# The Degree Of Bother Of Nocturea On Quality Of Life In A Group From Al-Diwaniya Population.

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الخلاص مقدمة : البول ليلا يقصد به الاستيقاض بعد الخلود للنوم للتبول ليلا والذى يسبب از عاجا اذا ما زاد عدد مرات التبول عن مرة واحدة هدف الدراسة تقييم درجة الازعاج على نوعية الحياة الصحية المتسبب من كثرة التبول ليلا في مجموعة من مرضى الديوانية طريقة العمل: استفتاء أجري على 600 مريض من الذكور (62%) والاناث (38%) المراجعين لمستشفى الديوانية التعليمي تراوحت اعمارهم بين 1⁄8 و 70سنة للفترة من عام 2006 ولغاية 2008 القياسات درجة التاثير على نوعية الحياة الصحية قيس بواسطة مقياس جمعية الاطباء البولية الامريكية ودرجة الانزعاج من التبول الليلي قسمت الى اربع مستويات (معدومة قليلة وسط و كبيرة). النتائج درجة الانزعاج تتناسب مع عدد مرات التبول ليلا اكثر الاستجابات المسجلة كانت لا ازعاج إزعاج قليل و أزعاج متوسط لمرات التبول الواحدة والاثنتين والثلاثة على التوالى الاستنتاج التبول ليلا مرتان على الاقل هو ما يتسبب بالازعاج والتاثير السلبي على نوَّعبة الحياة الصحية حيث يكون الازعاج متوسطا اذا كانت المرات ثلاثا ويكون شديدا اذا زاد عدد المرات عن ثلاثة ام التبول لمرة وآحدة فلا يضر في معظم الحالات

# <u>Abstract</u>

**<u>Background</u>**: Nocturia is common and disrupts sleep. Traditionally, one nightly episode has been regarded as clinically meaningless.

<u>Objective</u>: To evaluate the bothersome effect of nocturia on health related quality of life (HRQoL) in a group from Al-Diwaniya population.

Patients and methods: In 2006–2008, a survey was made on a random sample of 600 patients aged 18–79 yr who were identified from Al-Diwaniya teaching hospital, proportion was 62% males and 38% were females).

<u>Measurements:</u> bother from nocturia on QoL were examined in relation to self-reported nocturia frequency (using the American Urological Association Symptom Score). Bother from nocturia was assessed on a four-point scale (none, small, moderate, major).

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Results and limitations: Degree of bother increased with nocturia frequency (p < 0.01). The most commonly cited degree of bother for those with one, two, and three nightly voids was no bother, small bother, and moderate bother, respectively.

Conclusions: At least two voids per night are bothersome and associated with impaired HRQoL. The majority of people report having bothered when the number of nocturia episodes is two and moderate or major bother when the number is three or more. One void per night does not identify subjects with interference from nocturia and, thus, is not a suitable criterion for clinically relevant nocturia.

## **Introduction**

Nocturia is a highly prevalent symptom that can result from primary sleep disorders, from overproduction of urine at night (nocturnal polyuria), and/or from conditions causing low voided volumes (e.g., benign prostatic hyperplasia, detrusor overactivity) [1]. In 2002, the International Continence Society defined nocturia as waking up at night from sleep to void.[2] This consensus definition made explicit that nocturia was the term to be used whether or not the subject perceived bother and even if there were only a single nightly void deciding the level of nocturia that is too often is a meaningful practical and theoretical consideration.[1,2] Bothersome symptoms of patients should not be trivialised or ignored; alternatively, expected symptoms should not be excessively medicalised. If one episode of nocturia is to be regarded as usual, does the condition become abnormal with two episodes, or should that number be three or more? Although it is obvious that more frequent nocturia likely causes more bother, the relationship is not perfectly correlated.[3] Past studies on the impact of nocturia on health have been inconsistent or nonspecific regarding how the degree of nocturia affects bother (and quality of life [QoL]). In one study, nocturia of "2 or more times per night" (or nocturia that occurred "fairly often") was associated with lower self-rated physical and mental health.[4] Elsewhere, female patients were shown to seek medical advice about nocturia if they averaged three or more episodes.[3,4,5] There is also evidence suggesting that the impact of nocturia may differ by gender. Early use of the International Consultation on Incontinence Modular Questionnaire-Nocturia Quality of Life questionnaire in a mixed gender population suggested the impact of nocturia that was greater for women.[1,2,6,7]

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By contrast, the effect size of the association for nocturia and major depression may be twice as great in men as in women. It is important to understand the associated bother and QoL impact of nocturia. This population-based study aims to examine:

(1) The bother from nocturia by age and sex.

