

Understanding Healthcare Science Students' Knowledge and Attitudes Toward Urinary Incontinence: Implications for Clinical Practice and Education

Živković D, Milutinović D, Ostoić M
University of Novi Sad, Faculty of Medicine



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Aims of study

Urinary incontinence (UI) is a growing global health problem that affects both women and men of all ages and can seriously negatively impact quality of life. Healthcare professionals' knowledge and attitudes significantly influence UI prevention, diagnosis, and treatment. However, there is a notable lack of research exploring healthcare science students' understanding and perceptions of UI. Therefore, the study aimed to assess the knowledge and attitudes of healthcare sciences students about UI.

Study design, materials and methods

The research was conducted as a descriptive, analytical, comparative, and correlational cross-sectional study at the Faculty of Medicine of the University of Novi Sad, Serbia, during the winter semester of the 2023/2024 academic year. The study adhered to Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. Of the 640 questionnaires distributed, 378 were included in the analysis (59.1% response rate) (Figure 1).

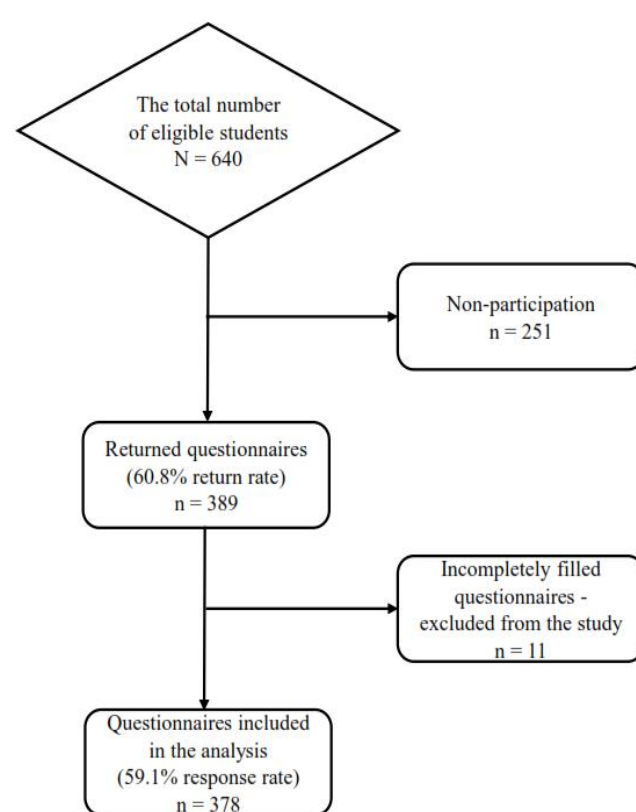


Figure 1. Flowchart of students' inclusion

The overall convenience sample comprised n = 154 medical students, n = 129 nursing students, and n = 95 physiotherapy students (Table 1).

The criterion for inclusion in the studies for nursing and physiotherapy students was that they were students of second, third, and fourth years of bachelor studies or that they were students of master's studies, while for medical students, the condition was that they were students of fifth and sixth years of integrated studies. The study inclusion criteria were established on the curriculum, which implied that the students had undergone training in the treatment of UI.

A general questionnaire for obtaining sociodemographic data, the Urinary Incontinence Knowledge Scale (UIKS) and the Urinary Incontinence Attitude Scale (UIAS) were used as students' report measures.

- **The general questionnaire** includes seven items for obtaining the following data: gender, study program, study year, previously completed school, whether they had or not lectures on urinary incontinence, interest in education about UI, and a family member diagnosed with UI.
- **The UIKS** includes 30 items grouped into six domains of knowledge about urinary incontinence: risk factors, symptoms, impact on quality of life, prevention, treatment, and symptom control. Answers to the statements are closed-ended: true, false, and do not know. A correct answer is scored with 1, and an incorrect and do not know with 0. The maximum total score is 30. A score greater than 24 (>80%) indicates good knowledge, from 18 to 24 average knowledge, and a score less than 18 (< 60%) indicates poor knowledge. The internal consistency measure in previous research for the entire scale was 0.72.
- **The UIAS** includes 15 items grouped into three domains of attitudes towards urinary incontinence: lower urinary tract symptoms and prevention, followed by treatment and symptom control. The items in the questionnaire are evaluated on a four-point Likert-type scale, where 1 = completely disagree, and 4 = completely agree. The possible cumulative score ranges from 15 to 60, with a higher score indicating more positive attitudes toward treatment in UI care. The scale contains seven positively and eight negatively worded items. In previous studies, the scale's internal consistency measure ranged from $\alpha = 0.65$ to 0.70.

