

Lower Urinary Tract Dysfunction in Elementary School Children: Results of a Cross-Sectional Teacher Survey

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Abbreviations and Acronyms

LUT = lower urinary tract

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Purpose: Lower urinary tract dysfunction in school-aged children is common and yet data are lacking on current teacher practice regarding bathroom use and daytime incontinence during classroom hours. We determined the prevalence of elementary school teachers who promote lower urinary tract health and identified predictors for and against such behavioral promotion.

Materials and Methods: We performed an electronic cross-sectional survey among self-identified teachers using targeted social media advertisement during a 1-week period in July 2014. The empirical survey tool consisted of 27 questions and collected data on 5 principal domains, including 1) teacher demographics, 2) rules and regulations on water intake and bathroom use during classroom hours, 3) characteristics of school bathrooms in terms of safety, supervision and suitability for use, 4) experience with and management of students with daytime incontinence and 5) training on the topic of lower urinary tract health. Predictors for promoting lower urinary tract health were identified by multivariable logistic regression.

Results: Of the 4,166 teachers who completed the survey 88% indicated that they encourage students to hold urine. Despite strict bathroom protocols 81% of teachers allowed children unlimited access to water. Of the teachers 82% reported never having undergone any professional development on bathroom regulations for children. Overall only 24% of surveyed teachers met criteria for promoting lower urinary tract health. The odds of promoting lower urinary tract health decreased with ascending grade level (OR 0.80, 95% CI 0.76–0.84). Conversely it increased if teaching experience was greater than 5 years (OR 1.66, 95% CI 1.39–1.98) or professional development on the subject had been received (OR 1.42, 95% CI 1.18–1.70).

Conclusions: Of elementary school teachers 76% are not promoting lower urinary tract health in school-aged children. Professional development training on the topics of lower urinary tract dysfunction and/or lower urinary tract health may be beneficial, particularly for educators who teach higher grades and those with less teaching experience.

Key Words: urinary bladder, urinary incontinence, health education, faculty, schools

LOWER urinary tract dysfunction is used in this study as a broad term that encompasses an array of

heterogeneous storage and voiding symptoms. LUT dysfunction in school-aged children is a common issue that

often manifests as urinary urgency, frequency and incontinence. Indeed, studies worldwide document the prevalence of these symptoms to be 5% to 17%.^{1,2} Varied definitions of LUT dysfunction in prior studies preclude exact reporting of changes in prevalence with time of this all-encompassing entity. However, daytime urinary incontinence has been noted to be more common in primary school students than previously known at a rate of 19.2% with only 16% of affected children seeking medical attention.³ Studies have shown that the age at which toilet training begins is occurring later in most countries. This further highlights the importance of promoting LUT health in a school setting considering that students spend an average of 943 hours per year in the classroom.^{4–6}

Symptoms of LUT dysfunction can lead to major distress and negatively affect the quality of life of school-aged children.⁷ Learned unhealthy voiding habits such as holding can promote or exacerbate LUT dysfunction. Prior research has shown that teachers have the opportunity to mitigate unhealthy voiding habits and decrease symptoms of LUT dysfunction.⁸ However, data on teacher practice regarding bathroom use during classroom hours are lacking. The goals of the current study were to assess the extent to which teachers promote LUT health in school-aged children and identify predictors for and against such behavioral promotion.

MATERIALS AND METHODS

Study Design

After receiving institutional review board approval data were collected during a 1-week period in July 2014 using SurveyMonkey®. Targeted Facebook® advertisements were developed to reach self-identified, kindergarten to fifth grade teachers 20 to 60 years old in the United States. Potential participants were provided with a link to an informational page about the survey. They could progress to the survey only after providing electronic consent. No personally identifying information was collected. The survey software declined repeat survey entries from a single internet protocol address to decrease the likelihood of repeat participants.

Survey Instrument

The survey tool consisted of 27 questions and required approximately 15 minutes to complete (supplementary Appendix, <http://jurology.com/>). In addition to collecting teacher demographic information, the survey inquired whether participants designated bathroom breaks, whether and how they encouraged children to hold urine during classroom hours, and what access the children had to water. The survey also ascertained the state of school bathrooms, specifically the degree of adult supervision and the negative student behaviors that occurred in bathrooms. The survey queried the frequency with which teachers observed incontinence of urine and what actions

they took in case of daytime incontinence in school. Finally, teachers were asked whether they had ever received professional development training on LUT health and whether they would be interested in receiving such training. The rationale of teachers who were not interested was characterized.

The survey was piloted via SurveyMonkey to 30 New York City elementary school teachers, and 10 physicians at Harvard Medical School and University of California-San Francisco.

Definition of Promoting LUT Health

Previous studies have suggested that teachers have the capacity to mitigate unhealthy voiding habits.⁸ Children should be able to use the restroom as often as they deem necessary and normal children typically urinate 5 or 6 times daily with frequency inversely related to age.^{9,10} It is well supported that children should not hold urine as this can promote voiding dysfunction and urinary tract infections.^{11,12} Accordingly teachers who answered all 4 selected survey questions in a certain manner were designated as promoters of LUT health (supplementary Appendix, <http://jurology.com/>). 1) A child is permitted to use the restroom as many times as needed during classroom hours (question 6). 2) A child is “never” or “seldom” encouraged to wait if he/she requests to use the restroom during undesignated restroom time (question 9). 3) The teacher does not have a program or protocol in place to encourage children not to use the restroom during class time (question 10). 4) When the teacher witnesses urinary accidents, the parent and/or the school nurse/administrator is informed (question 16).

Statistical Analyses

Summary statistics were performed using frequencies and proportions for categorical variables. Unadjusted associations were tested between predictor variables with school factors and classroom protocols (defined a priori) and the outcome variable (promotion of LUT health) using the chi-square test (tables 1 and 2). We performed multivariate logistic regression including all covariates hypothesized to have clinical significance regardless of p values on unadjusted analysis to identify predictors of the promotion of LUT health. Analyses were performed with SPSS®, version 21 and Stata®, version 13. All analyses used 2-sided tests with significance considered at $\alpha = 0.05$.

RESULTS

Of 5,071 individuals who clicked on the survey link 4,929 (97.2%) electronically consented to the survey. Of respondents who consented 383 failed to answer any survey question and were excluded from analysis. An additional 380 respondents with incomplete surveys were also excluded. The final number of respondents was 4,166, representing 84.5% of all who consented.

Sample

Study participants were self-identified kindergarten to fifth grade teachers between ages 20 and 60 years who used Facebook in the United States (table 3).

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