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# The current state of continence in Canada: a population representative epidemiological survey

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**Introduction:** Data on the prevalence of lower urinary tract symptoms (LUTS) and urinary incontinence (UI) in Canada are dated. This study aims to describe the current prevalence of LUTS and UI, to assess the state of knowledge of these conditions, the treatment for them and the treatment experience of symptomatic persons.

**Materials and methods:** A nationally representative adult ( $\geq 18$  years) sample was surveyed using a questionnaire based on the EPIC study. The margin of error associated with this probability-based sample was  $\pm 3.1\%$ , 19 times out of 20.

**Results:** Of the 1000 people contacted, (52% female, 48% male), 78.4% were either aware or vaguely aware of the term "incontinence". A total of 43.7% of respondents felt that UI was a serious problem that could easily ruin

quality of life. When asked, 93.7% of respondents felt that people with UI should seek medical advice, but only 41.4% (27.4% men, 54.3% women) knew what help was available. Of 23.7% of the sample with UI, 145 (61.2%) experienced leakage a few times a month or more frequently and 23.7% had UI for  $> 11$  years. A total of 48.8% of people with UI had initiated a discussion with their healthcare provider about their urinary symptoms, 52.4% within the last year.

**Conclusion:** The current distribution of UI in Canada is similar to that found in 2004. There remains a lack of awareness of the available treatments despite an acknowledgement that UI is an important medical condition. Few people had actively engaged with treatments. Men remain less aware and less likely to seek help than women.

**Key Words:** urinary incontinence, epidemiology, survey

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## Introduction

The prevalence of urinary incontinence (UI), and lower urinary tract symptoms (LUTS) increases in association with age.<sup>1</sup> Data from Canada were last obtained in 2008 in the Canadian Urinary Bladder Survey,<sup>2</sup> the first cross-sectional Canada wide epidemiological study to determine prevalence and severity of UI and LUTS in men and women. Despite

the high prevalence of UI/LUTS, few people view their symptoms as a problem or burden and fewer still express a felt need for help. In the Leicestershire MRC incontinence study<sup>3</sup> only 2% of respondents reported symptoms which were bothersome and also socially disabling. The majority viewed their symptoms as a minor inconvenience, although many more of those over 80 years of age reported bothersome symptoms compared to those aged in their 40s, with 15.3% versus 1.6% respectively reporting felt need. The aim of this study, in a nationally representative sample, was to update current data on the prevalence of UI, examine felt need for care, the extent to which these conditions are felt to be "taboo" and the experience of care, where sought.

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## Materials and methods

A nationally representative sample of 1000 community dwelling adults over 30 years were surveyed by Random Digit Dialling conducted between the dates of May 11-30, 2017. Recruitment continued until a sample which was population representative by sex, age, region and ethnicity was gained according to Census population figures. A final distribution of 85% landline and 15% cell phone only was yielded. The initial portion of the survey consisted of basic demographic data, questions regarding general health, and several questions on urinary symptoms. For those respondents with urinary symptoms who were not pregnant or currently experiencing a urinary tract infection, this was followed by a 20-minute survey, based upon that used in the EPIC study,<sup>4</sup> which included validated modules on the prevalence of LUTS and UI, including the duration, frequency and severity of each reported symptom and UI subtype; the distribution of co-existing comorbidities known to be associated with UI; an assessment of the lifestyle and behavioural modifications made by people with symptoms in order to manage them (including containment products); the types of treatments received and patient experience of seeking treatments; the effects of symptoms on quality of life; and the understanding of people, both with and without symptoms, of commonly used terms in this area. Consent was gained from all potential participants prior to conducting the survey. All data were anonymized and held electronically on secure servers. Resulting data were coded, entered into a database and analysed using SPSS v25 (IBM, Cary, Ind.). Descriptive statistics were used to illustrate the data, comparisons were made using parametric or non-parametric statistics according to the underlying distribution of the data. The margin of error associated with a probability based sample of 1,000 is +/-3.1%, 19 times out of 20. Ethical committee approval was obtained from the University of Alberta Research Ethics board (Pro00073226).

## Results

### Demographics

A total of 1000 adults participated in the telephone survey. Demographic data are shown in Table 1. Men and women were evenly represented. The majority of participants were in the 35 to 64 age range.

