Mental Health, Sleep and Physical Function in Treatment Seeking Women with Urinary Incontinence

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Purpose: We examined how mental health measures, sleep and physical function are associated with the presence and type of urinary incontinence and severity in women seeking treatment for lower urinary tract symptoms.

Materials and Methods: This baseline cross-sectional analysis was performed in treatment seeking women with lower urinary tract symptoms. All participants completed the LUTS (Lower Urinary Tract Symptoms) Tool (Pfizer, New York, New York), which was used to classify women based on urinary incontinence symptoms and measure severity. The PROMIS (Patient-Reported Outcomes Measurement Information System) questionnaire for depression, anxiety, sleep disturbance and physical function, the PSS (Perceived Stress Scale) and the IPAQ-SF (International Physical Activity Questionnaire Short Form) were administered. Multivariable regression modeling was done to assess associations with urinary symptom presence, type and severity.

Results: We studied 510 women with a mean ± SD age of 56 ± 14 years. Of the women 82% were Caucasian, 47% were obese and 14% reported diabetes. Urinary incontinence was reported by 420 women (82.4%), including stress urinary incontinence in 70, urgency urinary incontinence in 85, mixed urinary incontinence in 240 and other urinary incontinence in 25. On adjusted analyses there was no difference in any mental health, sleep or physical function measures

Abbreviations and Acronyms

BMI = body mass index
CTES = Childhood Traumatic Events Scale
FDR = false discovery rate
FCI = Functional Comorbidity Index
IPAQ-SF = International Physical Activity Questionnaire Short Form
LURN = Symptoms of Lower Urinary Tract Dysfunction Research Network
LUTS = lower urinary tract symptoms
MUI = mixed urinary incontinence
OAB = overactive bladder
PROMIS = Patient-Reported Outcomes Measurement Information System
PSS = Perceived Stress Scale
SUI = stress UI
UI = urinary incontinence
UUI = urgency UI

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based on the presence vs the absence of urinary incontinence. Among women with urinary incontinence PROMIS anxiety and sleep disturbance scores were higher in those with mixed urinary incontinence than stress urinary incontinence. Increasing urinary incontinence severity was associated with higher PROMIS depression and anxiety scores, and higher PSS scores. However, higher urinary incontinence severity was not associated with a difference in sleep or physical function.

Conclusions: Among treatment seeking women with lower urinary tract symptoms increasing urinary incontinence severity rather than the presence or type of urinary incontinence was associated with increased depression, anxiety and stress.

Key Words: urinary bladder; urinary incontinence; patient reported outcome measures; depression; anxiety

LOWER urinary tract symptoms are common and negatively impact quality of life.[1] Of the various LUTS UI is highly prevalent in women[2,3] and it is often associated with depression, anxiety, sleep disturbances and poorer physical function.[4–8] However, prior research has been performed in community based populations or was ascertained from single institution studies. In treatment seeking patients it is not clear whether LUTS alone, the presence of UI or certain types of UI are associated with disturbances in mental health, sleep and physical function.

The LURN was created to address gaps in LUTS understanding.[9] As part of this effort the LURN clinical sites recruited treatment seeking patients in an observational cohort, from which data and validated questionnaires were collected. We hypothesized that women who reported UI would experience greater impairment in mental health, sleep and physical function measures than women with LUTS but without UI. We also hypothesized that women with UUI or MUI would have greater depression, anxiety, stress and sleep disturbance as well as poorer physical function than women with SUI symptoms and these differences would become greater as UI severity increased.

The objectives of this study were to examine whether mental health, sleep and physical function were associated with the presence and type of UI and with UI severity in women seeking treatment for LUTS.

MATERIALS AND METHODS

The LURN consists of 6 research sites and a data coordinating center. Participants in this network are performing a prospective observational study (ClinicalTrials.gov NCT02485808). Details of recruitment, and inclusion and exclusion criteria were published previously.[2] The observational cohort study was approved by the institutional review board at each site and all participants provided informed consent prior to enrollment. We performed a cross-sectional analysis of baseline information from women seeking treatment for LUTS who enrolled in the LURN observational cohort. As specified for this cohort women with urological pain (eg interstitial cystitis) were excluded from analysis.

All participants completed baseline questionnaires to assess medical history and demographic information as well as a series of validated questionnaires assessing pelvic floor symptoms, LUTS severity, mental health, sleep and physical function measures. The LUTS Tool, version 1 (Pfizer, New York, New York) is a validated measure including 22 questions that assess severity and bother for a range of urinary symptoms.[10] This tool was used to categorize women with LUTS into subgroups based on the presence and the type of UI (SUI, UUI, MUI and other UI). Question 16 of the LUTS Tool states, "Below are several situations in which people can leak urine. How often in the past week have you…" followed by 7 subitems (a to g) specifying different leakage triggers. Women who responded affirmatively with sometimes, often or almost always to any question 16 subitem (a to g) were categorized in the group with UI. Those who responded with never or rarely to all 7 subitems were categorized into the group without UI.

Those with UI were further categorized into groups based on UI type. Women who responded affirmatively to items c or d (leakage with laughing, sneezing, coughing or physical activity) were considered to have SUI. Affirmative responses to item b (leakage with a sudden need to rush to urinate) were considered to have UUI. Affirmative responses to a combination of item b and c or d were considered to indicate MUI. The 25 women who only responded affirmatively to any of the other UI items (leakage with sleeping, sexual activity, post-void or for no reason) were considered to have other UI and were not further analyzed as a UI subgroup.

Finally we calculated a continuous incontinence severity measure using the 7 LUTS Tool subitems related to incontinence (question 16, a to g). For this severity measure we converted the 7 subitems to distance measures and calculated a weighted Euclidean length with high numbers indicating more severe symptoms. Details and validation of this UI severity measure were previously published.[11] We created UI severity scores for all participants, including those in the other UI subgroup.

Participants also completed several short form measures, including the PROMIS questionnaires for sleep disturbance, depression, anxiety and physical function[12–14] as well as the PSS[15] and the IPAQ-SF.[16] PROMIS raw scores were converted into t scores using the recommended scoring