

Nocturia has a significant impact on health-related quality of life

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Background

- Nocturia (nocturnal urinary frequency) is defined as waking at night one or more times to void.¹ This may arise due to a number of underlying conditions, including overactive bladder (OAB). OAB affects people of both sexes and all ages; however, it is more prevalent in women and the elderly.²
- Nocturia is a bothersome urinary symptom that has a significant impact on health-related quality of life (HRQL). However, clinical data on nocturia are limited and it remains a poorly reported and infrequently diagnosed symptom.³

Objective

- To evaluate the impact of nocturia and the number of nightly nocturia episodes on HRQL and sleep.

Methods

- A national survey was conducted to assess the prevalence of OAB in the USA using a clinically validated computer-assisted telephone interview. The survey included questions pertaining to nocturia and other urinary variables.
- Night-time was defined for respondents as the 'time between going to sleep and waking up'. Questions relating to nocturia were: 'How many nights in the past 4 weeks, on average, did you go to the bathroom and urinate?' and 'On these nights, how many times, on average, did you go to the bathroom and urinate?'. Responses to these two questions were multiplied together and divided by 28 to obtain an average number of nocturia episodes/night over the previous 4 weeks.
- Respondents were classified as having OAB or as controls based on their responses. A nested case-control analysis was then performed among subjects with OAB, and with age- and gender-matched controls.
- Respondents completed a series of questionnaires to assess quality of life (Overactive Bladder-questionnaire [OAB-q] and Short Form-36 [SF-36]), depression status (Center for Epidemiologic Studies Depression Scale [CES-D]) and sleep quality (Medical Outcomes Sleep Scale [MOS-Sleep]). The OAB-q, which contains a Symptom Bother scale and 4 subscales (Sleep, Coping, Social Interaction, and Concern), has been psychometrically validated among patients with OAB.⁴
- Descriptive analyses, t-tests, and analyses of variance (ANOVA) with *post hoc* comparisons were used to analyse the data. Gender, age, and comorbid conditions were controlled for in the ANOVA models.

Results

- Of the 1769 questionnaires sent to telephone respondents, 919 (52%) responded and were included in the nested case-control study. The final study population consisted of 60% females with a mean age of 54.2 years. The demographic characteristics of the study are detailed in Table 1. Respondents experiencing nocturia tended to be older and more likely to have diabetes, congestive heart failure, prostate problems, previous bladder surgery or cancer, and to use bladder medications or diuretics.

Table 1. Respondent demographic and clinical characteristics

Characteristic	No nocturia (n=682)	Nocturia (≥2 episodes/night) (n=216)	p value
Demographic characteristics			
Age (mean years ± SD)	52.0 (16.1)	58.7 (15.6)	0.0001
Gender, n (% male)	274 (40.2)	85 (39.4)	0.84
Race, n (%)			
White	586 (86.2)	177 (82.7)	0.58
Black	46 (6.8)	21 (9.8)	
Other	48 (7.0)	16 (7.5)	
Clinical characteristics			
Condition (% yes)			
Diabetes	51 (7.5)	37 (17.2)	<0.0001
Congestive heart failure	29 (4.3)	18 (8.4)	0.02
CNS disorders	18 (2.6)	10 (4.6)	0.31
Interstitial cystitis	9 (1.3)	7 (3.2)	0.12
History of bladder surgery	47 (6.9)	33 (15.3)	<0.001
Prostate problems	47 (6.9)	30 (14.0)	<0.01
History of cancer	54 (8.0)	31 (14.4)	<0.01
Use of bladder medications	27 (4.0)	19 (8.8)	0.02
Use of diuretics	87 (12.8)	51 (23.8)	<0.0001

- Seventy-nine percent of respondents reported at least one episode of nocturia in the previous 4 weeks; 41% reported >1 episode/night and 30% reported >2 episodes/night. Participants reporting ≥2 nocturia episodes/night were significantly older than those not reporting nocturia (60.8 versus 52 years; $p < 0.0001$).
- A significant decrease in HRQL ($p < 0.02$) was noted, with increasing frequency of nocturia for all OAB-q subscales except Social Interaction (Table 2). Only respondents with ≥2 episodes of nocturia/night had a significantly reduced Social Interaction score when compared with respondents experiencing <1 episode/night.

Table 2. Overactive bladder-questionnaire (OAB-q) subscale scores in respondents with nocturia vs no nocturia controlling for age, gender and clinical comorbidities

OAB-q subscale* (Mean (SE))	No nocturia (to <1) (n=505)	Nocturia (≥1-2) (n=178)	Nocturia (≥2) (n=216)	p value
Symptom Bother	15.1 (0.9)	23.1 (1.5)	32.5 (1.4)	<0.001
Coping	92.3 (0.9)	87.0 (1.4)	82.2 (1.3)	<0.02
Concern	92.3 (0.9)	87.7 (1.4)	81.2 (1.3)	<0.001
Sleep	89.0 (1.0)	79.1 (1.6)	67.9 (1.5)	0.0001
Social Interaction	97.3 (0.5)	94.7 (0.9)	93.0 (0.8)	≥2 vs 0; $p < 0.02$
HRQL total	92.7 (0.7)	87.1 (1.2)	81.3 (1.1)	<0.001

*Higher score indicates better health-related quality of life (HRQL); higher Symptom Bother scores indicate greater symptom bother.

