

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