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Gender Differences in Coping Strategies for Troublesome Lower Urinary Tract Symptoms Prior to Seeking Treatment

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Abstract

Objective: This study tried to explore gender differences in Lower urinary tract symptoms (LUTS) and disparities in adaptation strategies used to cope with LUTS.

Materials and Methods: From July 2013 to December 2013, 184 consecutive patients who came to a tertiary center seeking medical treatment for LUTS including stress urinary incontinence (SUI), overactive bladder (OAB), and mixed urinary incontinence (MUI) were recruited in this study. OABSS, IPSS and UDI-6 were used to evaluate severities of these symptoms and IIQ-7 was used to measure the impact of these three symptoms on the quality of life. Patients' coping strategies were also compared to evaluate gender differences.

Results: In total, 184 patients (81 men and 103 women) were recruited into this study. The LUTS between genders were significant. Women had significantly more SUI and MUI than that of men, but men had significantly more OAB. The LUTS in men seemed to have less impact on quality of life than in women. Preventive toileting use before going out, restricting fluid intake, or seeking treatment at primary care clinics were adaptive strategies used by both genders. However, one-third of the women used incontinence pads or performed pelvic floor exercises to prevent urine leakage and nearly one-fourth of the women avoided contact with cold water or performed urge strategies to control the urge to void.

Conclusions: Gender differences in LUTS are significant. Similar LUTS also result in different impact on men and women. Women used more coping strategies than men to handle their bothersome LUTS.

Keywords: Coping strategies; Urinary incontinence; Overactive bladder; Mixed incontinence; LUTS

Introduction

In the late nineteen century, most large population surveys focused on urinary incontinence in women and lower urinary tract dysfunction in men [1,2]. However, the focus began to change to both genders after the standardization of terminology of lower urinary function which was approved by the International Continence Society (ICS) in 2002 [3]. In the past two decades, population surveys have not only focused on stress urinary incontinence (SUI) but also on overactive bladder (OAB) and lower urinary tract symptoms (LUTS) in both sexes [4-9]. These LUTS have become a large economic burden on health care services and affected health-related quality of life in both sexes [10,11].

Milsom et al. conducted a large population-based prevalence study of OAB in six European countries (France, Germany, Italy, Spain, Sweden and the United Kingdom) using a random stratified approach and found that the overall prevalence of OAB symptoms in individuals aged 40 years or older was 16.5% [4]. In 2005, Irwin et al. conducted a large population-based, cross-sectional survey in Canada, Germany, Italy, Sweden, and the United Kingdom using the 2002 ICS definitions and used computer-assisted telephone interview (CATI) questionnaire to evaluate the prevalence of SUI, OAB, and other LUTS among men and women. They found that 64.3% reported at least one LUTS. The prevalence of storage LUTS such as frequency, urgency, nocturia, urge incontinence, and SUI (men, 51.3%; women, 59.2%) was greater than that of voiding LUTS such as intermittency, slow stream, straining, and terminal dribble (men, 25%; women 19.5%) and postmicturition symptoms such as incomplete emptying and postmicturition dribble (men, 16.9%; women, 14.2%) [7]. Stewart et al. used a clinically validated CATI questionnaire to complete a US national telephone survey and also a nested case-control study to evaluate individual impact of OAB. They revealed that OAB with and without urge incontinence was associated with clinically and significantly lower SF-36 quality-of-life scores, higher depression scores and poorer quality of sleep than matched controls [5]. Furthermore, Reeves et al. estimated the current and future burden and cost of OAB in five European countries and revealed that OAB is prevalent and its overall burden in health care services would increase in the future in line with aging populations [11].

The common findings in the population studies showed that the prevalence of SUI, OAB and other LUTS are high and increase with age after grouping according to age and gender [4,5,7]. However, issues of gender differences are seldom highlighted by these studies.

We found two large-scale population surveys which showed gender differences in LUTS. Stewart et al. revealed that although the overall prevalence of OAB was similar between men (16.0%) and women (16.9%), the sex-specific prevalence differed by severity of symptoms. Across all age groups, OAB without urge incontinence was more common in men than in women. Prevalence of urge incontinence increased with age from 2.0% to 19.0% with a marked increase after 44 years of age (age cohort: 5-years) in women and increased with age from 0.3% to 8.9% with a marked increased after 64 years of age in men. In contrast to OAB without urge incontinence, OAB with urge incontinence was more common in women than in men [5]. A community study conducted in South Australia in 1995 revealed that the prevalence of one or more troublesome LUTS was 26% (318/1204) for men and 39% (662/1686) for women (all ages) and 48% (314/649) for men and women over 65 years of age. Symptoms of frequency and nocturia were significantly age-related in men, but less so in women [12].