Permission to use both questionnaires was obtained from the author.

A standard translation procedure, including forward, back translation, and reconciliation, was applied to ensure the linguistic validity of the questionnaire.

Data analysis was performed using descriptive and inferential statistics.

Table 1. Sociodemographic characteristics of healthcare science students

| Variable | Total n (%) | Study program | | |
|--------------------------------------|----------------|-------------------|------------------|------------------------|
| | | Medicine n (%) | Nursing n (%) | Physiotherapy n (%) |
| Gender | | | | |
| Male | 103 (27.2) | 99 (64.3) | 110 (85.3) | 66 (69.5) |
| Female | 275 (72.8) | 55 (35.7) | 19 (14.7) | 29 (30.5) |
| The course whose focus is UI | | | | |
| Yes | 287 (75.9) | 113 (73.4) | 120 (93.0) | 54 (56.8) |
| No | 91 (24.1) | 41 (26.6) | 9 (7.0) | 41 (43.2) |
| Interest in learning more about UI | | | | |
| Yes | 297 (78.6) | 119 (77.3) | 110 (85.3) | 68 (71.6) |
| No | 81 (21.4) | 35 (22.7) | 19 (14.7) | 27 (28.4) |
| Family member with a diagnosis of UI | | | | |
| Yes | 38 (10.1) | 17 (11.0) | 15 (11.6) | 6 (6.3) |
| No | 340 (89.9) | 137 (89.0) | 114 (88.4) | 89 (93.7) |
| Previously finished school | | | | |
| Secondary medical school | 260 (68.8) | 84 (54.5) | 99 (76.7) | 77 (81.1) |
| Grammar school | 113 (29.9) | 70 (45.5) | 27 (20.9) | 16 (16.8) |
| Other school | 5 (1.3) | --- | 3 (2.3) | 2 (2.1) |

Results and interpretation

The total mean score on the UIKS was (M = 16.6, SD = 3.9) out of a maximum 30. The highest mean score that students achieved in knowledge about the impact of UI on quality of life was (M = 4.3, SD = 0.9), and the lowest score was in the domain of knowledge of symptom control (M = 1.8, SD = 1.0).

Table 2. Mean values and measures of variability on the Urinary Incontinence Knowledge Scale (UIKS) for the whole sample

| Domains | Min | Max | Mean | SD |
|-------------------------------------|----------|-----------|-------------|------------|
| UI Risk factors | 0 | 5 | 2.6 | 1.2 |
| UI Symptoms | 0 | 5 | 3.5 | 0.8 |
| Impact of UI on the quality of life | 0 | 5 | 4.3 | 0.9 |
| UI Prevention | 0 | 5 | 2.4 | 1.4 |
| UI Treatment | 0 | 4 | 1.9 | 1.0 |
| UI Control | 0 | 5 | 1.8 | 1.0 |
| Total score | 1 | 24 | 16.6 | 3.9 |

An analysis of knowledge levels in the UI control domain revealed that more than half of the students supposed that fluid restriction could reduce the frequency of urinary incontinence, which was mistaken. Namely, extreme fluid restriction produces concentrated urine, which is assumed to irritate the bladder, leading to frequent and urgent need to urinate and urinary tract infection. Maintaining adequate fluid levels is crucial. An adult's average daily fluid intake should be approximately 1,500 mL or 30 mL/kg of body weight. However, it can vary with age, health, activity level, and weather conditions. Insufficient fluid intake can also contribute to constipation, while excessive fluid intake can increase problems with urinary continence and voiding.

