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ORIGINAL RESEARCH

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Rates of Remission, Improvement, and Progression of Urinary Incontinence in Asian, Black, and White Women

DATA FROM THE NURSES' HEALTH STUDY SHOW RACIAL DIFFERENCES THAT SHED LIGHT ON THE CAUSES OF THIS COMMON CONDITION.

ABSTRACT

Background: Evidence suggests that race affects the prevalence and incidence of urinary incontinence (UI) in women. But little is known about racial differences in the rates of remission, improvement, and progression of UI in women.

Objective: We sought to compare changes in UI frequency over two years among Asian, black, and white women with UI.

Methods: Participants in the Nurses' Health Study and the Nurses' Health Study II responded to mailed questionnaires (in 2000 and 2002, and 2001 and 2003, respectively), giving information on race and the frequency of UI. Prospective analyses were conducted over two years from data gathered on 57,900 women, ages 37 to 79, who had at least monthly UI at baseline.

Results: Over the two two-year study periods, black women were significantly more likely than white women to report remission of UI (14% versus 9%, respectively), and Asian women were significantly more likely than white women to report less frequent UI (40% versus 31%, respectively). Improvement was more common in older black women than in older white women, but rates of improvement were comparable between younger black and younger white women. Black women were less likely than white women to report more frequent UI at follow-up (30% versus 34%, respectively), and, after adjusting for health and lifestyle factors, the difference was borderline statistically significant.

Conclusions: Changes in the frequency of UI appear to vary by race, even after adjustment for risk factors. These findings may account for some of the previously observed differences in UI prevalence across racial groups. Although UI is a common condition in women of all races, nurses and other clinicians should be aware that its presentation may vary according to race. Such an understanding could increase clinicians' confidence in discussing UI with patients, reducing the possibility that the condition goes unrecognized.

Keywords: epidemiology, progression, race, remission, urinary incontinence

Urinary incontinence (UI), defined by the International Continence Society as the "involuntary loss of urine,"[1] is a common condition, particularly in women. Among community-dwelling adults, UI is at least twice as common in women as men—its prevalence ranging from about 20% in women younger than age 45 to about 30% in those ages 80 or older.[2] In nursing homes, the prevalence is much higher, with estimates exceeding 70% for both women and men.[2]

In addition, the consequences of UI are substantial. For example, unmanaged UI can lead to rashes, skin infections, urinary tract infections, and pressure ulcers.[3] Urge incontinence, associated with frequent, urgent trips to the bathroom, has been shown to increase the risk of falls and fractures among older, community-dwelling women.[4] Also, two literature reviews, one conducted in 1990 and one in 2004, found several studies showing links between UI and embarrassment and anxiety, as well as decreased participation in physical and social activities.[5, 6] Moreover, the related costs—of absorbent pads, treatment, and institutionalization—are significant. For example, one analysis estimated that the mean annual cost (in 2005 dollars) of routine care for UI, including pads and laundry, ranged from $143 to $398, depending on the frequency of UI.[7] And Thom and colleagues observed that women

with UI had twice the risk of nursing home admission of women without it.[8]

Still, such burdens often go unrecognized. In an earlier study, we found that a minority (38%) of women who developed at least weekly UI during a two-year period reported their symptoms to a physician.[9] Moreover, physicians are unlikely to initiate discussions about UI. For example, in a U.S. survey of 1,970 women with UI, 45% reported talking to a physician about it; of those, 85% initiated the conversation themselves.[10]

Much about the epidemiology of UI is not well understood. For instance, the anatomical and functional differences in the pelvic floor between black and white women suggest that the risks of pelvic floor dysfunction may vary by race.[11-14] Also, evidence from mostly cross-sectional epidemiologic studies indicates that the burden of UI differs by race—specifically, that there's a lower prevalence of UI in black and Asian women than in white women.[15-20]

Cross-sectional epidemiologic studies indicate that there's a lower prevalence of UI in black and Asian women than in white women.

UI prevalence is a function of both incidence and duration—that is, the number of women with UI at one point in time (prevalence) is determined by both the rate at which new cases develop (incidence) and how long symptoms last. While there's some initial evidence that race is related to UI incidence,[20,21] including data from our own study,[22] little is known about the link between race and UI duration. Data on the rates of UI progression, improvement, and remission across races might clarify why studies have shown racial differences in UI prevalence and help clinicians to better understand the causes of UI. Such awareness could increase clinicians' confidence in discussing UI with patients, reducing the likelihood that the condition will go unrecognized. To this end, we sought to examine changes in UI frequency over two years in Asian, black, and white women with UI.

