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Urinary Incontinence Symptoms and Impact on Quality of Life in Patients Seeking Outpatient Physical Therapy Services

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Abstract

Objective—The objective of this study was to examine the frequency and types of urinary incontinence (UI) in patients seeking outpatient physical therapy for neuro-musculoskeletal conditions.

Design—Retrospective cross-sectional analysis.

Patients—A convenience sample of patients that positively responded to a UI screening question were included in this study.

Methods—Data were collected for age, sex, and primary treatment condition classified into one of the following (i.e. urinary dysfunction; fecal dysfunction; pelvic pain; spine; neurological disorders; or extremity disorders); UI type (i.e. mixed, urge, stress, or insensible); UI symptom severity; and quality of life impact.

Main Outcome Measures—Frequency of UI type, symptom severity, health-related quality of life (HRQoL) impact, and pad use were compared between treatment groups.

Results—The mean age of the sample (n=599) was 49.8 years (SD=18.5) and 94.7% were female. The urinary dysfunction group comprised 44.2% of the total sample, followed by the spine group with 25.7%, and pelvic pain with 17.2%. The urinary dysfunction group scored significantly higher on UI symptom severity and impact on quality of life compared to the pelvic pain and spine groups, but not compared to the extremity disorders, fecal dysfunction, or neurological disorders group.

Conclusion—These preliminary data indicate that UI is a condition afflicting many individuals who present to outpatient physical therapy beyond those seeking care for UI. We recommend using a simple screening measure for UI and its impact on HRQoL as part of a routine initial evaluation in outpatient physical therapy settings.

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Declaration of Interest

The authors report no declarations of interest.

INTRODUCTION

An individual with urinary incontinence (UI) faces significant challenges to his or her quality of life (Coyne et al, 2012a; Gil, Somerville, Cichowski, and Savitski, 2009). Both men and women with UI report depression and anxiety (Coyne et al, 2012a); diminished enjoyment and amount of sexual activity (Coyne et al, 2008; Coyne et al, 2011; Irwin et al, 2008); and negative impact on work productivity (Coyne et al, 2012b; Sexton et al, 2009; Tang et al, 2014). UI is highly prevalent and an expensive condition that affects over 50% of women and nearly 14% of men (Dooley et al, 2008; Markland et al, 2011). The annual costs incurred by these individuals and the healthcare system to manage UI was estimated at over $20 billion US dollars in 1995, with the majority of these costs attributed to community-dwelling persons (Wilson et al, 2001). Risk factors for UI include white race, increased age, female sex, obesity, childbirth, and recurrent urinary tract infections (Brown et al, 1999; Fritel et al, 2005; Hunskaar, 2008).

Conservative treatment strategies include but are not limited to pelvic floor muscle re-education and strengthening, behavioral and dietary modifications, and EMG biofeedback (Bo, 2003; Burgio et al, 2002; Rett et al, 2014). One of the gaps in physical therapy clinical practice is that not all physical therapists are trained or feel confident to manage UI; therefore screening serves as a vital component to patient referral and management. A recent study by Wang, Hart, and Mioduski (2012) reported that among people seeking outpatient physical therapy services for pelvic floor dysfunction, 67% of them reported having urinary problems, 39% reported pelvic pain, and 27% reported bowel dysfunction, including constipation and fecal incontinence. The high rate of urinary problems in that study sample was expected as these individuals sought care for pelvic floor dysfunction. Given the high prevalence of UI in the general population, we postulate that the rate of UI in outpatient physical therapy settings may extend beyond just those seeking care for pelvic floor dysfunction to other musculoskeletal conditions.

The available evidence suggests that while UI may occasionally be a stand-alone disorder, it is also associated with a number of other medical and musculoskeletal conditions commonly treated by physical therapists (Eliasson, Elfving, Nordgren, and Mattsson, 2008; Fitzgerald, Santos, and Mallinson, 2012; Phelan et al, 2009). For example, Eliasson, Elfving, Nordgren, and Mattsson (2008) reported that 78% of female patients who sought care in outpatient physical therapy clinics with a primary complaint of low back pain also reported the presence of UI.

