

Urinary incontinence prevalence and factors associated with patients talking with doctors about urine control

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ABSTRACT

Objectives: Patient perceptions of their doctors may influence talking to them about urinary incontinence (UI). We estimated prevalence of UI among Medicare beneficiaries and assessed association between beneficiaries' demographic and clinical characteristics and whether they spoke to their doctor about UI and association between beneficiaries' perceptions of their doctor and whether they spoke to their doctor about UI. **Methods:** This study was approved by the Purdue University Institutional Review Board (IRB) and determined exempt, category 4 (protocol number 1907022503, approval on August 5th, 2019). Medicare Current Beneficiary Survey (MCBS) 2016 data were analyzed. Beneficiaries who indicated that they lost urine control 2-3 times a month or above were classified as experiencing UI. An 11-item patient perception of their physician scale was created based on MCBS items. Perceptions were categorized as favorable or unfavorable. SAS version 9.4 for Unix was used for all analyses. PROC LOGISTIC was used to assess multi-variable association between beneficiaries' perceptions of their doctors and talking to their doctor about UI. **Results:** Among 7466 persons meeting inclusion criteria, 1856 (24.9%) had UI. The perception of doctor scale scores ranged from 15 to 44, with mean score = 36.57 (standard deviation = 5.29). The scale Cronbach alpha reliability was 0.93. Using sensitivity and receiver operating characteristic analysis, a cutoff of 30 or higher was identified as a favorable perception. Beneficiaries with favorable perceptions of their doctor were more likely to speak to their doctor about experiencing UI than beneficiaries with unfavorable perceptions (odds ratio = 1.55, 95% confidence interval = 1.03 to 2.35, P -value = 0.038). **Conclusion:** Overall, the more favorable the perception of their physicians, the more likely beneficiaries were to speak to them about their UI.

Keywords: Medicare Current Beneficiary Survey, patient-doctor relationship, patient perception of doctors, urinary incontinence

Introduction

The precise prevalence of urinary incontinence (UI) is difficult to capture because of various definitions of UI in terms of frequency and quantity.^[1,2] The populations examined, how they are stratified, and heterogeneity of different study populations and type of study can also lead to variations in prevalence

estimates.^[1,2] However, UI is prevalent and the highest prevalence of UI is in the elderly population.^[3-5]

UI not only causes significant socio-economic costs on patients and society but also affects patients' quality of life through stigmatization, social isolation, depressive symptoms, loneliness, and embarrassment.^[6-15] However, patients often do not report their UI to their doctors. The Consensus Conference for Urinary Incontinence in Adults (1989) reported that more than half of Americans with UI were not evaluated or treated.^[10] Diokno *et al.* (1986)^[16] found in interviews of 1955 non-institutionalized elderly that only 37.7% of incontinent men and only 41.1% of women with incontinence reported their UI to their doctor.

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Thomas *et al.* (1980)^[17] found that adults with moderate or severe incontinence did not seek help because a majority found incontinence an embarrassing problem. In an ethnographic study examining UI in community-living elderly, Mitteness (1987)^[18] found that the elderly group did not perceive UI as a significant health concern to report because they trivialized their condition by comparing it to other chronic conditions such as congestive heart disease and diabetes. They did not expect solutions to UI because of historical experiences with major health conditions that were not curable through medical treatment.^[18] The authors found that the elderly group accepted living with UI readily because their health professionals had never told them otherwise. They believed that UI is inevitable and intractable.^[18] Holst and Wilson^[19] reported that among interviewed women of an age of 18 years or over, only a third with regular incontinence sought help. The main explanations for not pursuing treatment were as follows: UI was perceived as normal, and they had low expectations of benefits from treatments. Shaw *et al.* (2001)^[20] investigated barriers to seeking treatment in people with urinary symptoms and found that patients did not seek treatment because of the “lack of awareness about the condition, its causes, and treatments.”

Svrihra *et al.* (2012)^[21] examined gender-specific barriers to seeking treatment for UI. Females who were obese and females experiencing urgency incontinence were less likely to seek care, whereas males experiencing stress incontinence were less likely to seek care.^[21] They also found that for some reason, 59.4% of the participants were afraid of their health care practitioners, 40% felt that the “physician or nurse practitioner doesn’t take time to explain what he or she is doing, or why or answer my questions,” and 35.5% felt that the “healthcare practitioner and staff aren’t interested in my worries about health.”^[21] These findings suggest that patients’ relationships with their physicians can be a barrier to seeking care for UI.^[21]

Currently, there is a lack of studies assessing patients with UI and perceptions of their primary care physicians or association between such perceptions and patients seeking care for UI. Evaluating this association may provide insights to improve management by primary care physicians. They can take actionable measures to increase communication on not only UI but also potentially other embarrassing health care conditions perceived by patients, thereby decreasing their unmet health care needs and improving quality of life.

Objectives

The objectives were (1) to estimate prevalence of UI among Medicare beneficiaries, (2) to assess association between patients’ demographic and clinical characteristics with and talking to their doctor about UI, and (3) to assess association between beneficiaries’ perceptions of their doctor and talking to their doctor about UI.

Methods

Sample

We utilized the 2016 Medicare Current Beneficiary Survey (MCBS) data. The MCBS is a continuous, multi-purpose survey of a nationally representative sample of the Medicare population, conducted by the Centers of Medicare and Medicaid Services (CMS).^[22] These data include demographic variables, general information about health conditions, satisfaction with care, and type of insurance coverage. This study was approved by the Purdue University Institutional Review Board (IRB) as exempt, category 4, protocol number 1907022503. Medicare beneficiaries 65 years old or older in 2016 and community residing were included in the sample. Individuals who had proxy responders, who were in a long-term care facility, diagnosed with dementia, end-stage renal disease (ESRD), or physical disabilities were excluded from the sample. Individuals with proxy responders were disregarded because previous studies indicate that proxy responders may provide inaccurate responses on behalf of the patients.^[23,24] Additionally, beneficiaries living in long-term care were omitted from the analysis because UI was probably addressed within the facility without the need for reporting by the patients. Beneficiaries with dementia or any form of memory problems were also excluded because of the high probability of discrepant and inaccurate responses caused by memory loss. Beneficiaries with ESRD were excluded because beneficiaries with ESRD were most likely on dialysis and therefore not producing urine normally. Beneficiaries with disabilities were excluded because they were more likely to have assistance with their urinary incontinence.

Study design

An observational analysis of Medicare beneficiaries experiencing UI was conducted to determine the prevalence of UI among beneficiaries to assess association between respondents’ demographics and reporting of UI. Additionally, this study examined association between patients’ perceptions of physicians and discussing UI to their primary health care provider.