METHODS

The Nurses' Health Study (NHS) began in 1976 when 121,700 female RNs, ages 30 to 55, returned a mailed questionnaire on their medical history and health behaviors.[23] The Nurses' Health Study II (NHS II) began in 1989 when 116,430 female RNs, ages 25 to 42, returned a similar questionnaire.[23] Return of the questionnaire implied informed consent. Participants in both cohorts subsequently provided updated health and lifestyle information on biennial questionnaires. Every two years, a full-length questionnaire is sent in an initial mailing, after which an abbreviated version is sent to nonresponders. The 2000 and 2001 questionnaire cycles for the NHS and NHS II, respectively, provided baseline data for this report; the rate of follow-up two years later was 94% in the NHS and 95% in the NHS II. The response rate to questions on UI was also high; in the two cohorts combined, 87% of women who reported UI at baseline reported on UI frequency on the follow-up questionnaire. The Committee on the Use of Human Subjects in Research at the Brigham and Women's Hospital in Boston approved this study.

Study population. Questions about UI were included on the full-length (initial and follow-up) questionnaires in the NHS (2000 and 2002) and the NHS II (2001 and 2003). NHS and NHS II participants who gave both baseline and follow-up information on UI were identical to the entire NHS and NHS II cohorts in mean age, mean body mass index (BMI), and parity (see Table 1). In addition, the racial distribution of those with UI at baseline and follow-up was comparable to that of the whole cohort (96% and 92%, respectively, were white in the NHS; 96% and 94%, respectively, were white in the NHS II).

For these analyses, we focused on changes in UI frequency over two years (2000 to 2002 in the NHS and 2001 to 2003 in the NHS II) among Asian, black, and white women who reported UI, defined as leakage at least once per month, at baseline. We therefore excluded women who reported no UI (NHS, n = 26,669; NHS II, n = 28,388) or infrequent UI (occurring less than once per month: NHS, n = 25,307; NHS II, n = 20,169) at baseline. We also excluded women who gave no information on UI frequency at follow-up (NHS, n = 3,208; NHS II, n = 6,302) and women who gave no information on race or who didn't identify themselves as Asian, black, or white (NHS, n = 966; NHS II, n = 591). We included 27,847 NHS participants and 30,053 NHS II participants in these analyses.

Measurement of UI remission, improvement, and progression. In both cohorts, women were asked on

the baseline and follow-up questionnaires, "During the last 12 months, how often have you leaked or lost control of your urine?" Response options were "never," "less than once a month," "once a month," "2 to 3 times per month," "about once a week," and "almost every day." Among these nurses, response to this question was highly reproducible over three to four months in reliability testing,[24] which involved sending a second mailing several months after the return of the baseline NHS questionnaire to a random sample of 100 women who reported various frequencies of UI and 100 women who reported no UI. Overall, 90% of the women remained within one category of their original response.

To examine changes in UI frequency over two years among Asian, black, and white women with UI, we defined two groups at baseline: those with occasional UI (occurring one to three times per month) and those with frequent UI (occurring at least once per week). We defined *remission* as no UI at follow-up. We defined *improvement* as a decrease in symptoms (either a change from frequent or occasional UI to less frequent UI or no leakage) in two years. We defined *progression* as a change from occasional UI at baseline to frequent UI at follow-up.

Measurement of race. Participants were asked to indicate their race and ethnicity on the NHS and NHS II questionnaires. We classified women as Asian, black,

TABLE 1. Characteristics of Participants Reporting at Least Monthly UI in 2000 (NHS) and 2001 (NHS II)