Our students showed an insufficient level of knowledge in the domain of prevention (2.4±1.4/5) and risk factors for UI (2.6±1.2/5). Less than half of the students knew that preventing obesity and smoking can reduce the risk of urinary incontinence, and similar results were obtained by assessing the knowledge of UI among medical students in Poland.

The total mean score on the UIAS was (M = 45.1, SD = 4.6) out of a maximum of 60, indicating that students had positive attitudes. Students showed the most positive attitudes in the domain of UI control (M = 15.7, SD = 2.0)

Table 3. Means and measures of variability on the Urinary Incontinence Attitude Scale (UIAS) for the entire sample

| Domains | Min | Max | Mean | SD |
|----------------------------|-----------|-----------|-------------|------------|
| UI Symptoms and Prevention | 5 | 20 | 11.3 | 2.3 |
| UI Treatment | 8 | 20 | 15.1 | 1.9 |
| UI Control | 6 | 19 | 15.7 | 2.0 |
| Total UIKS | 31 | 57 | 45.1 | 4.6 |

An analysis of the items in the UI symptoms and prevention domain showed that 133 (35.2%) students thought discussing UI unpleasant, and 264 (69.8%) thought it unpleasant to have UI. Also, n = 288 (76.2%) students believed that UI could be prevented, while n = 298 (78.8%) believed that surgical treatment of urinary incontinence was unnecessary and unsafe for older adults.

A significant difference was found in the student's knowledge level and attitude concerning the study program (p < 0.001), whether they had or not a course whose focus was UI (p < 0.001), and the previous school completed (p = 0.026). Concerning other students' characteristics, there were no significant differences in their attitudes about UI.

Table 4. Differences in healthcare science students' knowledge (mean UIKS score) and attitudes toward UI (mean UIAS score) according to sociodemographic characteristics

| Variable | UIKS | | UIAS | |
|--------------------------------------|----------------|------------|------------|-------|
| | Mean (SD) | p | Mean (SD) | p |
| Gender | Male | 16.7 (4.1) | 45.3 (4.7) | ns |
| | Female | 16.6 (3.9) | | |
| Study program | Medicine | 17.9 (3.5) | 44.7 (4.8) | ns |
| | Nursing | 16.5 (3.6) | 45.1 (4.5) | |
| | Physiotherapy | 14.6 (4.2) | 45.9 (4.2) | |
| The course whose focus is UI | Yes | 17.0 (3.6) | 45.2 (4.5) | ns |
| | No | 15.4 (4.6) | 44.8 (4.6) | |
| Interest in learning more about UI | Yes | 16.8 (3.6) | 45.3 (4.5) | ns |
| | No | 15.9 (4.9) | 44.7 (4.8) | |
| Family member with a diagnosis of UI | Yes | 17.3 (3.3) | 45.6 (5.4) | ns |
| | No | 16.5 (3.9) | 45.1 (4.5) | |
| Previously finished school | Medical school | 16.6 (3.9) | 45.5 (4.6) | 0.026 |
| | Grammar school | 16.5 (3.9) | 44.4 (4.1) | |

The correlation between students' knowledge and attitudes about UI was explored using the Pearson linear correlation coefficient (r). A statistically significant (p = 0.004), but weakly positive correlation between these two phenomena was found.

Conclusions

The findings highlight a concerning gap in understanding UI among students despite their pivotal role as future healthcare professionals. While students expressed interest in learning more about UI, their knowledge levels were low across various domains. Students exhibited the lowest knowledge levels in areas crucial for effective UI management, such as treatment modalities and symptom control. However, significant attitude variations were observed based on the student's study program and year, suggesting the influence of educational background and experience on their perceptions.

The findings of this study underscore the urgent need for comprehensive interprofessional educational strategies to bridge the knowledge gap and foster more positive attitudes toward UI among medical, nursing, and physiotherapy students. Such interventions are essential for developing healthcare science students' clinical skills to implement and improve patient continence care and quality of life in individuals living with UI.

References

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