Study variables

UI identification

Beneficiaries with UI were identified via a self-report item in the MCBS that asked how often they lost urine control. If a beneficiary responded two to three times a month, about once a week, or more than once a week, the beneficiary was identified with UI.

Patient perception of physicians

Patient Perception of Physicians items in the MCBS were explored to identify questions that asked about patient perceptions of physicians from whom they usually received care and were used to create a scale on patient perceptions of physicians. For example, questions such as “Your doctor is very careful to check everything when examining you,” “You depend on your doctor to feel better physically and emotionally,” and

“You have great confidence in your doctor” were identified and included. Eleven such items were used in the scale. Appendix A is referred for the list of items.

For each question, patient responses were coded, whereby “1” indicated strongly disagree, “2” indicated disagree, “3” indicated agree, and “4” indicated strongly agree. Questions that were negatively worded, such as “Your doctor seems to be in a hurry,” “Your doctor often does not explain your medical problems to you,” and “Your doctor often acts as though he/she was doing you a favor by talking to you,” were reverse-coded, whereby “4” indicated strongly disagree, “3” indicated disagree, “2” indicated agree, and “1” indicated strongly agree. All values were summed to produce a “patient perception of physician scale.”^[25] Higher scores were indicative of more positive perceptions of the physicians.

Statistical analysis

Data were analyzed using SAS version 9.4 for Unix. An a priori alpha level of 0.05 was used to evaluate significance for all analyses.

Demographic characteristics

The PROC FREQ procedure in SAS was used to create frequency tables and cross tabulations for each demographic variable across groups with UI and without UI. Chi square tests were used to assess association between each demographic variable and likelihood of UI.

Clinical characteristics

The PROC FREQ procedure in SAS was used to generate frequencies and cross tabulations for each clinical variable comparing across groups with UI and without UI. Chi square tests were used to assess association between each clinical variable and likelihood of UI.

Prevalence of UI among Medicare beneficiaries

The PROC FREQ procedure in SAS was used to create frequency tabulations for UI based on different criteria for identifying UI, and the binomial option was used to obtain 95% confidence intervals (CIs). When beneficiaries with loss of urine control were asked about frequency of lost urine control, the available choices were more than once a week, about once a week, two to three times a month, about once a month, every two to three months, and one to two times a year. We chose a cutoff of two to three times a month or higher of loss of urine control as the primary classification for classifying a person as having UI since it was similar to the criterion used to identify UI in several prior studies. We also examined UI prevalence based on various other loss of urine control frequency cutoff levels for classifying persons as having UI.

Association between demographic characteristics and talking to the doctor about UI

Multiple logistic regression was used to assess association between patient demographics and talking to their doctor

about urine control. For race, we created two categories: white and non-white. Education was consolidated into five categories: no high school or less, high school graduate, technical, some college or associate, bachelor’s degree, and graduate or professional degree. Marital status was consolidated into three categories: married, not married, and widowed. Income was consolidated into four categories: \$14,999 and less, \$15,000 to \$24,999, \$25,000 to \$49,000, and \$50,000 or more.

Association between clinical characteristics and talking to the doctor about UI

Multiple logistic regression was used to assess association between patients’ clinical characteristics and talking to the doctor about urine control. We examined all the clinical variables previously mentioned under study variables. For weight, we consolidated into three categories: 50 to 150, 151 to 200, and 201 or more pounds.

Association between patient perceptions and talking to the doctor about UI

Multiple logistic regression was used to assess associations between overall patient perceptions of physicians and likelihood of talking to their doctor about UI. The response variable was talking to the doctor about urine control, and the patient perception score was used as the predictor. Each of the demographic variables and each of the clinical variables were considered as potential covariates, and each was examined individually in bivariate models for association with likelihood of talking to their primary care doctor about UI. Those with *P* values less than 0.05 in the bivariate models were included in the multiple logistic model.

Results

Sample selection

After applying inclusion and exclusion criteria, 7466 beneficiaries were included in the study. The sample selection results are depicted in Figure 1. Table 1 presents sample demographic characteristics, and Table 2 presents sample clinical characteristics. The mean age of beneficiaries in the sample was 78.0 years with a standard deviation of 7.7 years. Approximately 56% were female. The majority of the samples were white (85%), had non-Hispanic origins (91%), and were married (51%).

Sample demographic and clinical characteristics

For the Chi square tests, there were no significant differences between beneficiaries with UI and those without UI on any of the demographic characteristics. There were significant differences between beneficiaries with UI and those without UI on many of the clinical characteristics, thus indicating an association between a clinical variable and likelihood of UI. Some notable clinical variables were diabetes or high blood sugar level (*p*-value=<0.0001), stroke or brain hemorrhage (*p*-value=<0.0001), congestive heart failure (*p*-value=<0.0001), and depression (*p*-value=<0.0001).

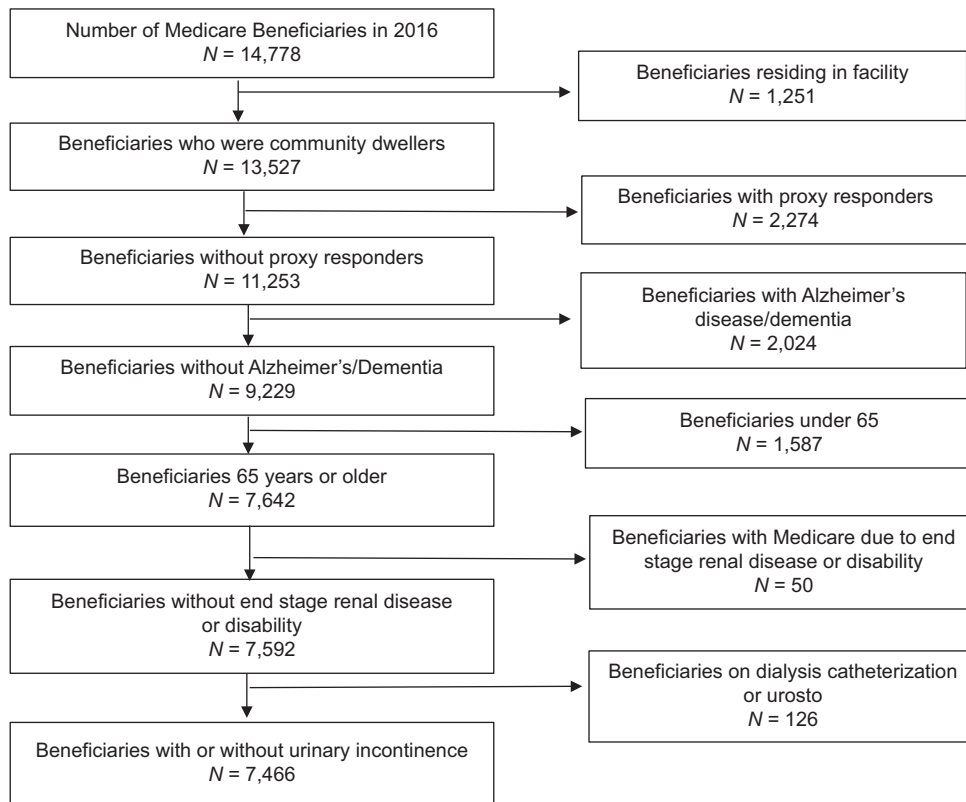


Figure 1: Sample selection results

Prevalence of UI among Medicare beneficiaries

Figure 2 summarizes prevalence by UI severity. Based on our primary definition of UI, that is, loss of urine control two to three times a month or higher, the prevalence was 24.9% (95% CI = 23.89 to 25.8).

