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RESEARCH PAPER

Self-report function and disability: a comparison between women with and without urgency urinary incontinence

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Purpose: To compare self-reported function and disability between women with urgency urinary incontinence (UUI) and healthy controls. _Method_: Self-reported function and disability were evaluated using the Late Life Function and Disability Instrument (LLFDI) in 66 women with UUI (mean age 61.9 ± 5.6) and 66 age-matched control women without UUI in a cross-sectional study. The function component evaluates difficulty in performing physical activities in upper and lower extremities and the disability component evaluates limitations in life activities and frequency in taking part in life tasks. Body Mass Index (BMI), self-report incontinence quality of life questionnaire (I-QoL) and Visual Analog Scale (VAS) that indicate the degree to which the bladder problems limited the subject's daily life activity were also evaluated. _Results_: The LLFDI scores in overall function, basic and advanced lower limb function, were significantly lower in women with UUI compared with continent women, while the upper extremity function and disability components were not. There was significant negative correlation between BMI and function scores in women with UUI. _Conclusion_: Our results support the assumptions that the women with UUI are likely to show poorer lower extremity physical functioning and that disability is a multifactorial combination of behavioral, psychological and environmental factors, and not functional limitations per se.

Keywords: Function, urgency urinary incontinence, women

Implications for Rehabilitation

- Intervention targeting lower extremity physical functioning might increase physical ability; this may reduce the frequency of urgency urinary incontinence episodes in middle age women.
- Targeting weight loss is of importance when planning rehabilitation in urgency urinary incontinence women.
- Women with urgency urinary incontinence are less likely to show poorer disability scores.

Introduction

Urinary incontinence (UI) is a common condition, with a prevalence of 30% among women 50–54 years of age, and the prevalence increases with age to 40% for women >90 years old [1]. According to the International Continence Society, UI is a complaint of any involuntary leakage of urine. Stress UI is defined as a complaint of involuntary leakage on effort or exertion, and urgency urinary incontinence (UUI) is defined as the complaint of involuntary loss of urine associated with urgency [2].

UI is common geriatric syndrome that can greatly diminish QoL [3]. UUI has been shown to be associated with increased social isolation, a 30% increase in functional decline, and about twofold increased risk of falls, fracture and admission to long-term care facilities [4,5]. UUI is also associated with increasing major depression rate; a mailed self-report found a greater prevalence rate in women with UUI (6.6%) compared to those with stress UI (4.7%) [6]. Adequate capturing of the physical functioning and disability of women suffering from UUI is critical in assessing the effectiveness of intervention programs. Self-reported capability in physical functioning and disability has long been considered an important focus of research in the field of UUI [7]. Minimizing or preventing functional limitations and disability is critical for women with UUI. Current measures have been criticized for conceptual confusion, lack of sensitivity to change, poor reproducibility, poor validity and inability to capture a wide range of physical functioning and disability [8,9]. However, self-reported measures remain the most commonly used instruments in many studies involving women who suffer from UUI because of their low cost and practicality.

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The relations between self-reported functional status and disability in women with UUI have been little studied. The goal of this study is to examine whether physical and functional factors explain disability in women with UUI. Highlighting the complexity of the relations between disability components and functional ability, especially in women with UUI. In the present study, we used the Late Life Function and Disability Instrument (LLFDI) to find whether there are differences in physical function and disability in women with UUI compared with healthy controls, and whether self-reported physical functions are associated with self-reported disability in women with UUI. The LLFDI [10,11] is a self-reported scale specifically designed to assess two distinct outcomes: function and disability. This study aimed to highlight the complexity of the relations between disability components and functional ability in women with UUI and to address the potential of using the LLFDI. Thus the aims of the present study were to investigate (i) whether self-reported function and disability are lower in women with UUI compared to controls who did not suffer from UUI; (ii) the associations between self-reported function and disability components of the LLFDI and other measures of quality of life (QoL) in women with UUI. It was hypothesized that function and disability scores would be lower in women with UUI compared with age-matched healthy controls, the same as found previously for QoL for UUI [3]. It was hypothesized that the function component of the LLFDI would demonstrate low associations with the disability component but somewhat higher associations than in continent controls.

