

## LOWER URINARY TRACT SYMPTOMS AND QUALITY OF LIFE IN NORWEGIAN MEN: THE HUNT STUDY

### Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) are a common cause of suffering and reduced quality of life (QoL) in men. The impact of LUTS on QoL is important for help-seeking and for incorporating into treatment decisions. The aims of this study was to investigate the prevalence of LUTS and their impact on disease-specific QoL in men.

### Study design, materials and methods

Between 1995 and 1997 cross-sectional LUTS data were collected from 21694 male residents aged  $\geq 20$  years in Nord Trøndelag County in Norway, using the International Prostate Symptom Score (IPSS) and the IPSS bother question (IPSS BQ). IPSS was calculated for all men who responded to the seven symptom questions (items). Each item has response categories ranging from 0 (not at all) to 5 (almost always). The IPSS is the sum of the seven items, and total scores range from 0 to 35. LUTS are categorized into no symptoms (IPSS=0), mild symptoms (IPSS<7), moderate symptoms (IPSS=8-19), or severe symptoms (IPSS=20-35). The IPSS BQ ('If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?') has scores of 0 (delighted), 1 (pleased), 2 (mostly satisfied), 3 (mixed satisfied/dissatisfied), 4 (mostly dissatisfied), 5 (unhappy), and 6 (terrible). The IPSS BQ was dichotomized into poor QoL (IPSS BQ  $>3$ ) and good QoL (IPSS BQ  $<3$ ). The prevalence of each IPSS symptom was calculated in 10 year age groups, a score of  $>2$  was considered as having the symptom. Scores on obstructive symptoms (incomplete emptying, intermittency, slow stream, and hesitancy) and irritative symptoms (frequency, urgency, and nocturia) were calculated separately and dichotomized into high score and low score. We used logistic regression analysis to estimate the association between the independent variables and QoL, by comparing men who reported poor QoL with men who reported good QoL. The associations are presented as odds ratios (OR, adjusted for age) with 95% CI.

### Results

Proportion of the different LUTS in age groups is shown in Table 1. The prevalence of each symptom increases with increasing age. Table 2 shows the association between LUTS and QoL as measured by the IPSS BQ. The strong association between severity of LUTS and poor QoL is notable, as is the difference between the seven symptoms and the degree to which they affect QoL. Incomplete emptying of the bladder was the symptom that correlated most with poor QoL (OR 3.5), followed by slow stream (OR 2.7) and nocturia (OR 2.3). Intermittency was the symptom with the weakest influence on QoL (OR 1.2). Obstructive symptoms were more likely to give poor QoL than irritative symptoms.

Table 1. The proportion of different LUTS in age groups. A score of  $>2$  was considered as having the symptom. (n=21694)

Age groups	n	Incomplete emptying	Frequency	Intermittency	Urgency	Slow stream	Hesitancy	Nocturia
20-29	2414	3,3	8,7	1,1	2,4	1,8	2,5	9,6
30-39	3515	4,4	8,9	2,4	2,9	3,5	2,6	11,3
40-49	5067	7,1	11,1	3,5	4,7	7,0	4,0	16,5
50-59	4192	11,3	14,8	5,6	8,6	14,2	6,7	19,3
60-69	3260	16,5	18,1	8,9	13,5	23,7	8,7	22,3
70-79	2570	20,2	21,4	11,3	17,0	29,8	10,9	26,0
80+	676	24,3	24,0	14,2	19,8	34,6	12,4	37,4
Total	21694	10,5	13,9	5,5	8,2	13,3	5,9	18,1

Table 2 Odds ratios (ORs) with 95% confidence intervals (CIs) for poor quality of life (IPSS BQ  $\geq 3$ ) associated with lower urinary tract symptoms. (n = 19 889)

