205

El-Azab A[1], Mascha E[2]

1. *Female Urology unit, urology department, Assiut University Hospital, Assiut university, Assiut, Egypt,* ***2.*** *Departments of Quantitative Health Sciences and Outcomes Research, Cleveland Clinic Foundation, Cleveland, Ohio, USA*

ARABIC VALIDATION OF THE UROGENITAL DISTRESS INVENTORY (UDI) AND ADAPTED INCONTINENCE IMPACT QUESTIONNAIRES (IIQ) - SHORT FORMS

Hypothesis / aims of study

Muslim women are required to perform ritual cleansing before prayers and if they pass urine or experience incontinence, they become unclean and prayer is denied. Muslim women suffering urinary incontinence complained of disruption of their prayer schedule due to urine leak. This issue can severely impair QoL and clearly points to the ethnic differences in cultural attitudes towards UI. There is no validated questionnaire to evaluate the QoL of incontinent Egyptian women. Existing incontinence QoL questionnaires are not appropriate for use in the Egyptian culture or in any Arabic culture. The aim of this study is to determine validity and reliability of the UDI-6 and the modified IIQ-7 in a population of Egyptian women who are suffering from UI to assess UI.

Study design, materials and methods

The IIQ-7 was modified to suit Arabic Muslim culture. It was necessary to add, change and delete some items from the original IIQ-7 in order to adapt to the culture. The item inquiring about entertainment activities was deleted. Inquiring about prayer was essential; such an item was therefore added. The item inquiring about social activities was modified to suit the culture. Then linguistic validation of the IIQ-7 and UDI-6 was done. Initial test-retest reliability and internal consistency of adapted translated questionnaires were done in a pilot study. The final validity, test-retest reliability and internal consistency study included 204 women with urinary incontinence. Participants completed the two Questionnaires at enrolment and after two weeks. All participants underwent urodynamics. Baseline urodynamic diagnosis was compared with diagnoses made by questionnaires to assess validity.

Results

Pilot testing

Thirty four women were enrolled in the pilot study group. The IIQ was piloted and modified, two times. Among the issues that emerged and were addressed were that the 4-point response scale of the question inquiring about impact on prayer (Q1) from the classic description (0, not at all; 1, less than half the time; 2, more than half the time; 3, almost always) to new description to adapt for the prayer schedule (0, not at all; 1, makes me repeat the ritual cleansing for each prayer ; 2, makes me repeat the prayer; 3, almost makes me stop praying). The number of missing or not interpretable responses per item ranged from 1.6% to 7.4%. Internal consistency of the stress and urge items was good (Cronbach α = 0.72 and 0.79, respectively). The test-retest reliability of individual items of the IIQ-7 was variable, with weighted kappa statistics from 0.42 to 0.83.

Final Validity Study

Two hundred and four consecutive eligible women were included.

1. *Reliability: t*est retest reliability was excellent for both the IIQ-7 and UDI-6. For the UDI-6, the mean difference (2 weeks minus baseline) (SD) was -1.63 (7.0), and the 95% CI for the mean difference was -2.6, -0.68. The 95% limits of agreement, calculated as the mean difference ± 1.96 SD, were -15.3, 12.0. For the IIQ-7, the mean difference (SD) was 0.37 (7.1), and the 95% CI for the mean difference was -.60, 1.3. The 95% limits of agreement were -13.5, 14.2. Lin's Concordance Correlation Coefficient (LCCC) (95% CI) for the IIQ was 0.90 (0.87, 0.92), again indicating excellent concordance between visits. For the IIQ and UDI, respectively, 85% and 77% of the visit 1 and visit 2 differences were within 10 points of each other, indicating very good clinically acceptable agreement.
2. Internal consistency as assessed using Cronbach's alpha was 0.32 and 0.31 for the UDI-6 and IIQ-7, respectively, using the first visit for each patient.
3. *Criterion Validity:* Validity assessments indicate that both IIQ and UDI scales can distinguish objective disease states. The overall IIQ score and the IIQ emotional health subscore were higher in the DOA and SUI+DOA groups compared to SUI group. The overall UDI score and the irritative subscale score were observed to be highest in the SUI+DOA group then in the DOA group. The SUI+DOA and DOA groups showed significant difference with the SUI group and the women with no urodynamic abnormalities. There was no difference between the SUI group and the women with any urodynamic abnormalities. The stress subscale score of the UDI-6 was observed highest in the SUI group. This group showed significant difference from the SUI+DOA group and from the women with no urodynamic abnormalities. There was no difference between the SUI+DOA group and the women with no urodynamic abnormalities. Also the overall UDI score and irritative subscore were able to distinguish DOA and SUI+DOA from SUI; irritative and stress UDI subscores were higher in SUI+DOA compared to DOA. Many differences were also observed among diagnosis groups for the individual scale items. Patients with urodynamic obstruction had higher overall UDI scores [median (quartiles) 50 (33, 64) versus 39 (31, 53); P=0.011] and obstructive discomfort subscale scores [33 (0, 67) versus 0 (0,0); P<0.001] compared to those without urodynamic obstruction. Patients with PVR ≥ 50 also had higher overall UDI scores [50 (36, 64) versus 39 (33, 53); P=0.012] and obstructive discomfort subscale scores [33(0,67) versus 0(0,0); P<0.001] compared to those with PVR < 50. Correlation of each scale and subscale with selected continuous measures of urodynamic parameters. Of the variables assessed, only MCC was correlated (negatively) with the overall IIQ score (Spearman correlation -0.32, P<0.001), and only VLPP was correlated (negatively) with the overall UDI score (Spearman correlation -0.20, P=0.02).

Interpretation of results

The decision to add an item (prayer) to the original IIQ-7, modify an item (social activities) and delete another one (entertainment activities such as going to a concert) was essential to adapt the questionnaire for Arabic Muslim women. The UDI-6 was only linguistically validated and no single item in it was changed while the adaptation of IIQ-7 went beyond translation and included adding, changing and deleting some items from the original IIQ-7. The results of this study made it possible to use these instruments in the research and clinical practices. The UDI-6 and the modified Arabic IIQ-7 are psychometrically sound instruments with good test-retest reliability and validity, and are ideal for screening for LUTS among women and to assess the impact of UI on the QoL of those women.

Concluding message

The UDI-6 and the modified Arabic version of the IIQ-7 are psychometrically sound, easy-to-administer instruments with good test-rest reliability and validity and relatively low internal consistency, and could have great importance in facilitating population-based epidemiologic research in this area.

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Was the Declaration of Helsinki followed?	**Yes**
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