Lower Urinary Tract Symptoms, Sexual Function, and the Quality of Life of Married Women with Urinary Incontinence

Seon Hwa Kim¹, Hye Young Kim²

¹College of Nursing, Chonbuk National University Hospital, 20 Geonji-ro, deokjin-gu, Jeonju-si, Jeollabuk-do 54907 South Korea.
²College of Nursing, Research Institute of Nursing Science, Chonbuk National University, 567 Baekje-daero, deokjin-gu, Jeonju-si, Jeollabuk-do 54896 South Korea.

Abstract

The purpose of the study was to identify the level of lower urinary tract symptoms (LUTS), sexual function, and quality of life (QoL) and its correlates in married women with urinary incontinence (UI). Data were collected through self-reported questionnaires that included items on general and UI-related characteristics, and tools to measure LUTS (Scored Form of the Bristol Female Lower Urinary Tract Symptoms Questionnaire, BFLUTS-SF), Sexual function (Female Sexual Function Index, FSFI), and QOL (The Medical Outcomes Study 36-Item Short Form Version 2 Standard, SF-36v2). Data were analyzed using descriptive statistics, t-test, one-way ANOVA, and Pearson correlation coefficients. About 55% of the participants were identified as women with UI. Stress UI was 54.7% and the proportions of urge UI and mixed UI were 13.3% and 32.0%, respectively. The average score for LUTS, sexual function, physical QoL, and mental QoL in married women with UI were found to be 7.55±4.27 points, 14.67±10.52 points, 72.21±18.51 points, and 77.78±15.98 points, respectively. LUTS has a statistically significant negative correlation with sexual function, physical QoL, and mental QoL, respectively, r=-.322 and r=-.360. The results of this study are expected to provide basic data for therapeutic nursing intervention in LUTS management, sexual dysfunction, and low QoL in women with UI, and help to identify and understand the disease of UI.

Keywords: Lower Urinary Track Symptom, Sexual dysfunction, Quality of Life, Women

Abbreviations:
LUTS - Lower Urinary Tract Symptoms
QoL - Quality of Life
UI - Urinary Incontinence
BFLUTS-SF - Scored Form of the Bristol Female Lower Urinary Tract Symptoms Questionnaire
FSFI - Female Sexual Function Index

Introduction

According to the International Continence Society (ICS), urinary incontinence (UI) is a disease that signifies “involuntary leakage of urine” and is generally classified into stress UI, urge UI, and mixed UI [1]. The length of urethra in women is 3–5 cm, which is five times shorter than that of men. In particular, married women have a higher prevalence of UI compared to men due to physical and physiological changes during pregnancy and childbirth [2]. However, married women have a low awareness of illness and treatment of UI, and consider UI as a natural symptom of normal aging process or childbirth experience, and they miss out on proper treatment due to embarrassment and shame. Therefore, studies on UI should be preceded by research in the community rather than in hospitals [3].

The UI have high prevalence and are recognized as important symptoms to represent lower urinary tract symptoms (LUTS). However, in Korea, the focus is mainly on UI, and studies on LUTS, which are likely to occur in duplicate, are rare. LUTS include various urinary symptoms such as urinary frequency, polyuria, nocturia, UI, etc. [4]. These symptoms lead to physical problems such as skin infection, odor, and pressure ulcer [5], and psychological problems such as anxiety about urine odor and incontinence, behavioral limitations (water intake, coughing, or sneezing), frustration or helplessness, and depression; furthermore, these can reduce the quality of life (QoL) of women with UI [6].

Previous studies have shown that women with stress UI have a lower incidence of sexual intercourse and sexual satisfaction than women without it, and tend to avoid sexual activity [7]. The occurrence of LUTS is a major problem women who increasingly engage in social and economic activities but restrict outdoor activities and hobbies as they worry/are anxious about pad use and smell due to incontinence [8]. In particular, studies on UI in Korea have been conducted on elderly women [9] and postmenopausal women [10, 11], but studies on incontinence and related variables of married women, including various age groups (such as 30s and 40s) and physiological changes during pregnancy and childbirth, are rare. In addition, it is important to understand LUTS, sexual function, and QoL, which have been predicted to be related to each other in previous studies on women with UI, in order to increase awareness about UI treatment and to identify related variables that cause sexual dysfunction and low quality of life.

This study aimed to provide basic data for the management of LUTS, sexual dysfunction, and QoL degradation in women with UI. Specifically, this study had the following objectives:
1) to determine the degree of LUTS, sexual dysfunction, and the QoL of women with UI, 2) to determine score differences between LUTS, sexual dysfunction, and the QoL of women with UI according to their general and UI-related characteristics, and 3) to determine the relationship between LUTS, sexual dysfunction, and the QoL of women with UI.

Methods
Study Design
This study involved a descriptive survey that aimed to identify the level of LUTS, sexual function, and QoL, and its correlates in married women with UI.