According to Bauer and Huebner, different maturity rates are noted in both sexes during the development of bladder control. The gender differences in maturity rate may lead to gender-specific bladder control behaviors in the future. After gaining bladder control, boys tend to be proud about their voiding stream, and they start to have voiding competitions. In contrast, girls at this age are socialized to hide themselves when they empty their bladder. Finally, bladder control behaviors between boys and girls are completely different [13]. The differences in voiding behaviors between genders are consolidated in different stages, from preschool, school to grown-ups. Boys empty the bladder in a standing position, and girl squat over the toilet seat and train themselves to empty the bladder without relaxing the pelvic floor muscles because of negative perceptions of school toilets [14]. Later on, disparities in voiding posture and habits may lead to voiding dysfunctions such as dysfunctional voiding, increased residual urine, delayed time to void or recurrent urinary tract infections which happen more in females than in males [15,16]. Gender-specific bladder control behaviors in older children or early adulthood may result in different LUTS. Gender-specific voiding habits might also lead to different stigma perceptions for LUTS [17] and healthcare-seeking behaviors in different genders.

LUTS are not life-threatening, but have a negative impact on quality of life. The symptoms of OAB or other LUTS can affect social, psychological, occupational, domestic, physical, and sexual aspects of life [10,18]. However, Pinnock and Marshall found that only 28% of men and 27% of women with troublesome LUTS saw a doctor, and 63% of men and 59% of women dissatisfied with their urinary condition did not seek medical help [12]. Milsom et al. found that 60% of respondents with symptoms had consulted a doctor but only 27% were currently received treatment [4]. Ricci et al. conducted a cross-sectional household telephone survey in a US national sample of adults to evaluate coping strategies and health care-seeking behavior. They found that individuals primarily manage LUTS symptoms, especially OAB, by using nonmedical coping strategies rather than consulting health care providers [19]. In Taiwan, Yu et al. revealed that only 13.0% of community-dwelling adults with OAB sought medical treatment to solve their problem, 69.0% of adults did not consider the LUTS as a bother to their daily life [20]. Our previous study in community women also found that only 27.1% of women with SUI and OAB sought medical treatment [21]. It is necessary to explore why patients who are bothered by LUTS do not seek treatment, how they live with these LUTS and what tactics have they tried to either avoid urine leakage or protect themselves from bothered LUTS?

We were curious to discover what self-management or coping behaviors have been performed by patients who have been dissatisfied with their urinary condition? Therefore, we conducted this study to explore gender differences in LUTS of patients who sought medical treatment for their LUTS and to evaluate gender differences in impact on quality of life in different types of LUTS and their severities. Furthermore, we demonstrated disparities in adaptation strategies used to cope with LUTS in different genders.

Materials and Methods

Study population and setting

This was a hospital-based survey for evaluating adaptation strategies of patients with LUTS. The study was conducted at the urology and urogynecology clinics at Chung Shan Medical University Hospital. From July 2013 to December 2013, patients who sought medical treatment for LUTS in these clinics were informed of the purpose and procedures of the study and were invited to participate before they were scheduled to undergo urodynamics. A written consent was obtained from the patients who agreed to join this study. The study protocol and questionnaire content was approved by the Institutional Review Board of Chung Shan Medical University Hospital.

