

# Is there a relation between anxiety and depression with lower urinary tract symptoms? Results from the COBaLT study

Juan Ignacio Caicedo<sup>1</sup>, Laura Zuluaga<sup>1</sup>, Alejandra Bravo-Balado<sup>1</sup>,  
Carlos Gustavo Trujillo<sup>1</sup>, Jessica Santander<sup>1</sup>, Maria Paula Mogollón<sup>1</sup>, Mauricio Plata<sup>1</sup>

Dept. of Urology, Hospital Universitario Fundación Santa Fe de Bogotá and Universidad de los Andes School of Medicine, Bogotá, Colombia.

## ABSTRACT

Depression and anxiety have been associated with lower urinary tract symptoms (LUTS) in several studies around the world (1). The aim of study is determine the association between anxiety, depression and LUTS in a large Hispanic population.

A cross-sectional, population-based study was conducted in patients  $\geq 18$  years old to evaluate LUTS/OAB in Colombia (2). The estimated sample size was 1,060. LUTS/OAB were defined according to the 2002 ICS and 2010 IUGA/ICS definitions and were assessed using Spanish validated questionnaires. The hospital anxiety and depression scale (HADS) was used to evaluate mental health (3). We perform a descriptive analysis using frequencies for categorical variables, and measures of central tendency for continuous variables. Logistic regression was carried out to estimate the association of depression and anxiety with different LUTS. Variables that proved statistically significant ( $p < 0.05$ ) were included in a multivariate model.

The prevalence of anxiety in women and men was 16.4% and 7.2%, respectively. Depression in women was 19.2% and prevalence in men was 10%. Multivariate analysis shows, In the anxiety model (HADS-A  $\geq 8$ ), an association was found between the presence of overactive bladder (OAB) without urinary incontinence (OR=3.7; 95% CI=1.4-9.9  $p=0.07$ ) and moderate or severe LUTS in men (OR=3.8; 95% CI=1.0-13.6  $p=0.03$ ). In women, anxiety was associated with nocturia (OR=4.2; 95% CI=1.2-13.8  $p=0.01$ ) and stress urinary incontinence (OR=2.4; 95% CI=1.2-4.8  $p=0.01$ ). For the depression model (HADS-D  $\geq 8$ ), an association was found between sexual dysfunction (SHIM  $< 22$  points) (OR=4.3; 95% CI=1.5-12.2;  $p=0.005$ ) and moderate or severe LUTS (OR=4.0; 95% CI=1.6-10.1;  $p=0.002$ ) in men; while in women it was associated with stress urinary incontinence (OR=2.3; 95% CI=1.2-4.2  $p=0.007$ ), sensation of incomplete emptying (OR=1.7; 95% CI=1.0-2.8  $p=0.03$ ) and decreased frequency of sexual activity (OR=1.8; 95% CI=1.0-3.3  $p=0.03$ ).

The associations found in this study are consistent with other international reports. It is essential to inquire about possible symptoms related to the mental sphere in the urology consultation due to the possible risks that mental illness entails to make appropriate referrals and subsequent management and integral care of these type of patients.