Participants and Data Collection
The subjects of this study were married women aged 30 to 79 living in J city, married women living with their spouses, and agreed to participate and understand the purpose of this study. According to the statistics of the National Statistical Office, the proportion of married women in J, in 2016 (21.7% in 30s, 27.9% in 40s, 24.7% in 50s, 15.7% in 60s, 9.8% in 70s). The incidence of urinary incontinence was defined as when participants answered 'No' to the question 'Do you have involuntary leakage of urine?' [1, 7]. As a result, there were 128 out of 234 women who had UI.

Data were collected from October to November 2016 after obtaining approval from the Institutional Review Board (IRB) of the Chonbuk National University (IRB No. 2016-08-011-01), located in Jeonbuk Province of South Korea [7]. The participants were informed of the purpose and procedure of this study, voluntary participation, guaranteed anonymity, and the choice to abandon the trial, and written consent was obtained. It took participants an average of 15-20 minutes to complete the survey questions. Questionnaires about participants’ general and UI-related characteristics and LUTD, FSFI, SF-36. Since the information regarding sexual function is sensitive, the questionnaire was filled and sealed in an envelope.

The number of participants needed was calculated according to Cohen's sampling formula using the sample size calculation program G*Power 3.1.1. Based on the results, with a correlation analysis significance level of 0.05, a medium effect size (d) of 0.8, and a power of 0.95, the minimum sample size required for this study was 64.

Measurement
Lower Urinary Tract Symptoms
To measure LUTS, we used a tool that verified the validity of Oh, et al. [12] in the Korean version of the Scored Form of the Bristol Female Lower Urinary Tract Symptoms Questionnaire developed by Brookes et al. [13]. The instrument consisted of a total of 12 items, consisting of four filling symptom items, three voiding symptom items, five incontinence symptom items, with a minimum of 0, and a maximum of 47 items. The higher the score, the greater the degree of LUTS. The reliability Cronbach’s alpha coefficient at the time of development of this tool was .66 ~ .75. The Spearman-Brown coefficient of the participants' general and UI-related characteristics were analyzed using the independent t-test, one-way ANOVA, and post hoc Scheffe’s test and Dunnet T3 test. Finally, the relationship between LUTS, sexual function, and QoL was analyzed using Pearson’s correlation coefficient.

Results
General characteristics
Among the general characteristics of women with UI was 33.4±11.1 years and 59.4% (n = 76) had attained at least high school-level education. Mean duration of marriage was 32.6±14.3 months and the highest number of subjects were found in the 24~42 months range (n=51, 39.8%). The average number of vaginal deliveries was 1.33±0.04 and 74 subjects were found in the 241~420 months range (n=51, 39.8%). 76% had attained at least high school-level education. Mean duration of marriage was 13.1±2.4 years.

Postmenopausal period
The number of vaginal delivery (n=111)

M±SD t or F(p)

≤3 75(47.8) 7.59±3.93 0.29 (0.776) 14.63±6.06 0.60 (0.547) 66.04±18.06 2.29 (0.024) 65.83±16.32 1.75 (0.083)

3 37(28.9) 7.84±4.76 3.13 (0.001) 74.89±21.25 6.13 (0.002) 71.73±15.49 7.16 (0.003)

Kegel's exercise
Yes 83(64.8) 8.12±5.02 2.22 (0.029) 65.61±2.84 6.55 (0.012) 65.30±16.61 0.07 (0.972)

No 45(35.2) 6.51±3.55 4.53 (0.036) 75.06±16.37 1.65 (0.102) 74.15±15.49 1.03 (0.306)

Sexual intercourse per month
0 4(3.2) 7.91±4.35 0.67 (0.426) 26.15±3.21 1.46 (0.191) 71.71±2.03 (0.024) 70.87±2.75 (0.007)

1-2 42(32.0) 8.17±4.34 1.05 (0.303) 65.18±25.24 18.95 (0.009) 67.79±18.18 2.64 (0.106)

>2 28(21.9) 5.86±3.62 17.01 (0.037) 61.92±16.37 16.99 (0.012) 67.15±17.15 16.46 (0.046)

Types of UI
Stress UI 70(54.7) 5.56±2.52 14.59±8.51 6.05 (0.017) 77.66±16.37 9.88 (0.008) 75.26±13.16

Urge UI 17(13.3) 8.18±3.49 2.64 (0.127) 67.30±19.09 2.92 (0.003) 66.77±16.39 0.50 (0.901)

Mixed UI 41(31.0) 10.71±4.96 2.82 (0.249) 68.16±17.23 2.64 (0.007) 60.74±16.09 0.08 (0.774)

Mean Differences in LUTS, sexual function, and Physical and Mental QoL according to the General Characteristics

Among the LUTS scores according to the general characteristics, significant mean differences existed with respect to age, education level, number of vaginal delivery, menopause, Kegel's exercise, and types of UI. Among the physical SF-36 scores according to the general characteristics, significant mean differences existed with respect to age, education level, number of vaginal delivery, menopause, Kegel's exercise, and types of UI. And among the mental QoL scores, according to the general characteristics, significant mean differences existed with respect to age, education level, number of vaginal delivery, menopause, Kegel's exercise, and types of UI.
to the general characteristics, significant mean differences existed with respect to duration of marriage, menopause, Kegel's exercise, and cardiovascular intercorrelations of UUTs.

