

# Nocturia results in work productivity and activity losses comparable with other chronic diseases

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## Introduction

- Nocturia is defined by the International Continence Society as the need to void one or more times during the night, with each of the voids preceded and followed by sleep.<sup>1</sup> The sleep disruption that nocturia patients suffer compromises their physical and mental health activity, leading to impaired performance and work productivity.<sup>2</sup> The degree of bother in nocturia patients also increases with the increased frequency of voids, with those experiencing two or more voids per night reporting significant bother.<sup>2,3</sup>
- The Work Productivity and Activity Index (WPAI) is validated as a patient-reported quantitative assessment of absenteeism (ie missed work), presenteeism (ie impairment while working) and daily activity impairment (eg walks, shopping, work around the house, leisure activities) due to health.<sup>4</sup> It has been translated into more than 80 languages and used in a large number of studies. We have shown previously that there is a strong link between nocturia severity and reduced productivity (based on a 1-week recall period)<sup>5</sup>
- The impact of a given disease and its treatment on an individual's work and other daily activities (ie indirect costs) has become increasingly important and, in this context, collection of real-world data is an essential component of the holistic view for any illness
- This analysis assessed the impact of nocturia (defined as 2+ voids/night) on work productivity and daily activity in a real-life setting, compared to that observed with other prevalent chronic diseases

## Materials and methods

- Data from patients with nocturia (including those with a confirmed diagnosis of nocturnal polyuria, alone or in combination with overactive bladder/benign prostatic hyperplasia [OAB/BPH]), were drawn from the Adelphi Lower Urinary Tract Symptoms (LUTS) Disease Specific Programme<sup>®</sup> (DSP), a cross-sectional real-world survey of physicians and their presenting patients randomly selected across four European countries (France, Germany, Spain and the United Kingdom) and the USA.<sup>6</sup> Data were collected in the first quarter of 2013. Additional information on the design of the DSP are outlined in poster number 16,783
- The majority of data from patients with other chronic conditions were collected from the 2009 US National Health and Wellness Survey (NHWS), which includes information on 75,000 individuals across a variety of chronic conditions who completed self-reported questionnaires via the Internet (www.kantarhealth.com)
- The effect of each condition on work productivity was assessed as recorded by WPAI questionnaires across four subscales that evaluated absenteeism, presenteeism, productivity loss (overall work impairment based on absenteeism plus presenteeism) and activity impairment, generated in the form of percentages, with higher values indicating greater impairment

## Results

- For the DSP, a total of 635 physicians, 264 primary care physicians (PCPs) and 371 urologist or gynaecologist specialists completed patient records for the next 14 consulting patients diagnosed with OAB, BPH and/or nocturia/nocturnal polyuria (NP)
- Records were obtained on 8738 LUTS patients, of whom 2244 patients had a diagnosis of nocturia/NP alone or in combination with BPH or OAB; of these, 1254 completed at least one of the four domains of the WPAI questionnaire
- As shown in Table 1, WPAI scores for each condition were collected and grouped for comparison. In nocturia patients, an average work productivity loss of 29.0% and an activity impairment with a 38.3 % loss were observed. There is a small increase for women with both OAB and nocturia
- WPAI productivity loss and daily activity impairment scores were in the range of those reported in patients with other chronic diseases (Figure 1)

