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Phenotyping of Urinary Urgency Patients without Urgency Incontinence, and their Comparison to Urgency Incontinence Patients: Findings from the LURN Study

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Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN)

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Abstract

Purpose: To characterize patients with urinary urgency (UU) with and without urgency urinary incontinence (UUI) who presented to clinics actively seeking treatment for their symptoms.

Materials and Methods: Participants who enrolled in the Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN-I) were categorized into UU with versus without UUI. Participants were followed for 1 year; their urinary symptoms, urologic pain, psychosocial factors, bowel function, sleep disturbance, physical activity levels, physical function, and quality of life (QOL) were compared. Mixed effects linear regression models were used to examine the relationships between UUI and these factors.

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Author Contributions Statement

The authors have followed the practice and ethical guidelines set forth by the International Committee of Medical Journal Editors (ICMJE) and meet the four criteria for authorship: Substantial contributions to the conception or design of the work, or the acquisition, analysis or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content; and final approval of the version to be published; and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflicts of Interest

The authors declare no Conflicts of Interest.

Results: Among 683 participants with UU at baseline, two-thirds (n=453) also had UUI; one-third (n=230) had UU-only without UUI. No differences were detected in urologic pain between UU-only and UUI. Those with UUI had more severe urgency and frequency symptoms, higher depression, anxiety, perceived stress scores, more severe bowel dysfunction and sleep disturbance, lower physical activity levels, lower physical function, and worse QOL than those with UU-only. Among those with UU-only at baseline, 40% continued to have UU-only, 15% progressed to UUI, and 45% had no urgency at 12-months. 58% with UUI at baseline continued to report UUI at 12-months, while 15% improved to UU-only, and 27% had no urgency.

Conclusions: Patients with UUI have severe storage symptoms, more psychosocial symptoms, poorer physical functioning, and worse QOL. Our data suggested UUI may be a more severe manifestation of UU, rather than UU and UUI being distinct entities.

Keywords

urinary urgency; urgency urinary incontinence; overactive bladder

INTRODUCTION

Despite its high prevalence, overactive bladder (OAB) patients with urinary urgency (UU) without urgency urinary incontinence (UUI)—the so-called OAB-dry patients[1]—are poorly characterized in the literature. In the National Overactive BLadder Evaluation (NOBLE), the prevalence of OAB-wet and OAB-dry were similar among women (9.3% and 7.6% respectively). In men, the prevalence of OAB-wet was lower than OAB-dry (2.6% and 13.4% respectively).[2] The overall ratio of OAB-wet to OAB-dry is estimated to be about 2 to 1.[3]

The pathophysiology of OAB-dry is poorly understood. Some hypothesize UU is a milder manifestation of UUI and progresses to UUI over time.[4–6] Qualitative data from patient interviews suggest a spectrum might exist between UU and UUI.[6] Others suggest UU might be a sensory or afferent disorder without detrusor overactivity, implying UU and UUI may be two distinct entities with different underlying mechanisms. UU symptoms may represent an intermediate condition along a continuum of UUI and interstitial cystitis/bladder pain syndrome (IC/BPS; Supplemental Figure 1).[7] UU, UUI, and IC/BPS all share symptoms of urgency, frequency, and nocturia. However, urologic/pelvic pain predominates in IC/BPS. If we observe that patients with UU-only report more intense urologic pain than those with UUI, it may suggest UU is on the continuum between UUI and IC/BPS. Conversely, if urologic pain levels do not differ between UU and UUI, results will be inconsistent with this model (Supplemental Figure 1).

In this study, we characterize patients with UU with and without UUI presenting to urology or urogynecology clinics seeking treatment for their symptoms. We compare lower urinary tract symptoms (LUTS), urologic pain, psychosocial factors, bowel function, sleep disturbance, physical activity levels, physical function, and quality of life (QOL) between patients with UU-only and those with UUI, and describe longitudinal transitions between UU with and without UUI over 12-months of follow-up.

MATERIALS AND METHODS

Study Design and Population

The Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN) Observational Cohort Study[8] enrolled 1064 adult male and female patients presenting to one of six US academic medical centers for treatment of LUTS between June 2015 and January 2017. Participants completed follow-up visits, including questionnaires, at 3- and 12-months. Inclusion and exclusion criteria have been previously described.[8]

Presence of UU was assessed using LUTS Tool[9] question 6 ("*During the past month, how often have you had a sudden need to rush to urinate?*"). Those who responded "sometimes", "often", or "always" were classified as UU and further categorized into two groups based on presence or absence of concomitant UUI. If they answered "sometimes", "often", or "always" to LUTS Tool question 16b ("*How often in the past month have you leaked urine in connection with a sudden need to rush to urinate?*"), participants were categorized as UUI; otherwise, they were categorized as UU-only.

