



Evaluation of the relationship between functional low back pain level and urinary incontinence severity

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Abstract

The study was designed to investigate the relationship between functional low back pain levels and urinary incontinence severity. Participants aged 18 and older with both functional low back pain and urinary incontinence were given a survey with scales determining the level of functional low back pain and the severity of urinary incontinence on social media platforms. The total number of study participants was 174, of whom 52.3% were male and 47.7% were female. The mean score for urinary incontinence was 6.03, and the mean score for functional low back pain was 32.58. The functional low back pain score and other variables had no statistically significant effect on the urinary incontinence severity score ($p>0.05$). The functional low back pain score and urinary incontinence score had no statistically significant relationship ($p=0.480$). Functional low back pain and urinary incontinence are both disorders that can seriously affect the quality of life. In the present study, no correlation was found between the severity of low back pain and urinary incontinence, but more comprehensive and extensive studies are required.

Keywords: Low back pain, patient outcome assessment, urinary incontinence, coexistent disease

1. Introduction

Urinary incontinence, previously defined as "loss of bladder control that can be voluntary," is now defined as "involuntary leakage of urine," with a prevalence ranging from 30-45%. There are classifications for urinary incontinence, and there are also scales/methods for determining its severity (1, 2). Many factors influence the severity of urinary incontinence, ranging from causes that increase intra-abdominal pressure to various mechanical pains, and studies show that functional low back pain may also influence the severity of incontinence (3). There are also different scales/methods for determining the severity of functional low back pain (4). Urinary incontinence and functional low back pain are significant because they have a great impact on the quality of life (1, 3). The more the causes of functional low back pain and the severity of urinary incontinence are linked, the more personalized the patient's follow-up and treatment can be. The aim of this study was to examine the link between functional low back pain and the severity of urinary incontinence. The relationship between these two symptoms should be investigated, and treatment protocols should be arranged according to the existence of the relationship.

2. Materials and methods

The population of the study consisted of people aged 18 and older with both urinary incontinence and low back pain who agreed to participate in the survey on social media platforms. Approval was obtained from Hacettepe University Non-

Interventional Clinical Research Ethics Committee on April 5, 2022, under the 2022/06 meeting number, the GO 22/288 project number, and the 2022/06-16 decision number before the study. The study was conducted between April 6, 2022, and October 1, 2022.

Those who agreed to participate in our study were given our three-section questionnaire. The first five questions on our 21-question questionnaire were about sociodemographic information, the second two were about the Incontinence Severity Index (ISI), and the third fourteen were about the Functional Low Back Pain Scale. Participants with missing data and those under the age of 18 were excluded from the study.

2.1. Incontinence Severity Index (ISI)

The score of the scale, consisting of 2 questions developed to be used in epidemiologic and clinical studies to identify women with urinary incontinence, is obtained by multiplying the score in the first question by the score in the second question. 1.2 points: mild; 3.6 points: moderate; 8.9 points: severe; and 12 points are classified as very severe. The Turkish validity and reliability study of the scale was conducted by Uyar Hazar and Şirin (2). Both genders were included in our study.

2.2. Functional Low Back Pain Scale

It is a scale designed to measure how much low back

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discomfort interferes with a patient's ability to perform. Each item has a score between 0 and 5. The scale score can vary between 0-60 and a full score of "60" indicates that any performance activity is not difficult. The Turkish validity and reliability study of the scale was conducted by Koç and Bayar (4).

2.3. Statistical Method

Data were analyzed with IBM SPSS V23. Compliance with normal distribution was examined by coefficients of skewness and kurtosis. The Pearson Correlation Coefficient was used to examine the relationship between scale scores and variables. Linear Regression Analysis was used to analyze the independent variables affecting the Urinary Incontinence Severity Score. The results of the analysis were presented as frequency and percentage for categorical variables and mean \pm standard deviation and median (minimum-maximum) for quantitative variables. The significance level was accepted as $p < 0.05$.

3. Results

The total number of study participants was 174, of whom 52.3% were male and 47.7% were female. The marital status of 47.1% of the participants was single, while 52.9% were married. The proportion of those with mild urinary incontinence was 16.7%, moderate 41.4%, severe 37.9%, and very severe 4% (Table 1).

