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# Correlates of Urinary Incontinence in Community-Dwelling Older Latinos

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The prevalence of urinary incontinence (UI) has varied in the literature and is reflective of the definition and sampling methodologies used, as well as the age, ethnicity, and sex being studied. The aim of the current study was to measure the prevalence and correlates of UI in a sample of 572 older Latinos participating in *Caminemos*, a trial of a behavioral intervention to increase walking. Participants completed an in-person survey and physical performance measures. UI was measured using the International Consultation on Incontinence item: "How often do you leak urine?" Potential correlates of UI included sociodemographic variables, body mass index, smoking, physical activity, medical comorbidity, physical performance, activity of daily living (ADL) impairment, use of assistive ambulatory devices, health-related quality of life (HRQoL), and depressive symptoms. The prevalence of UI in this sample was 26.9%. Women were more likely to report UI, as were those who were less physically active; used assistive ambulatory devices; and had depressive symptoms, greater medical comorbidity, worse physical performance, greater ADL impairment, worse cognitive function, and lower HRQoL. Multivariate logistic regression revealed that medical comorbidity was independently associated with higher rates of UI (odds ratio (OR) = 1.66, 95% confidence interval (CI) = 1.30–2.12), whereas better cognitive function (OR = 0.73, 95% CI = 0.57–0.93) and higher weighted physical activity scores (OR = 0.77, 95% CI = 0.60–0.98) were independently associated with lower rates of UI. UI is highly prevalent but not ubiquitous among community-residing older Latinos, suggesting that UI is not an inevitable consequence of aging. Future studies should examine whether interventions that decrease comorbidity and cognitive decline and increase physical activity improve continence status. **J Am Geriatr Soc 58:1170–1176, 2010.**

**Key words: urinary incontinence; epidemiology; Latino; prevalence; aging**

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The burden of urinary incontinence (UI) reaches far beyond the episodes of wetness, the odor of urine, and the inconvenience of protective garments. It encompasses adverse physical, psychological, and social effects, including skin breakdown, recurrent urinary tract infections, impaired sleep, falls and fractures, social withdrawal, anxiety, depression, and a predisposition to institutionalization.[1] The economic encumbrance includes the costs and complications of treatment and lost productivity, engendering a conservative annual price tag of nearly $20 billion.[2]

Although findings vary based on the definition and sampling methodologies used,[3,4] prevalence rates of UI in noninstitutionalized older adults range from approximately 15% to 35%.[1,5] Much attention has focused on the social and psychosocial consequences of UI in the aging population, including substantially poorer psychological well-being.[6] Previous work suggests a higher prevalence of UI in women, older adults, and nursing home residents,[7] and in those with limited functional status.[8] The vast majority of epidemiological studies on UI have focused on non-Latino Caucasian women. Recent work has begun to investigate risk factors for UI in minorities, including minority men, and suggests that the risk factors for UI may vary according to racial or ethnic group.[7,9] Heterogeneity in continence status in older Americans has created great interest in identifying groups of older adults most likely to benefit from interventions to prevent or treat UI.

Latinos, the fastest-growing group of Americans aged 60 and older, currently represent approximately 15% of the U.S. population and account for half of the population growth since 2000.[10] Previous work has shown that several



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often-preventable or curable conditions associated with UI, including diabetes mellitus,[11] the metabolic syndrome,[12] and cervical cancer,[13] are greater in Latinos. It is imperative to understand the prevalence and the correlates of UI in older Latinos to design and implement appropriate interventions aimed at ameliorating the effect of UI.

With the overarching goal of understanding the prevalence and associated characteristics of UI in older community-residing Latinos, this study analyzed cross-sectional baseline data from an ongoing clinical trial. The specific aims were to estimate UI prevalence and to identify sociodemographic, behavioral, medical, physical, psychological, and health-related quality-of-life (HRQoL) correlates of UI in this sample.