	NHS			NHS II		
Variable	**Asian (n = 164)**	**Black (n = 204)**	**White (n = 27,479)**	**Asian (n = 244)**	**Black (n = 282)**	**White (n = 29,527)**
Age, years (SD)[a]	67.2 (6.3)	67.6 (6.6)	66.6 (7.1)	46.6 (4.5)	47.4 (4.1)	46.7 (4.6)
BMI, kg/m^2 (SD)[a, b]	24.4 (3.9)	30.1 (6.2)	27.6 (5.7)	24.1 (4)	31.3 (8.3)	28 (6.8)
Physical activity, MET–hrs/wk (SD)[c]	18.3 (17.8)	13.4 (13.3)	16.4 (15.1)	17.6 (19.5)	17.3 (18.7)	19.4 (19)
Parity (%)[c]						
0	10 (6.1)	13 (6.4)	1,321 (4.8)	48 (19.7)	61 (21.6)	4,673 (15.8)
1–2	67 (40.9)	106 (52)	9,043 (32.9)	140 (57.4)	143 (50.7)	16,076 (54.4)
3+	85 (51.8)	79 (38.7)	16,750 (61)	50 (20.5)	72 (25.5)	8,224 (27.9)
NR	2 (1.2)	6 (2.9)	365 (1.3)	6 (2.5)	6 (2.1)	554 (1.9)
Hysterectomy (%)	72 (43.9)	118 (57.8)	13,000 (47.3)	31 (12.7)	93 (33)	5,937 (20.1)
Premenopausal (%)	0 (0)	1 (0.5)	298 (1.1)	176 (72.1)	183 (64.9)	20,127 (68.2)
Postmenopausal hormone therapy use (%)[c, d]						
Never	23 (14)	49 (24.1)	5,174 (19)	17 (25)	15 (15.2)	1,453 (15.5)
Past	49 (29.9)	62 (30.5)	7,321 (26.9)	5 (7.4)	16 (16.2)	1,732 (18.4)
Current	89 (54.3)	71 (35)	13,474 (49.6)	40 (58.8)	58 (58.6)	5,985 (63.7)
NR	3 (1.8)	21 (10.3)	1,212 (4.5)	6 (8.8)	10 (10.1)	230 (2.4)
Cigarette smoking (%)[c]						
Never	106 (64.6)	105 (51.5)	12,186 (44.3)	208 (85.2)	192 (68.1)	18,891 (64)
Past	56 (34.1)	89 (43.6)	13,152 (47.9)	27 (11.1)	63 (22.3)	8,088 (27.4)
Current	2 (1.2)	10 (4.9)	2,141 (7.8)	9 (3.7)	27 (9.6)	2,548 (8.6)
Diabetes (%)	18 (11)	32 (15.7)	2,768 (10.1)	10 (4.1)	19 (6.7)	1,019 (3.5)
Hypertension (%)	87 (53)	155 (76)	14,668 (53.4)	64 (26.2)	128 (45.4)	6,214 (21)
Major neurologic disease (%)[e]	5 (3)	7 (3.4)	1,044 (3.8)	0 (0)	6 (2.1)	652 (2.2)
Functional limitations (%)	8 (4.9)	21 (10.3)	2,528 (9.2)	4 (1.6)	17 (6)	968 (3.3)
Medication use (%)[f]	50 (30.5)	97 (47.5)	9,041 (32.9)	23 (9.4)	82 (29.1)	3,578 (12.1)

BMI = body mass index; MET = metabolic equivalent of task; NR = not reported.
[a] Values are means.
[b] BMI was missing for 70 women in the NHS (one black, 68 white) and 198 women in the NHS II (one Asian, 182 white).
[c] Totals may not equal 100 due to rounding.
[d] Calculated among postmenopausal women only.
[e] Includes stroke, multiple sclerosis, and Parkinson's disease.
[f] Includes thiazides, furosemide (Lasix and others), calcium channel blockers, and angiotensin-converting enzyme inhibitors.

or white if they marked their race as only Asian, only black or African American, or only white, respectively. Women of both Hispanic and non-Hispanic ethnicity were included within each racial category (less than 1% of women reported Hispanic ethnicity).

Statistical analysis. We used descriptive statistics (mean, SD, or percentage) to evaluate the demographic and health characteristics of participants in each cohort across racial groups: age (years), BMI (kg/m^2), physical activity (metabolic equivalent–hours per week), parity, history of hysterectomy, menopausal status, postmenopausal hormone use, cigarette smoking, diabetes, high blood pressure, major neurologic disease (defined as a history of stroke, multiple sclerosis, or Parkinson's disease), functional limitation (defined as a significant limitation in climbing a flight of stairs, walking one block, bathing, or dressing), and use of medications that may worsen UI (including thiazides, furosemide [Lasix and others], calcium channel blockers, and angiotensin-converting enzyme inhibitors).