Methods

In a cross-sectional study, the self-reported LLFDI was administered in person by a physical therapist in a group of 66 women with UUI (45–75 years old) who complaint of involuntary loss of urine associated with urgency and 66 age-matched healthy controls (45–75 years old). All subjects provided informed consent in accordance with approved procedures by the Institutional Review Board in Maccabi Health Care Insured in Israel (NCT00498888). Urgency incontinence defined as involuntary leakage accompanied by or immediately proceeded by urgency [12], (i.e. urgency incontinence can present in different symptomatic forms, for example, as frequent small losses between micturition's, or as a catastrophic leak with complex bladder emptying [13]). In our study, women were asked about urinary frequency of episodes, degree of bother, conditions of loss urgency and incontinence within the previous 4 weeks [14]. The inclusion criteria for women with UUI consisted of self-reporting of at least three episodes of UI over the previous 4 weeks that were not completely explained by stress UI symptoms. The inclusion criteria for continent women were answering no when asking about any type of insentience as well as no previous pelvic floor surgery, uncontrolled diabetes, neurological disease, depression, or taking anticholinergic drugs. We examined this goal by supplementing an ongoing prospective randomized control clinical trial examining effects of physical therapy on function and disability in women with UUI.

The sample size was determined based on Malmstrom et al. [15] the difference in the average value in the physical functioning component of the SF-36 between women with UUI and healthy controls was 16 (31.1). At least 60 women are needed in each group to demonstrate functional and disability difference between continent women and women with UUI, based on two-tailed test, with $p = 0.05$ and 80% power. Thus, we recruited 66 women in each group.

The LLFDI [10,11] was developed as a comprehensive assessment of two distinct outcomes: function and disability in community-dwelling older adults. The LLFDI contains items that represent functional limitations (inability to perform discrete physical tasks encountered in daily routines) [10] and disability (inability to participate in major life tasks and social roles) [11]. It was designed to respond to meaningful changes in function and disability. The function component evaluated self-reported difficulty in the performance of 32 physical activities in three dimensions – upper extremity, basic lower extremity and advanced lower extremity function [11]. Subscales are each scaled on a 0–100 scale, with a higher score indicating higher level of functioning. The disability component has 16 items with two dimensions, one focused on frequency of performance and the other addressing limitation in performance of life tasks [10]. The limitation (instrumental and management roles) and frequency (social and personal roles) dimensions of the disability component are each scaled on a 0–100 scale, with higher scores indicating higher levels of functioning. Haley et al. [10] and Melzer et al. [16] have shown high test-retest reliability in the functional component of the LLFDI (Interclass Correlation Coefficient, ICC = 0.91–0.98 and ICC = 0.77–0.90, respectively) while the disability component of the LLFDI has shown moderate to high test-retest reliability (ICC = 0.68–0.82) [11] and similar in Melzer et al. [16] (ICC = 0.63–0.83). The LLFDI is a scale specifically designed to be sensitive to differences in physical function and disability, something previous measures in UUI woman did not do as well. The scores obtained from the function component of the LLFDI scale were validated with the SF-36 London Handicap Scale [17], short physical performance battery, self-paced 400-m walk [18], Berg Balance Scale and Timed Up and Go [15]. Hand et al. [19] validated function component of the LLFDI scale in 174 community-dwelling middle-age adult's (age 45–65 years old) with chronic conditions. The LLFDI function correlated strongly with the PF10 ($r = 0.84$) and moderately with the 2-minute walk distance (2MWD) ($r = 0.53$) and 8-foot walk test (8FWT) ($r = -0.48$). The LLFDI disability limitation was correlated moderately with the SF36 PCS, 2MWD and 8FWT (r = 0.67, 0.45, −0.32, respectively). The LLFDI disability frequency was correlated moderately with the SF36 PCS, 2MWD and 8FWT (r = 0.44, 0.33, −0.31, respectively). In addition, self-report incontinence quality of life questionnaire (I-QoL) and Visual Analog Scale (VAS) were administered [20,21]. I-QoL is a condition-specific instrument designed to measure the QoL effects of UI in women [22]. Overall score and three subscale scores (avoidance and limiting behaviors, psychosocial impacts and social embarrassment) were internally consistent (α = 0.87–0.93) and reproducible (ICC = 0.87–0.91) [20]. The VAS is a method that requires the respondent to place a mark on a 100 mm line to indicate the degree to which the bladder problems limited their daily life activity [21]. The 100 mm line marked with "not at all" at the right end, to "very much" at the left end. For calculate purposes, visual rating were converted to numerical values on a scale 0–10. Such VAS has been validated for assessment of bother in voiding dysfunction [21]. The correlations between the Likert-type scale and VAS were good: urogenital distress inventory (r = 0.748), incontinence impact questionnaire (0.787) and Beck depression inventory fast screen (r = 0.852; $p < 0.05$); interclass correlations were 0.89–0.93 [23].