Questionnaires

This study was a continuation of a survey taken on the natural history (prevalence, incidence, regression and progression) of LUTS in community. A set of validated Mandarin questionnaires including the Chinese version of Overactive Bladder Severity Score (OABSS) [22], International Prostate Symptom Score (IPSS), short form Urogenital Distress Index (UDI-6) [23] and Incontinence Impact Questionnaire (IIQ-7) [23,24] were derived from the Taiwanese Continence Society (TCS) website which were used to survey the epidemiology of LUTS and have been used in this study [25]. OABSS, IPSS and UDI-6 were used for evaluating severities of LUTS. IIQ-7 was used as a measurement of the impact of quality of life. Participants were asked to finish the questionnaires to evaluate their LUTS and their impact on quality of life before they underwent urodynamics. Further, they were asked to answer a structural questionnaire regarding their adaptation strategies. These patients were asked to answer questions on at least nine coping strategies as follows: using preventive toileting before going out, using pads to prevent urine leakage, restricting water intake, avoid contact with cold water, performing pelvic floor exercise or stress strategies before stress, performing urge strategies to control urge to void, using over-the- counter medications, seeking treatment from primary care physicians, and others. These coping strategies were multiple choice.

Characteristics of LUTS and case definitions

The International Continence Society definitions for LUTS which were approved and published in 2002 and 2010 were used in this study [3,26]. We focused on patients who had stress urinary incontinence (SUI), overactive bladder (OAB), and mixed urinary incontinence (MUI) according to patient perception and divided our patients into three groups. Patients who complained of involuntary urine leakage on effort or exertion, or on sneezing or coughing were categorized as SUI group. Patients who had an urgency symptom with or without urge incontinence, usually with frequency and nocturia were

categorized as the OAB groups Patients who complained of involuntary leakage associated with urgency and also with exertion, effort, sneezing or coughing were categorized as the MUI group. In order to analyze the gender disparities in the subsets of OAB, we further categorized OAB syndrome as OAB-dry in patients who had OAB symptoms without urgency urinary incontinence and OAB-wet in patients who had OAB symptoms with urgency urinary incontinence [5].

Adverse effects of medications for controlling hypertension might affect the lower urinary tract function. Therefore, we also collected and analyzed LUTS symptoms in those patients who were taking medications for controlling hypertension.

Scores from the OABSS, IPSS and UDI-6 in the SUI, OAB, and MUI groups were collected to check the severities of each symptom. Scores from the IIQ-7 were used to measure the impact on quality of life for each symptom. Furthermore, we stratified scores from the OABSS, IPSS, and UDI-6 into two groups. The scores equal to the mean or higher were considered the severe group and others as moderate group. Then we checked impact from different grades of severity of OAB and SUI on quality of life.

Demographic data and clinical backgrounds

The common demographic data in the questionnaire included age, gender, educational attainments, comorbidities and history of urinary stone. Obstetrical history, menstrual cycles and history of pelvic surgery were collected from female patients' self-reported. History of prostate disease, history of urinary stone and treatment procedures were collected from male patients' self-reported.

A trained research assistant helped those who were illiterate or had very poor literacy to complete these questionnaires. Patients' coping strategies in the SUI, OAB, and MI subgroups were also collected and compared to evaluate gender differences.

Statistical analysis

Descriptive statistics were performed to examine the gender differences in the samples. Student t test, Chi-square test or Fisher's exact test were used to compared gender differences. P value less than 0.05 was considered as significant differences. The Statistical Package for the Social Sciences (SPSS) version 14 was used for the data analysis.

Results

In total, 81 men and 103 women were recruited in this study. Their demographic characteristics are showed in Table 1. Mean age of men and women had significant differences (65.2 ± 11.1 vs 56.2 ± 11.7 years, p<0.05). There were significantly more men were employed or self-employed (P<0.05). The most common comorbidity was hypertension. There were 37 men and 29 women with concomitant hypertension (45.7% vs 28.2%; p<0.05). However, 69.0% (20/29) women with concomitant hypertension had SUI symptoms. Of the men with concomitant hypertension, only 8.1% (3/37) had SUI symptoms. There were significant differences in both sexes (p<0.05).

	Male, n (%)	Female, n (%)	P value
Age, years (mean ±S.D.)	65.2 ± 11.1	56.2 ± 11.7	0.000
Educational attainment			0.041
Elementary school or less	30(37.0)	25(24.3)	
Junior or senior high school	27(33.3)	53(51.5)	
College or higher	24(29.6)	25(24.3)	
Household income (NTD)			0.615
Less than 200,000	29(35.8)	39(37.9)	
200,000-400,000	24(29.6)	24(23.3)	
More than 400,000	28(34.6)	40(38.8)	
Occupations			0.009
None or housekeeper	45(55.6)	70(68.0)	
Labor (blue collar)	14(17.3)	4(3.9)	
Non-labor or self-employed (white collar)	22(27.2)	29(28.2)	
Comorbidities			
None	41(50.6)	68(66.6)	0.025
Hypertension	37(45.7)	29(28.2)	0.011
Diabetes mellitus 3(3.7)	10(12.3)	13(12.6)	
Hypertension and diabetes mellitus	6(7.4)	7(6.8)	
Hypertension and chronic obstructive pulmonary disease	1(1.2)	1(1.0)	

Table 1: Demography, socioeconomic status and comorbidities of our patients (N=184, 81 men and 103women).