Table 1. Frequency distributions of demographic data

	Frequency (n)	Percentage (%)
Sex		
Male	91	52.3
Female	83	47.7
Marital Status		
Single	82	47.1
Married	92	52.9
Urinary Incontinence Severity Level		
Mild	29	16.7
Moderate	72	41.4
Severe	66	37.9
Very Severe	7	4

The mean age of the participants in the study was 40.46 years. It was determined that the participants had incontinence

Table 3. Examination of the relationship between scale scores and variables

		Age	Urinary Incontinence Duration	Duration of Functional Low Back Pain	Urinary Incontinence Score
Duration of Urinary Incontinence (years)	r	0.158	-	-	-
	p	0.037	-	-	-
Functional Low Back Pain (years)	r	-0.072	-0.048	-	-
	p	0.347	0.532	-	-
Urinary Incontinence Score	r	0.055	0.023	0.074	-
	p	0.473	0.760	0.330	-
Functional Low Back Pain Score	r	-0.02	-0.023	0.09	0.054
	p	0.795	0.768	0.240	0.480

Pearson Correlation Coefficient

The independent variables affecting the urinary incontinence severity score were analyzed by linear regression analysis, and the regression model was found to be statistically significant ($F=140.764$; $p < 0.001$). In the regression model, the

for an average of 3.52 years. When functional low back pain was analyzed, it was seen that the participants had low back pain for an average of 3.03 years. The mean urinary incontinence score was 6.03, while the mean functional low back pain score was 32.58 (Table 2).

Table 2. Descriptive statistics of variables

	Mean \pm SD	Median (min-max)
Age	40.46 \pm 14.23	41.5 (18-65)
Duration of Urinary Incontinence (years)	3.52 \pm 1.77	4 (1-6)
Duration of Functional Low Back Pain (years)	3.03 \pm 1.41	3 (1-5)
Urinary Incontinence Score	6.03 \pm 2.92	6 (1-12)
Functional Low Back Pain Score	32.58 \pm 18.25	33 (1-60)

The age of the participants and the duration of urinary incontinence were found to have a statistically significant but very weak relationship ($r=0.158$; $p=0.037$). The duration of functional low back pain and age had no statistically significant relationship ($p=0.347$). The duration of functional low back pain had no statistically significant relationship with the duration of urinary incontinence ($p=0.532$). There was no statistically significant relationship between the participants' Urinary Incontinence score and their age ($p=0.473$). The functional low back pain score and urinary incontinence score had no statistically significant relationship ($p=0.480$). There was no statistically significant relationship between the participants' Urinary Incontinence score and functional low back pain duration ($p=0.330$). The score of functional low back pain and the participants' age had no statistically significant relationship ($p=0.795$). The functional low back pain score and urinary incontinence score had no statistically significant relationship ($p=0.768$). There was no statistically significant relationship between the participants' functional low back pain score and functional low back pain duration ($p=0.240$). The functional low back pain score and urinary incontinence score had no statistically significant relationship ($p=0.480$) (Table 3). It was anticipated that there may be differences in terms of gender, but there was no statistically significant relationship between the functional low back pain score and the urinary incontinence score when gender was evaluated together.

enter method was used, and the independent variables explained 87.9% of the dependent variable. It was found that those with moderate urinary incontinence severity scores were 3.362 units higher than those with mild urinary incontinence

severity scores ($p < 0.001$). Those with severe urinary incontinence had a urinary incontinence severity score that was 6.914 units higher than that of those with mild urinary incontinence ($p < 0.001$). The severity of urinary incontinence in those with very severe urinary incontinence was 10.416 units higher than in those with mild urinary incontinence ($p < 0.001$).