Statistical methods

Descriptive statistics consisted of group means and distributions for each of the measurements (all subscales of LLFDI function and disability components). The variables were not normally distributed (Shapiro–Wilk test), thus nonparametric Mann–Whitney *U* tests were performed to analyze the differences in means between women with UUI and healthy controls. Statistical significance for function score was accepted at $p < 0.0125$ (0.05/4) and for LLFDI disability score $p < 0.008$ (0.05/6) using a testwise correction for multiple comparisons with a Bonferroni adjustment for multiple comparisons. All data were analyzed using SPSS software (SPSS Inc., Chicago, IL, USA).

To study the second aim, the associations between all variables (function and disability components I-QoL, VAS and BMI) in women with UUI and healthy controls and the whole study population, Spearman's ρ correlations (r) were administered. Because the results of the present study showed that the BMI in woman with UUI is significantly correlated with age (r = 0.253, p = 0.003), partial correlations were run on all variables controlling for BMI and age. In addition, Spearman's ρ partial correlations controlling for age (r) were administered for function and disability components, and QoL measures and VAS in urogynecologic research in women with UUI only. The following guidelines were used when interpreting correlation magnitudes: 0.00–0.25 represents no correlation to little correlation; 0.26–0.49 represents low correlation; 0.50–0.69 represents moderate correlation; 0.70–0.89 represents high correlation; and 0.90–1.00 very high correlation [24].

Results

The participants' demographic background characteristics for the 66 women with UUI and 66 continent women are shown in Table I. There were no significant differences between the two groups with regard to family status, smoking, sports activity, years of education and the number of deliveries, while the women with UUI had significantly higher BMIs than the continent women. With regard to the difference in the distribution of smokers vs. nonsmokers with UUI woman and controls (p = 0.06), cautions against a Type II error must be made since there's only about 18% power to detect a difference.

Table II shows significantly lower self-reported overall function, and advanced lower limb function, but not basic- and upper-extremity function and disability components in women with UUI compared with continent women.

Table I. Participant characteristic of 66 UUI and 66 continent (mean [SD]).

Characteristic	UUI	Continent	p value
Age	61.92 (5.62)	61.92 (5.62)	NS
Family status			
Married	44	54	NS
Divorced	16	7	
Widow	3	4	
Single	3	1	
No. of delivery	2.55 (1.45)	2.74 (0.82)	NS
Sport activity			
Yes	50	46	NS
No	16	20	
No years of education	13.73 (2.85)	14.21 (2.85)	NS
BMI	28.37 (5.80)	25.81 (3.80)	0.005
Smoke			
No	60	63	NS
Yes	6	3	

UUI, urgency urinary incontinence.

Table II. The LLFDI scores of 66 UUI and 66 continent.

LLFDI	UUI	Continent	p value
Disability component			
Overall limitation	74.01 (15.92)	73.95 (12.58)	0.79
Instrumental role	74.46 (16.81)	74.94 (13.78)	0.75
Management role	83.42 (17.06)	84.43 (12.71)	0.84
Overall frequency	55.97 (8.26)	55.76 (8.50)	0.84
Social role	54.27 (9.57)	55.25 (10.22)	0.62
Personal role	62.48 (16.74)	58.93 (13.84)	0.36
Function component			
Overall function	68.60 (10.00)	75.05 (11.79)	0.001[a]
Upper limb	82.62 (13.08)	86.67 (10.24)	0.07
Basic lower limb	81.89 (14.64)	86.72 (12.89)	0.04
Advanced lower limb	63.94 (13.99)	72.71 (15.17)	0.001[a]

p value compared mean (SD) in two groups based on Mann–Whitney test.
LLFDI, Late Life Function and Disability Instrument; UUI, urgency urinary incontinence.
[a]Statistical significance for functional score was accepted at $p < 0.0125$ (0.05/4) and for disability score $p < 0.008$ (0.05/6) using a testwise correction.

Table III show low but significant negative correlations between BMI and basic lower limb function, overall function and advanced lower limb function for the pooled population of women with UUI and continent women (r = −0.36 to −0.46) and same for women with UUI only (r = −0.36 to −0.45). There were no correlations between BMI and all disability components of LLFDI.

