

# Validation of the King's Health Questionnaire for South Africa in English, Afrikaans and isiXhosa

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**Objective.** To validate the King's Health Questionnaire for urinary incontinence in the local South African English, Afrikaans and isiXhosa female community.

**Design.** A cohort analytical study.

**Setting and subjects.** The study utilised a sample of convenience. Women with urinary incontinence attending the gynaecology clinic at Tygerberg Hospital, Western Cape, were invited to participate in the project. During the study period 108 patients were recruited for the study – of these 38 were Afrikaans, 34 isiXhosa and 36 English. We retested 30 of these patients, 11 in the Afrikaans group, 9 in the isiXhosa group and 10 in the English group.

**Methods.** Data analysis was performed using the Statistica V10 statistical package for Windows. The reliability of the questionnaire was assessed by its internal consistency, and by measurement of its test-retest reliability. Internal consistency was measured using Cronbach's alpha coefficient. To measure test-retest reliability, the responses of the two questionnaires were compared through correlation analysis.

**Results.** There was good internal consistency when comparing the different domains, except for domain 1. The slightly lower Cronbach's alpha values of 0.6 - 0.65 for this domain are still acceptable and could possibly be explained by looking at the specific questions. In general there was good test-retest reliability when comparing the different combined domains.

**Conclusions.** This study provides a validated English, Afrikaans and isiXhosa language version of the King's Health Questionnaire for women with urinary incontinence in South Africa. However, some aspects of the test-retest reliability need further supporting evidence.

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## Prevalence of urinary incontinence

Urinary incontinence is a common problem in women of all ages.<sup>1</sup> Its prevalence is defined as the probability of being incontinent in the defined population group within a specified period of time. It has been proven in epidemiological studies that the prevalence of urinary incontinence increases with age and increasing debility.<sup>1</sup> However, prevalence estimates vary considerably between studies. A review of European and American epidemiological studies for the elderly population reports a prevalence of 10 - 40%.<sup>2</sup> Reasons for this wide distribution include methodological differences and various definitions for incontinence used in the studies reviewed.

Initial epidemiological studies reported that the black population rarely developed stress urinary incontinence.<sup>2</sup> Subsequent studies, however, showed little difference between white (46%), Indian (42%) and black (40%) South African nurses.<sup>2</sup> In a survey by Rienhardt

*et al.* there was found to be little difference in bladder dysfunction reported for black, Cape coloured and white populations in the Western Cape.<sup>3</sup>

## Quality of life assessment

Urinary incontinence can severely affect the quality of life (QoL) of patients. It can be a distressing and embarrassing condition, leading to social withdrawal, lowered self-esteem, marital problems and sexual dysfunction.<sup>4</sup> Urinary incontinence in itself is a non-life-threatening, benign condition. The end-point or result of treatment is therefore to improve the QoL.

The World Health Organization<sup>5</sup> defines QoL as 'an individual's perception of his/her position in life in the context of culture and value systems in which he/she lives, and in relation to his/her goals, expectations, standards and concerns. It is a broad-ranging concept,

incorporating in a complex way the person's physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment.' QoL is therefore a multifaceted entity.

To measure QoL an objective, reliable and validated instrument is needed. QoL questionnaires have evolved out of this need. There are two main types of QoL questionnaires, namely generic and disease-specific. All questionnaires have to be assessed for validity (the extent to which the questionnaire measures what is intended) and reliability (the extent to which it measures QoL in a consistent manner)<sup>6</sup> before they can be used in clinical research.

Generic QoL questionnaires lack sensitivity when applied to women with specific conditions, so disease-specific QoL questionnaires have been developed. The King's Health Questionnaire for women with urinary incontinence was developed and validated by Kelleher *et al.*<sup>7</sup> at King's College Hospital, London. The questionnaire has been shown to be a valid and reliable instrument for the evaluation of QoL in women with urinary incontinence.<sup>7</sup> It has proved to be easy to complete for women in England and has been translated into 45 languages to date. We chose to validate the King's Health Questionnaire because it has strong psychometric properties,<sup>7</sup> a limited response burden, and subcategories that are relevant in principle for South African conditions.