## METHODS

### Sample

Baseline data from a randomized trial of a behavioral intervention to increase walking in sedentary older Latinos in the greater Los Angeles area (*Caminemos*, Clinicaltrials.gov Identifier: NCT00183014) were analyzed. Participants were recruited from 27 community-based senior centers between August 2005 and 2007. To be eligible for the study, potential participants had to be aged 60 and older, self-identify as Latino, be able to communicate verbally in English or Spanish, pass a six-item cognitive screening test,[14] and exercise less than 20 minutes three times weekly. Of 1,217 potential participants screened, 572 (47%) met eligibility criteria, completed informed consent, and enrolled in the study. Each participant completed an in-person survey (offered in English or Spanish) that included measures of physical activity, general health, physical function, and HRQoL. Each participant also completed a brief physical examination and performance measures (see below). The University of California at Los Angeles institutional review board approved the study.

### Measures

#### *Incontinence*

UI was measured using an item modified from the International Consultation on Incontinence Questionnaire: "How often do you leak urine?"[15,16] There were six possible responses: never, less than one time per week, two to three times per week, once per day, several times per day, or all the time. Participants who responded anything other than "never" were classified as having UI. Five categories of characteristics hypothesized to be associated with UI were selected based on the UI literature: sociodemographic, behavioral, medical, physical, and psychological or HRQoL characteristics.

#### *Sociodemographic Characteristics*

Age, sex, marital status, level of education, and income were measured using standard previously tested measures. Acculturation was assessed using the Marin Short-Acculturation Scale, which ranges from 1 (no evidence of acculturation) to 5 (most acculturation).[17] Because 46% of the sample scored the lowest possible score on this measure (1), acculturation was dichotomized into any (scores $>1$) versus none (score $=1$).

#### *Behavioral Characteristics*

Body mass index (BMI): Because obesity is a construct that is amenable to behavioral change, BMI was categorized with other behavioral constructs. Height and weight were collected following a standardized protocol and were used to calculate BMI (kg/m$^2$). BMI was divided into four categories ($\leq$18.5 kg/m$^2$ (underweight), 18.6–24.9 kg/m$^2$ (normal weight), 25.0–29.9 kg/m$^2$ (overweight), and $>$30.0 kg/m$^2$ (obese)) according to the World Health Organization criteria.[18] Interrater reliability on a random 10% of participants was 1.00 ($P<.001$) for height and weight.

Smoking history: Smoking history was assessed using the Behavioral Risk Factor Surveillance System Survey Questionnaire.[19]

Physical activity: Each participant completed the Yale Physical Activity Survey, a previously tested measure of physical activity in older adults.[20] It has two sections. In the first, participants are provided with a detailed list of specific activities and asked to report the time spent in each during a typical week in the previous month. In the second section, participants are asked to report the time spent in each of five specific activity dimensions (vigorous activity, leisurely walking, moving, standing, and sitting). The first section is used to calculate a Total Time Summary Index (total time spent in any of the listed activities) and an Energy Expenditure Summary Index (total time in each activity multiplied by a kcal intensity code and summed over all activities). A third summary index—the Activity Dimensions Summary (ADS) score—is derived from Section 2 by multiplying the time spent in each activity dimension by a weight (ranging from 5 for vigorous activities to 1 for sitting) and summing up the weighted total for all five activity dimensions.[21,22]

#### *Medical Characteristics*

The modified Charlson Comorbidity Index[23] quantified the number of comorbid conditions: hypertension; myocardial infarction; congestive heart failure (CHF); stroke or transient ischemic attack; diabetes mellitus; arthritis; hip fracture; wrist, arm, or spine fracture; asthma, emphysema, chronic obstructive pulmonary disease, or chronic bronchitis; cirrhosis or liver disease; cancer (other than skin); Parkinson's disease; lower extremity bypass; Alzheimer's disease or dementia; depression; and anxiety.

#### *Physical Function Characteristics*

Physical performance measures: Physical performance measures[24] were performed following a standardized protocol measuring balance, gait, strength, and endurance. A summary score was calculated by summing categorical rankings of performance on each test. A random 10% of participants had each test measured twice; interrater reliability was 1.00 ($P<.001$).

