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Urinary Incontinence, Overactive Bladder, and Enuresis in the Spanish Population: An Epidemiologic, Multicenter, and National Study

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ABSTRACT

Introduction: Despite the growing interest on urinary incontinence (UI), nocturnal enuresis (NE), and overactive bladder (OAB), in Spain, there are no epidemiologic studies on the prevalence of these health problems in the different affected groups of the general population. The objective of the present study was to observe the prevalence of the signs and symptoms of UI, OAB, and NE in specific groups of the general population.

Methods: This is an epidemiologic, observational, multicenter, and national study. Data were collected by means of personal interviews in 5 representative areas from Spain and in 4 groups of the population: 1) workingwomen (25 to 64 years old), 2) workingmen (50 to 64 years old), 3) children attending primary school (6 to 11 years old), and 4) elderly, institutionalized subjects (over 65 years old) with no mental impairment. The interview included 2 parts: 1) sociodemographic variables and clinical history, and 2) data about OAB and UI symptoms. The interview addressing children included sociodemographic variables and questions about liquid intake and urine control.

Results: The percentage of interview answers in the different groups varied between 79.7% and 98%. The prevalence of isolated OAB and UI in workingwomen (N = 3090) was 2.69% and 4.01%, respectively; in men (N = 1071) prevalence was 3.55% and 0.56%; in the elderly (N = 996) prevalence was 9.14% and 15.16%. In total, 9.94% (95% confidence interval [CI] = 8.9 to 11.04) of the women under study suffer 1 or both health problems. This percentage was 5.14% (95% CI = 3.89 to 6.63) in men and 53.71% (95% CI = 50.56 to 56.85) in the elderly. The prevalence of nocturnal enuresis in children (N = 1279) was 7.82% (95% CI = 6.62 to 9.17).

Conclusions: The prevalence of OAB and/or UI in Spain is nearly 10% of women between 25 and 64 years old, is around 5% in men between 50 and 64 years old, and it is over 50% in persons over 65 years. The prevalence of nocturnal enuresis in children between 6 and 11 years is around 8%.

KEYWORDS: Epidemiology; Overactive bladder; Urinary incontinence; General population; Prevalence

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INTRODUCTION

Although urinary incontinence (UI) and overactive bladder (OAB) are not considered severe health conditions, they have an important impact on personal autonomy, self-esteem, and quality of life (1). The prevalence of these pathologies is quite difficult to quantify because most patients suffering from UI and/or OAB do not consult a doctor about these problems (2,3) and because the prevalence of figures vary depending on methodological issues of the different epidemiologic studies published (4); mainly, the age and sex of subjects studied. In the US, 12 epidemiologic studies addressing the prevalence of UI have been carried out during the last 5 years. Important differences in UI prevalence can be observed among these studies, varying between 8% (5) and 49.2% (6). Studies carried out in other countries showed different prevalence figures: 23.9% in Turkey (7), 31% in Japan (8), between 12.8 and 46% in Australia (4), 46% in Holland (9), 51% in Canada (10) for females, 19% in Holland (11), between 13.4 and 23.3 in Japan (12), and 34.8% in South Korea [13] for the elderly. The prevalence of OAB also varies among published studies with data from different countries: 11.8% in a study with data from Canada, Germany, Italy, Sweden, and the United Kingdom (14), 12.4% in Japan (15), 13.9% and 18.1% in Canada (16,17), and 18.9% in Brazil (18). Less attention has been paid to nocturnal enuresis (NE). Little data is available about the prevalence of this pathology: 4.1% in China (19), 5.9% in Japan (20), and 20.8% in Turkey (21).

In Spain, there are important differences among published epidemiologic studies addressing UI and OAB. In recently published studies, the prevalence of UI in elderly subjects was 35.1% (22), 23% in women over 18 years old (3), 20% in women between 18 and 64 years old (2), and 14% in women between 40 and 64 years old (23). With respect to OAB in Spain, only 1 study has been published recently (24), reporting a prevalence of 21.5%, which is higher for women (25.6%) than it is for men (17.4%). This prevalence figure is consistent with 22% reported in a previous study carried out in 6 European countries with data from Spain (25). As far as we know, there is no available data about NE in Spain.

The objective of the present study was to study the prevalence of the signs and the symptoms of UI, OAB, and NE, according to the International Continence Society definitions, in specific groups of the Spanish general population. This was an institutional study supported by the Spanish Urology Association.