Women with UUI show a low not statistically significant correlation between the I-QoL score and all LLFDI disability components (r = 0.1–0.3) except for the low nonsignificant correlation between I-QoL score and social score of LLFDI (r = 0.4, p = 0.07) and high but nonsignificant correlation with the basic lower limb function (r = 0.7, p = 0.09) (Table III). There were no correlations between LLFDI function and disability component scores and VAS scores for women with UUI.

The pooled population shows low but significant correlations between disability limitation and function components

Table III. Partial correlation (p value) between the LLFDI scores controlling for age and BMI, for all 132 women (pooled population) for UUI women (N = 66) and for healthy controls (N = 66).

LLFDI	BMI for pooled population	BMI for UUI	BMI for continent	I-QoL score for UUI	VAS for UUI
Disability component					
Disability limitation	−0.08 (0.5)	−0.09 (0.494)	−0.05 (0.729)	0.29 (0.2)	−0.13 (0.3)
Instrumental role	−0.07 (0.408)	−0.24 (0.293)	−0.08 (0.516)	0.21 (0.34)	0.11 (0.63)
Management role	−0.36 (0.8)	−0.03 (0.806)	−0.08 (0.500)	0.3 (0.2)	−0.08 (0.5)
Disability frequency	−0.07 (0.6)	−0.07 (0.586)	0.006− (0.98)	0.3 (0.2)	−0.23 (0.06)
Social role	0.01 (0.9)	−0.001 (0.991)	0.06 (0.638)	0.4 (0.07)	−0.21 (0.09)
Personal role	−0.13 (0.3)	−0.13 (0.302)	−0.18 (0.142)	0.1 (0.8)	−0.19 (0.1)
Function component					
Overall function	−0.4 (0.001)[a]	−0.40 (0.001)[a]	−0.28 (0.025)	0.14 (0.5)	−0.15 (0.2)
Upper limb	−0.13 (0.3)	−0.13 (0.290)	−0.04 (0.729)	0.1 (0.7)	−0.21 (0.1)
Basic lower extremity function	−0.36 (0.003)[a]	−0.36 (0.003)[a]	−0.14 (0.253)	0.7 (0.09)	−0.19 (0.14)
Advanced lower extremity function	−0.46 (0.001)[a]	−0.45 (0.001)[a]	−0.28 (0.015)	0.47 (0.1)	−0.15 (0.2)

I-QoL, incontinence quality of life questionnaire; LLFDI, Late Life Function and Disability Instrument; UUI, urgency urinary incontinence; VAS, Visual Analog Scale.
[a]Statistical significance for functional score was accepted at $p < 0.0125$ (0.05/4) and for disability score $p < 0.008$ (0.05/6) using a testwise correction.

Table IV. Partial correlations (p value) between the LLFDI scores controlling for age and BMI between function and disability components of LLFDI.

LLFDI	Overall function	Upper-extremity function	Basic lower extremity function	Advanced lower extremity function	Disability limitation	Disability frequency
A) UUI women						
Overall function						
Upper-extremity function	0.37 (0.003)					
Basic lower extremity function	0.85 (0.001)	0.53 (0.001)				
Advanced lower extremity function	0.60 (0.001)	0.39 (0.001)	0.76 (0.001)			
Disability limitation	0.37 (0.002)	0.39 (0.001)	0.39 (0.001)	0.27 (0.030)		
Disability frequency	0.39 (0.001)	0.37 (0.003)	0.27 (0.029)	0.36 (0.003)	0.37 (0.002)	
B) Continent women						
Overall function						
Upper-extremity function	0.673 (0.001)					
Basic lower extremity function	0.835 (0.001)	0.616 (0.001)				
Advanced lower extremity function	0.955 (0.001)	0.482 (0.001)	0.79 (0.001)			
Disability limitation	0.32 (0.011)	0.24 (0.057)	0.32 (0.009)	0.26 (0.032)		
Disability frequency	−0.01 (0.922)	−0.08 (0.517)	0.06 (0.608)	−0.01 (0.930)	0.32 (0.009)	
C) All population						
Overall function						
Upper-extremity function	0.64 (0.001)					
Basic lower extremity function	0.84 (0.001)	0.58 (0.001)				
Advanced lower extremity function	0.96 (0.001)	0.45 (0.001)	0.77 (0.001)			
Disability limitation	0.33 (0.001)	0.32 (0.001)	0.35 (0.001)	0.25 (0.004)		
Disability frequency	0.17 (0.055)	0.16 (0.075)	0.17 (0.53)	0.15 (0.062)	0.34 (0.001)	