- In all OAB-q subscales, increasing episodes of nocturia were associated with reductions in HRQL with significant decreases ($p < 0.05$) observed for all comparisons with the groups of respondents with <1 episode/night (Figure 1). The greatest differences were noted in the Sleep subscale, with significant ($p < 0.0001$) decreases with each additional nocturia episode.
- In all SF-36 subscales, respondents with nocturia had a significantly reduced HRQL compared with those experiencing <1 episode of nocturia/night (Figure 2).

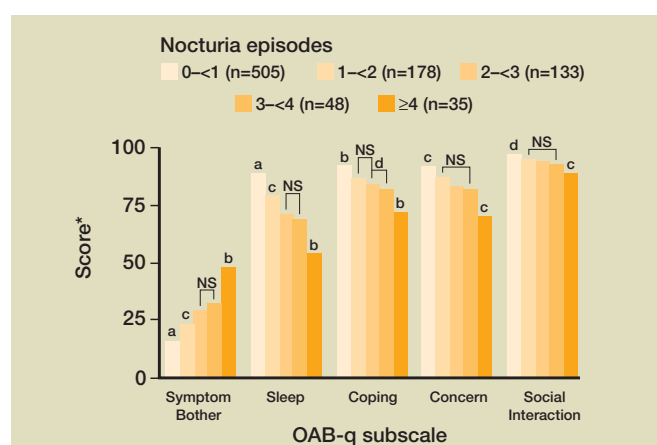


Figure 1. Overactive bladder-questionnaire (OAB-q) subscale scores by number of nocturia episodes/night controlling for age, gender, and clinical comorbidities. *Higher score indicates better health-related quality of life. ^a $p < 0.0001$ for all group comparisons; ^b $p < 0.001$ for all group comparisons except where noted; ^c $p < 0.01$ for all group comparisons; ^d $p < 0.05$ for all group comparisons. NS = not significant.

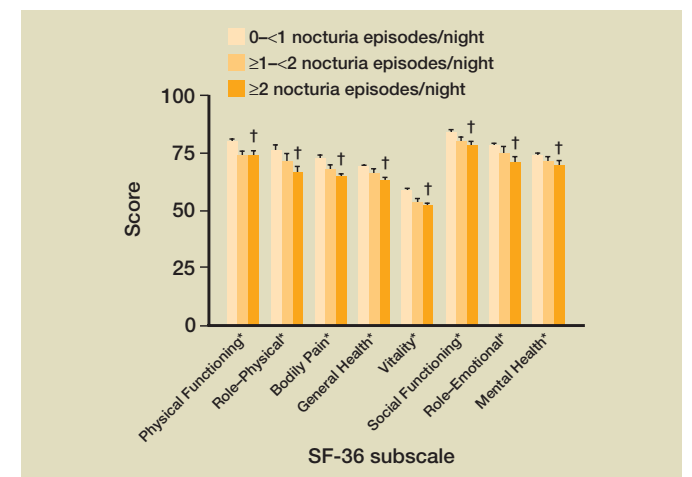


Figure 2. Short Form-36 (SF-36) questionnaire subscale scores by number of nocturia episodes/night controlling for age, gender, and clinical comorbidities. *Higher score indicates better health-related quality of life. [†] $p < 0.03$ vs 0-1 nocturia episode/night.

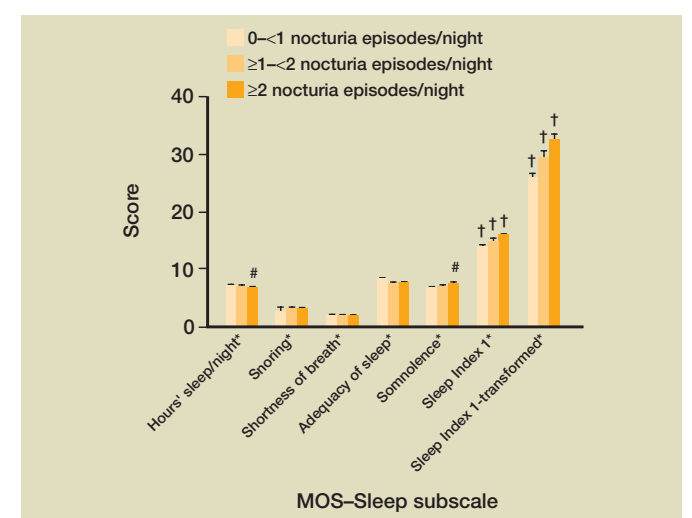


Figure 3. Medical Outcomes Sleep Scale (MOS-Sleep) questionnaire subscale scores by number of nocturia episodes/night controlling for age, gender, and clinical comorbidities. *Higher scores indicate worse sleep function; [†] $p < 0.02$ vs other; [#] $p < 0.05$ all groups.

- Respondents with ≥1 versus <1 episode of nocturia/night experienced significantly worse sleep function in a number of MOS-Sleep domains (Figure 3).
- Participants with ≥2 nocturia episodes/night reported significantly poorer scores on the somnolence subscale and significantly greater impairment ($p < 0.05$) on the Sleep Index 1 subscale than those with <2 nocturia episodes/night.
- Of those respondents experiencing >1 nocturia episode/night, 40% scored ≥16 on the CES-D, indicating notable depressive symptoms, compared with 27% of people experiencing ≤1 episode/night.

Conclusions

- Nocturia causes significant distress. As little as one episode/night has a significant impact on sleep and HRQL.
- These results show that increases in the number of nocturia episodes/night have a significant negative impact on HRQL in patients with OAB.

References

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