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# Urinary Incontinence: Prevalence and Knowledge Among Community-Dwelling Korean Women Aged 55 and Over

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***Purpose.*** The prevalence of urinary incontinence (UI) among community-dwelling older women in Korea is not well known. This study examined the prevalence of UI and UI-related knowledge among community-dwelling Korean women aged 55 and over.

***Method.*** A cross-sectional descriptive-correlational study was conducted. Data were collected from 276 women aged 55 and over in a metropolitan city using a structured questionnaire.

***Result.*** Of 276 respondents, 28.3% (n=78) reported experiencing UI. More than 50% of respondents incorrectly agreed with the statement that UI is the result of normal aging, with only 20.9% realizing that there is an exercise that can control urine leaks when one coughs, sneezes, or laughs. Older women who had sought treatment had higher mean score for UI-related knowledge.

***Conclusion.*** This study revealed substantial misconception about UI among community dwelling older women, demonstrating that comprehensive educational programs need to be developed to increase knowledge of UI.

**Key Words:** Urinary Incontinence, Older Women, Knowledge

## INTRODUCTION

Urinary incontinence (UI) is a common problem in older women (Merkelj, 2001; Stoddart, Donovan, Whitley, Sharp, & Harvey, 2001; Wyman, 2003). Although sampling and methodological differences account for the variability in estimates from surveys, previous studies in the United States have shown that UI affects 15-35% of community-dwelling older women (Agency for Health Care Policy and Research: AHCPR, 1996) and more than 50% of those living in nursing homes (Fultz & Herzog, 1996; Newman, 2002). The economic impact of UI is tremendous: direct and indirect costs related to UI in the United States have been estimated at 15 billion dollars annually (AHCPR, 1996).

UI is not a life-threatening disease, but it can decrease the quality of life substantially because of its association with infection, decubitus ulcers, limitation of activities, and falls (Doughty & Waldrop, 2000). UI can also cause negative physical and psychosocial health consequences in older women because of UI-related stress, inconvenience, low self-esteem, social isolation, and depression (Doughty & Waldrop, 2000; Shumaker, Wyman, Uebersax, McClish, & Fantl, 1994). Moreover, UI is a predictor of institutionalization due to increasing func-

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tional disability and dependency of the elderly (Merkelj, 2001).

In developed Western countries, the recognition of the seriousness of UI as a public health problem has lead to the acquisition of considerable knowledge on UI and its management over the past 2 decades (Gray, 2003; Wyman, 2003). A clinical practice guideline for the management of UI was developed and updated by AHCPR (1996), and the International Consultation on Incontinence recently updated diagnostic approaches and therapeutic interventions using a comprehensive literature review (Fonda et al., 2002). Nurses have successfully developed many behavioral intervention programs for UI that can be used in primary care settings, specialty clinics, and group-based community programs (Dougherty et al., 2002; McFall, Yerkes, & Cowan, 2000; Newman, 2002; Sampselle et al., 2000). This has lead to an increase in the public awareness of UI.

However, in Korea it was not until the end of the 1990s that nursing researchers systematically began to investigate the UI in older adults. Very little research has focused on UI prevalence among older Korean women. Moreover, no study has investigated UI related knowledge. The prevalence of UI and UI related knowledge among community-dwelling older women need to be assessed to identify the unmet needs of these subjects and to develop appropriate intervention programs for them.

This study had two main aims: (1) to identify the prevalence of UI among community dwelling women aged 55 and over, and (2) to determine the UI-related knowledge of this population. This study was conducted as a preintervention survey for the development of a comprehensive UI self-management program.

## LITERATURE REVIEW

### *UI and the Elderly*

The problem of UI is not unique to the elderly, but epidemiological studies show that the risk of UI is greater for older people, women, and those with physical and cognitive impairments (Doughty & Waldrop, 2000; Fultz & Herzog, 1996; Wyman, 2003). The reported prevalence of UI in the elderly varies depending on the definitions used, demographics of the study population, research methods, and study design (Hampel et al., 1997; Merkelj, 2001). Hampel et al. (1997) reviewed studies on the prevalence of UI in older women, reporting a mean prevalence of 23.5% (range 4-44%), and Thom (1998) reported a mean prevalence of 34% (range 17-55%). The prevalence of UI in older women is at least twice that in older men (Merkelj, 2001). The prevalence of UI is much higher in institutionalized elderly than in community-dwelling elderly: Hampel (1997) reported a mean prevalence of 55.7% (range 22-90%) in the former group.