(2) The relationship between nocturia frequency and bother.

(3) The impact of nocturia on health-related QoL (HRQoL).[7]

## **Methods**

1. Design

In 2006–2008, questionnaires were made on 600 patients (aged 18–79) who were drawn randomly from Al-Diwaniya teaching hospital. Population register stratification by age was used in subject selection, with oversampling of the younger age groups to ensure sufficient precision, even in age groups with lower nocturia frequency [1, 8]. The questionnaires elicited information on occurrence and bother of nocturia on HRQoL [9–11].

2. Exclusions and measures

We excluded pregnant and puerperal (6 wk after delivery) women. In this study, the frequency of nocturia was classified as one, two, three, four, five and more and four level for bother analyses: no, small, moderate and major. (Table 1).

Table	(1)	Questions	for	frequency	and	bother	of	nocturia	with
respon	se o	ptions <sup>(1)</sup> .							

	question	response
Frequency of nocturia	How many times did you	Never
	most typically get up to	1 time
	urinate from the time you	2 times
	went to bed at night until	3 times
	you got up in the morning?	4 times
		5 or more times
Bother of nocturia	If you have to urinate	No
	during the night, is this a	Small
	bother for you?	Moderate
	-	Major

#### **3. Statistical analysis**

The effect of nocturia frequency (one, two, three, or four or more voids per night) on bother was assessed using the Fisher exact testfor grouped data.

To assess the effect of age on perceived bother, a linear-by-linear association test was used separately for both sexes.

Effect modification was assessed according to the statistical significance of the interaction term (age \_ sex) added in a model containing the main effects (age, sex). For effect modification analyses, we performed logistic regression with any bother from nocturia and at least moderate bother from nocturia as outcomes (separately for various nocturia frequencies: one, two, three, or four or more voids per night).

### **Results**

Of 600 patients who were approached for the study, Nocturia and no bother were reported by 15.8% of the men and by 20.5% of the women; 16.4% of the men and 18.5% of the women reported small bother from nocturia; 4.5% of the men and 4.1% of the women reported moderate bother from nocturia; and 1.0% of the men and 1.2% of the women reported major bother from nocturia. Overall, there was no gender difference in prevalence of bothersome nocturia or degree of bother among those with bothersome nocturia (Figure 1).



Figure 1 – Prevalence of bother by frequency of nocturia. The degree of bother increased with frequency of nocturia in both sexes (p < 0.01 for each age group).

Moreover, comparing two adjacent categories at a time, the increase was statistically significant with each increment in number of nightly voids.

Slightly more than half of respondents with one void per night reported no bother, and a similar proportion of subjects with two voids per night reported small bother.

Of those with three and four or more voids per night, slightly > 40% reported moderate bother, with 14% and 36% reporting major bother, respectively (Table 2).

Table (2) Age-standardized proportions for degree of bother by frequency of nocturia in both sexes.

Frequency of nocturia (voids per night)	Degree of bother from nocturia					
	None	Small	Moderate	Major		
One	52.2	41.1	5.9	0.7		
Two	29.3	53.8	13.9	3.1		
Three	17.4	26.7	41.9	14		
Four or more	11.3	7	46	35.7		

Based on the logistic regressions, age did not affect perceived bother among men, but among women, bother from nocturia decreased with increasing age ( p < 0.001, p < 0.01, p = 0.02, and p =0.08 for women with one, two, three, or four or more voids per night, respectively) (Figure 2).

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Interaction was found between age and sex for any bother among subjects with one void per night (p < 0.01) and for at least moderate bother among subjects with two voids per night (p = 0.02), indicating effect modification (different effect of age on bother by gender). In a clinical study, bother of nocturia predicted impaired QoL more strongly than other LUTS [24].