METHODS

An epidemiologic, observational, multicenter, and national study was carried out that included subjects from the general population of Spain, selected out of 4 groups: 1) women actively working, aged between 25 and 64 years, and from 5 representative regions of Spain (Madrid, Barcelona, Valencia, Seville, and Zaragoza); 2) men actively working, aged between 50 and 64 years, and from the same representative regions of Spain; 3) children aged between 6 and 11 years, and from a Spanish region (Alicante); and 4) elderly subjects aged 65 years or over, institutionalized and with good cognitive levels, and from a Spanish region (Valencia). The sample size was calculated for each of these groups. For groups 1 and 2, it was considered a prevalence of UI not higher than 12%, with an error of 0.05 and a 99% confidence interval. The estimated sample size was 4000 subjects: 3000 women and 1000 men. In groups 3 and 4, considering the most conservative hypothesis (p = q) with an error of 0.05 and a 97% confidence interval, the estimated sample size was 1000 subjects in each group.

Data were collected through structured interviews with subjects who gave informed consent. Interviews were made by specially trained sanitary personnel. Structured interviews for groups 1, 2, and 4 included sociodemographic variables (age, sex, weight, height, marital status, educational level, professional activity, and working status), clinical history (prostate disease in males and gynecological history in females), and specific questions about OAB and UI symptoms. Structured interviews for group 3 (children aged between 6 and 11 years) included sociodemographic variables (age, sex, weight, height, academic year, and social interaction) and questions about liquid intake and urine control.

UI was defined as the loss of urine more than once during the last year with a frequency of at least 3 times per year. OAB was defined as having a sudden and unstoppable need to urinate with a frequency of at least 3 times per year. Nocturnal enuresis was considered when the episodes of loss of urine during sleep occurred more than 1 time per month.

STATISTICAL ANALYSIS

A descriptive analysis was carried out for all variables: mean and standard deviation in quantitative variables, which fitted to a normal distribution (Shapiro-Wilk test), and the median and interquartile range in quantitative variables, which did not fit into a normal distribution. Qualitative variables were described as relative percent frequencies. The main variable (prevalence) was calculated with a 95% confidence interval.

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Table 1. Sample description.
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	Females aged between 25 and 64 years (N = 3090)	Males aged between 50 years and 65 years (N = 1071)	Institutionalized subjects aged over 65 years (N = 396)	
			Females (N = 717)	Males (N = 279)
Mean age (standard deviation)	43.39 (11.32)	55.94 (4.35)	82.6 (6.7)	80 (7.6)
Marital status (%)				
Single	25.7	6.9	27.6	26.2
Married	64.1	84.5	11.2	24.4
Widow	3.3	2.4	57.0	40.9
Divorced	5.7	5.7	2.7	7.9
Educational level (%)				
Without studies	1.7	4.4	23.6	26.9
Primary studies	28.2	47.7	53.6	49.1
Secondary studies	31.6	21.7	10.6	12.5
University degree	37.3	24.2	3.4	7.2
Professional activity (%)				
None	–	–	8.5	10.4
Housewife	17.4	0.19	38.4	0
Private practice	5.7	9.7	14.6	28.3
Directive	4.5	13.8	0.1	4.3
Employee	63.5	52.9	24.7	34.4
Worker	1.6	17.9	2.9	15.8
Working status (%)				
Employed	89.3	81.6	0.3	0
Unemployed	3.4	1.5	0.3	0.4
Retired	–	–	85.1	89.6

Statistical analyses were carried out with the SAS statistical package versus 9.0.

RESULTS

The response rate of the different groups of studied subjects were 85.5% in women aged between 25 and 64 years, 89% in men aged between 50 and 64 years, 79.7% in children aged between 6 and 11 years, and 98% in the institutionalized elderly. Subjects entering the study totaled 3090 women actively working, 1071 men, 1279 children, and 996 elderly subjects.

The main characteristics of the sample are shown in Table 1. The mean body mass index (BMI) of workingwomen was 24.4 (standard deviation [SD] = 4.3). The mean number of children was 1.3 (1.2), 32.5% were menopausal, 3.4% had vaginal prolapse, and 5.8% received hormonal substitutive treatment. The mean BMI of institutionalized elderly women was 26.6 (19.9). The mean number of children was 1.5 (2.2), 90.5% were menopausal, 4.5% had vaginal prolapse, and 0.3 received