In unadjusted analyses, we used two-sample tests for binomial proportions. These compared the proportions of black and white women and of Asian and white women who met the criteria for each outcome (remission, improvement, and progression).[25] Additionally, we wanted to assess whether any associations between race and change in UI could be explained by health and lifestyle factors. Therefore, we used multivariable logistic regression to calculate odds ratios (ORs)—that is, the odds of each outcome (such as UI remission) occurring in one racial group versus another—and 95% confidence intervals (CIs), while adjusting for risk factor differences between the groups. All multivariable models included terms for the demographic and health-status variables listed above. We excluded from the analyses women who had given no information on parity (n = 939) or BMI (n = 252) because these can be such important factors in UI.

Data from the two cohorts are presented individually and combined. Before combining data, we assessed whether there were significant differences in findings between the older women in the NHS and the younger women in the NHS II. A significant difference in findings between cohorts would preclude combining the data because it indicates that the cohorts are not the same. We found a significant interaction between race and cohort only for UI improvement when comparing black and white women; therefore, we're not presenting combined data for this comparison. In the combined analyses, we included study cohort (that is, NHS or NHS II) as a variable in the logistic regression models, in addition to the variables mentioned above. All data were analyzed using the software program SAS 9.1.

RESULTS

In 2000 NHS participants were 54 to 79 years old, and in 2001 NHS II participants were 37 to 54 years old. At baseline, black women tended to have more risk factors for UI, including a higher mean BMI and higher prevalences of hysterectomy, diabetes, and high blood pressure, than Asian or white women. Asian women were least likely to be current smokers or users of diuretics. White women were most likely to be parous and had a lower prevalence of diabetes than the other groups (see Table 1).

Race and UI remission. Overall, Asian and black women were more likely than white women to report UI remission over two years (see Table 2). When comparing the younger women in the NHS II to the older women in the NHS, regardless of race, we found that the proportion of women reporting UI remission decreased by 79%, from 14% to 3%, respectively. But both younger and older black women had a higher likelihood of remission than white women. In the NHS, the rate of remission was comparable between older Asian women and older white women (4% and 3%, respectively; $P = 0.50$), but in the NHS II, younger Asian women had significantly higher remission rates than younger white women (20% versus 14%, respectively; $P = 0.01$).

To determine whether lifestyle and health variables might explain the racial differences in UI remission, we used the statistical model described above that included a wide variety of such factors. After adjusting for these factors, the OR for UI remission comparing black and white women became somewhat stronger, and black women were significantly more likely to experience remission by 73% (OR, 1.73; 95% CI, 1.31–2.28). Similarly, after considering health and lifestyle differences in the racial groups, remission rates were slightly higher in Asian women than in white women (OR, 1.34; 95% CI, 0.99–1.80; $P = 0.06$). These findings suggest that risk factor differences didn't completely explain differences in UI remission across races.

Race and UI improvement. As we saw with remission, Asian and black women were more likely than white women to report UI improvement (any decrease in UI frequency over two years) (see Table 2). Considering

TABLE 2. Remission, Improvement, and Progression of UI over Two Years in Asian, Black, and White Women in the NHS and the NHS II

Change in UI Frequency	White	Asian	Black
REMISSION			
Combined cohorts			
Cases / Total at risk	4,999 / 57,006	55 / 408	67 / 486
Percentage	9%	13%	14%
P value[a]		< 0.001	< 0.001
NHS			
Cases / Total at risk	910 / 27,479	7 / 164	13 / 204
Percentage	3%	4%	6%
P value[a]		0.50	0.02
NHS II			
Cases / Total at risk	4,089 / 29,527	48 / 244	54 / 282
Percentage	14%	20%	19%
P value[a]		0.01	0.01
IMPROVEMENT			
Combined cohorts			
Cases / Total at risk	17,622 / 57,006	163 / 408	192 / 486
Percentage	31%	40%	[b]
P value[a]		< 0.001	[b]
NHS			
Cases / Total at risk	5,399 / 27,479	36 / 164	70 / 204
Percentage	20%	22%	34%
P value[a]		0.46	< 0.001
NHS II			
Cases / Total at risk	12,223 / 29,527	127 / 244	122 / 282
Percentage	41%	52%	43%
P value[a]		< 0.001	0.53
PROGRESSION			
Combined cohorts			
Cases / Total at risk	8,508 / 24,731	63 / 204	64 / 216
Percentage	34%	31%	30%
P value[a]		0.29	0.14
NHS			
Cases / Total at risk	5,447 / 12,826	37 / 88	33 / 103
Percentage	42%	42%	32%
P value[a]		0.94	0.03
NHS II			
Cases / Total at risk	3,061 / 11,905	26 / 116	31 / 113
Percentage	26%	22%	27%
P value[a]		0.42	0.68

Remission was no UI at follow-up; *improvement* was any decrease in UI frequency between baseline and follow-up; *progression* was an increase in UI from one to three times per month at baseline to at least once weekly at follow-up.