In Korea, few recent studies have investigated the prevalence of UI among older women (Choi & Baik, 1998; Ju & Kim, 2000; Kim, 2002; Park, Kwon, & Kang, 2001). The prevalence of UI among Korean elderly also widely varies ranged from 14% to 64.5%, with a mean of 42.5%.

### *Knowledge of UI*

Many older women do not seek help for UI even though UI can be cured or significantly improved in 30-70% of cases using behavioral interventions such as pelvic floor muscle exercise, lifestyle modification, and bladder training (Dougherty et al., 2002; Newman, 2002; Wyman, 2003). Several factors can represent barriers to older women with UI seeking care, such as misconceptions regarding the causes and available treatments of UI, concern about the treatment costs, embarrassment, and accessibility to health-care professionals (Burgio et al., 1994; Doughty & Waldrop, 2000; Stoddart et al., 2001). Relatively few studies have investigated knowledge of UI among older people. Studies in Western countries have identified substantial misconceptions of the causes of UI and available treatments for UI among older people (Branch et al., 1994; Keller, 1999).

Branch et al. (1994) investigated the knowledge of UI using by 1,140 community-dwelling elderly. UI knowledge was measured using a 14-item UI quiz that was developed by the authors using AHCPR UI guideline. Many of the elderly in this study answered all items incorrectly: in only 4 of the 14 items did the percentage of correct answers exceed 50%. More than 50% (58.4%) of the respondents incorrectly agreed with the statement that UI is one of the results of normal aging. The authors reported that there are substantial misconceptions among community-dwelling older people about UI, and that these misconceptions are more prevalent among older and less-educated respondents.

Keller (1999) examined the occurrence, knowledge, and attitudes about UI using 117 women aged 55 and over. Knowledge was measured using a UI quiz developed by Branch et al. (1994). Of the 117 respondents,

67.5% had experienced UI, and substantial misconceptions were reported about the causes and available treatments of UI. More than 50% (53.4%) of the respondents incorrectly agreed with the statement that UI is a normal result of aging, and 31.3% of the respondents incorrectly agreed with the statement that most people become incontinent by the time they reach an age of 85 years.

The literature reviewed above indicate that many older people mistakenly consider UI as an inevitable, irreversible, and normal part of aging. These misconceptions which are prevalent among older people may impact on their help-seeking behavior. Therefore, education programs need to be developed to increase their awareness of UI and to decrease the negative impact of UI. These efforts may improve the quality of life of elderly people.

## METHODS

### *Subjects and Setting*

The target population for this cross-sectional descriptive study was community-dwelling women aged 55 and over residing in a district (called a 'Gu') in a metropolitan city in Korea. A Gu consists of 13 subdistricts, called 'Dong', and each Dong consists of several Tongs. Each Tong includes several Bans. A total of 12,813 women aged 55 and over resided in the study area. The sample of this study was obtained through a multistage sampling procedure. A database of the Household Administration Office of each-Dong was used to generate the sample. First, odd numbers of Tongs from the each of the 13 dongs were selected. Second, from the each odd number of Tong the second Bans were selected. This procedure selected 877 women aged 55 and over as the potential participants of this study.

### *Procedures*

Data were collected by eight trained female research assistants using a structured questionnaire. Written consent was obtained from each participant to assure their right to self-determination. Participants were informed that their decision to participate in the research would not affect their status. They were also informed that they could withdraw from the study at any time during the interview. Confidentiality was assured before data collection. Data were collected from December, 2002, to January, 2003.

With the permission and help of the Dong-Gu (district) office, the research assistants visited the homes of the potential participants. If the potential participants agreed to take part in the study, they were asked to participate in a face-to-face interview at their home using a structured questionnaire; the interview took 20–30 minutes. To facilitate openness of responses, interview was conducted in a private place whenever possible. If the potential participants were not at home, the research assistants made an appointment either with their families or with the potential participants via telephone. A final sample of 276 women participated in this study (response rate of 31.5%).

### *Instruments*

To preserve the sensitivity of the instrument in Korean culture, instruments developed in English that had not been used in Korean populations were translated using Brislin's (1980) guidelines for cross-cultural research. Three steps comprising translation, back-translation, and pilot study were used to ensure the quality of the procedure. Permission to use the instrument in this study was obtained from the authors of each instrument.