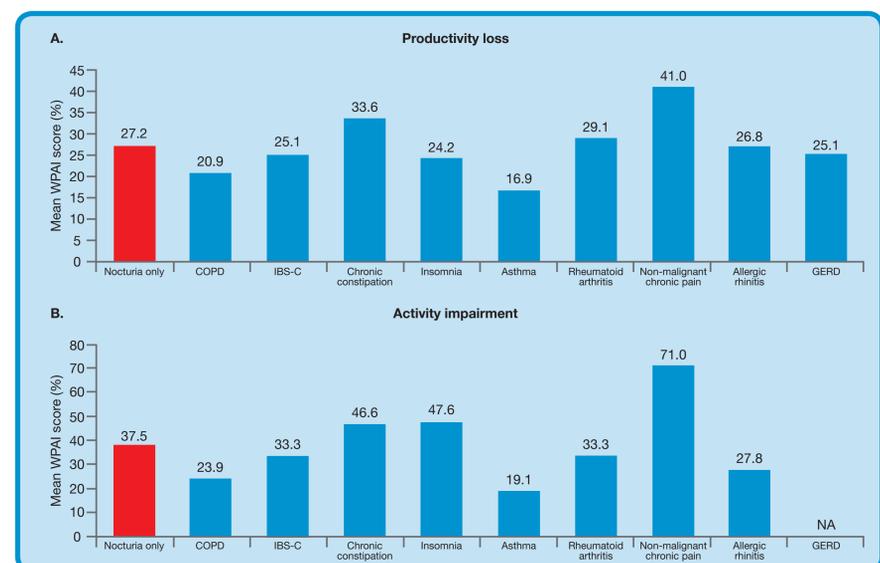
**Table 1. Mean WPAI scores (%)**

	Absenteeism (A)	Presenteeism (B)	Overall work impairment (productivity loss) (-A+B)	Activity impairment
Nocturia (n=2244)	3.4	28.6	29.0	38.3
Nocturia only (n=576)	1.0	26.4	27.2	37.5
Nocturia + BPH/OAB (males, n=1060)	5.2	28.2	27.5	37.4
Nocturia + OAB (females, n=608)	3.5	31.5	32.5	40.3
COPD* (n=1112) <sup>7</sup>	3.6	19.3	20.9	23.9
IBS-C (n=789) <sup>11</sup>	7.6	21.2	25.1	33.3
Chronic constipation (n=1430) <sup>14</sup>	9.1	29.5	33.6	46.6
Insomnia (n=5161) <sup>8</sup>	10.7	29.2	24.2	47.6
Asthma† (n=246) <sup>10</sup>	4.5	12.7	16.9	19.1
Rheumatoid arthritis (n=1504) <sup>15</sup>	8.7	24.0	29.1	33.3
Non-malignant chronic pain (n=1663) <sup>12</sup>	19.4	51.1	41.0	71.0
Allergic rhinitis (n=223) <sup>9</sup>	4.6	23.5	26.8	27.8
GERD (n=281) <sup>13</sup>	1.5	34.1	33.2	NA

BPH, benign prostatic hyperplasia; COPD, chronic obstructive pulmonary disease; GERD, gastroesophageal reflux disease; IBS-C, constipation predominant irritable bowel syndrome; NA, not available; OAB, overactive bladder; WPAI, Work Productivity and Activity Index; \*Adjusted mean %; †Analysis conducted for care of children with controlled asthma; ‡Total number of participants across all outcomes

Note: lower scores indicate better outcomes (increased productivity, reduced impairment). Scores are presented as percentages

**Figure 1. Mean percentage of WPAI scores for (A) productivity loss and (B) activity impairment across all conditions**



COPD, chronic obstructive pulmonary disease; GERD, gastroesophageal reflux disease; IBS-C, constipation predominant irritable bowel syndrome; NA, not available; WPAI, Work Productivity and Activity Index

## Conclusions

- Previous data show that nocturia patients have a deterioration in their overall work productivity and daily activity/functioning that worsens as the number of nightly voids increases, with significant differences reported from 0–1 voids/night and beyond<sup>5</sup>
- Nocturia results in important losses of work productivity (due to absenteeism and presenteeism) and daily activity comparable to other chronic diseases<sup>7-15</sup>
- The results of this analysis demonstrate the significant impact of nocturia on productivity and activities in and outside of work, therefore highlighting the substantial economic and patient burden that it represents to society
- It is therefore important to raise awareness around nocturia being an impactful disease and for physicians to diagnose and treat it appropriately

## References

- van Kerrebroeck P et al. The standardisation of terminology in nocturia: report from the Standardisation Sub-committee of the International Continence Society. *Neurourol Urodyn* 2002;21:179–183.
- Ancoli-Israel S et al. The effect of nocturia on sleep. *Sleep Med Rev* 2011;15:91–97.
- Tikkinen KA et al. Nocturia frequency, bother, and quality of life: how often is too often? A population-based study in Finland. *Eur Urol* 2010;57:488–496.
- Reilly MC et al. The validity and reproducibility of a work productivity and activity impairment instrument. *Pharmacoeconomics* 1993;4:353–365.
- Andersson F et al. Negative impact of nocturia in utility, productivity and health-related quality of life: results of a real world survey of patients in Europe and USA. Abstract 588 [EAU 2014, poster session, Nocturia and Nocturnal Polyuria].
- Anderson P et al. Real-world physician and patient behaviour across countries: Disease-Specific Programmes – a means to understand. *Curr Med Res Opin* 2008;24:3063–3072.
- DiBonaventura M et al. The burden of chronic obstructive pulmonary disease among employed adults. *Int J Chron Obstruct Pulmon Dis* 2012;7:211–219.
- Bolge SC et al. Association of insomnia with quality of life, work productivity, and activity impairment. *Qual Life Res* 2009;18:415–422.
- de la Hoz Caballer B et al. Allergic rhinitis and its impact on work productivity in primary care practice and a comparison with other common diseases: the Cross-sectional study to evaluate work Productivity in allergic Rhinitis compared with other common diseases (CAPRI) study. *Am J Rhinol Allergy* 2012;26:390–394.
- Dean BB et al. Uncontrolled asthma: assessing quality of life and productivity of children and their caregivers using a cross-sectional Internet-based survey. *Health Qual Life Outcomes* 2010;8:96.
- DiBonaventura M et al. Health-related quality of life, work productivity and health care resource use associated with constipation predominant irritable bowel syndrome. *Curr Med Res Opin* 2011;27:2213–2222.
- Kronborg C et al. Health care costs, work productivity and activity impairment in non-malignant chronic pain patients. *Eur J Health Econ* 2009;10:5–13.
- Shin WG et al. Work productivity and activity impairment in gastroesophageal reflux disease in Korean full-time employees: a multicentre study. *Dig Liver Dis* 2012;44:286–291.
- Sun SX et al. Impact of chronic constipation on health-related quality of life, work productivity, and healthcare resource use: an analysis of the National Health and Wellness Survey. *Dig Dis Sci* 2011;56:2688–2695.
- Zhang W et al. Validity of the work productivity and activity impairment questionnaire-general health version in patients with rheumatoid arthritis. *Arthritis Res Ther* 2010;12:R177.