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Figure 1. Prevalence of symptoms of overactive bladder by sex and age group.
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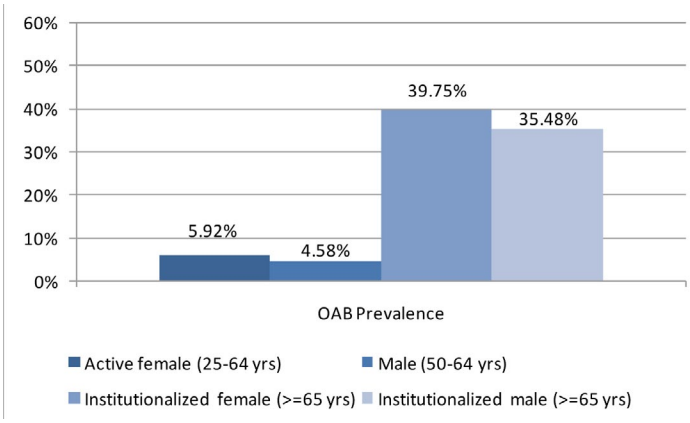
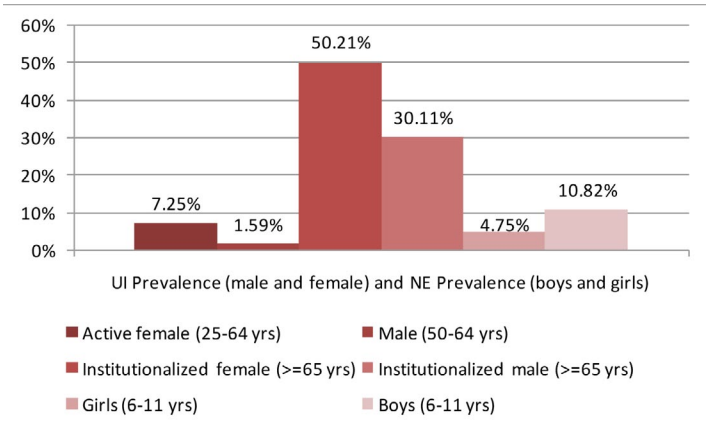


Figure 2. Prevalence of urinary incontinence and nocturnal enuresis by sex and age group.
http://dx.doi.org/10.3834/uij.1944-5784.2011.12.11f2



hormonal substitutive treatment. With respect to male subjects, 4% and 45.5% of those from the group of workingmen and of the institutionalized elderly, respectively, had prostate disease. The mean daily fluid intake was 5.8 (2.2) and 6.3 (2.4) glasses for institutionalized elderly women and men, respectively. Children had a mean age of 8.4 (1.7) years, 50.6% were male, and 95.4% of them lived with their parents. Of these, 95.8% of them are dry during the day and void, on average, every 3.7 (1.7) hours.

The prevalence of OAB in the different groups of the general population is shown in Figure 1 and the prevalence of symptoms of UI and NE are shown in Figure 2. Symptoms of 1 or both pathologies, OAB and UI, were shown by 9.94% (95% confidence interval [CI] = 8.9 to 11.04) of the active women aged between 25 and 64 years, 5.14% (95% CI = 3.89 to 6.63) of the active men aged between 50 and 64 years, and 53.71% (95% CI = 50.56 to 56.85) of the institutionalized elderly aged 65 years or over. The prevalence of NE in children aged between 6 and 11 years was 7.82 (95% CI = 6.62 to 9.17) in males, which was twice as much as in females and diminished with age.

DISCUSSION

This institutional research project supported by the Spanish Urology Association is the first study providing trustworthy epidemiologic data of Spain about the prevalence of OAB, UI, and NE in different groups from the general population. According to the results, the prevalence of OAB and/or UI in Spain is nearly 10% in females aged between 25 and 64 years, around 5% in males aged between 50 and 64 years, and over 50% in the institutionalized elderly aged 65 years or above. The prevalence of NE in children aged between 6 and 11 years is nearly 8%.

The results of the present study are not easily comparable with the data of previous studies because specific groups of the general population were studied, and it is not frequently addressed in previously published studies, except those focused on the prevalence of UI and OAB in females.

The prevalence of OAB in females aged between 25 and 64 years and in males between 50 and 64 years of the present study was a quarter of those previously reported in Spain (24,25) and clearly lower than those found in studies carried out in the general population from Japan (15), Canada (16,17), Brazil (18), Canada, Germany, Italy, Sweden, the United Kingdom (14), and the US (26). These differences are probably due to the upper limit of age used in these samples of the present study (65 years) but not in the samples of other studies. It is well-known that the prevalence of OAB in people over 65 years is high, as is the elderly institutionalized subjects aged 65 or above of present study (38.6%).

In the present study, the prevalence of UI in females aged between 25 and 64 years was clearly lower than those of the previous studies in our country (2,3,23) and in other countries (4,7,8,27) with samples of a similar range of age.

The high response rate of the present study and the adequate methodology (specifically structured questionnaire carried out by a trained interviewer) can explain these differences. No previous data were available for males between 50 and 64 years in Spain, but 1 study in the US, with a sample of a similar range of age (mean age 50 years versus 55.9 years for the present study), has shown a higher prevalence (28) (12.7% versus 1.59% for the present study). The prevalence of UI in elderly subjects in the present study was higher than that previously reported (50% versus 35%) in Spain (22) and in other countries (11-13), probably because elderly subjects in the present study were institutionalized. The prevalence of NE in the present study was slightly higher than those of China (19) and Japan (20), but clearly lower than that of Turkey (21).

CONCLUSIONS

The prevalence of OAB, UI, and NE for specific age groups from the general population of Spain is provided in this institutional study of the Spanish Urology Association. The prevalence of OAB and UI are clearly lower than those previously reported.

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