As stated above, the prevalence of urinary incontinence in South African women of all races is comparable to that of populations in the rest of the world. The King's Health Questionnaire, however, cannot simply be transferred to our population, due to cultural differences.<sup>8</sup> For this questionnaire to be used, we needed to validate it for women in South Africa in English, Afrikaans and isiXhosa.

The validated questionnaire can be used to evaluate the impact of urinary incontinence on the QoL of women in South Africa. Follow-up questionnaires can then be employed to compare different treatment modalities with regard to improvements in QoL. This questionnaire can also be used as a standardised tool to compare standard therapy with newer experimental therapies. In this way, this validated questionnaire can then be used as the base for extensive further studies.

## Methods

The King's Health Questionnaire was adapted for the different languages and cultures as follows: (i) development of a forward translation of the original instrument into the new language; (ii) adopting quality control procedures (translating the instrument back into the original language); (iii) discussion by an expert panel to ensure clarity of the translated questionnaire; and (iv) testing of the translated instrument in monolingual or bilingual patients to ensure that it measures the same concepts as the original instrument.<sup>9</sup> The questionnaire consists of 32 questions presented in 8 different domains. The first domain asks questions relating to general health perception (questions 1 and 2). The second to the eighth domains test the following: role limitations (questions 3 and 4), physical/social limitations (questions 5 - 8), personal relationships (questions 9 - 11), emotions (questions 12 - 14), symptomatology (questions 15 - 25), sleep/energy (questions 26 and 27), and the general impact on QoL (questions 28 - 32).

This study utilised a sample of convenience. Women with urinary incontinence attending the gynaecology clinic at Tygerberg Hospital were invited to participate in the project after ethical approval had been obtained from the Stellenbosch University human research ethical committee.

Exclusion criteria were unwillingness or inability to consent to participate in the trial, pregnancy and illiteracy. The questionnaire was self-administered in a private setting. Patients were asked to sign an informed consent form. A research assistant was available to answer any questions from the patients regarding the questionnaire or the consent form.

During the study period 108 patients were recruited for the study and of these 38 were Afrikaans, 34 isiXhosa and 36 English. We retested 30 of these patients within 2 weeks to 3 months of the initial test: 11 in the Afrikaans group, 9 in the isiXhosa group and 10 in the English group.

Data analysis was performed using the Statistica V10 statistical package for Windows. The reliability of the questionnaire was assessed by its internal consistency and measurement of its test-retest reliability. Internal consistency was measured using Cronbach's alpha coefficient. To measure test-retest reliability, we retested 30 women. The responses of the two questionnaires were then compared through correlation analysis. The main reasons why a relatively low number of patients were retested were that treatment had already been instigated before follow-up in the majority of cases, and that some patients were lost to follow-up.

## Results

There was good internal consistency when comparing the different domains, except for domain 1 (Table 1). Test-retest reliability showed good correlation for the different combined domains (Tables 2 and 3)

**Table 1. Cronbach's alpha of different domains (Cronbach's alpha should be more than 0.70 to indicate good internal consistency/reliability)**

Domain	All	Afrikaans	isiXhosa	English
<b>1*</b>	<b>0.65</b>	<b>0.60</b>	<b>0.60</b>	0.78
2	0.86	0.87	0.94	0.71
3	0.87	0.86	0.87	0.87
4	0.88	0.94	0.81	0.87
5	0.89	0.88	0.91	0.84
6	0.84	0.81	0.83	0.80
7	0.75	0.71	0.79	0.71
8	0.85	0.86	0.85	0.83

\*There was good internal consistency when comparing the different domains, except for domain 1 (bold font) (see text for discussion).