Association between patient demographics and clinical characteristics and talking to the doctor about urine control

Figure 3 presents odds ratio (OR) estimates from logistic regression assessing association between patients’ demographics and likelihood of talking to their primary care doctor about UI. There was no association between sex, race, or marital status and likelihood of talking to one’s primary care doctor about UI. Beneficiaries who had a graduate or professional degree were more likely to talk to their doctor about UI (OR = 1.42, 95% CI = 1.02 to 1.98, P value = 0.036). Beneficiaries who were not of Hispanic origin were more likely to talk with their doctor about UI (OR = 1.43, 95% CI = 1.05 to 1.94, P-value = 0.024).

Figure 4 presents selected clinical OR estimates from logistic regression assessing association between patients’ clinical characteristics and likelihood of talking to their primary care doctor about UI. Supplementary Table 1 presents OR estimates for all clinical variables. Beneficiaries who were not depressed were less likely to talk to their doctor about UI (OR = 0.79, 95% CI = 0.65 to 0.96, P-value = 0.016).

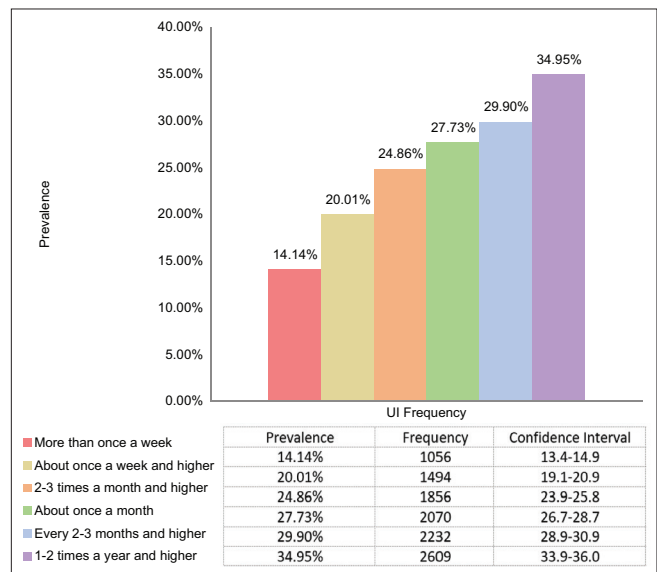


Figure 2: Prevalence of UI among Medicare beneficiaries by UI frequency. Proc FREQ procedure in SAS was used to calculate the prevalence data

Association between patient perceptions of physicians and talking to the doctor about urine control

The theoretical range for the predictor variable, patient perception score, was 11 to 44; higher scores were indicative of more favorable perceptions of their doctors. The actual range was 15–44 with a mean of 36.57 (SD = 5.29). The Cronbach alpha for the scale was 0.93. Beneficiaries

Table 1: Demographic Characteristics

Variable	Total		With UI		Without UI		P ^a
	Number	Percent	Number	Percent	Number	Percent	
Age							0.99
65–69 years	1,268	16.98	310	16.7	958	17.08	
70–74 years	1,514	20.28	387	20.85	1,127	20.09	
75–79 years	1,471	19.7	375	20.2	1,096	19.54	
80–84	1,557	20.85	367	19.77	1,190	21.21	
85 years and older	1,656	22.18	417	22.47	1,239	22.09	
Sex							0.72
Male	3,232	43.29	810	43.64	2,422	43.17	
Female	4,234	56.71	1,046	56.36	3,188	56.83	
Race							0.22
Asian	128	1.74	23	1.26	105	1.9	
African American	615	8.36	150	8.2	465	8.41	
Native Hawaiian or Pacific Islander	7	0.1	4	0.22	3	0.05	
White	6,281	85.35	1577	86.17	4704	85.08	
American Indian or Alaska Native	93	1.26	22	1.2	71	1.28	
Other Race	63	0.86	16	0.87	47	0.85	
More than one	172	2.34	38	2.08	134	2.42	
Missing	107	-	26	-	81	-	
Hispanic Origin							0.18
Yes	667	8.98	180	9.76	487	8.72	
No	6,763	91.02	1665	90.24	5098	91.28	
Missing	36	-	11	-	25	-	
Income							0.30
Less than \$5,000	129	1.73	37	1.99	92	1.64	
\$5,000 to \$9,999	494	6.62	107	5.77	387	6.9	
\$10,000 to \$14,999	789	10.57	197	10.61	592	10.55	
\$15,000 to \$19,999	724	9.7	163	8.78	561	10	
\$20,000 to \$24,999	688	9.22	159	8.57	529	9.43	
\$25,000 to \$29,999	582	7.8	143	7.7	439	7.83	
\$30,000 to \$39,999	900	12.05	235	12.66	665	11.85	
\$40,000 to \$49,999	628	8.41	167	9	461	8.22	
\$50,000 and over	2,532	33.91	648	34.91	1,884	33.58	
Education							0.10
No schooling	93	1.25	20	1.08	73	1.31	
Nursery to 8 th grade	561	7.55	142	7.68	419	7.5	
9 th to 12 th grade but no diploma	709	9.54	179	9.68	530	9.49	
High school graduate	2,039	27.42	516	27.91	1,523	27.26	
Vocational, technical, business, etc.	476	6.4	95	5.14	381	6.82	
Some college							
But no degree	1,216	16.36	286	15.47	930	16.65	
Associate degree	393	5.29	98	5.3	265	5.28	
Bachelor's degree	1,010	13.58	250	13.52	760	13.61	
Graduate or							
Professional degree	938	12.62	263	14.22	675	12.08	
Missing	31	-	7	-	24	-	
Marital Status							0.73
Married	3,852	51.64	982	52.94	2,870	51.2	
Widowed	2,317	31.06	557	30.03	1760	31.4	
Divorced	888	11.9	221	11.91	667	11.9	
Separated	95	1.27	23	1.24	72	1.28	
Never Married	308	4.13	72	3.88	236	4.21	
Missing	6	-	1	-	5	-	

Sample Size: 7466, ^aP-value determined based on Chi-square between UI and Without UI, ^{*}P≤0.05 indicates significance

missing on any of the variables in the logistic model were excluded.