Patient Consent and Ethics Committee Approval

Informed written consent was obtained from participants. Authors confirm all relevant ethical guidelines have been followed, and all research has been conducted according to the Declaration of Helsinki. Institutional Review Board (IRB) approval was obtained from: Ethical and Independent Review Services (E&I) IRB, #IRB 00007807. The ClinicalTrials.gov Identifier is NCT02485808.

Measures

Urologic pain was assessed using the Genito-Urinary Pain Index (GUPI) pain subscale[10] and the LUTS Tool pain scale, calculated as the weighted Euclidean length[11] of LUTS Tool bladder pain/discomfort and dysuria severity questions.[9] Voiding symptoms were similarly assessed using the LUTS Tool voiding scale, calculated using the LUTS Tool questions on straining, delay, weak stream, intermittent flow, and sensation of incomplete emptying.[11] Storage symptoms were assessed using LUTS Tool urgency, frequency, and nocturia questions, and from the Urinary Distress Inventory (UDI-6).[12] Psychosocial factors were assessed using Patient-Reported Outcomes Measurement Information System (PROMIS) depression and anxiety scales[13] and the Perceived Stress Scale (PSS).[14] Bowel dysfunction was assessed using PROMIS bowel incontinence, diarrhea, and constipation scales.[15] Pelvic organ prolapse symptoms in women were assessed using the Pelvic Organ Prolapse Distress Inventory (POPDI-6).[12] Sleep disturbance and physical function were measured using the respective PROMIS scales;[16, 17] physical activity levels using the International Physical Activity Questionnaire (IPAQ); and QOL using the GUPI QOL subscale.[10]

Statistical Analysis

Baseline group comparisons between participants with and without UU, and among those with UU-only and UUI, were made using chi-square and Wilcoxon rank sum tests.

For each self-reported measure listed above, a multivariable mixed effects linear regression model with random participant intercepts to account for within-patient correlation was used to determine associations between each measure and UUI severity, as measured by the LUTS Tool UUI item. In each model, the self-reported measure was the outcome, and the response to the LUTS Tool UUI question at the same time point was included as a fixed effect to assess the association between these measures and UUI severity at baseline, 3-, and 12-month visits. Visit was included as a categorical predictor in all models. Regression analysis was limited only to participants who had urgency at baseline. Other potential predictors were selected using the best subsets method based on adjusted r-squared from the variables: age, sex, race, ethnicity, body mass index (BMI), diabetes, history of psychiatric diagnoses (excluded for anxiety, depression, and stress outcomes), and the functional comorbidity index (FCI). Adjustment covariates were included in the final model if they were selected for at least one outcome. Interactions between UUI severity and categorical visit, and between UUI severity and sex, were tested and noted where statistically significant. All analyses were performed using SAS software, Version 9.4 (SAS Institute Inc., 2013, Cary, NC).

RESULTS

UU versus No Urgency

One-thousand-thirty-seven participants provided responses to the baseline LUTS Tool item reporting on UU. Of these, 779 (75%) provided responses at 3- and 12-months; 96 (9%) provided responses at baseline and 3-months; 45 (4%) provided responses at baseline and 12-months; and 117 (11%) only provided responses at baseline. Six-hundred-eighty-three (66%) reported urgency at their baseline visit. Participants with urgency at baseline were less likely to be male, White, or have a bachelor's or graduate degree, more likely to be obese, and reported a higher FCI score when compared to participants without UU at baseline (Supplemental Table 1).

UU with UUI and without Incontinence (UU-Only)

Among participants with urgency at baseline, 230 (34%) had UU without UUI, and 453 (66%) had UUI. Compared to the UUI group, the UU-only group was more likely to be male (66% vs. 30%, p<0.001); less likely to be obese (37% vs. 53%, p<0.001), diabetic (13% vs. 19%, p=0.04), have a psychiatric diagnosis (33% vs. 42%, p=0.015), or comorbidities (FCI, median [interquartile range (IQR)] of 2.0 [1.0–3.0] vs. 2.0 [1.0–4.0], p=0.014). No differences were detected in age, race, education, or ethnicity between UU-only and UUI at baseline (Table 1).

