

# Cross-Cultural Validation and Adaptation of the Moroccan Version of the Urinary Incontinence Quality of Life Scale: CONTILIFE

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## ABSTRACT

**Objectives:** The objective of this study is to adapt and validate, the CONTILIFE, a quality of life questionnaire, in Moroccan dialect, and to assess its psychometric properties in women suffering from urinary incontinence. **Materials and Methods:** A total of 104 women were enrolled in the study. The reliability, construct validity, and clinical validity were assessed using the standardized procedures. **Results:** The results showed that the Moroccan version of the CONTILIFE has very good psychometric properties. Internal consistency was found to be strong (Cronbach's  $\alpha$ : 0.87 to 0.96). The inter-rater reliability, and the test-retest for the global score and de six subscale's scores were too well. Results for multitrait scaling analysis showed that all items exceeded the 0.4 criterion for convergent validity in all scales. Item-discriminant validity was 100% successful for all items. **Conclusion:** The Moroccan version of the CONTILIFE is a valid and reliable tool to assess the impact of urinary incontinence on health-related quality of life in Moroccan women. **Key words:** Contilife, Quality of Life, Reliability, Validity, Urinary Incontinence.

## INTRODUCTION

Urinary Incontinence [UI] is a common health problem defined by the International Continence Society [ICS] in 2010, as a complaint of any involuntary leakage of urine.<sup>1</sup>

We can distinguish three types of urinary incontinence<sup>2</sup>, which are:

- Stress Urinary Incontinence (SUI), characterized by involuntary loss of urine during efforts that increase abdominal pressure
- Urge Urinary Incontinence (UUI) which is manifested by leakage of urine occurring outside of any effort, and which is preceded by a sudden urge to urinate, with, an increase in urinary frequency both day and night
- Mixed UI, is defined as a combination of stress and urge UI

The global prevalence of UI is between 4 to 57%,<sup>3</sup> but it is frequently ranged between 25% and 45%.<sup>4</sup> This variability is due to the definition of UI used, and to the heterogeneity of the target populations studied.<sup>4</sup>

In Morocco, studies have reported that about one-third of women suffer from this pathology.<sup>5-6</sup>

Urinary incontinence may have a major impact on patient's health related quality of life [HRQoL], which may result in a psychological distressing, social excluding, and emotional problems that include anxiety and embarrassment, and it may interfere with personal relationships, and resulting frequently a loss

of self-esteem, somatization, and deprivation, which consequently reduced quality of life [QoL].<sup>7-9</sup>

It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life. A related concept of HRQoL is well-being, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction.<sup>10</sup> To this day, HRQoL assessment has become an important component of patient health assessment.<sup>11</sup> Since the 1990; the importance of using Quality of Life [QoL] tools to evaluate patient perception of disease [subjective measures] has been underlined.<sup>12</sup> Self-reported questionnaires are suggested to assess the subjective effect of UI on the quality of life of people with UI in clinical and research settings.<sup>8</sup> There are a number of generic and urinary incontinence-specific measurements to determine the influences of UI on different aspects of life.<sup>8,11,13-15,16</sup> However, it has been demonstrated that generic instruments are non-sensitive and not specific enough to assess the deficiencies in QoL specific to UI.<sup>17</sup> CONTILIFE, a quality-of-life questionnaire for urinary incontinence, is a condition-specific instrument. It was designed as a specific measure of QoL in women with UI.<sup>18</sup> It was ranked as grade A in terms of the recommendation level, based on the International Consultation on Incontinence report.<sup>19</sup> The CONTILIFE was developed and tested in France,<sup>18</sup>

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and then translated and cross-cultural adapted in 4 other languages [British English, Danish, Dutch, and German].<sup>14,20</sup> It was designed for women suffering from UI of any type [urge, stress, and mixed UI], and it contains 28 items, and six dimensions.

## Objectives

Culturally sensitive translation and psychometric analysis should be performed before the use of self-reported instruments.<sup>9,21</sup> Additionally, reliability and clinical validity of a Moroccan version of the CONTILIFE has never been reported. Then the present study was aimed to assess the validation and cultural adaptation of the Moroccan dialectal CONTILIFE, and to determine the psychometric properties in Moroccan patients suffering from UI.

## MATERIALS AND METHODS

### Patients

A cross-sectional study was conducted in center of Hassan II hospital in Fez, in the period between June to September 2019. All questionnaires were administered in the waiting rooms of the outpatient center.