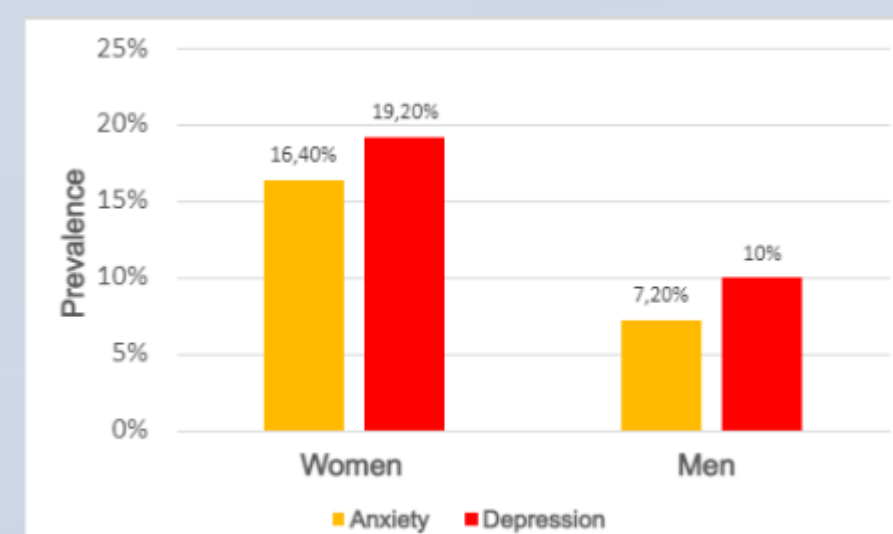
## METHODS

This is a sub-analysis of a cross-sectional, population-based study conducted in women and men over 18 years of age to assess LUTS and overactive bladder (OAB), residing in Colombia (2). The study included 1,060 subjects in total (confidence interval of 95%, a statistical power of 80% and a precision of 3%). Patients of legal age who had the capacity to answer the questionnaires and give their informed consent were included. Pregnant women or people with active UTI were excluded from the study. LUTS were defined as subjective changes perceived by patients in terms of symptoms or primary disease, based on the terminology of The Standardization of Terminology of Lower Urinary Tract Function Report developed by the International Continence Society (ICS) in 2002 (4) and the International Urogynecological Association. (IUGA)/ICS Joint Report on the Terminology for Female Pelvic Floor Dysfunction in 2010 (5).

To assess depression and anxiety in these patients, we used the Hospital Anxiety and Depression Scale (HADS)(3) – Spanish version. Patients were asked to fill out the two subscales of the questionnaire, in order to assess the presence or absence of anxiety or depression concomitant to LUTS. According to each subscale, a case of anxiety or depression is defined as final scores between 11-21 in each one. In addition, final scores between 0-7 are defined as a person without anxiety or depression. Descriptive statistics were used to present sociodemographic characteristics and comorbidities using frequencies for discrete variables and measures of central tendency and dispersion for continuous variables. This analysis was performed using STATA 14 statistical software. The data is presented separately according to sex (men and women) additionally, the information is divided into four subgroups, those with or without anxiety and those with or without depression. Bivariate analysis (logistic regression) was carried out to estimate the association of depression and anxiety in separate models. Variables that proved statistically significant ( $p < 0.05$ ) were included in a multivariate model for each gender group.

## RESULTS

From analyzing the scores of the Hospital Anxiety and Depression Scale (HADS), we found that the prevalence of anxiety in women and men was 16.4% ( $n=87$ ) and 7.2% ( $n=38$ ), respectively. On the other hand, the prevalence of depression in women and men was 19.2% ( $n=102$ ) and 10% ( $n=53$ ), respectively.



The multivariate analysis showed a statistically significant association between the variables that described urinary symptoms and mental illnesses such as depression and anxiety. In the depression model (HADS-D  $\geq 8$ ) we analyze the relationship between having stress urinary incontinence, incomplete emptying and sexual frequency in women. In addition, we observed the association between present sexual dysfunction and moderate or severe LUTS in men. Besides of this, the anxiety model (HADS-A  $\geq 8$ ) in women, as well as in depression, an association with stress urinary incontinence was observed. Also, in men, moderate or severe LUT and OAB dry type (without incontinence) were significantly related to the development of anxiety.

Table 4. Multivariate analysis in men and women with depression

Women	AOR	95% CI	p-value
Stress urinary incontinence	2.3	1.2-4.2	0.007
Incomplete voiding	1.7	1.0-2.8	0.03
Sexual frequency (never or almost never)	1.8	1.0-3.3	0.03
<b>Men</b>			
Sexual dysfunction (SHIM $< 22$ )	4.3	1.5-12.2	0.005
LUTS (-moderate or severe in IPSS)	4.0	1.6-10.1	0.002

LUTS= Lower tract urinary symptoms, AOR= Adjusted Odds Ratio

Multivariate analysis in men and women with anxiety

Women	AOR	95% CI	p-value
Stress urinary incontinence	2.4	1.2-4.8	0.01
OAB + nocturia	4.2	1.2-13.8	0.01
<b>Men</b>			
OAB dry type	3.7	1.4-9.9	0.07
LUTS (-moderate or severe in IPSS)	3.8	1-13.6	0.03

OAB= Overactive bladder; LUTS= Lower tract urinary symptoms, AOR= Adjusted Odds Ratio

## CONCLUSIONS

This study demonstrates the clear relationship between symptoms of mental illness and LUTS. Within our population, we can highlight the susceptibility of the female gender to suffer from depression, anxiety, and LUTS concomitantly. The multivariate model of anxiety showed that in men and women, the most associated manifestations are symptoms of irritative voiding dysfunction, while in depression, in addition to presenting the previously mentioned symptoms, sexual dysfunctions were also found.

The associations found in this study are consistent with other international reports. It is essential to inquire about possible symptoms related to the mental sphere in the urology consultation due to the possible risks that mental illness entails to make appropriate referrals and subsequent management and integral care of these type of patients.

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