Self-reported physical function: The activity of daily living (ADL) summary scale was used to assess difficulty performing sixteen basic tasks.[25]

Use of assistive devices: Frequency of use (cane, walker, or wheelchair) was assessed using the Behavioral Risk Factor Surveillance System Survey Questionnaire.[19]

#### *Psychological and HRQoL Characteristics*

Cognitive function: Global cognitive function was measured using the Modified Mini-Mental State Examination

(3MS),[26] an expanded version of the Mini-Mental State Examination.[27]

Health-related quality of life: Responses from the Medical Outcomes Study 12-item Short Form Survey (SF-12)[28] were used to compute a Physical Component Summary (PCS-12) and a Mental Component Summary (MCS-12) using standardized weights with a mean of 50 and a standard deviation of 10.

Depressive symptoms: The five-item Geriatric Depression Scale (GDS) was dichotomized at less than 2 versus 2 or higher; this cut point has a sensitivity of 97% and a specificity of 85% for clinical depression.[29]

### Statistical Analysis

Bivariate associations between UI and potential correlates were tested using the Pearson chi-square test for categorical variables and the Student *t*-test for continuous variables. Significance was set at $P \leq .05$.

Hierarchical multivariate logistic regression models were constructed to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for UI using SAS 9.1 software (SAS Institute, Inc., Cary, NC). All models were adjusted for Spanish language and clustering according to senior center site.

## RESULTS

Mean patient age was 73.1 (range 60–93). Seventy-seven percent of participants were female; 15.2% had been hospitalized in the previous 6 months. The prevalence of UI in this older Latino population was 26.9%, with 29.5% of women and 18.3% of men ($P = .01$ for difference between groups) reporting UI. Severity of incontinence was less than one time per week (7.2%), two to three times per week (3.5%), daily (4.7%), several times per day (9.4%), or all the time (2.1%). Characteristics broken down according to the presence and absence of UI are shown in Table 1. Female sex was the strongest sociodemographic correlate of UI. Age, in this participant cohort, was not associated with prevalence of UI.

In bivariate analyses, hypertension, CHF, arthritis, depression, and anxiety were associated with higher prevalence of UI. A linear correlation between prevalence of UI and number of comorbid conditions was found (correlation coefficient = 0.81) and is shown in Figure 1. With one comorbid condition, the associated unadjusted risk of UI was 14.0%, with two conditions this rose to 22.0%, with three conditions to 23.6%, and with four conditions to 37.6%.

A series of multivariate regression analyses were constructed based on the five categories of potential UI correlates described above (sociodemographic, behavioral, medical, physical, and psychological or HRQoL) and are shown in Table 2. The fully adjusted model revealed that medical comorbidity was associated with higher rates of UI (OR = 1.66, 95% CI = 1.30–2.12), whereas better cognitive function (OR = 0.73, 95% CI = 0.57–0.93) was independently associated with lower rates of UI. One summary index of the Yale Physical Activity Survey, ADS score, was associated with lower rates of UI (OR = 0.77, 95% CI = 0.60–0.98). To explore possible reasons why only one of the three physical activity measures correlated with UI, models were rerun using modified versions of the ADS score. Eliminating the weights from the ADS score resulted in a stronger association with UI (adjusted OR (AOR) = 0.72, 95% CI = 0.56–0.91) and dropping the standing and sitting dimensions from the ADS score resulted in an AOR virtually identical to the original model (0.76, 95% CI = 0.6–0.97). Acculturation was associated with higher