[a] *P* values were calculated using two-sample tests for binomial proportions comparing proportions of black and white women and proportions of Asian and white women meeting each case definition. White women were the reference group, and therefore no *P* values were calculated for that group.
[b] Results are not presented for the combined cohorts due to a significant difference in results between cohorts.

the two cohorts separately, the percentage of older women in the NHS reporting UI improvement (20%) was about half that of younger women in the NHS II reporting improvement (41%). But among older women, the rates of improvement were similar in Asian and white women (22% and 20%, respectively; $P = 0.46$) and higher in black than in white women (34% versus 20%; $P < 0.001$). In younger women, improvement was similar in black and white women (43% and 41%, respectively; $P = 0.53$) and higher in Asian than in white women (52% versus 41%, respectively; $P < 0.001$).

We also didn't find that health and lifestyle differences across racial groups could explain our findings. Among all women, the odds of UI improvement were significantly higher in Asian than in white women by 33% (OR, 1.33; 95% CI, 1.08–1.64). Because the results comparing black and white women differed significantly between cohorts, we didn't combine these data and examined this association in cohort-specific analyses only. Among the older NHS participants, after taking risk factor differences into account, the odds of improvement remained significantly higher in black than in white women (OR, 2.22; 95% CI, 1.65–3.00). In contrast, among the younger NHS II participants, the odds of improvement weren't significantly different between black and white women (OR, 1.19; 95% CI, 0.93–1.52), indicating that the higher rate of improvement in younger black women, compared with younger white women, was largely explained by risk factor differences across the racial groups.

Race and UI progression. Finally, we examined the proportion of women with occasional UI at baseline who reported frequent UI two years later (see Table 2). Overall, there were no significant differences in the proportions of Asian, black, and white women with UI progression. But UI progression was more likely in older than in younger participants (42% versus 26%, respectively), less common in older black than in older white women (32% versus 42%, respectively; $P = 0.03$), and comparable in older Asian and older white women (42% in both groups; $P = 0.94$).

In the combined cohorts, after adjusting for health and lifestyle factors, the odds of UI progression were similar in Asian and white women (OR, 1.05; 95% CI, 0.77–1.42) but 23% lower in black than in white women (OR, 0.77; 95% CI, 0.57–1.04), a difference that was borderline statistically significant ($P = 0.09$).

DISCUSSION

Although we saw some heterogeneity in our results between older and younger women, the changes we saw in UI frequency over two years generally varied by race—independent of health and lifestyle risk factors. Specifically, compared with white women, black women were more likely to report UI remission and Asian women were more likely to report UI improvement. And older black women were more likely to report UI improvement than were older white women. Interestingly, although proportions of UI progression were comparable in Asian, black, and white women, when risk factor differences across races were considered, black women had less progression than white women.

In general, previous studies of largely white populations have reported stable or increasing UI frequency over time in the majority of women with UI, but a small and significant proportion of women have experienced spontaneous improvement or remission,[9, 21, 26-30] which can occur without treatment. For example, for five years Samuelsson and colleagues followed 90 women with UI, none of whom had sought treatment for the condition, and observed a mean annual remission rate of 6%.[28] We observed a similar pattern among the Asian, black, and white women in our study, although we didn't specifically exclude those who had sought treatment.

> Among all women, the odds of UI improvement were significantly higher in Asian than in white women.

Basic biologic studies have found differences in pelvic floor anatomy and function in black and white women, which might explain our finding of higher rates of UI remission in black than in white women. For example, the levator ani muscles support the pelvic organs and the closure of the vagina, urethra, and rectum; their proper functioning is essential for continence.[31] In their comparison of 12 black women and 10 white women, Hoyte and colleagues found a higher mean levator ani volume (that is, a larger, bulkier muscle), a longer mean distance between the bladder neck and the pubic symphysis, and a wider mean pubic arch angle in the black than the white women, possibly indicating that black women are better protected against injury during childbirth.[11] In addition, there's evidence of a smaller pelvic floor area[12] and higher urethral closure pressure[13, 14] in black women than in white women, suggesting that race may affect recovery from pelvic floor insults. Little is known of the pelvic floor differences between Asian and white women, and studies are needed to explore whether anatomical or functional differences might explain the higher odds of UI improvement we observed in Asian women than in white women.