**UI and types of UI:** UI has been defined as 'the involuntary loss of urine which is a social or hygienic problem and is objectively demonstrable' (International Continence Society, 1988, p. 17). In this study, participants were considered to suffer from UI if they had experienced at least one episode of involuntary urine loss during the previous month, in which case they were asked to complete UI-related additional questionnaires. First, the type of UI was classified as urge, stress, or mixed UI based upon the questions derived from the Bristol Female Lower Urinary Tract Symptoms Questionnaire (Jackson et al., 1996), which was translated into Korean by Hong (1997). Urine leakage before reaching a toilet was classified as urge UI; urine leakage during coughing, sneezing, or physical activity, as stress UI; and urine leakage in both urge and stress situations, as mixed UI. Other UI-related questionnaires asked about the duration of UI, frequency of UI, amount of UI, treatment sought for UI, and reasons for not seeking help for UI.

**UI-related knowledge:** UI-related knowledge was measured with a 14-item UI quiz that was developed by Branch et al. (1994) on the basis of their clinical experience with UI, published data, and their own prior research. The content validity of this instrument was established using the AHCPR Clinical Practice Guideline:

Acute and Chronic Incontinence as the primary reference source. Participants answered 14 UI-related statements with 'agree', 'disagree', or 'don't know'. Among the 14 statements, six of the statements in the quiz were true, so the correct answer would be 'agree'; eight statements were false, so the correct answer would be 'disagree'. The percentage correct quantified the overall amount of knowledge of UI.

### *Data Analysis*

Data were analyzed using SPSS/PC 9.0. Descriptive statistics were performed to identify demographic characteristics of participants, prevalence of UI and its related variables, and UI-related knowledge. The t-test was used to identify subgroup differences.

## RESULTS

### *Demographic and Urogenital Characteristics*

Demographic and urogenital characteristics of the participants were presented in Table 1. The mean age of the respondents was 70.11 years (SD=9.59), and ranged from 55 to 97 years. Forty-six percent ($n$=127) were married, and about half were not educated. Most participants had given birth at least once. Approximately 17% had received reproductive-system surgery in the past.

### *Prevalence of UI and UI Variables*

Of the 276 participants in this study, 28.3% ($n$=78) reported that they experienced the episode of UI. Among older women who reported UI episode, 12.8% ($n$=10)

**Table 1.** Demographic and Urogenital Characteristics of the Respondents (N=276)

| | Variablesn (%) | n (%) |
|---|---|---|
| Age (Years) | 55-64 | 92 (33.3) |
| | 65-74 | 89 (32.2) |
| | 75-84 | 74 (26.8) |
| | 85+ | 21 (7.6) |
| Marital Status | Single | 1 (0.4) |
| | Married | 127 (46.0) |
| | Widowed | 147 (53.3) |
| | Divorced | 1 (0.4) |
| Education Level | No School | 125 (45.3) |
| | Elementary School Completed | 102 (37.0) |
| | Middle School Completed | 24 (8.7) |
| | High School Completed | 20 (7.2) |
| | College Completed | 5 (1.8) |
| Economic Status | Low | 1 (0.4) |
| | Middle low | 18 (6.5) |
| | Middle | 194 (70.3) |
| | Middle high | 43 (15.6) |
| | High | 20 (7.2) |
| Experience of Delivery | Yes | 268 (97.1) |
| | No | 8 (2.9) |
| Number of Deliveries* | 1-2 | 48 (17.9) |
| | 3-4 | 95 (35.5) |
| | 5-6 | 84 (31.3) |
| | 7+ | 41 (15.3) |
| Difficult Deliveries* | Yes | 37 (13.8) |
| | No | 231 (86.2) |
| Reproductive Surgery | Yes | 46 (16.7) |
| | No | 230 (83.3) |

*n=268 (only included subjects who have experience of delivery)