Pain: No differences were detected between UU-only and UUI groups in the GUPI and LUTS Tool pain measures (p=0.502 and 0.362).

LUTS (voiding and storage symptoms): UU-only participants reported less severe urgency (2.0[2.0–3.0] vs. 3.0[2.0–3.0], p<0.001), bother due to urgency (2.0[2.0–3.0] vs. 3.0[2.0–4.0], p<0.001), urinary frequency (2.0[2.0–3.0] vs. 3.0[2.0–4.0], p<0.001), and fear of leakage (1.0[1.0–2.0] vs. 3.0[2.0–3.0], p<0.001) than those with UUI. Among females,

the UDI-6 score was significantly lower for UU-only (33.3[16.7–45.8] vs. 50.0[33.3–66.7], p<0.001). No differences were detected in the LUTS Tool voiding scale, LUTS Tool nocturia, or the GUPI urinary subscale between groups (p=0.555, 0.604 and 0.117, respectively).

Psychosocial: UU-only participants had lower anxiety (48.8[38.4–53.5] vs. 51.3[43.5–58.2], p<0.001), depression (47.8[38.2–53.4] vs. 50.2[44.5–56.9], p<0.001), and stress symptoms (11.0[7.0–16.0] vs. 13.0[8.0–19.0], p=0.008) than those with UUI.

Bowel function: UU-only participants had less severe bowel incontinence (4.0 [4.0–5.0] vs. 4.0 [4.0–6.0], p<0.001), diarrhea (46.7[39.2–54.4] vs. 50.1[39.2–57.7], p=0.006), and constipation symptoms (50.4[44.7–54.8] vs. 51.7[45.9–57.6], p=0.008) than those with UUI. No differences were detected in POPDI-6 scores.

Sleep, physical activity, physical function, and QOL: Compared to UUI, UU-only participants had less sleep disturbance (52.3[46.8–58.5] vs. 54.3[48.4–59.3], p=0.027), higher physical activity level (38% vs. 29% in the IPAQ “high activity” level, p<0.001), higher physical function (49.8[42.8–60.3] vs. 45.7[37.8–53.4], p<0.001), and better QOL (7.0[4.0–8.0] vs. 8.0[6.0–10.0], p<0.001).

Longitudinal Transitions between UU and UUI

Participants who did not report UU at baseline were stable across 12-months; 83% and 80% reported no urgency at 3- and 12-months, respectively (Figure 1A**)**. By contrast, among participants with UU-only at baseline (Figure 1B), 45% showed improvement to no urgency, 40% continued to have UU-only, and 15% progressed to UUI at the 12-month visit. Most participants with UUI at baseline (Figure 1C) continued to report UUI at the 12-month visit (58%), while 15% improved to UU without UUI, and 27% indicated no urgency at the 12-month visit. Similar trends were observed among those with data at all three time points (Supplemental Figure 2) and by sex (Supplemental Figures 3 and 4). There were no statistically significant differences in cumulative treatment use between urgency groups at 12-months by sex and baseline UUI status, except for male transurethral resection of the prostate (TURP; p=0.011) and female sling surgery (p=0.005) for participants with UUI at baseline (Supplemental Tables 2-5).

Mixed Effects Models (UUI Severity)

At baseline, each unit increase in UUI severity was associated with a 0.11 unit increase in the LUTS Tool pain scale [95% confidence interval (CI): 0.04,0.17], a 0.27 unit increase in the LUTS Tool voiding scale [0.18,0.36], an 8.02 unit increase in the UDI-6 [6.32,9.72], a 0.35 unit increase in the GUPI urinary subscale [0.19,0.51], and a 0.69 unit increase in the GUPI QOL subscale [0.52,0.87] (Figure 2, Supplemental Table 6). In each model, the estimated change per unit increase in UUI severity was statistically significantly larger at 3- and 12-months compared to baseline.

On average, per one unit increase in UUI severity, PROMIS anxiety T-score increased by 0.87 [0.53,1.20] points, PROMIS depression T-score increased by 0.77 [0.46,1.09] points,

PSS total score increased by 0.66 [0.39, 0.93] points, PROMIS GI bowel incontinence raw sum increased by 0.33 [0.23,0.43] points, PROMIS GI diarrhea T-score increased by 0.94 [0.57,1.30] points, PROMIS GI constipation T-score increased by 0.55 [0.23,0.88] points, PROMIS sleep disturbance T-score increased by 0.72 [0.40,1.03] points, and PROMIS physical function T-score decreased by 0.46 [−0.70,−0.23] points. These associations were stable across all three time points but smaller than clinically important differences of 3 to 5 points for PROMIS.