LLFDI, Late Life Function and Disability Instrument; UUI, urgency urinary incontinence.

of LLFDI (r = 0.250–0.350) and no significant correlations between disability frequency and function components of LLFDI (r = 0.15–0.17) (Table IV). For the UUI population, the results show low but significant correlations between disability limitation and the function components of LLFDI (r = 0.267–0.39) and the same for the disability frequency and the function components of LLFDI (r = 0.268–0.394). Low but significant correlation was found between disability limitation and disability frequency in UUI (r = 0.374), somewhat higher than for continent women and for the pooled population (r = 0.321 and r = 0.347, respectively).

Discussion

In this study, we sought to quantitatively compare function and disability in women with and without UUI. The results support in part our first hypothesis; we found that self-reported function related to lower limb function was lower in women with UUI compared with continent women, while self-reported upper-extremity function was not different between groups. Unexpectedly, no significant differences were found in the disabilities components. We also found that disability limitation and disability frequency had low correlations with the function components in UUI, although the women with UUI presented greater associations than continent women, especially between function and disability frequency. This suggests that disability is the result of a complex interplay of body systems, structures and organs, not only function; it may be that psychological capacities of individuals and environmental factors are also associated as suggested in previous studies [24,25].

The role of UI in the disablement process model has been mainly defined according to its impact on QoL, global well-being, life satisfaction and physical functioning, which are global outcomes of disability. The relationship between UI, function and disability can be classified in the following five pathways: (i) UI as a risk factor for reduced physical functioning, especially in the lower extremity, thus self-reported functional decline was found; (ii) function decline, which resulted in reduced lower limb physical activity as risk factors for the onset of UI; (iii) Shared risk factors for UI and function decline, such as higher BMI in women with UUI compared with the continent women; (iv) UI in a unifying conceptual framework: the multifactorial etiology syndromes; and (v) UI as an indicator of frailty. Understanding these associations can have substantial implications in both clinical work and research in this area [7].

The results of the present study are in agreement with a few studies examining the association between physical function and UI in generally healthy community-dwelling women [14,26–29]. Huang [30] found that women with recent physical function decline were more likely to report weekly UI, OR 1.31 (95% CI = 1.09–1.56) for walking speed decline, and OR 1.40 (95% CI = 1.19–1.64) for chair stand decline. Cheng et al. [29] found that UI and walking fewer than six blocks without resting were significantly associated with developing anergia.

Similarly, in our study, self-reported overall function was 6.45 points lower in women with UUI compared to healthy controls (68.60 vs. 75.05, respectively), especially in the advanced lower extremity score (63.94 vs. 72.71, respectively), while disability components were not influenced. Danforth et al. [31] reported that lower extremity functioning (e.g. walking), which constituted approximately half of total physical activity, was related to 26% lower risk of developing UI in women aged 54–79 years. The associations between physical activity and UI remained similar regardless of BMI category [31].

The LLFDI used in the present study was developed as a comprehensive assessment of function and disability in community-dwelling older adults [10,11]. The ability of the LLFDI instrument to find significant differences between healthy and UI women in self-perceived overall function, and advanced lower limb function indicates that the function component of LLFDI has the potential to be responsive to meaningful differences between women with UUI and healthy controls, assessing functioning across a wide variety of daily activities with a reasonable set of items. These findings also suggest that function components of LLFDI are able to capture differences in physical functioning in women with UI, thus having the potential to assess daily physical tasks. This emphasis is critical in assessing the effectiveness of intervention programs in women with UI [7].

As expected, the associations between the disability components and function component of the LLFDI were weak, but women with UUI in the present study showed fairly higher associations than continent women. In the present study, disability limitation and frequency of LLFDI in women with UUI were not revealed through the function components of LLFDI. Responses to questions about disability limitations in performing tasks appear to have low association with the self-reported ability of women with UUI to perform functional tasks they feel they are capable of doing (r = 0.267–0.390); also the frequency of performing those tasks has a low association to their self-reported physical functioning capabilities (r = −0.27–0.39). Because the function components were discrete physical tasks (without environmental or behavioral influence), this may partially explain why the limitation and frequency dimensions even more so, were less associated with these tasks in women with UUI.