**Table 2.** UI-related Variables of the Incontinent Respondents (N=78)

| Variables | | N (%) |
|---|---|---|
| Type of UI | Urge UI symptom only | 10 (12.8) |
| | Stress UI symptom only | 30 (38.5) |
| | Mixed (Urge and Stress) symptom | 38 (48.7) |
| Duration of UI (year, M±SD) | 5.35 (4.77) | |
| Frequency of UI | Once or Less than once /week | 55 (70.5) |
| | 2 or 3 times/week | 7 (9.0) |
| | Once/day | 9 (11.5) |
| | Several times/day | 7 (9.0) |
| Amount of Urine Lost | Few drops | 52 (66.7) |
| | Underwear damp | 22 (28.2) |
| | Wet outer clothes | 4 (5.1) |
| | Running down legs or onto floor | 0 (0.0) |
| Treatment sought for UI | Yes | 24 (30.8) |
| | No | 54 (69.2) |
| Reasons not seeking treatment for UI | Embarrassment | 17 (31.4) |
| | Not considered as disease | 35 (64.8) |
| | Think as cured | 1 (1.9) |
| | Fear of no way to cure | 1 (1.9) |

were classified as having urge incontinence, 38.5% ($n$=30) as stress incontinence, and 48.7% ($n$=38) as mixed (urge and stress) incontinence (Table 2). Approximately 50% ($n$=38) of those who had experienced UI reported that their UI had persisted for longer than 5 years (mean=5.35 year). Almost 71% ($n$=55) reported their UI frequency as one incident or less per week, and more than 90% reported their amount of urine loss as a few drops or underwear damp.

Only 30.8% ($n$=24) of respondents with UI sought treatment from health-care professionals. Most of these respondents (69.2%, $n$=54) had not sought treatment because they did not consider UI as a disease or embarrassment. They were also reluctant to discuss UI problems with their adult children, friends, or even their spouses.

### *UI-Related Knowledge*

The UI quiz statements and specific responses are presented in Table 3. None of the participants answered all the items correctly. More than 50% of respondents incorrectly agreed with the statement that UI is the result of normal aging and with the statement that most people aged 85 and over lose control of their urine on a regular basis. Fifty percent or more of the respondents correctly agreed to two items: 'Women are more likely than men to develop UI' and 'Many people with involuntary urine loss can be cured and almost everyone can experience significant improvement'. More than 50% of the respondents answered 'don't know' to four of the items in the questionnaire: 'Many common over-the-counter medications can cause involuntary urine loss', 'Involuntary urine loss is caused by only one or two conditions', 'Involuntary loss of urine can be caused by several easily treatable medical condition', and 'There are exercises that can help control urine if one leaks when they cough, sneeze, or laugh'. Only 9.1% of the respondents correctly agreed with the following statement: 'Many common over-the-counter medications can cause involuntary urine loss'. Almost twenty one of respondents (20.9%) realized that there is an exercise that can help control urine leaks when one coughs, sneezes, or laughs.

As shown in Table 4, the mean score of UI-related knowledge did not differ significantly between the incontinent and continent groups ($t$=0.497, $p$=0.620). However, the mean score of UI-related knowledge was significantly different between the UI-related treatment-seeking group and the no-treatment-seeking group ($t$=3.029, $p$=0.003); those who had sought treatment had higher mean score for UI-related knowledge.

### *Study Limitations*

The response rate of this study was relatively low with response rate of 31.5%. It may not be representative of incontinent women in general. Compared with the population structure drawn from resident registration population statistics of the surveyed community, relatively young women (age 55–64 years) were underrepresented

**Table 3.** Results of Urinary Incontinence Quiz

| Items | Percentages | | |
|---|---|---|---|
| | Correct | Incorrect | Don't know |
| 1. Involuntary loss of urine, often called a leaky bladder or urinary incontinence, is one of the results of normal aging | 31.4 | 54.5 | 14.1 |
| 2. Most people will involuntarily or accidentally lose control of their urine on a regular basis by the time they reach age 85 | 20.0 | 50.0 | 30.0 |
| 3. Many common over-the-counter medications can cause involuntary urine loss | 9.1 | 18.2 | 72.7 |
| 4. Other than pads, diapers, and catheters, little can be done to treat or cure involuntary urine loss | 41.8 | 8.6 | 49.5 |
| 5. Once people start to lose control of their urine on a regular basis they usually can never regain complete control over it again | 46.4 | 27.3 | 26.4 |
| 6. Most people who currently have involuntary loss live normal lives | 39.1 | 29.5 | 31.4 |
| 7. Most physicians ask their older patients whether they have bladder control problems | 36.4 | 23.2 | 40.5 |
| 8. Women are more likely than men to develop urinary incontinence | 59.1 | 6.4 | 34.5 |
| 9. Most people with involuntary urine loss talk to their doctors about it | 17.3 | 47.3 | 35.5 |
| 10. Involuntary urine loss is caused by only one or two conditions | 22.7 | 15.5 | 61.8 |
| 11. Many people with involuntary urine loss can be cured and almost everyone can experience significant improvement | 57.3 | 8.6 | 34.1 |
| 12. Involuntary loss of urine can be caused by several easily treatable medical condition | 21.8 | 19.5 | 58.6 |
| 13. The best treatment for involuntary urine loss is usually surgery | 46.4 | 17.3 | 36.4 |
| 14. There are exercises that can help control urine if one leaks when they cough, sneeze, or laugh | 20.9 | 15.5 | 63.6 |