S.D: Standard deviation.

1 USD=30 NTD.

Chi-square test, t test, or Fisher's exact test were used for analysis.

P<0.05 is statistically significant.

The gender differences in LUTS were significant (Table 2). Women had significantly more SUI and MUI than that of men (68.0% and 43.7% vs. 11.1% and 9.9%; p<0.05, respectively). Men had significantly more OAB than that of women (97.5% vs 85.4%; p<0.05).

	Male, n (%)	Female, n (%)	P value
SUI	9(11.1)	70(68.0)	0.000
OAB	79(97.5)	88(85.4)	0.004
OAB-wet	48(59.3)	52(50.5)	0.150
Mixed type	8(9.9)	45(43.7)	0.000

Table 2: Gender distribution of stress urinary incontinence (SUI), overactive bladder (OAB) and mixed urinary incontinence (MUI).

Chi-square test was used for analysis.

P<0.05 is statistically significant.

OAB-wet: Patients who had OAB symptoms with urgency urinary incontinence.

The LUTS were categorized into three groups in Table 3. Patients with OAB had significantly lower scores on the UDI-6 (less severe) for men compared to that of women (3.6 ± 2.4 vs. 6.6 ± 3.7; p<0.05) and had significantly less impact on quality of life for men than that of women (3.1 ± 3.1 vs. 5.8 ± 5.3; p<0.05). However, patients with SUI had significantly higher scores on the OABSS (more severity; 8.3 ± 2.4 vs. 6.2 ± 3.1; p<0.05) but did not have a significant difference in the impact on quality of life in both genders. Taken together, we found that these three LUTS seemed to have less impact on quality of life in men even though they had similar grades of severity. After further stratification of the severity of OAB and SUI, we also found that OAB or SUI had less impact on quality of life in men than in women whatever the severity, moderate or severe, of OAB or SUI (data not shown).

		Male	Female	P value
OAB				
	Age	65.4 ± 11.2	57.0 ± 11.6	0.000
	OABSS	6.4 ± 2.3	6.4 ± 2.8	0.868
	IPSS	12.8 ± 6.5	13.7 ± 8.5	0.453
	UDI_6	3.6 ± 2.3	6.6 ± 3.7	0.000
	IIQ_7	3.1 ± 3.1	5.8 ± 5.3	0.000
SUI				
	Age	68.6 ± 15.5	56.3 ± 10.6	0.047
	OABSS	8.3 ± 2.4	6.2 ± 3.1	0.047
	IPSS	15.0 ± 8.4	12.4 ± 8.2	0.383
	UDI_6	6.8 ± 2.1	6.9 ± 3.8	0.917
	IIQ_7	4.3 ± 3.9	5.6 ± 5.2	0.478
MUI				
	Age	70.8 ± 15.0	57.9 ± 11.3	0.007
	OABSS	8.9 ± 1.8	7.2 ± 3.0	0.132
	IPSS	16.3 ± 8.0	12.8 ± 8.2	0.269
	UDI_6	7.0 ± 2.1	7.7 ± 4.1	0.632
	IIQ_7	4.8 ± 3.9	6.2 ± 5.3	0.466

Table 3: Age distribution, Overactive Bladder Severity Score (OABSS), International Prostate Symptom Score (IPSS), short form Urogenital Distress Index (UDI-6) and Incontinence Impact Questionnaire (IIQ-7) in stress urinary incontinence (SUI), overactive bladder (OAB) and mixed urinary incontinence (MUI) between both genders.

Age distribution, Overactive Bladder Severity Score (OABSS), International Prostate Symptom Score (IPSS), short form Urogenital Distress Index (UDI-6) and Incontinence Impact Questionnaire (IIQ-7) were presented as mean ± standard deviation.