Perceived bother from LUTS varies considerably among individuals [25]. In this study, as in others [6, 16–20, 26], bother from nocturia depended on its frequency.

#### **Discussion**

We report the bother and HRQoL effects of nocturia as a function of frequency of nocturia episodes using a population-based sample of both sexes aged 18–79. Most respondents reported bother from nocturia with two or more nightly nocturia episodes and moderate bother only with three or more nocturia episodes. Two nocturia episodes impaired HRQoL compared with those with no nocturia. At least three episodes of nocturia resulted in further impairment of similar magnitude.

In this study, only 1% of respondents (regardless of nocturia status) reported that waking up at night to urinate was a major bother, while 4% reported moderate bother from nocturia. Among those with any nocturia, approximately one in eight reported moderate or major bother, while either no or small bother was reported by slightly >40% of subjects with nocturia. Generally, degree of bother increased with nocturia frequency; hence, of those with four or more voids per night, 36% regarded it as a major bother and 46% regarded it as a moderate bother.

Our results provide new insights into the impact of nocturia. Earlier results suggest that nocturia may impair well-being more than generally recognized. Nocturia can be bothersome [6,14–20], entailing sleep loss, daytime fatigue, and perceived health issues [21,22]. Among men with lower most participants with nocturia reported "no" or only "a bit of problem" from it [26]. In a US urogynaecology clinic based study, the mean bother score of \_5 out of 10 was reported only for three or more nocturia episodes [19].

Our results concur with these data: Approximately half of subjects with one void per night reported no bother from nocturia, and of those with two voids per night, the most common response was small bother. Subjects with three voids per night most commonly reported moderate bother followed by small bother, while those with four or more voids per night most commonly reported moderate bother followed by major bother. Nevertheless, number of nocturia episodes does not completely predict perceived bother [3]. In this study, too, bother from nocturia varied widely. Overall, both sexes were equally bothered by nocturia; older women were less bothered than younger women, but no such difference was observed among men. Although the prevalence of nocturia increases with age, the prevalence of

nocturia in men rises more steeply [1]. A plausible explanation is that older women acquiesce, reporting less bother from nocturia because they are less likely to develop it as a new condition with increasing age, but these cross sectional data cannot prove this.

#### Comparison with other study

In contrast to other studies, a Viennese study reported no gender differences in bother from nocturia [26]. A population-based study in Taiwan among adults>40 yr showed that men had more bother and concern related to nocturia than women did [6]. A Danish survey of adults aged 60–80, however, showed that women with three or more nocturia episodes were more bothered than men; in less severe nocturia, no gender difference was found [27]. The Danish study also showed that nocturia caused more concern in younger age groups.

The study population is representative of Al-Diwaniya from early adulthood to old age but the true prevalence estimates may be somewhat smaller [1, 8]. The study has some limitations. Depression or sleep disturbances may be involved in bother from nocturia, but we had no such condition-specific information. In a recent study among community-dwelling women aged 20–70, nocturia was the only urogenital symptom consistently associated with depression [29]. The association between nocturia and depression (odds ratio [OR] for nocturia: 1.4; 95% CI: 1.1–1.8) was stronger for bothersome nocturia alone (OR: 2.0; 95% CI: 1.3–3.2). In a separate study, life disruption from nocturia was associated with mental and physical functioning. After adjustment for sleep problems, nocturia no longer predicted poorer physical and mental functioning [30].

#### Conclusions

Nocturia is a bothersome symptom for a remarkable proportion of the general population and is associated with impaired QoL. Health care providers should be more cognizant of nocturia, and further (prospective) studies are certainly needed. Our findings indicate that two episodes of nocturia constitute meaningful nocturia affecting well-being and perceived health. Frequency of nocturia defines problems, disruption, and resulting bother. This also contributes to the definition of treatment targets (i.e., significant nocturia reduction). Two nightly voids result in slightly impaired QoL; a single episode does not. Three or more voids moderately affect well-being. In conclusion, one void per night does not identify subjects with interference from nocturia and, thus, is not a suitable criterion for clinically relevant nocturia.

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