**LUTS, Sexual Function, and QoL Scores**

Total LUTS score was 7.55±4.27 (range 0–47) and the score for sub-factors was 0.00±2.13 for filling symptom (range 0–15), 1.00±1.27 for voiding symptom (range 0–12), and 2.60±2.26 for lubrication (range 0–26), 2.31±0.48 for orgasm

<table>
<thead>
<tr>
<th>Variables</th>
<th>LUTS</th>
<th>Sexual function</th>
<th>QoL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0-47</td>
<td>7.55±4.27</td>
<td>5.00±1.61</td>
</tr>
<tr>
<td>Filling symptom 0-15</td>
<td>3.00±2.13</td>
<td>0.00±2.13</td>
<td>3.20±0.40</td>
</tr>
<tr>
<td>Voiding symptom 0-12</td>
<td>1.00±2.17</td>
<td>0.00±2.17</td>
<td>6.00±1.60</td>
</tr>
<tr>
<td>Incontinence symptom 0-36</td>
<td>1.00±2.17</td>
<td>0.00±2.17</td>
<td>6.00±1.60</td>
</tr>
</tbody>
</table>
| LUTS=lower urinary tract symptoms, QoL=Quality of life, M=Mean, SD=Standard deviation

**Discussion and Conclusion**

The purpose of this study was to investigate the relationship between LUTS, sexual function and QoL in lower married women with urinary incontinence. In this study, the prevalence according to the type of incontinence in married women was 54.7% for stress UI, 13.3% for urge UI, and 32.0% for mixed UI. The prevalence of UI in previous studies varied according to subject selection and data collection methods. The incidence of UI in this study was similar to that of previous studies [17]. However, according to the results of a population-based sampling study of adult women of the same age range (range 30 to 79 years) as in the present study, the incidence of UI was 41.2%, including stress UI (37.8%) and urge UI (34.9%) [12], and the prevalence of UI in lower was in this study. For the reason for the difference in the prevalence of UI was 95% and the rate of fertility was 3.2±0.11, which was related to the development of UUTS.

In previous studies, the ratio of menopausal and postmenopausal women was 98% and the rate of fertility was 3.2±0.11, which was related to the development of UUTS. In this study, sexual function scores of married women with UI were 14.67±10.52 points out of 36 points. In a study of urologic patients using the same tool, 20.48±6.20 points [19], and a sexual function score of 22.39±9.02 points in patients with UI in Korea [20]. The sexual function scores in this study were significantly lower than those in previous studies [19,20]. As a result of comparing the sexual function characteristics of the study subjects with the previous studies and sexual function scores, it was found that the average age of the sexual function, the number of menopausal women, and 47 years (37.6%), respectively. Because of these differences in general characteristics, sexual function scores in this study seem to be significantly lower. In addition, the sexual function score of this study was 14.67±10.52, which was significantly lower than the cut-off score of sexual dysfunction (26.6 points) [21] suggesting that there are many women with sexual dysfunction. In this study, many of the women with UI might have had sexual dysfunctions.

In the present study, the QoL scores for women with UI were 68.27±1.60 points out of 100 points. The results of this study were similar to those of previous studies in that the QoL of the women with UI was measured by SF-36, the tool is also used in the present study, with a score of 69.0±1.60 [22].

In this study, the LUTS, sexual function, and QoL according to the demographic and UI-related characteristics of married women with UI was related to various sociodemographic and UI-related factors. In conclusion, this study should develop a nursing intervention program that can improve the three variables considering the demographic and UI-related characteristics reported to be associated with LUTS, sexual function, and QoL in married women with UI.

The results of this study showed that LUTS was correlated negatively with sexual function and QoL, and sexual function was positively correlated with QoL. That is, the more severe symptoms of lower urinary tract, the lower the sexual function and the QoL, and the better the sexual function, the higher the QoL. The results of this study suggest that there is a negative correlation between the LUTS and QoL of older women in the local community [23], and there is a positive correlation between the sexual function and the QoL of Turkish women with UI [24].

These results suggest that when sexual function and QoL in women with UI is severe are decreased. The LUTS, sexual function and quality of life of women with UI were found to be related to each other. Based on the results of this study, it is expected that nursing education and intervention programs should be introduced in nursing practice of the community to improve the identification of UI, sexual function, and the QoL of married women.

**Acknowledgments:** None.

**Conflict of interest:** The authors declare no conflict of interest.

**Conflict of interest:** The authors declare no conflict of interest.

**Consent Statement:** The author gives permission to Gexin Publishing for publication of this manuscript in the online Journal of Community Nursing Research and Care.

**References**