Screening for UI in patients with back pain is recommended in order to rule out medical red flags, including cancer or cauda equina syndrome (Ferguson, Holdsworth, and Rafferty, 2010). However, the Eliasson, Elfving, Nordgren, and Mattsson (2008) study suggests that UI may not just be a red flag but also a comorbid disorder associated with one of the most commonly treated conditions in ambulatory care settings. Other musculoskeletal conditions associated with incontinence include pelvic girdle pain (PGP) and pelvic pain. Fitzgerald, Santos, and Mallinson (2012) reported that pregnant women with PGP were 4.6 times more likely to have UI compared to those without PGP. Although commonly associated with pregnancy, PGP may also arise from trauma or osteoarthritis and occur in patients who are

not pregnant (Vleeming et al, 2008), but to our knowledge studies that directly examine the relationship between non-pregnancy related PGP and UI have not been published.

Despite these data suggesting a relationship with UI and common musculoskeletal conditions treated by physical therapists, screening for UI in outpatient settings appears to be only directed at those with primary complaints of incontinence and/or other pelvic floor dysfunction, those who are being screened for participation in an aquatic therapy program, and/or as part of red flag screening for low back pain. Additionally, UI-related health-related quality of life (HRQoL) has been studied extensively in people with UI and/or pelvic floor dysfunction, but has not been extended to people with non-musculoskeletal conditions who may also be experiencing UI. Given the community prevalence of UI and its link to other commonly treated musculoskeletal conditions, physical therapists in outpatient settings are uniquely situated to screen for UI and its impact on HRQoL in their patients who present with primary complaints not usually associated with urinary dysfunction.

Thus, the purpose of this study was two-fold. First, we sought to determine if patients seeking outpatient services for neuro-musculoskeletal conditions were experiencing UI and examined the types of incontinence being experienced by these patients. Second, we wanted to examine the extent to which incontinence impacted health-related quality of life (HQoL) in patients not seeking services for UI. We hypothesized that patients seeking care specifically for UI would report a greater impact of UI on HQoL.

METHODS

Overview

This study was a retrospective analysis of a sample of convenience collected from the outpatient physical therapy clinics of the Brooks Rehabilitation Health System in Jacksonville, Florida between April 2010 and December 2013. Baseline demographic, clinical, and quality of life data were collected by self-report from patients seeking outpatient physical therapy who answered “yes” to a urinary incontinence-screening question administered at the initial evaluation. If they answered “yes” to the screening question, three additional urinary incontinence measures were also administered and completed. The data in this study represents those who answered “yes” to the screening question and completed the incontinence measures. The University of Florida Institutional Review Board approved this study.

Measures

Demographic—Data for age (in years), sex (male or female), and condition group for which the patient was seeking care were collected at intake. The condition group was based on the patients’ chief complaint and International Classification of Disease (ICD-9) code associated with their referral to outpatient physical therapy. The primary author (MJA) coded condition groups as one of the following: urinary dysfunction; fecal dysfunction; pelvic pain; spine; neurological disorders; or extremity disorders.

Urinary Incontinence Screening—Data for the frequency of urinary incontinence was measured by patient responses to the following screening question included on a

standardized medical history form administered during the initial physical therapy evaluation process: “During the last 3 months, have you leaked urine (even a small amount)?” If patients responded ‘yes’ to this question, they were also asked to complete the following three measures: 1) 3 Incontinence Questions (3IQ); 2) Incontinence Impact Questionnaire Short-Form (IIQ); and 3) the International Consultation on Incontinence Modular Questionnaire - Urinary Incontinence (ICIQ-UI).

Incontinence Measures

3 Incontinence Questions (3IQ): The 3IQ is a self-report form developed for use in primary care settings to distinguish between different types of urinary incontinence (i.e. stress UI, urge UI, mixed UI, insensible UI) in order to initiate effective therapies prior to an extended medical evaluation (Brown et al, 2006). Insensible UI is defined as the “complaint of urinary incontinence where the [patient] has been unaware of how it occurred” (Uebersax et al, 1995).