The patient perception score was categorized as favorable or unfavorable. The frequency distribution of the scores was

Table 2: Clinical Characteristics

Variable	Total		With UI		Without UI		P ^a
	Number	Percent	Number	Percent	Number	Percent	
Weight							0.35
50-100 pounds	279	3.74	73	3.93	206	3.67	
101-150 pounds	2,277	30.5	586	31.57	1,691	30.14	
151-200 pounds	3234	43.32	788	42.46	2,446	43.6	
201-250 pounds	1,281	17.16	296	15.95	985	17.56	
251-300 pounds	297	3.98	85	4.58	212	3.78	
301-350 pounds	66	0.88	19	1.02	47	0.84	
350+ pounds	32	0.43	9	0.48	23	0.41	
BMI							<0.0001 ^c
Underweight	146	2.01	39	2.17	107	1.96	
Healthy	2,279	31.4	486	26.99	1,793	32.86	
Overweight	2,592	35.71	584	32.43	2,008	36.8	
Obese	1,882	25.93	558	30.98	1,324	24.26	
Extreme or high-risk obesity	359	4.95	134	7.44	225	4.12	
Missing	208	-	55	-	153	-	
Incontinence							-
More than once a week	1056	14.14	1056	56.9	-	-	
About once a week	438	5.87	438	23.6	-	-	
2-3 times a month	362	4.85	362	19.5	-	-	
Every 2-3 times a month	214	2.87	-	-	214	3.81	
About once a month	162	2.17	-	-	162	2.89	
Once or twice a year	377	5.05	-	-	377	6.72	
Not at all	4,857	65.05	-	-	4,857	86.58	
Has smoked at least 100 cigarettes							0.29
Yes	3,697	49.74	900	48.67	2,797	50.1	
No	3,735	50.26	949	51.33	2,786	49.9	
Missing	34	-	7	-	27	-	
Currently smoke cigarettes							0.19
Everyday	693	18.76	184	20.44	509	18.21	
Some days	162	4.38	33	3.67	129	4.62	
Not at all	2,840	76.86	683	75.89	2,157	77.17	
Missing	3,771	-	956	-	2,815	-	
Ever used smokeless tobacco							<0.0001 ^c
Yes	914	12.27	163	8.8	751	13.14	
No	6,538	87.73	1,689	91.2	4,849	86.59	
Missing	14	-	4	-	10	-	
Currently use smokeless tobacco							0.84
Everyday	111	12.14	19	11.66	92	12.25	
Some days	48	5.25	10	6.13	38	5.06	
Not at all	755	82.6	134	82.21	621	82.69	
Missing	6552	-	1693	-	4859	-	
Has ever smoked cigar							<0.0001 ^c
Yes	2,582	34.72	481	26.07	2,101	37.57	
No	4,855	65.28	1,364	73.93	3,491	62.43	
Missing	29	-	11	-	18	-	
Has smoked at least 50 cigars							0.037 ^c
Yes	809	31.66	131	27.64	678	32.58	
No	1,746	68.34	343	72.36	1,403	67.42	
Missing	4,911	-	1,382	-	3,529	-	
Currently use cigars							0.15
Everyday	50	1.94	4	0.83	46	2.19	
Somedays	158	6.12	29	6.03	129	6.15	
Not at all	2,372	91.94	448	93.14	1,924	91.66	
Missing	4,886	-	1,375	-	3,511	-	
Has ever used pipe tobacco							<0.0001 ^c

Contd...

Table 2: Contd...

Variable	Total		With UI		Without UI		P ^a
	Number	Percent	Number	Percent	Number	Percent	
Yes	1,723	23.15	299	16.19	1,424	25.44	
No	5,721	76.85	1,548	83.81	4,173	74.56	
Missing	22	-	9	-	13	-	
Currently use pipe tobacco							0.83
Everyday	15	0.87	2	0.67	13	0.91	
Some days	28	1.63	4	1.34	24	1.69	
Not at all	1,679	97.5	293	97.99	1,386	97.4	
Missing	5,744	-	1,557	-	4,187	-	
Has ever used e-cigarette							0.28
Yes	639	8.57	170	9.19	469	8.37	
No	6,814	91.43	1,680	90.81	5,134	91.63	
Missing	13	-	6	-	7	-	
Currently use e-cigarette							0.95
Everyday	43	6.74	11	6.47	32	6.84	
Somedays	75	11.76	21	12.35	54	11.54	
Not at all	520	81.5	138	81.18	382	81.62	
Missing	6,828	-	1,686	-	5,142	-	
Stroke/brain hemorrhage							<0.0001 ^c
Yes	755	10.12	244	13.15	511	9.12	
No	6,705	89.88	1,611	86.85	5,094	90.88	
Missing	6	-	1	-	5	-	
Diabetes/high blood sugar level							<0.0001 ^c
Yes	2,335	31.3	696	37.56	1,639	29.24	
No	5,124	68.7	1,157	62.44	3,967	70.76	
Missing	7	-	3	-	4	-	
Type of diabetes							0.012 ^c
Type 1	120	5.32	38	5.61	82	5.2	
Type 2	1,423	63.1	443	65.44	980	62.1	
Pre-diabetes or borderline	670	29.71	176	26	494	31.31	
Gestational	28	1.24	14	2.07	14	0.89	
Other type of diabetes	14	0.62	6	0.89	8	0.51	
Missing	5,211	-	1,179	-	4,032	-	
Parkinson's disease							0.01 ^c
Yes	97	1.3	35	1.89	62	1.11	
No	7,364	98.7	1,818	98.11	5,546	98.89	
Missing	5	-			2	-	
Fallen down							<0.0001 ^c
Yes	1,970	26.48	708	38.29	1,262	22.58	
No	5,469	73.52	1,141	61.71	4,328	77.42	
Missing	27	-	7	-	20	-	
Number of times fallen							0.28
1-10	7,410	99.25	1,835	98.87	5,575	99.38	
11-20	35	0.47	11	0.59	24	0.43	
21-30	9	0.12	4	0.22	5	0.09	
31-40	3	0.04	2	0.11	1	0.02	
41-50	2	0.03	1	0.05	1	0.02	
51-60	2	0.03	1	0.05	1	0.02	
91-100	5	0.07	2	0.11	3	0.05	
Depression							<0.0001 ^c
Yes	1,974	26.45	630	33.96	1,344	23.97	
No	5,488	73.55	1,225	66.04	4,263	76.03	
Missing	4	-	1	-	3	-	
Congestive heart failure							<0.0001 ^c
Yes	547	7.35	195	10.56	352	6.29	

Contd...