Table 4. Examination of independent variables affecting urinary incontinence severity score by Linear Regression Analysis

	β_0 (%95 CI)	S. Error	β_1	t	p	r^1	r^2	VIF
Fixed	1.622 (0.824-2.421)	0.404		4.012	<0.001			
Age	-0.001 (-0.012-0.01)	0.006	-0.007	-0.256	0.798	0.055	-0.02	1.062
Duration of Urinary Incontinence (years)	0.01 (-0.078-0.098)	0.044	0.006	0.224	0.823	0.023	0.017	1.038
Duration of Functional Low Back Pain (years)	-0.044 (-0.154-0.067)	0.056	-0.021	-0.78	0.437	0.074	-0.061	1.041
Functional Low Back Pain Score	0.002 (-0.006-0.011)	0.004	0.015	0.557	0.579	0.054	0.043	1.056
Sex (Male)			Reference					
Female	0.053 (-0.261-0.366)	0.159	0.009	0.333	0.740	-0.007	0.026	1.062
Marital Status (Single)			Reference					
Married	0.058 (-0.25-0.365)	0.156	0.01	0.37	0.712	-0.005	0.029	1.021
Urinary Incontinence Level (Mild)			Reference					
Moderate	3.362 (2.916-3.808)	0.226	0.569	14.879	<0.001	-0.311	0.758	2.092
Severe	6.914 (6.463-7.365)	0.229	1.153	30.252	<0.001	0.666	0.921	2.078
Very severe	10.416 (9.564-11.268)	0.431	0.703	24.148	<0.001	0.42	0.883	1.214

F=140.764, $p < 0.001$, $R^2=88.5\%$, Adjusted $R^2=87.9\%$, β^0 : Unstandardized beta coefficient, β^1 : Standardized beta coefficient, r^1 : Zero-order correlation, r^2 : Partial correlation

4. Discussion

Both low back pain and urinary incontinence have a great effect on the quality of life, and it is thought that the coexistence of both can decrease the quality of life. However, it has been observed that the severity of these symptoms did not affect each other in our study.

One of the risk factors for urinary incontinence is sexual intercourse status and women have a higher rate of risk factors (5, 6). Although it is considered that single women have less sexual intercourse, 47.8% of women with urinary incontinence were found to be married in our study, similar to the study by Sinan et al. in 2018, and the rate of single women was found to be higher.

The rate of patients with moderate urinary incontinence was found to be the highest in our study, and most studies have reported that the severity of urinary incontinence varies according to the type of incontinence (7, 8).

A variety of factors, including lifestyle, occupation, age, and genetics, affect the duration of low back pain (9-13). In our study, the mean duration of functional low back pain was 3 years, and the mean score was around 30 points, which is consistent with many other studies (4, 10, 12).

Pelvic floor muscles weaken as age advances, and thus the prevalence of urinary incontinence increases with age (13). Although the mean age of urinary incontinence was found to be 40 years in our study, the age of onset of incontinence is multifactorial and may date back to childhood (14-16).

Low back pain should be taken into consideration in patients admitted with serious symptoms like urine incontinence, even if there was no statistically significant link between the low back pain score and the urinary incontinence

The functional low back pain score and other variables had no statistically significant effect on the severity of urinary incontinence ($p > 0.05$) (Table 4). It was an unexpected result to see that functional low back pain had no effect on the variables we questioned in our study.

score in our study (17). Furthermore, studies are showing that women with overactive bladder syndrome have a higher incidence of low back pain and pain severity compared to asymptomatic women (18).

Treatment effectiveness is crucial when urinary incontinence and functional low back pain are present since both conditions have a considerable negative influence on quality of life. Despite the fact that our research revealed no correlation between the two diseases, it is still important to improve patient quality of life and raise the efficacy of treatment procedures to lessen the severity of both diseases. Larger and multicenter studies are needed, despite the fact that our study found no correlation between the coexistence of two disorders and their effects.

Ethical statement

Ethical approval was obtained from Hacettepe University Non-Interventional Clinical Research Ethics Committee on April 5, 2022, under the 2022/06 meeting number, the GO 22/288 project number, and the 2022/06-16 decision number before the study.

Conflict of interest

The authors have no conflicts of interest to disclosure.

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Authors' contributions

Concept: İ.F., H.A., Design: İ.F., D.A.B., Data Collection or Processing: İ.F., Analysis or Interpretation: H.A., D.A.B., Literature Search: İ.F., D.A.B., H.A., Writing: İ.F., H.A.

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