### Prevalence of LUTS

In the initial section of the survey, out of 1000 respondents, 237 had UI, ranging from urinary leakage less than a few times a month, up to every day or night,

TABLE 1. Demographics

	Total	Male	Female
Total	1000 100.0%	480 100.0%	520 100.0%
< 35	89 8.9%	43 8.9%	46 8.9%
35-44	223 22.3%	110 23.0%	113 21.7%
45-54	250 25.0%	123 25.7%	127 24.4%
55-64	206 20.6%	101 21.0%	105 20.2%
65-74	126 12.6%	60 12.5%	65 12.6%
75+	107 10.7%	43 9.0%	64 12.2%
Mean	53.8	53.2	54.3

Table 2. Overactive bladder (OAB), with or without urgency incontinence, was experienced by 12.3% of respondents.

A total of 13.1% participants (55.3% of those with UI) had stress urinary incontinence (SUI), 5.3% urgency urinary incontinence (UUI) (22.4% of those with UI), and 4.1% mixed urinary incontinence symptoms (MUI) (17.3% of those with UI) based on International Continence Society (ICS) definitions.<sup>5</sup>

The second part of the survey was completed only by those who did not meet exclusion criteria (were not currently experiencing a urinary tract infection or were pregnant) and who were experiencing urinary symptoms, defined as overactive bladder only ('yes' to the question 'do you experience... a sudden intense feeling of urgency where you feel you must immediately urinate?' (n = 123)) or stress UI only ('yes' to the question 'Do you leak urine in connection with sneezing, coughing, or when doing physical activities such as exercising or lifting a heavy object?' (n = 131)) only, or a combination of the two. The number of respondents who met these criteria was 259.

In this group, there were more women (32.6%) than men (14.2%); 23.7% had had been experiencing their symptoms for more than 11 years, Table 3.

### Treatment

In 48.8% of the 259 people with urinary symptoms had been initiated a discussion with their healthcare provider, 52.4% within the last year. Of those who had

TABLE 2. Prevalence of urinary incontinence by sex

How often do you experience urinary leakage?	Total	Male	Female
Never	752 75.2%	418 87.2%	333 64.1%
Less than once a month	92 9.2%	27 5.7%	64 12.4%
A few times a month	57 5.7%	11 2.4%	46 8.9%
A few times a week	36 3.6%	7 1.4%	29 5.6%
Every day and/or night	52 5.2%	13 2.6%	40 7.6%
Total	237 23.7%	58 12.0%	179 34.5%

TABLE 3. Duration of lower urinary tract symptoms by sex

To the best of your recollection, how long ago did you first start having these urinary symptoms?	Total	Male	Female
Total	259	50	209
Less than 6 months ago	10 4.9%	-	10 6.6%
Between 6 months and 1 year	17 8.0%	9 17.0%	8 4.9%
1-3 years ago	66 31.1%	21 40.2%	44 28.1%
4-10 years ago	61 28.9%	9 17.0%	52 33.0%
11+ years ago	50 23.7%	11 19.8%	39 25.1%

TABLE 4. Treatment modalities

Treatments undertaken by people with lower urinary tract symptoms?	Number of respondents (n = 259)
Fluid restriction	38
Use of pelvic floor muscle therapy	48
Use of containment products	72
Use of non-prescription medications or supplements	19
Use of prescription medications	27
Surgery	15

TABLE 5. Bother associated with lower urinary tract symptoms

Over the past 4 weeks, how bothered have you been by...	Somewhat or more % (n = 259)
Urinary urgency	28.5
Daytime urinary frequency	35.5
Nocturia	44.7
Urgency urinary incontinence	27.8
Urine loss on physical exertion	31.6

discussed their problem, 86.2% had discussed their problems with a doctor. Of the 27 respondents taking prescription medications prescribed by a healthcare professional for their bladder problem, 14 felt that they were working well; 19 had taken their medication for over a year. A variety of other management strategies were tried, Table 4, with many respondents trialling multiple strategies.

*Quality of life*

The extent and degree of bother associated with LUTS in those who reported them is shown in Figure 1 and Table 5. The majority of respondents with urinary symptoms do not feel as though they need to avoid physical activity (62.1%), that their relationships are affected (72.6%) or that they cannot leave their homes (68.0%). When asked about how satisfied they would be spending the rest of their life with their urinary condition the way it is 49.0% were mostly satisfied or better, however 53.7% felt that their urinary symptoms were a significant part of their life, Figure 2.