**Table 1. Characteristics of Participants with and without Urinary Incontinence (UI)**

| | n (%) | | |
|---|---|---|---|
| Characteristic | All (N = 572) | No UI (n = 418, 73.1%) | UI (n = 154, 26.9%) |
| Age | | | |
| 60–64 | 63 (11.0) | 48 (11.5) | 15 (9.7) |
| 65–69 | 120 (21.0) | 94 (22.5) | 26 (16.9) |
| 70–74 | 144 (25.2) | 105 (25.1) | 39 (25.3) |
| 75–79 | 138 (24.1) | 89 (21.3) | 49 (31.8) |
| 80–84 | 82 (14.3) | 63 (15.1) | 19 (12.3) |
| ≥85 | 25 (4.4) | 19 (4.5) | 6 (3.9) |
| Sex | | | |
| Female | 441 (77.1) | 311 (74.4) | 130 (84.4) |
| Male | 131 (22.9) | 107 (25.6) | 24 (15.6) |
| Education | | | |
| No schooling | 83 (14.5) | 54 (12.9) | 29 (18.8) |
| ≤8th grade | 256 (44.8) | 186 (44.5) | 70 (45.5) |
| ≥High school | 233 (40.7) | 178 (42.6) | 55 (35.6) |
| Marital status | | | |
| Never married | 72 (12.6) | 50 (12.0) | 22 (14.5) |
| Married | 164 (28.8) | 125 (29.9) | 39 (25.7) |
| Divorced or separated | 128 (22.5) | 96 (23.0) | 32 (21.1) |
| Widowed | 206 (36.1) | 147 (35.2) | 59 (38.8) |
| Income, $* | | | |
| Unknown | 50 (8.7) | 37 (8.8) | 13 (8.4) |
| <5,000 | 89 (15.6) | 61 (14.6) | 28 (18.2) |
| 5,000–9,999 | 169 (29.5) | 124 (29.7) | 45 (29.2) |
| 10,000–19,999 | 174 (30.4) | 122 (29.2) | 52 (33.8) |
| 20,000–29,999 | 61 (10.7) | 53 (12.7) | 8 (5.2) |
| ≥30,000 | 29 (5.1) | 21 (5.0) | 8 (5.2) |
| Body mass index, kg/m$^2$ | | | |
| ≤18.5 (underweight) | 2 (0.4) | 2 (0.5) | 0 (0.0) |
| 18.6–24.9 (healthy) | 91 (16.0) | 70 (16.8) | 21 (13.7) |
| 25.0–29.9 (overweight) | 213 (37.4) | 158 (38.0) | 55 (35.9) |
| ≥30.0 (obese) | 263 (46.2) | 186 (44.7) | 77 (50.3) |
| Lifetime smoking, cigarettes, n | | | |
| <100 | 364 (63.6) | 263 (62.9) | 101 (65.6) |
| ≥100 | 208 (36.4) | 155 (37.1) | 53 (34.4) |
| Recent hospitalization | | | |
| No | 485 (84.8) | 359 (85.9) | 126 (81.8) |
| Yes | 87 (15.2) | 59 (14.1) | 28 (18.2) |
| Depressive symptoms, n | | | |
| <2 | 413 (72.3) | 322 (77.2) | 91 (59.1) |
| ≥2 | 158 (26.7) | 95 (22.8) | 63 (40.9) |
| Number of comorbid conditions | | | |
| <3 | 275 (48) | 228 (55) | 47 (31) |
| ≥3 | 297 (52) | 190 (46) | 107 (70) |

* Total annual household income before taxes.

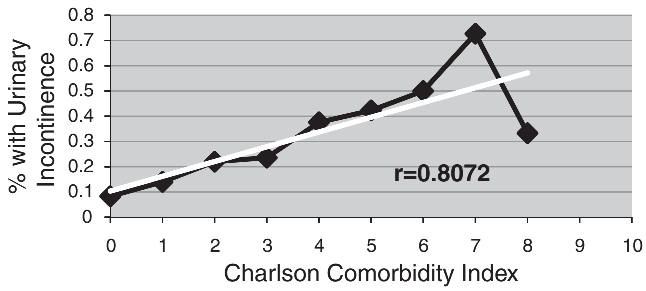


**Figure 1.** A linear association between the number of comorbid medical conditions and risk for urinary incontinence was seen.

rates of UI (OR = 1.24, 95% CI = 1.00–1.55). Several important bivariate correlates of UI, including sex, ADL impairment, use of assistive devices, and HRQoL, were not significant in the fully adjusted model.