Interactions between UUI severity and sex were tested for each model. Statistically significant differences in the association of self-reported measures and UUI severity between sexes were detected for PROMIS anxiety T-score (regression coefficients of 1.39 for males and 0.53 for females), PROMIS depression T-score (1.25 for males, 0.47 for females), and GUPI QOL (0.66 for males, 1.07 for females).

DISCUSSION

Despite a high prevalence of UU without UUI,[2, 3] patients with UU-only (OAB-dry) are poorly characterized in the literature.[4, 6, 18, 19] Here, we have characterized a large multi-institutional cohort of men and women with UU-only (without UUI) and compared them to those with UUI.

We found that participants with UUI had more severe urgency and frequency symptoms, worse psychosocial symptoms, more bowel dysfunction and sleep disturbance, and poorer physical functioning. Overall, the UUI group seemed to have greater bother and QOL impact than patients with UU-only. We cannot determine if the seemingly greater symptom burden in incontinent patients is driving higher rates of anxiety, depression, stress, and sleep disturbances in the UUI group, or if there is something inherently different about the psychosocial health of this group. Similarly, participants with UUI were less active and had poorer physical function. Arguably, this could be part of the disease process (decreased mobility or functional status) that results in urinary incontinence. Alternatively, patients with incontinence learn to limit their physical activities to minimize symptoms. Future studies are needed to address the directionality of these findings. With respect to urologic/pelvic pain, we found no evidence that UU-only had more severe pain than those with UUI, in contradiction to the model (Supplemental Figure 1).[7] Overall, our data suggested that UUI may be a more severe manifestation of UU, rather than UU and UUI being distinct entities.

OAB is a dynamic syndrome, with progression or regression of symptoms over time.[20,21] However, longitudinal transitions between UU and UUI have not been well-described in a treatment-seeking cohort. In our LURN-I treatment-seeking cohort, we observed regression from UUI to UU-only in 33%−42%. Unfortunately, the majority of patients (58%−67%) with baseline UUI continued to report UUI over 12-months. Although most of our cohort received treatments at baseline (e.g., Kegel exercises, pelvic floor physical therapy, OAB medications), few went on to receive third-line treatments for UUI. Prior studies demonstrated low rates of continuation of anticholinergic medications 1-year after starting treatment.[22] Our data seem to support the challenge that many patients continue to experience bothersome UUI despite seeing a specialist and initiating first- and second-line

treatments. The low rates of utilization of third-line therapies among academic centers in our cohort are surprising. Perhaps, future studies should look at moving third-line therapies early in treatment algorithms to see if patients have more sustained UUI resolution.

Based on qualitative interviews of patients, there may be two subtypes of UU patients without UUI.[6] The first subtype is, in fact, OAB-wet patients with rare UUI. They did not report significant UUI because they make it to the bathroom quickly. Without ready access to the bathroom, these so-called “dry” patients may begin to experience more frequent UUI. This first subtype of UU patients may be considered a milder form of UU with UUI. The fact that the patients in our study with UUI had worse physical functioning may support this hypothesis. Specifically, patients with mobility issues may be more likely to experience incontinence with their urgency. The second subtype of UU-only patients reported no “fear of leakage” and no history of UUI episodes. The etiology of these urgency/frequency patients may be different; some hypothesize they are on a spectrum consistent with IC/BPS patients. Since we have specifically excluded patients with a diagnosis of IC/BPS from the LURN Study, our cohort was likely skewed toward the first subtype of UU patients described above,[6] who might have milder form of OAB with rare UUI.

Strengths of this study include: (1) enrollment of a large cohort of men and women across multiple institutions with UU-only without UUI; (2) multi-modal characterization of their urologic and non-urologic features; and (3) longitudinal follow-up of their UU versus UUI classification. Potential weaknesses include: (1) enrollment in large academic centers, which may reduce generalizability of the results to patients seeking care at primary care sites; (2) the cohort was predominantly White (>80%); (3) 12-months of follow-up may not be adequate to define the longer-term trajectory of symptom improvement and progression; and (4) it was difficult to tease out the natural history of UU and UUI from their treatments. For example, a change in membership from UU to UUI may be due to natural history of the condition, discontinuation of treatments for any reasons, non-compliance, and other confounding factors.