Table 2: Contd...

Variable	Total		With UI		Without UI		P ^a
	Number	Percent	Number	Percent	Number	Percent	
No	6,895	92.65	1,651	89.44	5,244	93.71	
Missing	24	-	10	-	14	-	
Rheumatoid arthritis							<0.0001 ^c
Yes	1,065	14.42	330	17.96	735	13.25	
No	63,21	85.58	1507	82.04	4,814	86.75	
Missing	80	-	19	-	61	-	
Osteoarthritis							<0.0001 ^c
Yes	1745	24.19	604	33.91	1,141	21.01	
No	5,468	75.81	1,177	66.09	4,291	78.99	
Missing	253	-	215	-	178	-	
Other arthritis							<0.0001 ^c
Yes	1,415	19.5	429	24.03	986	18.03	
No	5,840	80.5	1,356	75.97	4,484	81.97	
Missing	211	-	71	-	140	-	
Hysterectomy							<0.0001 ^c
Yes	1,840	45.02	728	52.72	1,112	41.08	
No	2,247	54.98	652	47.25	1,595	58.92	
Missing	6,180	-	476	-	2,903	-	
Prostate Surgery							<0.0001 ^c
Yes	465	13.82	117	24.68	348	12.04	
No	2,899	86.18	357	75.32	2,542	87.96	
Missing	7,266	-	1,382	-	2,720	-	
Difficulty walking/stairs							<0.0001 ^c
Yes	2,323	31.15	881	47.52	1,442	25.73	
No	5,135	68.85	973	52.48	4,162	74.27	
Missing	8	-	2	-	6	-	
Difficulty stooping/crouching/kneeling							<0.0001 ^c
No difficulty at all	2,213	29.67	280	15.09	1,933	34.5	
A little difficulty	2,033	27.26	458	24.69	1,575	28.11	
Some difficulty	1,355	18.17	385	20.75	970	17.31	
A lot of difficulty	1,143	15.33	424	22.86	719	12.83	
Not able to do it	714	9.52	308	16.6	406	7.25	
Missing	8	-	1	-	7	-	
Difficulty lifting/carrying 10 pounds							<0.0001 ^c
No difficulty at all	4,609	61.89	832	44.97	3,777	67.48	
A little difficulty	963	12.93	277	14.97	686	12.26	
Some difficulty	740	9.94	250	13.51	490	8.75	
A lot of difficulty	569	7.64	235	12.7	334	5.97	
Not able to do it	566	7.6	256	13.84	310	5.54	
Missing	19	-	6	-	13	-	
Difficulty extending arms above shoulder							<0.0001 ^c
No difficulty at all	5,316	71.23	1,091	58.81	4,225	75.34	
A little difficulty	878	11.76	290	15.63	588	10.49	
Some difficulty	645	8.64	216	11.64	429	7.65	
A lot of difficulty	369	4.94	147	7.92	222	3.96	
Not able to do it	255	3.42	111	5.98	144	2.57	
Missing	3	-	1	-	2	-	
Difficulty walking ¼ mile							<0.0001 ^c
No difficulty at all	3,904	52.56	656	35.54	3,248	58.2	
A little difficulty	913	12.29	220	11.92	693	12.42	
Some difficulty	783	10.54	220	11.92	563	10.09	
A lot of difficulty	676	9.1	237	12.84	439	7.87	
Not able to do it	1,151	15.5	513	27.79	638	11.43	
Missing	39	-	10	-	29	-	

Contd...

Table 2: Contd...

Variable	Total		With UI		Without UI		P ^a
	Number	Percent	Number	Percent	Number	Percent	
Any difficulty walking							<0.0001 ^c
Yes	1,884	25.24	738	39.76	1,146	20.44	
No	5,542	74.25	1094	58.94	4,448	79.32	
Doesn't do	38	0.51	24	1.29	14	0.25	
Missing	2	-	-	-	2	-	
Any difficulty using toilet							
Yes	598	8.01	276	14.89	322	5.74	
No	6,861	91.93	1574	84.9	5,287	94.26	
Doesn't do	4	0.05	4	0.22	1	-	
Missing	3	-	2	-	-	-	

Sample Size: 7466, ^ap-value determined based on Chi-square between UI and without UI, ^cP ≤ 0.05 indicates significance

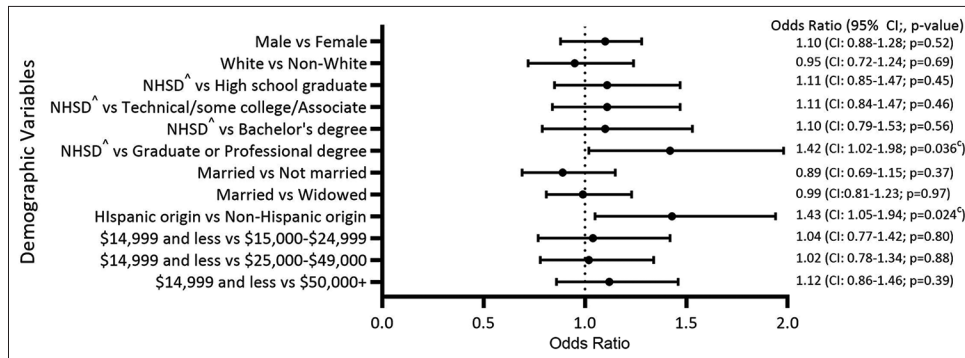


Figure 3: Bivariate Association^a between Patients' Demographic Variables and Talking to Primary Care Doctor about UI^b. Sample size: 1856. ^aProc logistic in SAS was used to examine the bivariate association. ^bUrinary Incontinence was defined as 2-3 times a month or higher. ^cp ≤ .05 indicates significance. [^]No high school diploma