## DISCUSSION

UI was highly prevalent in lower-income older urban Latinos attending community senior centers in the greater Los Angeles region. The overall prevalence of UI in this cohort aged 60 and older was 26.9%, with 29.5% of Latino women and 18.3% of Latino men reporting UI. This was at the high end of the range of previously reported epidemiological studies in women,[4,7,30–32] men,[7,9] and Latinos.[33] In a multivariate model adjusting for sociodemographic, behavioral, medical, physical, psychological, and HRQoL characteristics, medical comorbidity was independently associated with higher rates of UI, whereas better cognitive function and higher weighted physical activity summary scores were independently associated with lower rates of UI.

The association between UI and medical comorbidity has been recognized in previous studies,[31,33] although significant variability exists in the presence and strength of that association. In the current study, hypertension, CHF, arthritis, depression, and anxiety were associated with a higher prevalence of UI. Others have shown asthma,[9] stroke,[34] diabetes mellitus,[35] and smoking[32] to be independently associated with UI. A positive linear association was seen in the current study between the number of comorbid conditions and the prevalence of UI. This finding suggests that the high prevalence of UI may be associated with a cumulative effect of multiple diseases (multicomorbidity) rather than with particular individual diseases. Multicomorbidity presents a challenging management dilemma in geriatric patient populations.[36] With each medical condition come separate guidelines for care, usually involving medications. The cumulative plan may be inappropriate, producing an unsustainable treatment burden.[37] As a result, prioritization of care is imperative, with identification of the most-dangerous and the most-bothersome conditions. Given the strong association seen between UI, comorbidity, and health-related HRQoL, it is important that providers screen for UI in their patients with multicomorbidity, search for reversible causes of UI, and treat selectively with a goal of improving overall HRQoL.

An association between cognitive function and UI was found, with the most cognitively impaired seniors being more likely to experience UI. Impaired cognitive function is a well-recognized risk factor for UI in nursing home residents[38] and those admitted for hip fracture,[8] but because the current study included only older Latinos who were able to pass the cognitive screening and complete informed consent, this current study extends this work by suggesting that even mild cognitive impairment may contribute to UI.

Although neither total time exercising nor energy expenditure was associated with UI, ADS score was strongly associated with lower rates of UI. The sensitivity analyses suggest that it is the moderate and vigorous exercise dimensions of the ADS score that contributed the most to the association—dimensions that constitute a much smaller component of the time and energy indices. This suggests that UI is preventing older adults from participating in moderate or vigorous exercise or that moderate to vigorous physical activity might prevent UI. Innovative work showing that an exercise intervention in a physically inactive, incontinent nursing home cohort can decrease UI and improve mobility and strength supports the latter hypothesis.[39] Further research should help determine whether the effects on UI could be secondary to exercise, mobility, weight loss, or other factors.

A pitfall of this and other cross-sectional studies is that the direction of causation cannot be determined. Does UI predispose patients to medical comorbidity, physical inactivity, and cognitive dysfunction, or are those who are sicker, less active, and experiencing mild cognitive impairment more prone to UI? A longitudinal population-based study of older Mexican Americans in five southwestern states attempted to shed light on this association; it showed that incident UI was associated with global functional impairment.[8] The authors concluded that UI may be an early marker signaling the onset of frailty. The concept of frailty in older adults represents vulnerability and captures elements of physical function, cognitive function, and general health. Previous studies have addressed the association between UI and frailty,[8] and the results of the current study further support this link. Although this cross-sectional analysis cannot determine the directional and temporal association between these conditions, it could be speculated that improving cognitive function, physical function, and general health could also improve continence. Aggressive preventative health measures to maintain cognitive function, prevent multicomorbidity, and promote physical activity in older adults may have multifactorial health benefits, including better continence and HRQoL. Further studies evaluating these associations and adjusting for the role of medications and baseline fitness level in a longitudinal study are warranted.

Older Latinos with greater acculturation were more likely to report UI, an association that approached statistical significance in the fully adjusted model. Whether this reflects a true difference in prevalence in this sample or measurement error is unclear; one possible explanation is that the phenomenon of social desirability may be less likely to influence Latino seniors who are more acculturated and use English more often when answering a question about this potentially embarrassing problem. If so, this would suggest that the rates of UI are probably higher than reported here.

