

### NOCTURIA: WHY DO PEOPLE VOID AT NIGHT?

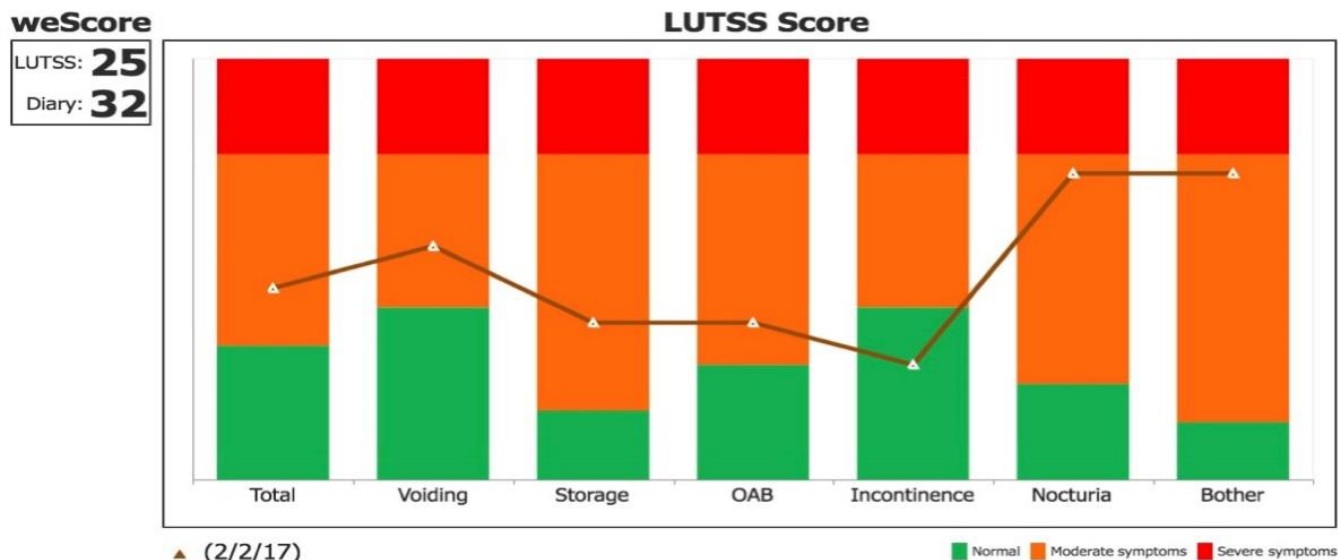
Hypothesis / aims of study

There are two reasons patients have nocturia – they are awakened by an urge to void or they awaken for some other reason and then void before going back to sleep. The aim of this study is to determine the relative contribution of each type of night time void.

Study design, materials and methods

This is a retrospective review of patients who completed a 24 hour bladder diary on a mobile app or website. The results appeared on a doctor portal (figure 1). Each nocturnal void was designated Primary or Secondary Nocturia based on the following scheme derived from the Urge Perception Score (UPS): Primary Nocturia was sub-divided into urgency voids (severe urge or desperate urge: UPS = 3 or 4) and Non-Urgency Voids (mild urge or moderate urge: UPS = 1 or 2), and Secondary Nocturia (no urge: UPS = 0). In other words, Primary Nocturia means that the patient was awakened by the urge to void, whereas in Secondary Nocturia the patient was awakened by something else and then voided before going back to sleep.

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



### Bladder Diary:

Dairy Date	2/2/17
Voided Volume (ml)	
24 hours	3974
Daytime	3005
Nighttime	969
# Voids	
24 hours	17
Daytime	12
Nighttime	5
Maximum Voided Volume	386
# Incontinent Episodes	0
# Urgency Voids	0
# Difficulty Voiding Episodes	7
Nocturnal Polyuria Index	0.24
Nocturia Index	2.51
Urge Void Correlation	0.54

## Results

594 patients (204 women, 390 men) ages 12-99 years (average of 64 years, SD 18) completed 1,586 bladder diaries. 264 diaries were excluded for incompleteness leaving 1,321 diaries for analysis. 14,234 voids were obtained from these diaries. Of these, 3,014 (21%) were night-time voids. 109 of these night-time voids were excluded due to inaccurate UPS (UPS of -1 or -2), leaving 2,906 night-time voids for data analysis (Table 1). The voids were then separated by sex; 846 female voids (29%) and 2,059 male voids (71%). Data is seen in Table 2.