Incontinence Impact Questionnaire (IIQ): The IIQ is a self-report measure of the impact of UI on physical activity, social relationships, travel, and emotional health. This measure contains seven items scored on a 4-point Likert scale. The average score is multiplied by 33 1/3 with potential scores ranging from 0 to 100. Higher scores are indicative of increased impact on quality of life (Uebersax et al, 1995).

International Consultation on Incontinence Modular Questionnaire- Urinary Incontinence (ICIQ-UI): The ICIQ-UI is a four-item self-report measure used to assess the impact of UI symptoms on quality of life. This measure assesses frequency of UI, amount of leakage, and overall impact of UI. The score ranges from 0 to 21 with greater scores indicative of increased symptom severity and impact (Avery et al, 2004).

Data Analysis

Demographic information and frequency of UI type (stress UI, urge UI, mixed UI, or insensible UI), and incontinence symptoms (number of pads, IIQ, and ICIQ-UI) were compared among groups. Separate one-way analyses of variance (ANOVA) were performed for incontinence symptom measures and were compared among condition groups. Shapiro-Wilk tests were used to assess normality of data and non-parametric analyses were used when data was not normally distributed. Bivariate correlations were calculated among pad use, ICIQ-UI scores, IIQ-7 score, and age using Pearson correlation moments. All analyses were completed with IBM SPSS statistical software, version 20. Alpha level was set at 0.01. Post hoc testing was performed using a Bonferroni correction and significance level of 0.002 to allow for multiple comparisons.

RESULTS

During the review of the patient database we were able to identify 619 patients who responded “yes” to the initial screening question. Of this group, 599 subjects had complete data and were included in the analyses. The mean age of the sample was 49.8 years (range =

11–96; SD=18.5) and 94.7% were female. Demographic and clinical information are listed in Table 1.

The patients who reported experiencing UI symptoms came from each of the condition groups. As expected, the urinary dysfunction group comprised the majority of the sample (44.2%). Interestingly, approximately a quarter of the sample were patients with spine disorders, 17.2% were patients with pelvic pain and 10% were patients with extremity disorders.

Almost half of all individuals in the total sample reported insensible UI as the type of urinary incontinence they experienced most. Insensible UI indicates that the individual was not aware of the circumstances surrounding the episode(s) of UI except for a feeling of wetness (Haylen et al, 2010). The second most common type was urge UI, with nearly a third of individuals reporting this type of incontinence. Compared to other condition groups, the urinary dysfunction group exhibited the highest rates of stress, urge, mixed, and insensible UI in the sample, followed by the spine and pelvic pain groups. The types of incontinence reported among the treatment groups are listed in Table 2.

Incontinence Symptoms and Association with Demographic Factors

The mean IIQ and ICIQ-UI scores and number of pads in 24 hours are listed in Table 3. In general and as expected, the urinary dysfunction group exhibited higher scores on the IIQ than all other groups ($H(5)=53.35$, $p<0.001$), including significantly higher scores than the pelvic pain (between-group difference = 19.4, $p<0.001$) and spine (between-group difference = 17.8, $p<0.001$) groups.

The impact of urinary incontinence on quality of life did not differ among the primary urinary dysfunction group, fecal dysfunction ($p=0.35$), neurological ($p=0.66$), and extremity ($p=0.03$) groups.

Symptom severity was highest in the urinary dysfunction compared to all other groups ($H(5)=70.53$, $p<0.001$). Specifically, lower frequency and symptom severity was identified in the pelvic pain (between-group difference = 4.91, $p<0.001$) and spine (between-group difference = 4.09, $p<0.001$) groups with no differences between the urinary dysfunction group and the fecal dysfunction ($p=0.005$), neurological disorder ($p= 0.16$) or extremity disorder ($p= 0.03$) group.

The number of pads used in 24-hours ranged from zero to 12. The urinary dysfunction group demonstrated the highest average number of pads ($H(5)=23.64$, $p<0.001$), including significantly higher pad use than the pelvic pain (between-group difference = 0.74, $p<0.001$) and spine groups (between-group difference = 0.74, $p<0.001$) but no significant differences existed between the urinary dysfunction group and the neurological group ($p=0.15$), extremity group ($p=0.27$), or fecal dysfunction group ($p=0.88$).