CONCLUSIONS

Patients with UUI have severe storage symptoms, more psychosocial symptoms, poorer physical functioning, and worse QOL than those with UU-only. Data from the LURN treatment-seeking cohort suggested UUI may be a more severe manifestation of UU, rather than UU and UUI being distinct entities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Data Availability Statement

The data that support the findings of this study are openly available in the NIDDK Central Repository at https://repository.niddk.nih.gov/; please reference the acronym "LURN".

ABBREVIATIONS

BMI	body mass index
CI	confidence interval
FCI	Functional Comorbidity Index
GUPI	Genito-Urinary Pain Index

IC/BPS	interstitial cystitis/bladder pain syndrome
LURN	Symptoms of Lower Urinary Tract Dysfunction Research Network
LUTS	lower urinary tract symptoms
NOBLE	National Overactive BLadder Evaluation
OAB	overactive bladder
OAB-dry	urinary urgency without UUI
OAB-wet	urinary urgency with UUI
POPDI-6	Pelvic Organ Prolapse Distress Inventory
PROMIS	Patient-Reported Outcomes Measurement Information System
PSS	Perceived Stress Scale
QOL	quality of life
TURP	transurethral resection of the prostate
UDI-6	Urinary Distress Inventory
UU	urinary urgency
UUI	urgency urinary incontinence

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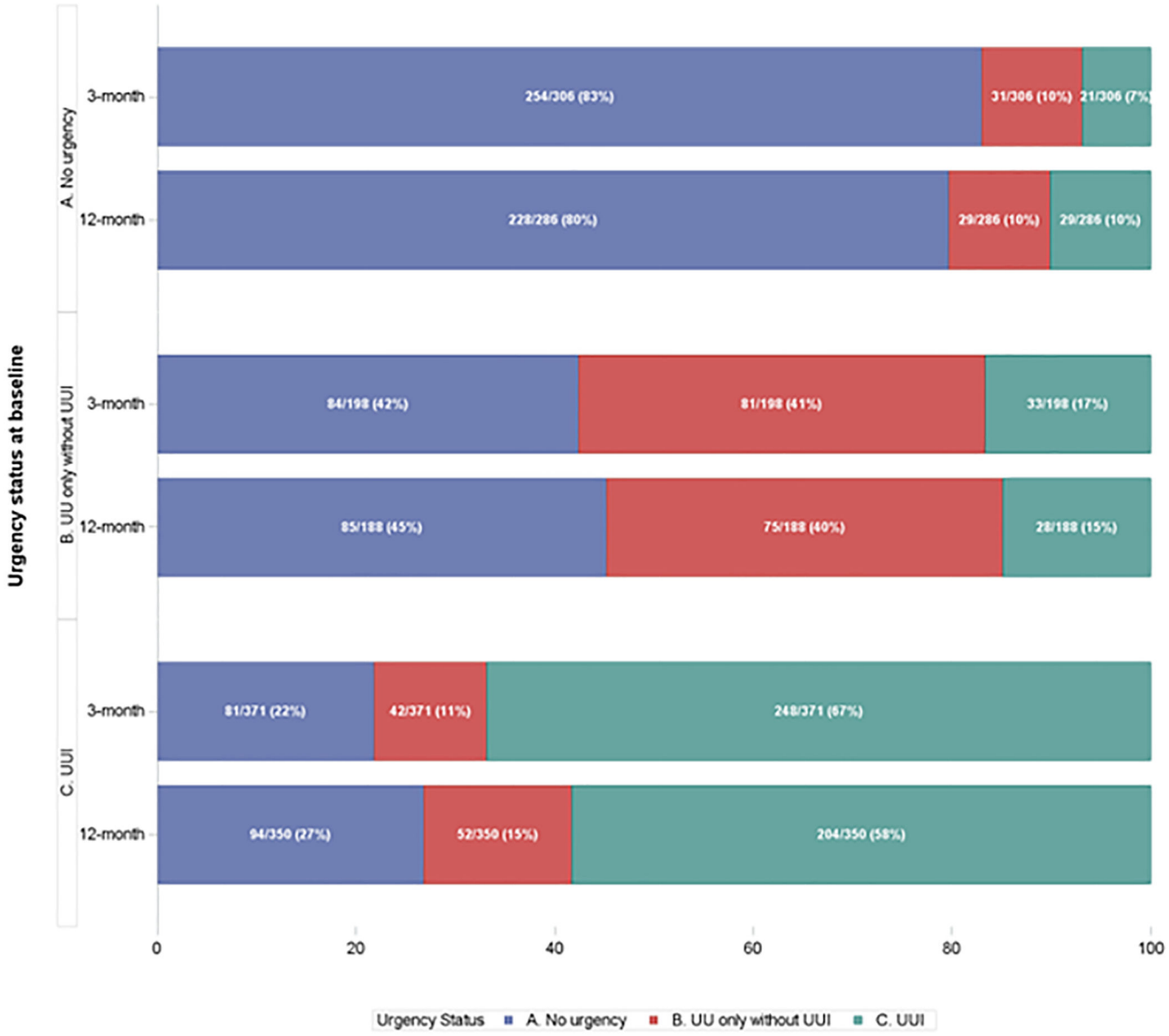