Table 2. Urinary Incontinence According to Bivariate and Multivariate Regression Analyses

| Variable | Odds Ratio (95%Confidence Interval) | | | | | |
|---|---|---|---|---|---|---|
| | Bivariate Model | Model 1 (n = 572)[†] | Model 2 (n = 567)[‡] | Model 3 (n = 567)[§] | Model 4 (n = 564)[‖] | Model 5 (n = 563)[#] |
| Age (reference 60–64) | | | | | | |
| 65–69 | 0.89 (0.43–1.83) | 0.90 (0.43–1.87) | 0.88 (0.42–1.85) | 1.02 (0.47–2.21) | 1.11 (0.50–2.43) | 1.19 (0.54–2.66) |
| 70–74 | 1.19 (0.60–2.36) | 1.24 (0.62–2.48) | 1.15 (0.56–2.33) | 1.37 (0.65–2.87) | 1.48 (0.70–3.14) | 1.54 (0.71–3.32) |
| 75–79 | 1.76 (0.90–3.47) | 1.68 (0.84–3.34) | 1.51 (0.75–3.06) | 1.79 (0.86–3.74) | 1.89 (0.89–3.99) | 1.99 (0.91–4.34) |
| 80–84 | 0.97 (0.45–2.09) | 0.97 (0.44–2.13) | 0.83 (0.37–1.85) | 1.00 (0.43–2.33) | 1.08 (0.46–2.57) | 1.07 (0.44–2.60) |
| ≥85 | 1.01 (0.34–2.99) | 0.92 (0.31–2.75) | 0.83 (0.27–2.56) | 0.76 (0.23–2.51) | 0.74 (0.22–2.46) | 0.73 (0.21–2.50) |
| Female (reference male) | 1.80 (1.14–3.04)* | 1.88 (1.15–3.09)* | 1.60 (0.95–2.72) | 1.55 (0.90–2.68) | 1.50 (0.86–2.60) | 1.42 (0.81–2.48) |
| Education (reference no schooling) | | | | | | |
| ≤8th grade | 0.70 (0.41–1.19) | 0.78 (0.45–1.35) | 0.87 (0.50–1.52) | 1.04 (0.58–1.86) | 1.03 (0.57–1.87) | 1.43 (0.74–2.76) |
| ≥Some high school or other | 0.58 (0.33–0.99)* | 0.49 (0.28–0.87)* | 0.58 (0.32–1.04) | 0.77 (0.42–1.44) | 0.83 (0.44–1.55) | 1.37 (0.66–2.83) |
| Acculturation | 1.22 (1.02–1.46)* | 1.29 (1.06–1.58)* | 1.27 (1.04–1.56)* | 1.30 (1.06–1.61)* | 1.26 (1.01–1.57)* | 1.24 (1.00–1.55)* |
| Body mass index (reference normal or underweight) | | | | | | |
| Overweight | 0.71 (0.41–1.23) | | 0.88 (0.49–1.58) | 1.12 (0.60–2.07) | 1.17 (0.63–2.19) | 1.19 (0.63–2.25) |
| Obese | 0.84 (0.56–1.26) | | 0.91 (0.59–1.40) | 1.24 (0.78–1.98) | 1.28 (0.79–2.05) | 1.25 (0.77–2.04) |
| Yale Physical Activity Survey** | | | | | | |
| Total Time Summary Index | 0.84 (0.69–1.04) | | 1.19 (0.52–2.73) | 1.04 (0.45–2.37) | 1.21 (0.54–2.72) | 1.40 (0.61–3.20) |
| Energy Expenditure Index | 0.80 (0.63–1.01) | | 0.77 (0.32–1.89) | 0.95 (0.40–2.28) | 0.89 (0.39–2.03) | 0.82 (0.35–1.90) |
| Activity Dimensions Summary score | 0.66 (0.54–0.82)* | | 0.72 (0.57–0.90)* | 0.74 (0.59–0.94)* | 0.75 (0.59–0.96)* | 0.77 (0.60–0.98)* |
| Medical comorbidity | 1.91 (1.57–2.32)* | | | 1.89 (1.52–2.34)* | 1.73 (1.38–2.17)* | 1.66 (1.30–2.12)* |
| Physical performance score** | 0.72 (0.60–0.87)* | | | | 0.93 (0.73–1.18) | 1.00 (0.78–1.27) |
| Ever have ADL impairment (reference never have) | 2.59 (1.76–3.79)* | | | | 1.49 (0.95–2.34) | 1.25 (0.76–2.07) |
| Ever have use of assistive devices (reference never have) | 2.39 (1.59–3.58)* | | | | 1.36 (0.81–2.28) | 1.20 (0.70–2.06) |
| Cognitive function** | 0.70 (0.58–0.83)* | | | | | 0.73 (0.57–0.93)* |
| Physical HRQoL** | 0.63 (0.52–0.76)* | | | | | 0.80 (0.62–1.04) |
| Mental HRQoL** | 0.69 (0.58–0.83)* | | | | | 0.97 (0.77–1.24) |
| 5-item Geriatric Depression Scale score ≥2 (reference <2) | 2.35 (1.58–3.48)* | | | | | 1.33 (0.81–2.21) |