Several cross-sectional studies have found differences in UI prevalence by race. For example, after adjusting for risk factor differences between groups,

studies have reported that the odds of having UI were at least 50% lower in black women[15-17, 19] and at least 30% lower in Asian women than in white women.[17-19] More-limited research also indicates that the incidence of UI is lower in black and Asian women than in white women.[20-22]

Longitudinal data on potential racial differences in UI progression and remission are scarce. However, a prospective study of 11,591 women 50 years of age and older in the Health and Retirement Study (HRS) showed generally higher rates of UI remission and improvement in black than white women, consistent with our findings.[21] For example, among women ages 50 to 79, average annual UI remission rates over four years ranged from 10% to 13% in black women and 8% to 9% in white women, and rates of average annual improvement of severe UI (more than 15 days a month) ranged from 11% to 20% in black women and 11% to 14% in white women. Among the NHS participants (ages 54 to 79), average annual remission rates were 3% in black women and 1.5% in white women, and rates of average annual improvement from frequent UI were 14% in black women and 10% in white women. It's unclear why remission was less common in our study than in the HRS, but in the HRS, the annual rate was averaged over four years of follow-up rather than our study's two, allowing more time for UI resolution. somewhat more common in black women. In the HRS, the multivariable-adjusted odds of progression, defined as the development or worsening of UI, were 43% lower in black than in white women.[21] Similarly, our study found a lower rate of progression in black than in white women. Why these findings are inconsistent remains unclear; additional prospective studies are needed.

Limitations. First, UI frequency was self-reported and therefore the rates of change in UI frequency in our study may be subject to error. However, several studies,[32, 33] including an earlier NHS study on this subject,[24] have found good short-term reproducibility of such results (in self-reports of UI frequency). Also, we combined categories of UI frequency (occasional UI, for example, combined one leaking episode and two or three UI episodes per month), to reduce misclassification of the exact number of leaking episodes.

Second, because more than 90% of NHS and NHS II participants were white, some of our findings on UI in Asian and black women were limited by small numbers and should be interpreted with caution. Nonetheless, the total number of black women available for analyses of UI remission or improvement was 120% higher in our cohort than in the HRS, and just 26% lower than the total number of black women in SWAN.[21] Also, because we didn't collect information

Clinicians should be encouraged to initiate discussions on UI so that their patients can take advantage of available therapies.

In contrast to our findings, two studies didn't observe racial differences in UI improvement after adjusting for potential confounding factors.[21, 29] Among 2,415 women ages 42 to 52 in the Study of Women's Health Across the Nation (SWAN), the likelihood of decreasing UI frequency over six years was virtually identical in both Chinese and Japanese women compared with white women.[29] However, the SWAN finding of black and white women showing similar odds of improvement is consistent with our finding among the younger NHS II participants. Nonetheless, more data are needed.

Regarding progression of UI, previous studies have had mixed results. In the SWAN study, UI worsening wasn't significantly different in Chinese or Japanese women compared with white women, consistent with our findings.[29] There was also little difference in progression between black and white women, although in contrast to our results, worsening UI appeared on Asian ethnicity, our findings for Asian women are not directly comparable with those for Chinese and Japanese women in SWAN.

Finally, we didn't collect information on treatment for UI among women who reported UI at baseline. Thus, we couldn't determine the impact of treatment on rates of UI remission and improvement, although data indicate that a minority of women with UI seek treatment and that treatment seeking doesn't vary significantly by race.[10, 34, 35] In addition, because the women in the cohorts are all RNs, we assumed that they would have similar access to and knowledge about health care and that any potential racial differences in treatment seeking would be minimized. Thus, it seems unlikely that a lack of data on treatment affected our ability to compare changes in UI frequency across races.

In conclusion, we found after two years of follow-up that remission and improvement were generally more likely to appear in Asian and black women with

UI than in white women, differences that couldn't largely be explained by health and lifestyle factors. Clinicians should be aware that, while UI affects women of all races, the natural history of the condition may vary in women according to race. In addition, because data indicate that women of all races are unlikely to seek treatment for UI,[34] clinicians should be encouraged to initiate discussions on UI so that their patients can take advantage of available behavioral, pharmacologic, and surgical therapies.[36] ▼

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