Figure 1. Bar charts of urgency status over time (by urgency status at baseline).

***** Stacked bar chart of urgency status at 3-month and 12-month visits, paneled by baseline urgency status. Baseline urgency status is shown on the right y-axis, visit is shown on the left y-axis, and percent is shown on the x-axis. For each combination of baseline urgency status and visit, the proportion of participants who have no urgency (blue), UU-only without UUI (red), and with UUI (green) at the given visit is shown.

[Footnote:] *Among the 1037 participants who provided responses to the baseline LUTS Tool item reporting on urinary urgency, 875 (84%) and 824 (79%) participants had LUTS Tool urgency and UUI severity responses at 3- and 12-month visits, respectively. The bar charts reported participants who provided responses at baseline, 3-, and 12-months to track their transition over time.

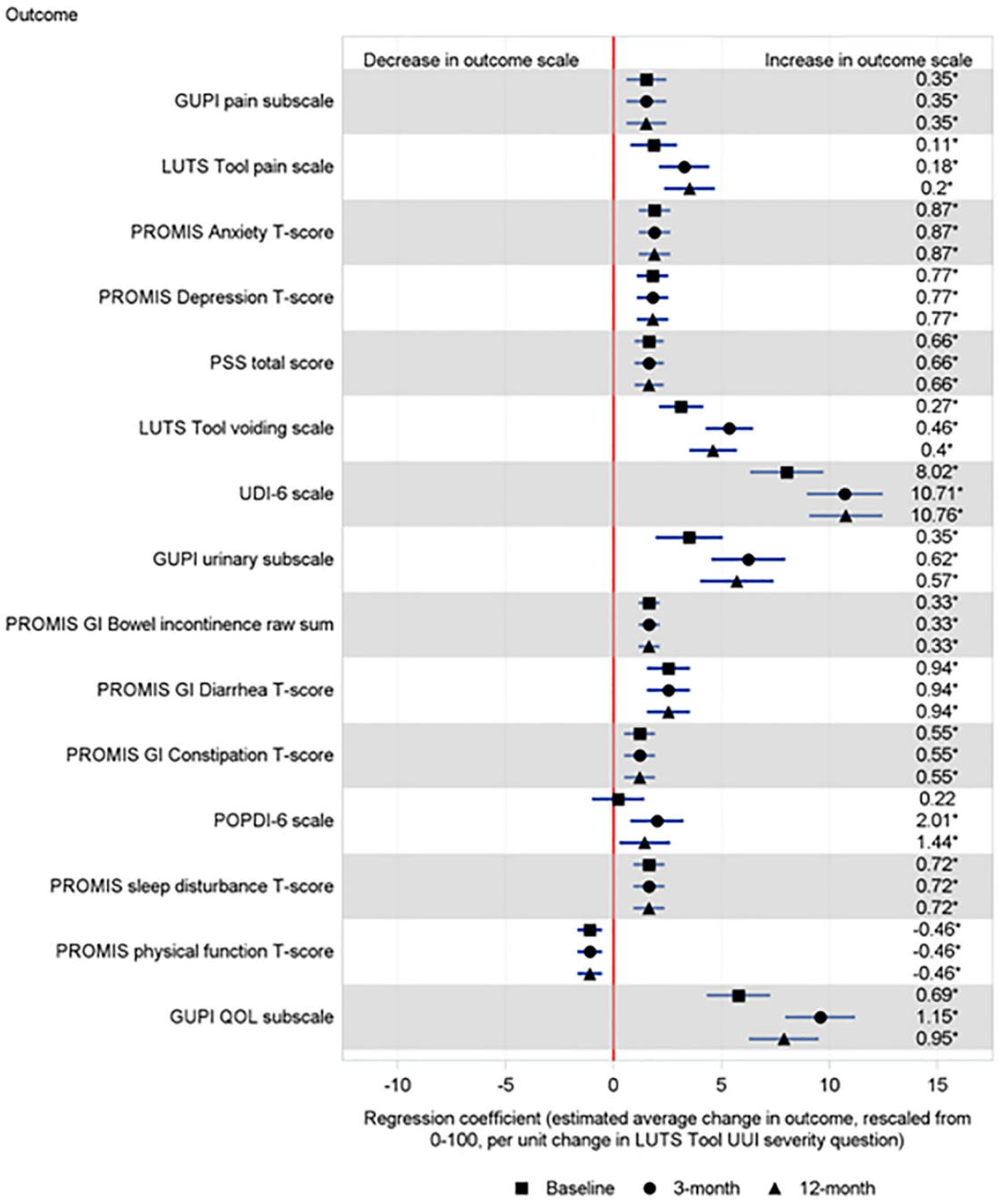

Figure 2. Forest plot of mixed effect model results for urologic and non-urologic factors at baseline, 3-, and 12-months. Regression coefficients are displayed on the right.

Forest plot of mixed effect model coefficients for urologic and non-urologic factors at baseline, 3-month, and 12-month visits. For each urologic and non-urologic factor shown on the y-axis, the regression coefficient for the LUTS Tool UUI question (i.e., the estimated average change in the factor per unit change in the LUTS Tool UUI question, rescaled from 0–100) is shown on the x-axis for baseline (square), 3-month (circle), and 12-month (triangle) visits. The blue horizontal line straddling each estimate represents the 95% CI for that estimate, with any blue horizontal line crossing the vertical reference line at zero