and relatively old women (age over 75 years) were overpresented, which may be attributable to younger women working during the daytime and therefore not being included in the study. This age bias may have resulted in an overestimation of the overall prevalence of UI. Moreover, the impact on quality of life may be underestimated considering that younger women consider that UI has a worse impact on their lives (Hunskaar & Vines, 1991). Our findings should be analyzed in that context and should therefore not be interpreted for all incontinent older women. Moreover, UI-related data such as prevalence, type, and frequency of UI were assessed only by self-reported data which is subjective: objective data such as the pad test, bladder chart, physical examination, and urodynamics investigations may provide more quantitative UI data.

## DISCUSSION

The UI prevalence in older women in this study, at 28.3%, is similar to the prevalence (27.2%) in the sample of Ju and Kim (2000) of Korean women aged 60 and over, and that (31.0%) in the sample of Stoddart et al. (2001) of women aged 65 and over. Two previous studies in Korea (Park et al., 2001; Choi & Paek, 1998) have reported IU prevalences higher than 60%, but this may be attributable to the lack of a timescale in the definitions they used for UI: they asked 'Have you leaked urine?' rather than 'Have you leaked urine in the last month?' as in the present study. Extensive reviews and analyses of previous studies dealing with prevalence of UI have revealed that variability in UI prevalence is related to the definition of UI, sampling, and methodological differences (Hampel et al., 1997; Thom, 1998). Therefore, standardized terminology and validated measures to define UI need to be developed to determine more accurate prevalence of UI among Korean older women.

In terms of type of UI, stress incontinence and mixed incontinence were more prevalent than urge incontinence. This result is similar to previous studies in Korea (Choi & Paek, 1998; Ju & Kim, 2000). However, studies in Western countries have revealed that urge incontinence is the most common type of UI in the elderly, occurring in 40-70% of those who present to physician with complaints of incontinence (Merkelj, 2001). Thom

**Table 4.** Differences of Cumulative Scores of UI-related Knowledge by Group

| Variable | M (SD) | *t* | *p* |
|---|---|---|---|
| Continent group | 3.88 (2.79) | 0.497 | 0.620 |
| Incontinent group | 3.69 (3.05) | | |
| Treatment-seeking group | 5.25 (2.38) | 3.029 | 0.003 |
| No treatment-seeking group | 3.28 (2.76) | | |

**Table 5.** Comparison of the Percentage of Correct Answers Among Studies

| Items | Percentage of correct answers | | |
|---|---|---|---|
| | Kim (present study) | Branch et al. (1994) | Keller (1999) |
| 1. Involuntary loss of urine, often called a leaky bladder or urinary incontinence, is one of the results of normal aging | 31.4 | 27.4 | 35.1 |
| 2. Most people will involuntarily or accidentally lose control of their urine on a regular basis by the time they reach age 85 | 20.0 | 30.4 | 46.4 |
| 3. Many common over-the-counter medications can cause involuntary urine loss | 9.1 | 21.8 | 21.4 |
| 4. Other than pads, diapers, and catheters, little can be done to treat or cure involuntary urine loss | 41.8 | 37.9 | 75.2 |
| 5. Once people start to lose control of their urine on a regular basis they usually can never regain complete control over it again | 46.4 | 42.3 | 65.5 |
| 6. Most people who currently have involuntary loss live normal lives | 39.1 | 69.6 | 80.7 |
| 7. Most physicians ask their older patients whether they have bladder control problems | 36.4 | 31.7 | 36.9 |
| 8. Women are more likely than men to develop urinary incontinence | 59.1 | 39.1 | 46.0 |
| 9. Most people with involuntary urine loss talk to their doctors about it | 17.3 | 15.5 | 37.8 |
| 10. Involuntary urine loss is caused by only one or two conditions | 22.7 | 27.8 | 44.5 |
| 11. Many people with involuntary urine loss can be cured and almost everyone can experience significant improvement | 57.3 | 59.2 | 72.3 |
| 12. Involuntary loss of urine can be caused by several easily treatable medical condition | 21.8 | 56.1 | 49.1 |
| 13. The best treatment for involuntary urine loss is usually surgery | 46.4 | 41.6 | 40.5 |
| 14. There are exercises that can help control urine if one leaks when they cough, sneeze, or laugh | 20.9 | 56.5 | 66.1 |