Student-t test was used for analysis. P<0.05 is statistically significant.

Coping strategies of male and female patients are shown in Table 4. Both genders used the preventive toileting before going out (95.1% vs 82.5%; P<0.05), restricted fluid intake (66.7% vs 57.3%; P>0.05) or sought treatment at primary care clinic (58.0% vs 36.9%; P<0.05) as adaptive strategies. However, one-third of women used pads to protect from urine leakage or performed pelvic floor exercise to avoid urine leakage. Nearly one-fourth women avoided contact with cold water or performed urge strategies to control the urge to void. Further, we found that both genders frequently used preventive toileting before going out, restricted fluid intake, or sought treatment at primary care clinics to relieve their OAB symptoms. Nevertheless, men still used preventive toileting before going out, restricted fluid intake, or sought treatment at primary care clinics to deal with their SUI. Women wore pads to prevent urine leakage in addition to preventive toileting before going out and restricted fluid intake. Fewer women than men with SUI or OAB sought treatment from primary care clinics.

Women with junior or senior high school educational attainment and in the labor workforce used more coping strategies to handle their LUTS than their male counterparts (data not shown). Educational attainment influenced healthcare seeking behaviors between genders. Women with junior or senior high school (45.3%) and college or higher (40%) were more likely to seek treatment at primary care clinics to deal with their LUTS than patients with elementary school or less (12%). Men with elementary school or less (60%) and with junior or senior high school (63%) were more likely to seek treatment at primary care clinics to deal with their LUTS than patients with college or higher educational attainment (45.8%).

	Male, n (%)	Female, n (%)	P value
Preventive toileting before going out	77(95.1)	85(82.5)	0.007
Using pads for protecting urine leakage	1(1.2)	34(33.0)	0.000
Restricting water intake	54(66.7)	59(57.3)	0.126
Avoiding contact with cold water	12(14.8)	27(26.2)	0.044
Performing PFE or stress strategies	8(9.9)	35(34.0)	0.000
performing urge strategies to control urge to void	10(12.3)	24(23.3)	0.042
Using over-the counter medications	5(6.2)	11(10.7)	0.209
Seeking primary treatment	47(58.0)	38(36.9)	0.003
Others	3(3.7)	9(8.7)	0.141

Table 4: Coping strategies for males and females.

Chi-square test or Fisher's exact test were used for analysis.

P<0.05 is statistically significant.

PFE: pelvic floor exercise.

Discussion

Our study revealed that gender differences in LUTS are significant. Women have significantly more SUI and MUI than that of men, but men have significantly more OAB than that of women. However, for patients with the same symptom, men seemed to suffer less than women. Although both men and women often used preventive toileting before going out, restricted fluid intake, or sought treatment at primary care clinics as copying strategies, women used more strategies to deal with their LUTS before they sought treatment. We

found that one-third of women used incontinence pads or performed pelvic floor exercise to prevent urine leakage and nearly one-fourth of the women avoided contact with cold water or performed urge strategies to control the urge to void. Women used more coping strategies than men to handle their LUTS. Gender differences are evident with the effects of educational attainment on healthcare seeking behaviors. Women with junior or senior high school educational attainment and in the labor workforce used more coping strategies to handle their LUTS than their male counterparts.

Hunskaar et al. reviewed correlations and potential risk factors for urinary incontinence in epidemiological studies and disclosed that potential risk factors or contributing variables are different in both sexes [27]. The summation effect of pregnancy, childbirth, menopause, and obesity were the main factor associated with female urinary incontinence. Male incontinence mostly results from iatrogenic causes after a prostatectomy, except for age and neurological disorders. A review written by Bauer and Huebner highlighted gender differences in bladder control. The etiology of LUTS is multifactorial in both sexes. They demonstrated that "in both sexes, there are anatomical and behavioral differences in dealing with bladder control, as well as voiding and incontinence." They also found that lower urinary tract symptoms in both sexes start to develop from the fourth decades. "Men and women handle the problem variedly showing gender differences in coping strategies with better coping mechanisms in women" [13]. In our study, our patients showed diversity in symptoms distribution. Male patients had more OAB symptoms compared to females (97.5% vs 85.4%; $p<0.05$), and there were more female patients with SUI compared to males (68.0% vs 11.1%). There was also a disparity of symptoms in patients with concomitant hypertension who were taking medications to control their hypertension.