representing statistical significance at the 0.05 level. Coefficient estimates to the right of the reference line represent higher levels of the self-reported measure per unit increase in UUI severity, and estimates to the left represent lower levels per unit increase in UUI severity. If there was a statistically significant interaction with visit, the regression coefficient is shown for each visit; otherwise, the regression coefficient for any given visit is shown for each visit (i.e., the same coefficient for all visits). Unscaled regression coefficients are shown on the right, with an asterisk also indicating statistical significance at the 0.05 level.

The interaction between visit and LUTS Tool UUI severity was statistically significant for LUTS Tool pain and voiding scales, UDI-6, GUPI urinary subscale, POPDI-6, and the GUPI QOL subscale, indicating that the estimated association between UUI severity and the outcome differed significantly during at least one pair of visits. For all other models, the interaction between visit and LUTS Tool UUI severity was not statistically significant. However, in each model, there was still a significant association between the measure and increases in UUI severity.

For the GUPI, changes of 7.8, 3.7, and 5.5 points were seen in responders to pelvic floor physical therapy for the Pain, Urinary, and QOL subscales, respectively.[10] For PROMIS T-scores, minimally important differences of 3 to 5 points have been established. For the UDI-6 and POPDI-6, 11 points has been proposed as a minimally important difference.[23, 24] There are no established minimally important differences for the LUTS Tool.

[Footnote:] *Regression coefficient is statistically significant at the 0.05 level.

Table 1.

Comparison of participants with urgency with UUI versus UU-only (urgency without UUI) at baseline