*Current state of knowledge*

A total of 78.4% of all respondents were either aware or vaguely aware of the term “incontinence”

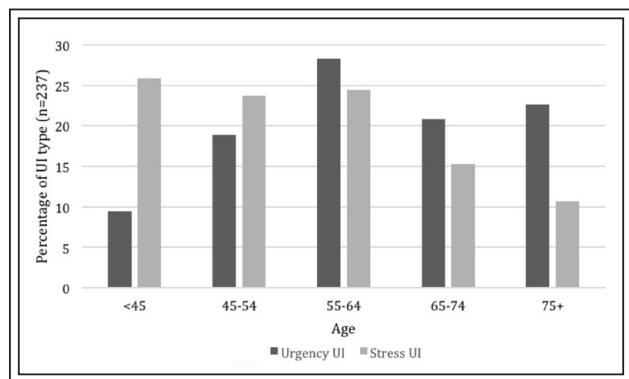


Figure 1. Prevalence of urinary incontinence type by age.

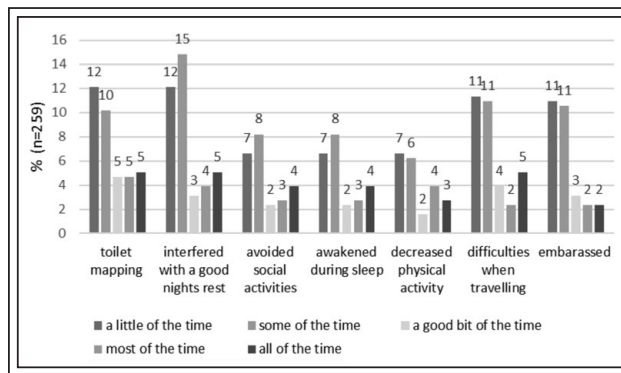


Figure 2. Impact of lower urinary tract symptoms on quality of life.

(84.2% women 72.1% men); 47.7% understood this as an “inability to hold one’s bladder” and 26.5% as involuntary urine leakage. Respondents felt incontinence to be a common problem affecting 30% of Canadians. This estimate increased with age of the respondent and was higher when estimated by women; 43.7% of respondents felt that incontinence was a serious problem that could easily ruin quality of life however, 36.6% felt it was a problem that could be medically managed. Only 11.5% felt that

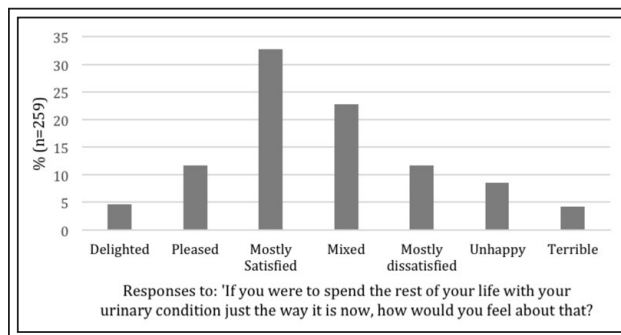


Figure 3. Satisfaction with urinary condition.

incontinence was an inconvenience. When asked, 93.7% of respondents felt that people with incontinence should seek medical advice, but only 41.4% knew what help was available or what could be done for symptoms. There was a marked sex difference, with only 27.4% of men compared to 54.3% of women aware of available help.

### Taboo

In terms of taboo, respondents believed they would be more comfortable talking about incontinence than a sexually transmitted infection (50.5% versus 23.4%), addiction (42.5% versus 32.8%), or decreased sexual desire (48.9% versus 24.7%), though less comfortable than talking about depression (31.1% versus 43.3%). These proportions varied by sex and age group, but overall choice remained the same.

### Discussion

This study aimed to describe the current prevalence of LUTS and UI, to assess the state of knowledge of these conditions, the treatment for them and the treatment experience of symptomatic persons. Using a questionnaire modelled after that used in the 2006 EPIC study,<sup>4</sup> data last collected in 2008 by the Canadian Urinary Bladder Survey was updated.<sup>2</sup> The Canadian Urinary Bladder Survey was also a population representative telephone survey of one thousand participants. And despite the 10-year difference between the studies, the ratio of men and women, representative of the general Canadian population, was equivalent.