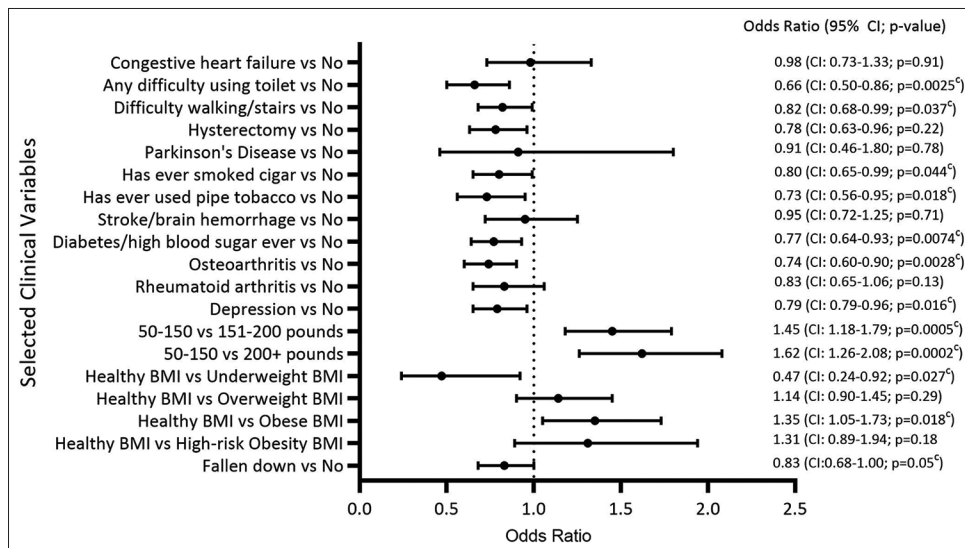


Figure 4: Bivariate Association^a between Patients' Clinical Variables and Talking to Primary Care Doctor about UI^b. Sample Size: 1856. ^aProc logistic in SAS was used to examine the bivariate association. ^bUrinary Incontinence was defined as 2-3 times a month or higher ^cp ≤ .05 indicates significance

examined to determine a cutoff point for the categorization. A receiver operator characteristic (ROC) curve was utilized to find a cutoff that maximized sensitivity and specificity. A cutoff of 30 was determined, with scores of 30 or higher categorized as more favorable perception and scores less than

30 categorized as less favorable perception. To verify the robustness of the model, sensitivity analysis was performed using various cutoffs ranging from 25 to 40. The results indicated that the cutoff of 30 from the ROC curve was acceptable.

Figure 5 presents the selected OR results of multiple logistic regression analysis assessing association between patient perception of their doctor and likelihood of discussing UI. Supplementary Table 2 presents OR estimates for all variables. Beneficiaries with favorable physician perception scores, that is, scores ≥ 30 , were more likely to talk their doctors about UI compared to those with unfavorable physician perception, that is, scores < 30 , with OR = 1.55, 95% CI = 1.03–2.35, and P -value = 0.038.

Discussion

Based on our primary definition of UI, 2–3 times a month and higher, the prevalence was 24.8% (CI: 23.9–25.8). Chang and colleagues found a self-reported UI prevalence of 37% among Medicare-managed care beneficiaries when they classified any accidental leakage within the past 6 months as UI.^[26] If we utilized the definition of experiencing loss of urine control 1–2 times a year or more often, our prevalence would be 34.9%, which is comparable to findings by Chang and colleagues that examined whether Medicare-managed care beneficiaries accidentally leaked urine in the past 6 months. Furthermore, this is consistent with findings from Teasdale and colleagues, who report a prevalence of approximately 33% of “...at least one episode of involuntary loss of urine within the past 6 months...” of retired persons based on a self-administered postal questionnaire for a national meeting for retired persons.^[27]

The patient–provider relationship is important for patient health outcomes.^[28,29] Asare *et al.*^[28] (2020) reported that patient–provider relationship had a positive effect on Black cancer survivors’ health outcomes, especially when they had a positive perception of quality care from their doctor. Furthermore, Ward and Thomas (2020)^[25] found evidence that positive patient perceptions of their physicians were associated with greater adherence to hypertension medication. We found that Medicare beneficiaries

with more positive perceptions of their doctors were more likely to speak to them about experiencing UI compared to those with less favorable perceptions. Prior work by Dibbelt *et al.* (2009)^[30] examined the patient–doctor interaction in rehabilitation. They discuss how “...a successful relationship between the patient and treating physician...” can lead to better information exchange and thus superior treatment effects.^[30] Therefore, through greater awareness, acknowledgement, and recognition of the potential influence of the patient–doctor relationship in primary care settings, physicians can take actionable steps toward their patients to build trust and rapport, thus creating a conducive environment for patients to initiate conversations about experiencing UI. This can provide physicians the opportunity to treat and manage their UI, thereby improving patients’ overall health care experiences, health outcomes, and quality of life. This is the first study, to our knowledge, to assess patient perception of physicians and talking about UI from nationally representative samples of older adults.

This study had several limitations that should be noted. We could not examine specific types of UI since there was no question in the MCBS asking about the different types of UI, such as stress, urge, overflow, and functional or mixed incontinence. There might be responder or recall bias. Due to embarrassment, normalizing, or minimizing of UI, some beneficiaries with UI might not report it. If that was the case, the UI prevalence is likely be conservative.

Conclusions

The findings illustrate how variation in classifying UI impacts prevalence estimates. However, even with a conservative criterion for UI, that is, loss of urine control two to three times a month or more was used, UI was present in almost one-quarter of ambulatory Medicare beneficiaries.^[31] Furthermore, beneficiaries’ perceptions of their physicians may influence talking about their UI; the more positive patients viewed their physicians, the

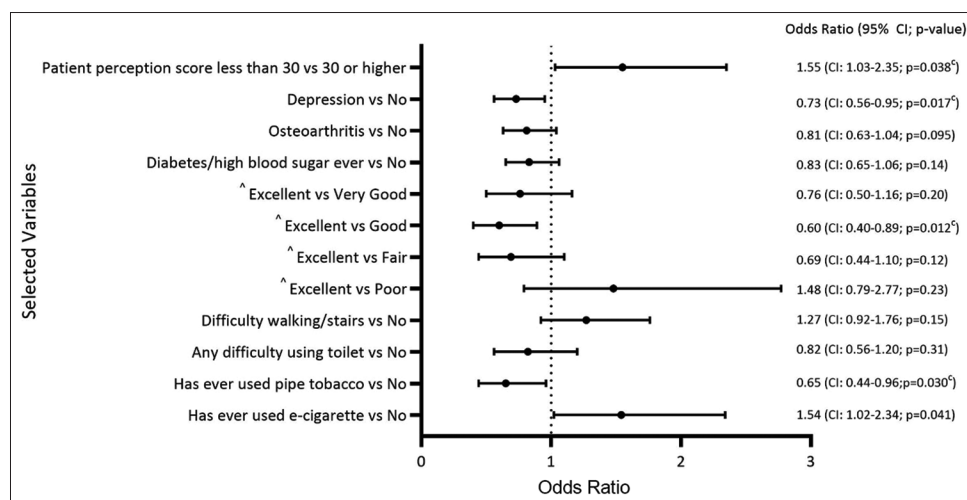


Figure 5: Multivariable Association^a between Patient Perceptions^b of Physicians and Talking about UI^b with their Doctors. Sample Size: 1372 ^aProc logistic in SAS was used to examine the multivariable association. ^bUrinary Incontinence was defined as 2-3 times a month or higher. ^c $p \leq .05$ indicates significance. ^dHealth compared to others same age

more likely beneficiaries were to talk to them about their UI. Therefore, increased awareness in current clinical practices of the potential influence of the patient–doctor relationship may lead to improved discussion about UI, paving the pathway to improved patient care.