(1998) reviewed 21 studies - published in English - reporting the prevalence of UI in a population-based sample of adults. This also revealed a higher prevalence of stress incontinence in younger women; however, Thom found that urge incontinence and mixed incontinence predominated among older women than younger women. As Gray (2003) stated, the cultural background may influence the overall risk of UI and the type of UI. More studies are needed to identify the impacts of cultural differences on the prevalence of different types of UI.

Only 30.8% ($n$=24) of the incontinent women in the present study had sought treatment from health-care professionals. This low figure is consistent with those from other studies performed in Korea: only 9.8-26.1% of older Korean women with UI seek help from health-care professionals (Ju & Kim, 2000; Kim, 2002; Park et al., 2001). Results of previous studies of treatment seeking in Western countries showed that about 50% of individuals with UI fail to seek treatment from their physicians or other health-care professionals (Burgio et al., 1994; Stoddart et al., 2001). This implies the possibility of under treatment of UI in older women. Moreover, older women who reported experiencing UI in this study were reluctant to discuss this topic with family members, including adult children, friends, or even their spouses. It appears that UI remains as a taboo subject for many older Korean women.

Data from this study also revealed misconceptions about the causes of UI and the effectiveness of available treatments. A comparison with previous studies of the percentage correct answers on the UI quiz is given in Table 5. More than 50% of the respondents in this study correctly agreed with two of the statements, compared with correct answers to four statements in the study by Branch et al. (1994) and to five statements in the study by Keller (1999). For example, in the present study only 31.4% of respondents correctly answered that UI is a normal part of aging, with more than 50% agreeing - incorrectly - with this statement. Older women who perceive UI as an inevitable result of aging are less likely to seek treatment. In fact, in this study the older women who had not sought help from health-care professionals had lower scores on the UI quiz. This result is consistent with the findings of Keller (1999). Considering the relationship between the level of UI related knowledge and treatment-seeking behaviors, educational programs should be developed to increase UI related treatment-seeking behaviors of older women.

Only 20.9% of the respondents knew about the Kegel exercise for stress incontinence, compared to 56.5% in the study by Branch et al. (1994) or 66.1% in the study by Keller (1999). This lack of knowledge of possible approaches to relieving or curing stress UI indicates that public education regarding UI is greatly needed for older Korean women. More than 50% of respondents in the present study correctly answered that UI can be cured and that patients can experience significant improvement (item 11 in the questionnaire). However, the problem is that many older women still do not seek help for UI although they know UI can be cured or relieved. Therefore, nurses could play an important role in motivating older women to act on their UI-related knowledge.

The high prevalence of UI, the fact that almost 70% of older women with UI in this study remained untreated. Substantial misconceptions about the causes of UI and the effectiveness of available treatments in this sample indicate that there are considerable unmet needs among older women in Korea. Based on the findings from this study, the following recommendations are proposed in nursing education, practice, and research. First, community-based intervention programs should be developed to increase knowledge on UI among older women, so that those with UI can learn about the treatments that are available and feel free to discuss their condition with health-care professionals, family members, and friends. Second, strategies to promote treatment-seeking behaviors and to decrease barriers of treatment-seeking behaviors for UI need to be investigated and employed in the community. For cultural reasons, Korean women may have a strong preference for female health-care professionals, and hence one strategy is to increase the number of female specialists in female urology in Korea, such as urology nurse practitioners, urology nurse specialists, and female urologists. Currently there are only four female urologists and a few urology nurse specialists in Korea, and this may be at least partly responsible for the low level of treatment-seeking behaviors for UI. Third, nurses caring for older women are in an excellent position to prevent or manage UI, and hence they should familiarize themselves with the implementation of continence-maintenance interventions. The educational competencies of nurses in continence care could be increased by providing an appropriate basic curriculum for nursing students and continuing eduction for

practicing nurses. This may improve communication between nurses and their patients and the public, thereby increasing overall knowledge of UI. Finally, since culture may be an important factor influencing the prevalence of treatment-seeking behaviors by Korean women with UI, further research is needed to identify cultural and transcultural aspects of UI.

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