From our initial sample of 1000, 24.8% noted UI. This is similar to the 28.8% found in 2008, however on the lower end of the usual range of estimates, with studies ranging from 5%-69%, most in the range of 25%-45%.<sup>6</sup> The incontinence subtypes considered here were OAB only, SUI only, or a combination of the two. The number of respondents meeting the subtype definitions was 259. Given the small difference between this number and the number of those with incontinence almost all people (248/249) with OAB either had resultant urgency incontinence or had MUI. Our proportions differ slightly from that of the Canadian Urinary Bladder Survey, with SUI representing 55.3% (versus 68%), UUI 22.4% (versus 11%), and MUI 17.3% (versus 21%). As expected, urinary symptoms continue to affect women more than men. The prevalence of SUI by age mirrors that of the Canadian Urinary Bladder Survey, with a peak in middle age, the 55 to 64 range. The distribution of UUI, in contradiction to most studies, decreased with increasing age, especially after the age of 65. The reason for this is unclear but may reflect a sampling bias.

A significant number of respondents had their urinary symptoms for a significant portion of time, more than 50% of respondents for longer than 4 years. This may have translated into an increased level of healthcare seeking than seen in previous studies. We found that 48.8% of those with urinary symptoms had engaged in healthcare seeking. This is higher than previously reported data, for example in 2015, a prevalence study of women in the UK reported that only 17% of women had sought professional help.<sup>1</sup> Similarly, depending on their symptom profile, between 7.8% and 27.5% of those with urinary symptoms sought help in the EpiLUTS study.<sup>7</sup> In our cohort, open-ended responses to the question of why the participant brought up the discussion with a health care practitioner included comments on degree of bother or annoyance, feeling that their symptom was abnormal, worry, worsening of symptoms, effect on quality of life, and wanting to know possible treatment options. Despite the relatively high healthcare seeking rate, this still represented less than half of those with urinary symptoms, many who experienced symptoms associated with significant bother or impact on their quality of life. Possible reasons for this low rate include symptoms which people regard as mild,<sup>8</sup> a belief that incontinence and LUTS is a normal part of ageing, embarrassment, and therapeutic nihilism among both patients and their doctors.<sup>9-12</sup> For example, in our cohort over one third of the total sample believed UI to be normal, and 90.6% believed old age to be a possible cause. It is well recognized that older people presenting to healthcare with LUTS are less likely to receive evidence-informed treatment, even in the presence of applicable guidelines<sup>13,14</sup> and are less likely to receive even minimally-invasive surgical treatment for stress incontinence<sup>15</sup> than their younger counterparts. In our cohort, 11 respondents were told, upon seeking help from a healthcare practitioner, that their urinary symptom was "normal" or "due to their age".

Almost all participants, regardless of presence urinary symptoms, believed that people should seek help for their symptoms and that symptoms represented an important medical condition. However, there was a demonstrated lack of knowledge about what is available, more marked in men than women.

In the opinion of this cohort, incontinence was less of a taboo subject than has been reported previously. In a 2011 Austrian study, 60.6% of respondents thought incontinence to be taboo and thought it to be significantly more embarrassing than depression or cancer, however these were the only comparative problems asked about.<sup>16</sup> Here, the comparators were also significant taboo subjects themselves, and this may be the cause of the relative willingness to discuss incontinence instead.

This study has several limitations, originating from the group chosen for the longer survey. Limiting the cohort to OAB only, SUI only, or mixed urinary incontinence symptoms may have excluded people experiencing LUTS and possibly UI. Many of these LUTS, such as nocturia, daytime frequency, and voiding symptoms, have been demonstrated to cause significant bother.<sup>7</sup> Additionally, the resulting relatively small number of people with incontinence may no longer have retained representativeness.

## Conclusion

The current distribution of UI and subtypes is similar to that found in 2008.<sup>2</sup> One in four (25.9%) Canadians have either OAB, SUI or both. The difference between reported and estimated prevalence of incontinence (30%) is wide.

Despite only half of participants with urinary symptoms seeking treatment, and less than half of the sample being aware of treatment options, this represents an improvement from previous studies. This may indicate some success in increasing the awareness of UI and LUTS by public campaigns, local workshops, and HCP knowledge. UI was less of a taboo subject than has been posited in previous studies. This may also reflect increased awareness and opens opportunities for Canadians to continue the discussion.

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