In fact, this study suggests that the capability of women with UUI to perform life's tasks (the limitation dimension) and the regularity of participating in life's tasks (the frequency dimension) were not highly associated with each other (r = 0.37, r = 0.32, respectively). These results suggest that although women with UUI perceived a functional decrease in performing certain lower extremity functional tasks, this was not perceived as a great limitation, and the role of these functional decreases was low in the frequency of performing these tasks less often. Thus, the reduction in functional abilities in women with UUI did not greatly affect their limitation in performing certain tasks, and the frequency of performance. This may be due to the fact that disability limitation and disability frequency are not simply the inability to perform physical tasks, but are influenced by psychological abilities, sociocultural and behavioral factors, communication skills, social planning and environmental factors [31]. Many disability assessments in women with UUI contain items that assess function (e.g. walking) and disability (activities of daily living). Our results show that if we consider disability as a domain that is distinct from function, including function items in the assessment of disability confounds disability assessment.

Contrary to our hypothesis, women with UUI did not have lower disability scores. In a previous cross-sectional study that used mailed self-administered questionnaires, the researchers found no significant differences in the total psychological general well-being index score between women with UUI and continent women [32]. Disability is defined as a limitation in performing socially defined roles and tasks expected of an individual within a sociocultural and physical environment. Disability has been described as "the gap" between a person's capabilities and the demands of the environment [33]. Thus our results suggest that there is no gap between the capacity of women with UUI and actual performance in daily life. The middle-aged women in our study were usually working, had other important missions to do, such as help treating their children, grandchildren and also their old parents. Since the women with UUI did not lose their functional capacity to do basic tasks and actions in their homes and environment, they did not perceive any disability. Clinical experience shows that these women complained that they had no time to give attention to their general needs and health. They wear incontinence pads and keep their way of life as regular as possible to show that they do not need any help. This may be supported by the I-QoL results in our study, where a moderate nonsignificant correlation between I-QoL score and social score of the disability component of LLFDI (r = 0.4, p = 0.07) were found, with no correlations between LLFDI and the VAS scores. These results suggest that UUI had no impact on their social behavior. The nonsignificant correlation between QoL and VAS scores and disability component can be explained by the different items of each questionnaire. The I-QoL and VAS asked the women about feelings about the impact of her uncontrolled bladder, while the disability component of the LLFDI asked about frequency and limitation of performance of life tasks, such as working and helping family that the women can do, even if she has UI, using absorbent pads.

BMI did not influence the disability components in our study, but in general had a significant influence on functional abilities of women with UUI. The relation between higher BMI and UI is well known. Obesity is an established and modifiable risk factor for UI [34]. In our study, BMI was significantly associated with UUI, especially in basic and advanced lower extremity function (r = −0.36 and −0.46, p = 0.001 and p = 0.003, respectively). The Norwegian EPINCONT study examined lifestyle factors such as smoking, obesity, physical activity and the association to UI in 34,755 women older than 20 years of age. The association between increasing BMI and UI was strong and present for all subtypes of UI [35]. Obesity and age >40, were identified as risk factors for UUI in 778 identical twin pairs (n = 1556) mean age 41.4 (16.4; range 18–85) years. For overweight women, BMI 25–30, the odds ratio for UUI was OR = 1.35 (95% CI = 0.99–1.82), and for obese women, BMI > 30, the OR = 2.41 (95% CI = 1.79–3.24) [36].

This study has several limitations. First, the data came from a fairly small sample that was drawn from a defined population; it might be that there is a selection bias of assessing UUI volunteers only. Also, the type of deliveries did these women have (vaginal vs. C-section) and the hormone status of these women were not collected, this may undermine the generalizability of the results obtained. Second, unknown confounders cannot be identified. Thus, further study should involve larger sample sizes and a more controlled design (e.g. a random recruitment strategy).

In conclusion, the study shows associations between UUI, overweight and low functional scores, and no associations with disability. Our results support the assumptions that the women with UUI are likely to show poorer lower extremity physical functioning and that disability is a multifactorial combination of behavioral, psychological and environmental factors, and not functional limitations per se. Yet evidence-based interventions that effectively minimize or prevent physical function decline among women with UUI are rare. Our results suggest that intervention targeting weight loss, but also targeting specific functional activity related to lower extremities, might reduce the frequency of UUI episodes and improve function.

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