Significant positive correlations existed between the severity of symptoms, HRQoL, age, and number of incontinence pads used in a 24-hour period (Table 4). Specifically, moderately strong positive associations existed between severity of symptoms and HRQoL scores and 24-hour pad use ($r = 0.55 – 0.67$), indicating that those who reported more severe

symptoms of leakage and more severe impact on quality of life were also more likely to report a higher usage of pads. Also, moderately positive relationships existed between age and 24-hour pad use and age with symptom severity and HRQoL (r = 0.24 – 0.30).

DISCUSSION

The purpose of this analysis was first to determine if patients seeking rehabilitation care for other primary disorders experienced UI symptoms. Our results do suggest that urinary incontinence affects more individuals than just those seeking care specifically for their incontinence. Although the majority of our sample consisted of people seeking care for their urinary incontinence, nearly 25% were individuals with spinal pain who reported symptoms of urinary incontinence. This relationship is intriguing and emphasizes the importance of screening for UI, not only for patients seeking outpatient services for urinary or fecal dysfunction, but particularly those seeking care for a wide range of other conditions including spinal pain, pelvic pain, neurological disorders, and extremity disorders. Although these data are preliminary and represent a convenience sample, to our knowledge the current analysis is the first to evaluate incontinence in musculoskeletal conditions other than pelvic floor dysfunction and low back pain.

Approximately a quarter of the patients reporting UI symptoms were seeking rehabilitation services for spinal pain. Smith, Russell, and Hodges (2006) performed a large-scale analysis of the associations between continence disorders and respiratory function with back pain. In that study, they reported that young, middle age, and older women who experienced incontinence were more likely to report back pain compared to women without continence disorders. The study by Eliasson, Elfving, Nordgren, and Mattsson (2008) also suggested a potential positive relationship between incontinence and back pain in women. In the current study we extend these findings and show that the relationship may be bi-directional (that is, patients with a primary complaint of back pain reported incontinence) and supports recommendations that screening for UI in other common musculoskeletal and/or neurological conditions may be potentially warranted.

The second purpose of this study was to evaluate the impact of incontinence on HRQoL in this sample. Our data suggest that UI negatively impacts HRQoL in people whose primary complaint is not incontinence and that physical therapists should consider screening for the presence and impact of UI on HRQoL. As expected, the individuals in the urinary dysfunction condition comprised the largest percentage of individuals in our sample with UI. This was expected because these patients were seeking care for their urinary dysfunction. Interestingly however, the impact of UI on quality of life was not different for people in the urinary dysfunction group compared to the extremity, fecal dysfunction, or neurological conditions. One might expect that for individuals for whom UI is the primary condition for which they were seeking care, the UI would be considered more bothersome, thereby adversely impacting (lowering) quality of life scores. Our data suggest that the impact of UI on quality of life in patients seeking care for UI was not different from individuals seeking interventions for musculoskeletal and/or neurological disorders. That is, UI experienced by any patient impacts that patient’s quality of life to the same extent, even if urinary incontinence is not the primary complaint for which they are seeking care. This impact

seems to increase as individuals age. Therefore, screening for UI may be particularly important for older populations with different neuro-musculoskeletal conditions.

The results of our study indicate that UI affects patients with neuro-musculoskeletal conditions commonly seen in outpatient physical therapy and the impact of UI on quality of life is similar among these different conditions. Future research in this area may include systematic screening of all patients in an outpatient setting to determine the prevalence and types of UI in patients seeking outpatient physical therapy services. In the interim before such studies are completed we recommend using simple screening methods such as the single item tool used in this particular study. Patients who answer “yes” to the question of whether or not they have leaked urine (even a small amount) in the last three months should have an additional evaluation for incontinence.