Key messages

- This is the first study, to our knowledge, to assess patient perception of physicians and talking about UI from nationally representative samples of older adults.
- Despite a conservative criterion for UI in this study, UI was present in almost one-fourth of community-dwelling Medicare beneficiaries, underscoring an unmet need for this population.
- Beneficiaries with a more favorable perception of their physicians were more likely to talk to them about their UI. Therefore, primary care physicians' awareness of the influence of the patient–doctor relationship may lead to opportunities to increase trust building and rapport in an effort to improve patients' discussion and treatment seeking about UI, thereby improving patients' overall health care experiences and quality of life.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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Supplementary Table 1: Bivariate association^a between patient's clinical variables and talking to Primary Care Doctor about Urinary Incontinence^b

Clinical Variables	Odd ratio Estimates	P
Weight		
50-150 pounds	Reference	Reference
151-200 pounds	1.45 (CI: 1.18-1.79)	0.0005 ^c
201+ pounds	1.62 (CI: 1.26-2.08)	0.0002 ^c
BMI		
Healthy	Reference	Reference
Underweight	0.47 (CI: 0.236-0.92)	0.027 ^c
Overweight	1.14 (CI: 0.90-1.45)	0.29
Obese	1.35 (CI: 1.05-1.73)	0.018 ^c
Extreme of high-risk obesity	1.31 (CI: 0.89-1.94)	0.18
Has smoked at least 100 cigarettes		
Yes	Reference	Reference
No	1.09 (CI: 0.90-1.31)	0.38
Currently smoke cigarette		
Not at all	Reference	Reference
Everyday	0.74 (CI: 0.53-1.02)	0.070
Somedays	0.75 (CI: 0.34-1.51)	0.42
Ever used smokeless tobacco		
Yes	Reference	Reference
No	1.06 (CI: 0.76-1.47)	0.72
Currently use smokeless tobacco		
Not at all	Reference	Reference
Everyday	0.69 (CI: 0.26-1.80)	0.44
Somedays	1.78 (CI: 0.44-7.18)	0.42
Has ever smoked cigar		
Yes	Reference	Reference
No	0.80 (CI: 0.65-0.99)	0.044 ^c
Has smoked at least 50 cigars		
Yes	Reference	Reference
No	1.11 (CI: 0.73-1.67)	0.63
Currently use cigars		
Not at all	Reference	Reference
Everyday	>999.99 (CI: <0.001->999.99)	0.98
Somedays	1.21 (CI: 0.55-2.67)	0.63
Has ever used pipe tobacco		
Yes	Reference	Reference
No	0.73 (CI: 0.56-0.95)	0.018 ^c
Currently use pipe tobacco		
Not at all	Reference	Reference
Everyday	0.56 (CI: 0.035-9.02)	0.68
Somedays	0.56 (CI: 0.078-4.02)	0.56
Has ever used e-cigarette		
Yes	Reference	Reference
No	1.31 (CI: 0.95-1.80)	0.098
Currently use e-cigarette		
Not at all	Reference	Reference
Everyday	9.71 (CI: 1.21-77.95)	0.032 ^c
Somedays	0.60 (CI: 0.23-1.53)	0.28

Contd...

Supplementary Table 1: Contd...

Clinical Variables	Odd ratio Estimates	P
Stroke/brain hemorrhage		
Yes	Reference	Reference
No	0.95 (CI: 0.72-1.25)	0.71
Diabetes/high blood sugar ever		
Yes	Reference	Reference
No	0.77 (CI: 0.64-0.93)	0.0074 ^c
Type of Diabetes		
Type 2	Reference	Reference
Type 1	1.02 (CI: 0.52-2.00)	0.97
Pre-diabetes or borderline	1.10 (CI: 0.77-1.58)	0.59
Gestational	2.43 (CI: 0.67-8.82)	0.18
Other type of diabetes	3.31 (CI: 0.38-28.56)	0.28
Parkinson's Disease		
Yes	Reference	Reference
No	0.91 (CI: 0.46-1.80)	0.78
Fallen down		
Yes	Reference	Reference
No	0.83 (CI: 0.68-1.00)	0.05 ^c
Number of times Fallen		
1-10	Reference	Reference
11-20	0.88 (CI: 0.27-2.90)	0.83
21-30	2.20 (CI: 0.23-21.21)	0.49
31-40	>999.99 CI: < 0.001-> 999.99)	0.98
41-50	>999.99 (CI: < 0.001-> 999.99)	0.98
51-60	>999.99 (CI: < 0.001-> 999.99)	0.98
91-100	0.73 (CI: 0.046-11.75)	0.83
Depression		
Yes	Reference	Reference
No	0.79 (CI: 0.65-0.96)	0.016 ^c
Congestive Heart Failure		
Yes	Reference	Reference
No	0.983 (CI: 0.73-1.33)	0.91
Rheumatoid arthritis		
Yes	Reference	Reference
No	0.83 (CI: 0.65-1.06)	0.13
Osteoarthritis		
Yes	Reference	Reference
No	0.74 (CI: 0.60-0.90)	0.0028 ^c
Other arthritis		
Yes	Reference	Reference
No	0.83 (CI: 0.67-1.04)	0.10
Hysterectomy		
Yes	Reference	Reference
No	0.78 (CI: 0.63-0.96)	0.022 ^c
Prostate Surgery		
Yes	Reference	Reference
No	0.64 (CI: 0.41-1.001)	0.050
Difficulty walking/stairs		
Yes	Reference	Reference
No	0.82 (0.68-0.99)	0.037 ^c
Difficulty stooping/crouching/kneeling		
No difficulty at all	Reference	Reference
A little difficulty	1.32 (CI: 0.98-1.77)	0.072

Contd...

Supplementary Table 1: Contd...