Table 1:

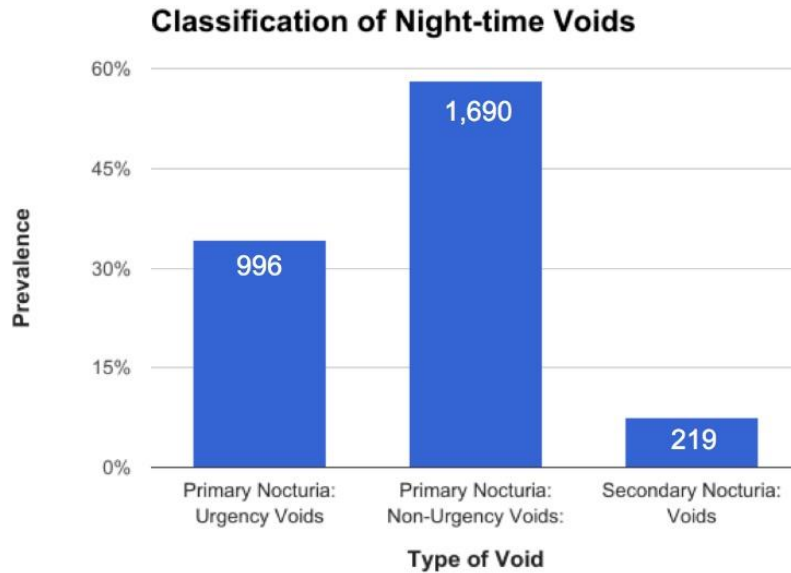
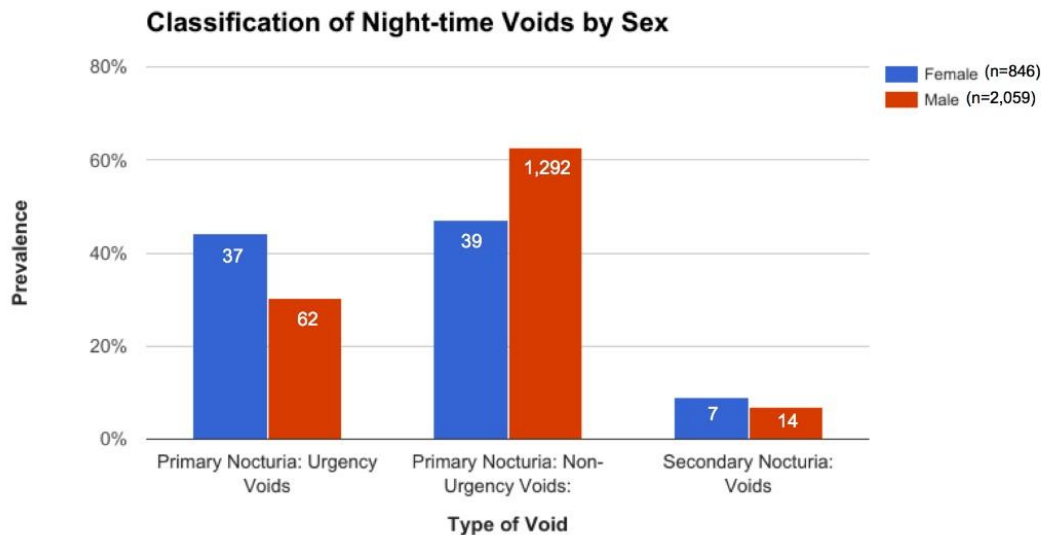


Table 2:



## Interpretation of results

In this study, secondary nocturia voids occurred in about 8% of patients. These patients were not awakened by an urge to void, but were awakened by something else and voided "out of convenience." We posit that these secondary nocturia voids are unrelated to the bladder. Conversely, urgency nocturnal voids appear to be related to the bladder. The implications of these findings are that Secondary Nocturia is likely to be a sleep disorder requiring a different evaluation and treatment compared to Primary Nocturia, which requires a diagnostic and therapeutic approach directed at the lower urinary tract.

## Concluding message

There are three reasons why people are awakened at night to void: urgency voids, non-urgency voids and secondary nocturia voids in which the patient is awakened by something else and then voids out of convenience before going back to sleep. It is likely that these three subtypes require a different diagnostic evaluation and different treatments.

## Disclosures

**Funding:** Institute for Bladder and Prostate Research **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Western IRB approved **Helsinki:** Yes **Informed Consent:** No