Variable	With UUI (n=453)	UU-Only (urgency without UUI) (n=230)	UU-Only vs. UUI (p-value)
Demographics & Comorbidities:			
Age (median [IQR])	61.2 [51.4–69.4]	62.8 [51.9–69.4]	0.854
Sex (% male)	135 (30%)	152 (66%)	<.001*
Race			0.091
White	360 (81%)	188 (84%)	
African-American	66 (15%)	23 (10%)	
Multi-racial/other	16 (4%)	14 (6%)	
Ethnicity (% Hispanic/Latino)	15 (3%)	11 (5%)	0.354
Education			0.080
High school diploma/GED or less	64 (14%)	34 (16%)	
Some college or tech school, no degree	111 (25%)	42 (19%)	
Associate's degree	46 (10%)	21 (10%)	
Bachelor's degree	122 (27%)	50 (23%)	
Graduate degree	103 (23%)	71 (33%)	
BMI continuous	30.6 [25.6–35.6]	28.1 [25.5–32.3]	<.001*
BMI categories			<.001*
Underweight/normal weight	95 (21%)	47 (21%)	
Overweight	116 (26%)	96 (42%)	
Obese	236 (53%)	83 (37%)	
Diabetes (% yes)	87 (19%)	29 (13%)	0.040*
Psychiatric diagnosis (% yes)	190 (42%)	74 (33%)	0.015*
FCI total	2.0 [1.0–4.0]	2.0 [1.0–3.0]	0.014*
Urologic Pain:			
GUPI pain subscale	3.0 [0.0–8.0]	4.0 [0.0–7.0]	0.502
LUTS tool pain symptom scale (two questions, weighted Euclidian length)	0.0 [0.0–2.0]	0.0 [0.0–1.4]	0.362
Psychosocial Symptoms:			
PROMIS anxiety T-score	51.3 [43.5–58.2]	48.8 [38.4–53.5]	<.001*
PROMIS depression T-score	50.2 [44.5–56.9]	47.8 [38.2–53.4]	<.001*
PSS (total score)	13.0 [8.0–19.0]	11.0 [7.0–16.0]	0.008*
LUTS:			
LUTS tool voiding symptom scale (five questions, weighted Euclidian length)	3.6 [2.2–4.9]	3.5 [2.2–4.7]	0.555
LUTS tool urgency rating (scale 0–4)	3.0 [2.0–3.0]	2.0 [2.0–3.0]	<.001*
LUTS tool urgency bother (scale 0–4)	3.0 [2.0–4.0]	2.0 [2.0–3.0]	<.001*
LUTS tool frequency rating (scale 0–4)	3.0 [2.0–4.0]	2.0 [2.0–3.0]	<.001*

Variable	With UUI (n=453)	UU-Only (urgency without UUI) (n=230)	UU-Only vs. UUI (p-value)
LUTS tool nocturia ratings (scale 0–4)	2.0 [1.0–3.0]	2.0 [1.0–3.0]	0.604
LUTS tool “fear of leakage” rating (0–4)	3.0 [2.0–3.0]	1.0 [1.0–2.0]	<.001*
UDI-6 (females only)	50.0 [33.3–66.7]	33.3 [16.7–45.8]	<.001*
GUPI urinary subscale	5.0 [3.0–7.0]	4.0 [3.0–6.0]	0.117
GI Symptoms:			
PROMIS GI bowel incontinence raw score	4.0 [4.0–6.0]	4.0 [4.0–5.0]	<.001*
PROMIS GI diarrhea T-score	50.1 [39.2–57.7]	46.7 [39.2–54.4]	0.006*
PROMIS GI constipation T-score	51.7 [45.9–57.6]	50.4 [44.7–54.8]	0.008*
Pelvic Organ Prolapse Symptoms:			
POPDI-6 pelvic organ prolapse (females only)	12.5 [0.0–29.2]	8.3 [0.0–25.0]	0.818
Sleep, Physical Function & Activities, QOL:			
PROMIS sleep disturbance T-score	54.3 [48.4–59.3]	52.3 [46.8–58.5]	0.027*
PROMIS physical function T-score	45.7 [37.8–53.4]	49.8 [42.8–60.3]	<.001*
IPAQ categories			<.001*
Low activity level	254 (58%)	106 (47%)	
Moderate activity level	57 (13%)	33 (15%)	
High activity level	125 (29%)	85 (38%)	
GUPI QOL subscale	8.0 [6.0–10.0]	7.0 [4.0–8.0]	<.001*

*Difference statistically significant at 0.05 level.

Frequencies and percentages presented for categorical variables, and medians and interquartile ranges (i.e., 25th and 75th percentiles) presented for continuous variables.

Abbreviations: BMI, body mass index; FCI, functional comorbidity index; GED, general educational development test; GI, gastrointestinal; GUPI, Genito-Urinary Pain Index; IPAQ, International Physical Activity Questionnaire; IQR, interquartile range; LUTS, lower urinary tract symptoms; POPDI-6, Pelvic Organ Prolapse Distress Inventory; PROMIS, Patient Reported Outcomes Measurement Information System; PSS, Perceived Stress Scale; QOL, quality of life; UDI-6, Urinary Distress Inventory; UU, urinary urgency; UUI, urgency urinary incontinence.