Clinical Variables	Odd ratio Estimates	P
Some difficulty	1.25 (CI: 0.91-1.70)	0.17
A lot of difficulty	1.28 (CI: 0.95-1.74)	0.11
Not able to do it	1.89 (CI: 1.35-2.64)	0.0002 ^c
Difficulty lifting/carrying 10 pounds		
No difficulty at all	Reference	Reference
A little difficulty	0.93 (CI: 0.71-1.22)	0.61
Some difficulty	1.06 (CI: 0.79-1.41)	0.71
A lot of difficulty	1.33 (0.99-1.80)	0.058
Not able to do it	1.15 (0.87-1.53)	0.34
Difficulty extending arms above shoulder		
No difficulty at all	Reference	Reference
A little difficulty	1.11 (CI: 0.85-1.44)	0.44
Some difficulty	1.63 (CI: 1.20-2.22)	0.0019 ^c
A lot of difficulty	1.05 (CI: 0.74-1.49)	0.77
Not able to do it	1.29 (CI: 0.86-1.93)	0.21
Difficulty walking ¼ mile		
No difficulty at all	Reference	Reference
A little difficulty	0.87 (CI: 0.64-1.18)	0.38
Some difficulty	1.27 (CI: 0.93-1.74)	0.13
A lot of difficulty	1.31 (CI: 0.97-1.78)	0.078
Not able to do it	1.48 (CI: 1.17-1.87)	0.0012 ^c
Any difficulty walking		
Yes	Reference	Reference
No	0.73 (CI: 0.60-0.88)	0.0011 ^c
Any difficulty using toilet		
Yes	Reference	Reference
No	0.66 (CI: 0.50-0.86)	0.0025 ^c
General Health compared to others same age		
Excellent	Reference	Reference
Fair	0.95 (CI: 0.68-1.33)	0.76
Good	0.78 (CI: 0.57-1.10)	0.14
Poor	1.95 (CI: 1.25-3.10)	0.0032 ^c
Very Good	0.92 (CI: 0.66 – 1.30)	0.64
How would you rate your future health 6 months from now		
It will get much better	Reference	Reference
It will somewhat better	1.11 (CI: 0.74-1.66)	0.62
It will somewhat worse	1.00 (CI: 0.64-1.57)	0.99
It will not change	0.76 (CI: 0.52-1.10)	0.15
It will get much worse	0.87 (CI: 0.33-2.30)	0.77

Sample size: 1856, ^aProc logistic in SAS was used to examine the bivariate association, ^bUrinary Incontinence was defined as 2-3 times a month or higher, ^cP≤0.05 indicates significance

Supplementary Table 2: Multivariable association ^a between patient perceptions of physician's score and talking about Urinary Incontinence ^b with their doctor		
Variables	Odd ratio	Estimates
Patient perception score		
Less than 30	Reference	
30 or higher	1.55 (CI: 1.03-2.35)	0.038
General Health compared to others same age		
Excellent	Reference	
Very Good	0.76 (CI: 0.50-1.16)	0.20
Good	0.60 (CI: 0.40-0.89)	0.012 ^c
Fair	0.69 (CI: 0.44-1.10)	0.12
Poor	1.48 (CI: 0.79-2.77)	0.23
How would you rate your future health 6 months from now		
It will get much better	Reference	
It will somewhat better	1.04 (CI: 0.65-1.67)	0.88
It will not change	0.78 (CI: 0.51-1.21)	0.27
It will somewhat worse	0.76 (CI: 0.44-1.30)	0.32
It will get much worse	0.64 (CI: 0.16-2.54)	0.52
Weight in pounds		
50-150 pounds	Reference	
151-200 pounds	1.25 (CI: 0.96-1.62)	0.12
201+ pounds	1.08 (0.77-1.50)	0.80
Difficulty walking/stairs		
Yes	Reference	
No	1.27 (CI: 0.92-1.76)	0.15
Difficulty stooping/crouching/kneeling		
No difficulty at all	Reference	
A little difficulty	1.10 (CI: 0.76-1.57)	0.62
Some difficulty	1.01 (CI: 0.67-1.50)	0.98
A lot of difficulty	0.85 (CI: 0.55-1.33)	0.48
Not able to do it	1.39 (CI: 0.83-2.32)	0.21
Difficulty extending arms above shoulder		
No difficulty at all	Reference	
A little difficulty	1.17 (CI: 0.84-1.64)	0.36
Some difficulty	1.39 (CI: 0.95-2.05)	0.090
A lot of difficulty	0.77 (CI: 0.48-1.24)	0.29
Not able to do it	1.19 (CI: 0.66-2.13)	0.56
Difficulty walking ¼ mile		
No difficulty at all	Reference	
A little difficulty	0.82 (CI: 0.56-1.19)	0.29
Some difficulty	1.37 (CI: 0.90-2.09)	0.14
A lot of difficulty	1.32 (CI: 0.83-2.08)	0.24
Not able to do it	1.31 (CI: 0.86-2.00)	0.21
Any difficulty using the toilet		
Yes	Reference	
No	0.822 (CI: 0.56-1.20)	0.31
Any difficulty walking		
Yes	Reference	
No	0.92 (CI: 0.66-1.28)	0.62
Fallen down in the past year		
Yes	Reference	
No	0.94 (CI: 0.74-1.2)	0.62
Has ever smoked cigar		
Yes	Reference	

Supplementary Table 2: Contd...		
Variables	Odd ratio	Estimates
No	0.86 (CI: 0.62-1.19)	0.36
Has ever used pipe		
Yes	Reference	
No	0.65 (CI: 0.44-0.96)	0.030 ^c
Has ever used e-cigarette		
Yes	Reference	
No	1.54 (CI: 1.02-2.34)	0.041 ^c
Diabetes/high blood sugar		
Yes	Reference	
No	0.83 (CI: 0.65-1.06)	0.14
Osteoarthritis		
Yes	Reference	
No	0.81 (CI: 0.63-1.04)	0.095
Depression		
Yes	Reference	
No	0.73 (CI: 0.56-0.95)	0.017 ^c

Sample size: 1372, ^aProc logistic in SAS was used to examine the multivariable association, ^bUrinary Incontinence was defined as 2-3 times a month or higher, ^cP≤0.05 indicates significance

Contd...

Appendix A

Questions used for the Patient Perception of Physician Scale¹

1. Your doctor answers all of your questions.
2. Your doctor often does not explain your medical problems to you.
3. You often have health problems that should be discussed but are not.
4. Your doctor often acts as though he/she was doing you a favor by talking to you.
5. Your doctor tells you all you want to know about your condition and treatment
6. Your doctor has a complete understanding of the things that are wrong with you
7. Your doctor is very careful to check everything when examining you.
8. Your doctor is competent and well trained
9. You depend on your doctor to feel better physically and emotionally
10. You have great confidence in your doctor
11. Your doctor seems to be in a hurry.

¹Responses to the questions above were strongly agree, agree, disagree, strongly disagree