Limitations

The primary limitation of this study was that these data were collected from a sample of convenience. These preliminary data represent a subset of patients who presented to outpatient physical therapy clinics and who answered “yes” to a screening question regarding urine leakage in the last three months. Patients who answered “no” were not included and patients who were not administered the screening question were not included in these analyses because that information was unavailable in the database from which these data were collected. Therefore, these data may not be completely representative of the population of patients seen at the outpatient centers at which screening questions were administered and may not generalize to other outpatient physical therapy facilities. Additionally, the frequency of UI observed in this subset may not be representative of all patient populations with low back pain, pelvic pain, extremity disorders, neurological disorders, and fecal incontinence.

CONCLUSION

The frequency and impact on HRQoL of UI extends to individuals beyond simply those seeking care for urinary dysfunction to other conditions commonly treated by physical therapists. Screening for urinary incontinence and its impact on HRQoL may be warranted in people seeking outpatient physical therapy as part of a routine initial evaluation. The negative impact of UI on quality of life is similar for people regardless of the primary reason for which they sought treatment. We also recommend referring patients who report a negative impact on quality of life to a provider who is qualified to evaluate and provide treatment for urinary incontinence.

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Table 1

Demographic and clinical information

Variable	Total sample (N=599)
Age (years)	49.8 ± 18.5
Sex (% Female)	567 (94.7)
Treatment condition	
Urinary dysfunction	265 (44.2)
Fecal dysfunction	10 (1.7)
Pelvic pain	103 (17.2)
Spine	148 (24.7)
Neurological	10 (1.7)
Extremity	63 (10.5)
Number of PT sessions	
Urinary dysfunction	5.7 ± 4.6
Fecal dysfunction	8.8 ± 7.0
Pelvic pain	6.7 ± 5.3
Spine	5.7 ± 5.4
Neurological	7.7 ± 3.8
Extremity	9.6 ± 7.3

Values are mean ± SD or N (%) unless otherwise indicated.

Table 2

Rates of incontinence types based on treatment condition

	Stress UI	Urge UI	Mixed UI	Insensible UI	Total
Urinary dysfunction	13 (2.2)	100 (16.7)	48 (8.0)	104 (17.4)	265 (44.2)
Fecal dysfunction	3 (0.5)	3 (0.5)	2 (0.3)	2 (0.3)	10 (1.7)
Pelvic pain	6 (1.0)	28 (4.7)	10 (1.7)	59 (9.8)	103 (17.2)
Spine	7 (1.1)	22 (3.7)	25 (4.2)	94 (15.7)	148 (24.7)
Neurological	1 (0.1)	5 (0.8)	3 (0.5)	1 (0.1)	10 (1.7)
Extremity	6 (1.0)	20 (3.3)	14 (2.3)	23 (3.8)	63 (10.5)
Total	36 (6.0)	178 (29.7)	102 (17.0)	283 (47.2)	599

Values are N (%) of individuals in the total sample.

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Table 3

Impact of incontinence on quality of life and pad use

	IIQ	ICIQ-UI	24-hr pad use
Urinary dysfunction	33.3 ± 27.8	9.1 ± 5.1	1.74 ± 2.0
Fecal dysfunction	20.2 ± 20.8	4.0 ± 3.9	1.8 ± 2.4
Pelvic pain	13.9 ± 21.6*	4.6 ± 4.3*	1.0 ± 2.0*
Spine	15.5 ± 22.7*	5.01 ± 4.6*	1.0 ± 1.6*
Neurological	26.1 ± 32.2	7.92 ± 6.3	0.7 ± 0.9
Extremity	28.3 ± 30.1	7.93 ± 5.7	1.6 ± 2.4

Values are mean ± SD

*Significantly different from Urinary dysfunction group indicated by Kruskal-Wallis one-way analysis of variance

Table 4

Relationship between incontinence symptoms and demographic factors

	IIQ-7	ICIQ-UI	Age	24-hr pad use
IIQ-7	1.00	0.67*	0.26*	0.55*
ICIQ-UI		1.00	0.24*	0.67*
Age			1.00	0.30*
24-hr pad use				1.00

Values are Pearson's correlation coefficient r.

* Indicates significance at 0.05 level