* $P < .05$.

[†] Bivariate model: logistic regression analyses included one variable at a time.

[‡] Model 1 plus body mass index and Yale Physical Activity Index.

[§] Model 2 plus medical comorbidity.

[‖] Model 3 plus physical performance, activity of daily living (ADL) impairment, and use assistive devices.

[#] Model 4 plus cognitive, health-related quality of live (HRQoL), and depression.

** Point estimates based on continuous scores, standardized using weights with a mean of 0 and a standard deviation of 1.

Some important bivariate correlates dropped out of the multivariate model, including female sex, which has been found in many studies to correlate with UI.[7,9] In this unique sample, the addition of acculturation, which was unequally distributed according to sex, may have caused this finding. In addition, ADL impairment, use of assistive devices, and HRQoL did not maintain significance in the multivariate model, suggesting that other associated constructs, such as medical comorbidity, captured these.

Major limitations of this study include selection bias and possible measurement error. This was a convenience sample from a study whose primary aim was not to measure rates of UI; prevalence rates from this sample cannot be extrapolated to the entire Latino community. Because participants were recruited from community centers, active seniors may be overrepresented, whereas those who were less active or sicker might have been at home or in nursing facilities, causing an underestimation of the prevalence of UI. Despite being a senior center sample, this was not an exclusively healthy sample, as evidenced by a 15% recent hospitalization rate. These data are based on self-reported instruments that are subject to recall and social desirability bias. The single-item measure of UI may not have captured participants who had been previously diagnosed or successfully treated for UI, possibly leading to an underestimation of prevalence or downgrading of severity of UI in this sample. In addition, some of the constructs measured had not been previously tested in an older Latino population. Although all instruments were front- and back-translated into Spanish and all analyses adjusted for the language of survey, it is possible that subtle differences between the versions of the instruments may have contributed to the observed findings.

## CONCLUSION

UI is a highly prevalent condition in older urban Latinos. Impairments in cognitive and physical function coexist with UI; together, these factors can have a significant effect on HRQoL. These results suggest that, although not always curable, UI should not be considered an inevitable part of normal aging. Multivariate regression analysis revealed that greater medical comorbidity and cognitive impairment, regardless of age, were independently associated with higher rates of UI in older Latinos in this sample. Additionally, a weighted physical activity summary score was independently associated with lower rates of UI. Because existing comorbid disease and cognitive dysfunction can be difficult to modify, preventive measures to decrease the number of comorbid conditions and maintain cognitive function and increase participation in moderate and vigorous physical activity may play an important role in preventing UI. An excellent opportunity to improve UI may exist with initiation of an exercise program. Furthermore, it is important that providers screen for UI in their patients with multicomorbidity and impaired cognition, not only to search for reversible causes, but also because UI may be an indicator of declining health and function. Ultimately, prioritizing care aimed at interventions to decrease the risk of UI may save healthcare dollars, decrease patient morbidity, and improve HRQoL.

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