The most common reactions to urinary incontinence are embarrassment, frustration, anxiety, annoyance, depression, and fear of odor. A review by Abrams et al. revealed that OAB significantly affects quality of life in social, psychological, occupational, domestic, physical and sexual aspects of those who suffer from it. To cope with symptoms of OAB and urinary incontinence, many sufferers develop coping behaviors to avoid, hide or manage urine loss [18]. Coping strategies mentioned in their review include: limiting daily travel to places, mapping routes for easy bathroom access, reducing fluid intake, avoiding sexual intimacy, wearing pads or diapers, or wearing dark or baggy clothing to hide wet spots and/or conceal adult diapers which are often adopted by sufferers in their daily routine. When sufferers are travelling, they prefer to drive themselves everywhere so they are able to control bathroom stops, they prefer aisle seats at the theater and on planes for easier access to the bathroom, or they sit close to the door for easier access to the bathroom. Some items in our structural questionnaire regarding patient's adaptation strategies are quoted from above coping behaviors and were modified according the experts' suggestion. These eight strategies were frequently used by local patients to handle LUTS.

There is gender diversity in LUTS affecting quality of life. Ricci et al. found that among individuals with OAB, no significant variation in the reported use of nonmedical measures was observed by age, education, employment, marital status, or income, but gender differences in using nonmedical coping strategies were observed. Women were considerably more likely than men to use nonmedical measures to cope with OAB symptoms [19]. Minassian et al. also reported that men and women with troublesome LUTS might use different adaptive strategies to prevent or protect their involuntary urine loss [28]. These results are consistent with our finding: women use more strategies to deal with their bothersome LUTS.

We found that gender differences in LUTS are significant. Women have significantly more SUI and MUI than that of men, but men have significantly more OAB than that of women. The top three strategies were similar in both genders. Men and women often used preventive toileting before going out, restricted fluid intake or sought treatment at primary care clinics as coping strategies. However, of the patients suffering with SUI, more men sought treatment from primary care clinics, but women wore pads to prevent urine leakage rather than seeking primary treatment. Our results are consistent with Bauer and Huebner, who found women to be more experienced with coping strategies in handling their LUTS and using pads to prevent urine leakage. Men are not used to buying and wearing pads [13].

Ricci et al. revealed that considerably more women than men reported having consulted a health care provider about OAB [19]. However, Li et al. revealed that Community-living older women (age 65 and older) with urinary incontinence problem are less likely to seek professional help than their male counterparts, but more likely to be treated after a health professional is consulted [29]. In this study, moderate or severe OAB or SUI had more of an impact on the quality of life in women than in men. However, we found Taiwanese women with LUTS are less likely than men to seek primary treatment to solve their bothersome LUTS (36.9% vs 58.0%; $p<0.05$). Those patients with lower educational attainment (elementary school or less) are more likely to seek primary treatment to solve their bothersome LUTS than those who with higher educational attainment.

There were several limitations in this study. First, the female patients in our study were younger than the males. The educational attainments rate was higher among the female patients than the males.

These shortcomings may be due to sampling biases. Second, this study was conducted at one tertiary center. Most of the patients were referred by their primary care physicians. Selection biases and sample biases including age, education level, and income could not be avoided. Generalization of our results might be limited. Third, there were few patients with a single LUTS, so we could not completely avoid a misclassification. Fourth, patients usually used more than one copying strategy to handle their LUTS. The taxonomy of copying strategies in our study might be too simplistic to demonstrate the reality of those strategies used in daily life. Fifth, this hospital-based and small scale study might not reflect a true distribution of LUTS in community-dwelling adults. A large scale survey needs to be initiated to explore coping strategies and health-care seeking behaviors in community.

Conclusion

Gender differences in LUTS are significant. The impact of similar LUTS on men and women might be different. Using preventive toileting before going out and restricting fluid intake are often used by both genders as self-management techniques for their bothersome LUTS. However, more copying strategies were used by women than men to handle their bothersome LUTS. Of the patients suffered from SUI or OAB, more men sought primary treatment, but women wore pads to prevent urine leakage rather than seeking primary treatment. Gender differences are evident with the effects of educational attainment on healthcare seeking behaviors and the use of coping strategies to handle LUTS.

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