Dependent variable	Number of men		OR <sup>a</sup>	95% CI
	IPSS BQ $<3$	IPSS BQ $\geq 3$		
IPSS severity categories				
No symptoms	5011	174	1,0	Reference
Mild	10746	557	1,50	1,26-1,79
Moderate	1863	980	15,4	12,9-18,4
Severe	227	331	42,8	33,8-54,2
IPSS symptoms				
Incomplete emptying score $<2$	16568	1063	1,0	Reference
$\geq 2$	1279	979	3,49	3,04 – 4,00
Frequency score $<2$	15886	1060	1,0	Reference
$\geq 2$	1961	982	1,70	1,48 – 1,95
Intermittency score $<2$	17213	1491	1,0	Reference
$\geq 2$	634	551	1,23	1,03 – 1,46
Urgency score $<2$	16779	1367	1,0	Reference
$\geq 2$	1068	675	1,83	1,58 – 2,13
Slow stream score $<2$	16030	994	1,0	Reference
$\geq 2$	1817	1048	2,74	2,38 – 3,15
Hesitancy score $<2$	17137	1480	1,0	Reference
$\geq 2$	710	562	1,68	1,43 – 1,99
Nocturia score $<2$	14926	1126	1,0	Reference

>2		2921	916	2,25	2.01 – 2.53
IPSS obstructive/irritative score					
Obstructive score	<5	15865	860	1,0	Reference
	≥5	1982	1182	6,39	5,69-7,17
Irritative score	<4	14916	833	1,0	Reference
	>4	2931	1209	3,65	3,27-4,07

<sup>a</sup> age adjusted

#### Interpretation of results

The prevalence of LUTS was similar or slightly lower than that reported by others [1], and the most frequently reported symptoms were nocturia, frequency and slow stream. Our findings confirm that LUTS have an impact on QoL, which, as expected, increases by severity of LUTS. Incomplete emptying of the bladder, together with slow stream and nocturia were the three strongest predictors for poor QoL. Obstructive symptoms (also called voiding symptoms) were more likely to give poor QoL than irritative (storage symptoms), a finding of clinical importance which contradicts other reports [2]. However, most studies on the impact of LUTS on QoL have been carried out in a clinical setting or in a population with a high prevalence of LUTS. The impact of symptoms may be different in the general population. The extent to which a symptom affects QoL is of clinical importance. Therefore, elucidating this relationship can provide insights to the clinician evaluating the patient after examinations and history taking.

Various validated QoL instruments have been used to assess disease-specific QoL in men with LUTS/BPH. The IPSS BQ is easy to administer and the most widely accepted and used, and recent reports have supported its validity as a convenient tool for assessing disease-specific QoL in a clinical setting [3]. However, QoL instruments that are suitable in a clinical setting do not necessarily have the same capacities in an epidemiological study, and vice versa. Nevertheless, the impact of LUTS on QoL is the main reason why men seek treatment for LUTS, and should be the primary consideration in treatment decisions and in assessments of treatment response and disease progression.

#### Concluding message

This study confirms that LUTS are common, with the prevalence increasing rapidly with age, and have a considerable impact on disease-specific QoL. There is still need for research on LUTS and QoL, and to conduct validation studies of QoL. Such validation will ensure availability of QoL instruments suitable both for the epidemiologist and for the doctor when seeing patients.

#### References

1. Prevalence of lower urinary tract symptoms in men aged 45-79 years: a population-based study of 40 000 Swedish men. *BJU Int* 2004;94:327-31
2. Impact on quality of life of different lower urinary tract symptoms in men measured by means of the SF 36 questionnaire. *Scand J Urol Nephrol* 2006;40:485-94
3. Correlation of the International Prostate Symptom Score bother question with the Benign Prostatic Hyperplasia Impact Index in a clinical practice setting. *BJU Int* 2008;101:1531-5

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<b><i>What were the subjects in the study?</i></b>	<b>HUMAN</b>
<b><i>Was this study approved by an ethics committee?</i></b>	<b>Yes</b>
<b><i>Specify Name of Ethics Committee</i></b>	<b>The Regional Committee for Medical Research Ethics, Trondheim, Norway</b>
<b><i>Was the Declaration of Helsinki followed?</i></b>	<b>Yes</b>
<b><i>Was informed consent obtained from the patients?</i></b>	<b>Yes</b>