## Discussion

Table 1 shows that there was good internal consistency when comparing the different domains, both when combined and for the different languages separately, except for domain 1. The slightly lower Cronbach's alpha values of 0.6 - 0.65 are still acceptable and

**Table 2. Spearman rank order correlations of different domains**

Domain	p-value			
	All*	Afrikaans	isiXhosa	English
1	<b>0.00000</b>	0.0146	0.0119	0.0088
2	<b>0.00008</b>	0.0284	0.0807	0.0010
3	<b>0.00005</b>	0.1246	0.0080	0.0050
4	<b>0.00002</b>	0.2362	0.0003	0.0020
5	<b>0.00520</b>	0.5263	0.0549	0.4229
6	<b>0.00010</b>	0.0038	0.3917	0.0561
7	<b>0.00001</b>	0.0174	0.0013	0.0977
8	<b>0.00005</b>	0.0287	0.0515	0.0101

\*Bold font indicates that test-retest reliability showed good correlation for the different combined domains (significant at  $p < 0.05$ ).

**Table 3. Correlation coefficient of different domains (perfect correlation at value of 1)**

Domain	All*	Afrikaans	isiXhosa	English
1	<b>0.73</b>	0.71	0.79	0.77
2	<b>0.66</b>	0.66	0.61	0.93
3	<b>0.67</b>	0.49	0.81	0.80
4	<b>0.70</b>	0.39	0.93	0.85
5	<b>0.50</b>	0.22	0.65	0.29
6	<b>0.65</b>	0.79	0.33	0.62
7	<b>0.72</b>	0.70	0.89	0.55
8	<b>0.67</b>	0.66	0.66	0.76

\*Bold font indicates that test-retest reliability showed good correlation for the different combined domains.

could possibly be explained by looking at the specific questions. There are two questions in this domain, the first of which refers to the patient's general health and the second of which refers specifically to the effect of her bladder problem on her life. The possibility that the patient's general health could have been affected by disease processes other than her bladder problem could explain the inconsistency.

When the individual questions in each domain were analysed, an inconsistency was noted in domain 4, which addresses personal relationships (Table 4). The Cronbach's alpha of this domain was

**Table 4. Analysis of domain 4 (Cronbach's alpha of domain 4=0.88)**

	Cronbach's alpha if deleted
Question 9	0.70
Question 10	0.76
Question 11	<b>0.96*</b>

\*The possible reason for the increased Cronbach's alpha of domain 4 if question 11 is deleted is discussed in the text.

0.88, which indicated good internal consistency. However, it was of interest to note that if question 11 was left out, the Cronbach's alpha improved from 0.88 to 0.96. Even though all the questions in this domain test the effect of urinary incontinence on the patient's personal relationships, it is apparent with closer inspection that the first two questions relate to the patient's sex life and relationship with her partner, while the last question asks about the impact of the patient's bladder problem on her family life. The higher Cronbach's alpha with the third question deleted could indicate that this question does not quite measure the same aspect of QoL as the other two questions in the domain. The Cronbach's alpha for this domain, however, was still significant, even with question 11 included.

Tables 2 and 3 show that in general there was good test-retest reliability when the different combined domains were compared. When comparing the different questions for the different languages and individually, however, results were difficult to interpret. This was due to the low numbers in the retest group, especially when sub-analysis of the individual language groups was done.

In the course of the study it was noted that a significant number of patients were confused by the possible answers in the 'symptomatology' domain of the questionnaire, since there was no 'not at all' option to tick. We therefore recommend considering changing the questions so that the 'not at all' option can be included.

## Conclusions

This study provides a validated English, Afrikaans and isiXhosa language version of the King's Health Questionnaire for women with urinary incontinence in South Africa. This questionnaire can be used in both clinical practice and research. However, some aspects of test-retest reliability for the individual languages need further supporting evidence.

The King's Health Questionnaire will be made available on the South African Urogynaecology Association's website: <http://www.sa-urogynae.org>.

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