

## CORRELATION BETWEEN SYMPTOM SEVERITY AND BOTHER IN WOMEN WITH LOWER URINARY TRACT SYMPTOMS

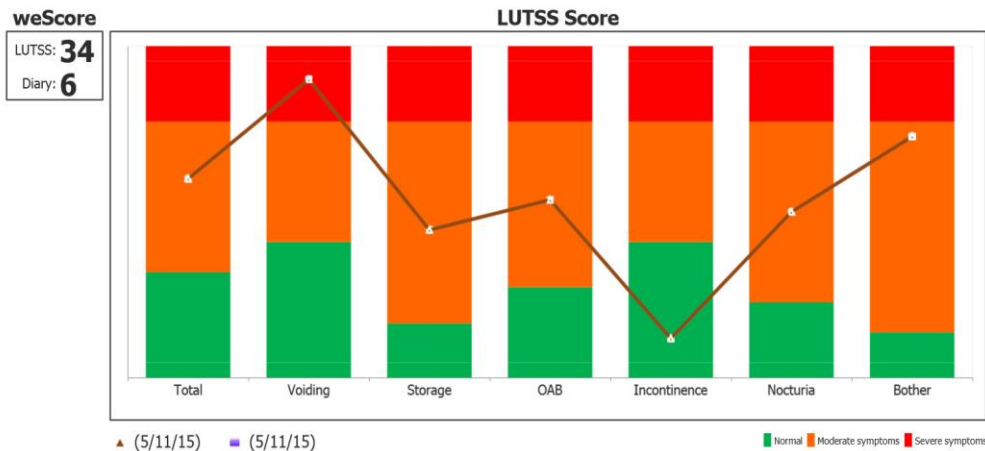
### Hypothesis / aims of study

Most treatment algorithms for lower urinary tract symptoms (LUTS) begin with an assessment of patient bother. If the patient is not bothered, only reassurance and follow-up are advised. The assumption behind this recommendation is that 1) if the symptoms are not bothersome, the underlying condition is not serious enough to warrant further investigation; 2) the worse the symptoms, the greater a patient will be bothered by those symptoms; and 3) the worse the symptoms, the greater the severity of the underlying condition. The aim of this study is to analyse the correlations between bother scores on LUTS questionnaires in order to determine the extent to which these hypotheses are true.

### Study design, materials and methods

This is an IRB approved retrospective multicenter study of women referred for LUTS who completed the LUTS score (LUTSS) on a mobile app or website. Contemporaneous uroflow (Q) & post-void residual (PVR) were obtained. Spearman's correlations were calculated between the LUTSS bother score and the LUTSS sub-scores, Q and PVR. Patients completed the LUTSS on a mobile app or website and the results appeared on the doctor portal (figure 1).

Figure 1: The total LUTSS and 5 sub-scores are color coded to represent normal (green), moderate (orange), and severe (red) symptoms.



### Results

1189 patients completed the LUTSS; 436 females and 753 males aged 13 – 99 years (mean 59 years, SD of 18). Of the 436 females, the correlation between the total LUTSS vs. bother score was strong (0.65), while the correlation between the total AUASS vs. bother was moderate (0.42). There was also a strong correlation between the storage and OAB sub-scores vs. bother (0.54, 0.53 respectively) and a moderate correlation between the voiding sub-score vs. bother (0.40). There was a weak correlation between the incontinence and nocturia sub-scores vs. bother (0.35, 0.33). However, the box and whisker plot shows wide overlap between symptom severity and bother (plot 1). The correlation between Q, PVR vs. bother was very weak (Table 1).

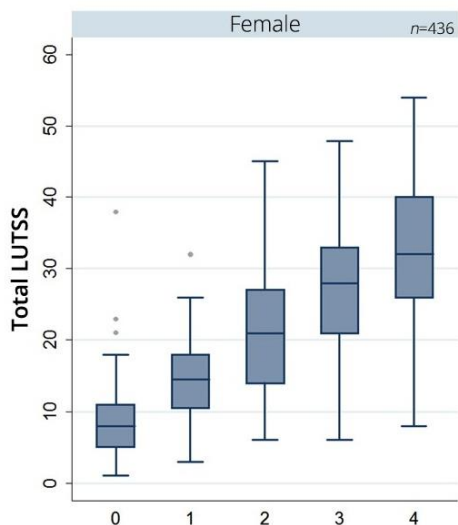
### Interpretation of results

Although there was a strong correlation between symptom severity as measured by the total LUTSS, storage and OAB sub-scores, there was considerable overlap; some patients with few symptoms had severe bother and some patients with severe symptoms had little or no bother. The correlation was weak or moderate between bother and voiding dysfunction, incontinence, and nocturia. These data suggest that patients are much more bothered by OAB than voiding symptoms, incontinence, or nocturia. Most importantly, though, there was no correlation at all between bother and either Q or PVR. In fact, 8% of patients with no bother at all had PVR > 200 mL and 25% had Q < 11mL. This is most disconcerting, insofar as, if one uses bother as a criteria for pursuing a workup or treatment for LUTS, serious conditions may be overlooked.

### Concluding message

The correlation between patient bother, symptom severity, and severity of the underlying LUT condition is inexact. Some patients with severe bother have few symptoms; others with little bother have moderate symptoms. The poor correlation between bother, Q & PVR suggests that patients may have severe underlying conditions like urethral obstruction that might be misdiagnosed if one relies on bother to pursue a diagnostic evaluation. The hypothesis that bother should drive the diagnostic evaluation in patients with LUTS should be reconsidered.

**Plot 1:** Box plot of LUTSS total score by LUTSS bother sub-score. Boxes show interquartile range and median; whisker ranges by Tukey method.



**Table 1:** Showing percentage of women in each Uroflow range and PVR range per each bother sub-score.

Women		Bother Score				
		0	1	2	3	4
Uroflow (mL/s)	0-5	0 (0%)	3 (15%)	3 (12%)	4 (6%)	2 (8%)
	6-10	3 (25%)	3 (15%)	4 (16%)	10 (15%)	4 (15%)
	11-15	5 (42%)	4 (20%)	4 (16%)	10 (15%)	6 (23%)
	>15	4 (33%)	10 (50%)	14 (56%)	42 (64%)	14 (53%)
PVR (mL)	<100	10 (83%)	14 (70%)	22 (88%)	59 (89%)	25 (96%)
	100-199	1 (8%)	2 (10%)	2 (8%)	7 (11%)	1 (4%)
	200-299	1 (8%)	1 (5%)	1 (4%)	0 (0%)	0 (0%)
	300-399	0 (0%)	3 (15%)	0 (0%)	0 (0%)	0 (0%)
	>400	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
n=149		12	20	25	66	26

References

1. Blaivas, Jerry G; Tsui, JF; Mekel, G; Benedon, MS; Li, B; Friedman, FM; Weinberger, JM; Weedon, J; Weiss, JP. "Validation of the Lower Urinary Tract Symptom Score." The Canadian Journal of Urology. 22(5); Oct 2015. 7952-7958.

Disclosures

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