



Voiding Dysfunction

What Is the Most Bothersome Lower Urinary Tract Symptom? Individual- and Population-level Perspectives for Both Men and Women

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Abstract

Background: No study has compared the bothersomeness of all lower urinary tract symptoms (LUTS) using a population-based sample of adults. Despite this lack of evidence, investigators have often cited their LUTS of interest as the “most bothersome” or “one of the most bothersome.”

Objective: To compare the population- and individual-level burden of LUTS in men and women.

Design, setting, and participants: In this population-based cross-sectional study, questionnaires were mailed to 6000 individuals (18–79 yr of age) randomly identified from the Finnish Population Register.

Outcome measurements and statistical analysis: The validated Danish Prostatic Symptom Score questionnaire was used for assessment of bother of 12 different LUTS. The age-standardized prevalence of at least moderate bother was calculated for each symptom (population-level burden). Among symptomatic individuals, the proportion of affected individuals with at least moderate bother was calculated for each symptom (individual-level bother).

Results and limitations: A total of 3727 individuals (62.4%) participated (53.7% female). The LUTS with the greatest population-level burden were urgency (7.9% with at least moderate bother), stress urinary incontinence (SUI) (6.5%), nocturia (6.0%), postmicturition dribble (5.8%), and urgency urinary incontinence (UUI) (5.0%). Burden from incontinence symptoms was higher in women than men, and the opposite was true for voiding and postmicturition symptoms. At the individual level, UUI was the most bothersome for both genders. Although the response proportion was high, approximately a third did not participate.

Conclusions: Both men and women with UUI report moderate or major bother more frequently than individuals with other LUTS. At the population level, the most prevalent bothersome symptoms are urgency, SUI, and nocturia.

Patient summary: Urinary urgency was the most common troubling symptom in a large population-based study; however, for individuals, urgency incontinence was the most likely to be rated as bothersome.

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1. Introduction

Lower urinary tract symptoms (LUTS) are divided into three groups: storage symptoms (daytime urinary frequency, nocturia, urinary urgency, and urinary incontinence), voiding symptoms (slow stream, splitting or spraying, intermittent stream, hesitancy, straining, and terminal dribble), and postmicturition symptoms (feeling of incomplete emptying and postmicturition dribble) [1]. These symptoms have a major impact on health-related quality of life [2] and are associated with substantial personal and societal expenditures [3]. Because LUTS are associated both with age and obesity [4,5], the population burden of these conditions is likely to increase with future demographic shifts.

Symptom bother increases as the number of symptoms increases and as symptoms become more severe [6]. However, the symptom impact is not well defined by their frequency alone [3]. Assessment of the bother of symptoms is of key clinical relevance because it relates to both quality-of-life impairment and treatment seeking [7,8]. Consequently, clinical practice guidelines suggest that only those reporting bothersome symptoms should be targeted for intervention, and watchful waiting is appropriate for those with minimal symptoms [3,9].

Investigators have often described their LUTS of interest as the “most bothersome” or “one of the most bothersome” [10–13]. Despite these claims, very few studies have evaluated the relative degree of bother across all LUTS, and none have attempted to establish the most bothersome LUTS in a population-based study of both genders and all adult ages [14–17]. From the population perspective, the symptom with the greatest burden is the most prevalent bothersome symptom. From the individual perspective, the symptom with the greatest burden is simply the symptom most likely to be rated as bothersome among the affected. Thus the purpose of this analysis is to compare the degree of bother of major LUTS in both men and women 18–79 yr of age from both the population and individual perspectives.

2. Methods

2.1. The Finnish National Nocturia and Overactive Bladder Study

The Finnish National Nocturia and Overactive Bladder Study cohort comprises a population-based sample of men and women 18–79 yr of age in Finland. Its aim is to assess the prevalence, natural history, impact, and risk factors of urinary symptoms at the population level. Detailed study procedures have been published [18–20]. Briefly, in 2003–2004, questionnaires were mailed to individuals randomly identified from the Population Register Centre of Finland. Stratification by age was used in individual selection with oversampling of younger age groups to ensure an adequate number of individuals with urinary storage symptoms in each age group [18]. The questionnaire gathered information on frequency and bother of LUTS, quality of life, numerous conditions and medications, as well as information on sociodemographic, anthropometric, and reproductive factors. Exemption from ethical review was granted by the ethics committee of the Pirkanmaa Hospital District (Tampere, Finland), as permitted by the Finnish regulations on surveys. The reporting of this analysis conforms to the Strengthening

the Reporting of Observational Studies in Epidemiology statement (www.strobe-statement.org).

2.2. Measures

The frequency and bother of LUTS were assessed using the questions from the Danish Prostatic Symptom Score (DAN-PSS; Supplemental Table 1) [21], which are consistent with the International Continence Society definitions [1]. The DAN-PSS includes assessment of 12 LUTS: hesitancy, weak stream, incomplete emptying, straining, daytime frequency, nocturia, urgency, urgency urinary incontinence (UUI), pain/burning, postmicturition dribble, stress urinary incontinence (SUI), and other incontinence. Occurrence of most LUTS was measured on a 4-point scale consisting of *never*, *rarely*, *often*, and *always* (Supplemental Table 1). Bother of all LUTS was reported on a 4-point scale: *none*, *small*, *moderate*, or *major* (Supplemental Table 1). Among symptomatic individuals (those who reported a symptom occurring at least rarely or equivalent were considered symptomatic; see response options in Supplemental Table 1), the age-standardized proportion of individuals with moderate or major bother for each LUTS was calculated to determine the individual level of bother of each symptom. To determine the most prevalent bother at the population level, the age-standardized prevalence of respondents with moderate or major bother was calculated for each symptom.

2.3. Statistical analysis

Subjects were stratified into age groups: 18–29, 30–39, 40–49, 50–59, 60–69, and 70–79 yr. Confidence Interval Analysis v.2.1.2 software (Trevor Bryant, University of Southampton, UK) was used for calculating age-standardized prevalence and confidence intervals (CIs). Other analyses were performed with SPSS v.16.0.0 (IBM Corp., Armonk, NY, USA). Age-standardized prevalence was based on the population structure of Finland in early 2004. Among symptomatic individuals and separately for both genders, the effect of age (classified as 18–39, 40–59, 60–79 yr) on bother (moderate or major vs no or small bother) was assessed using the chi-square test for data stratified by symptom occurrence (rarely, often, always).

3. Results

Of the 6000 men and women approached, 3727 (62.4%) participated. Of them, 130 were excluded, resulting in 3597 respondents included in the analyses (1709 men and 1888 women) (Fig. 1). The median percentage of participants who provided information on both occurrence and bother for each of the 12 symptoms was 95.5% (range: 91.1–97.7%) for men and 94.3% (range: 87.9–97.5%) for women. For more characteristics of the respondents, see Table 1.

From the population perspective, after age standardization, the most frequent at least moderately bothersome LUTS was urgency (7.9%), followed by SUI (6.5%), nocturia (6.0%), postmicturition dribble (5.8%), and UUI (5.0%) (Table 2). The population prevalence of bothersome SUI was higher in women (12.0%; 95% CI, 10.0–13.9) than in men (0.8%; 95% CI, 0.3–1.3) (Fig. 2; Supplemental Table 2). Furthermore, the population burden of both UUI and other incontinence was greater in women than in men. There was, however, a higher population-level prevalence of bother in men than women from voiding symptoms (hesitancy, weak stream, and straining) and postmicturition dribble (Fig. 2; Supplemental Table 2).

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