All women over the age of 18 with any involuntary urine leakage were included. The only exclusionary criterion was the difficulty answering the questionnaire because of language or cognitive limitations. We considered a patient as having urinary incontinence if “he has currently some involuntary leakage of urine”. Then patients were classified into three subgroups of UI: Stress UI (defined as involuntary urethral urine loss associated with coughing, laughing, sneezing, or exercising, and remaining dry at night), Urge UI (defined as involuntary urethral urine loss preceded by a feeling of urgency or rapid, uncontrollable urination with little or no warning), and Mixed UI (defined as a combination of stress and urge UI).<sup>2</sup>

### Measures

Incontinence-specific quality of life was assessed using the Contilife questionnaire developed in France in 1999.<sup>18</sup> It contains 28 items, each having 5- or 6-point Likert type response scale. CONTILIFE scores were generated following the instructions of the authors giving a global score (27 items) and 1 score per dimension (Daily Activities (DA), Effort Activities (EA), Self-Image (SI), Emotional Impact (EI), Sexuality (SE), Well Being (WB)). Scores ranged from 0 (high QoL) to 10 (low QoL).<sup>14</sup>

Sociodemographic variables (age, marital status, level of education, and occupation,) were also recorded. We assessed some clinical variables such as the number of incontinence episodes, self-reported severity of incontinence, and the number of medical appointments for UI in the past year. Severity of UI symptoms was assessed by the Sandvik index.<sup>22</sup>

### Translation and cultural adaptation of the I-QOL

It is important to note that there are two varieties of Arabic languages in Morocco; Moroccan dialect, that is used in everyday communication, and Classic Arabic, which Moroccans are taught in schools. We chose to translate the questionnaire into dialectal Arabic, commonly spoken by Moroccans, because the illiteracy rate is high in our country, and classical Arabic is understood only by educated people. In the present study, permission for the translation and validation process of the CONTILIFE was obtained from Gerard Amarenco.<sup>14</sup>

Multistep adaptation and validation processes were applied in accordance with the published guidelines for cross-cultural adaptation of health-related quality of life measurements.<sup>23,24</sup> Forward and backward translation methods were used to perform the cross-cultural adaptation.

The inter-rater reliability was assessed by administering the final Arabic questionnaire twice at the same time by two different investigators. Furthermore, the reproductibility was assessed by re-administering the questionnaire seven to fifteen days later to the same patients.

### Statistical analyses

Baseline sociodemographic and clinical data, and score distributions are evaluated by the descriptive statistics.

Internal consistency reliability of the multi-item scales was assessed by Cronbach's coefficient  $\alpha$ . Alpha values higher than 0.7 are considered acceptable and higher than 0.8 excellent.<sup>25,26</sup> Inter-rater and test-retest reliabilities were assessed by the intraclass correlation coefficient (ICC). A value of 0.8 or higher of ICC is indicative of high reliability.<sup>15</sup>

We used multitrait scaling analysis to examine item-convergent validity and item-discriminant validity. This analysis was based on an examination of item-scale correlations for item-convergence and item-discriminance.<sup>27</sup> Evidence of item-convergence was defined as a correlation of 0.40 or greater between an item and its own scale. Item-discriminance was satisfied if each item has a substantially higher correlation with its hypothesized scale than with scales measuring other concepts.

The clinical validity of the CONTILIFE was assessed against self-reported number of urinary leaks, the number of medical appointments in the past year and the self-reported severity of the urinary incontinence. All statistical analyses were carried out with R software.

Acceptability of the CONTILIFE questionnaire was analyzed by describing the number of missing data per patients, and by assessing the number of missing data per item, and the number of patients with a non-assessable QoL questionnaire ( $\geq 50\%$  of missing data).

The study protocol was approved by the ethics committees in the University Hospital Center Hassan II in Fez- Morocco and all the subjects were informed of the conditions related to the study and gave their written, informed consent.

## RESULTS

### Sample socio-demographic and clinical characteristics

A total of 104 patients were enrolled in the study, their average age ranged between 25 and 80 years. The mean age was 54.30 ( $\pm 12.7$ ) years. More than two tiers (69.2%) were married and nearly a third (34.6%) was illiterate. Reported duration of UI was less than one year for 44.7% of patients, 37.5% among them had mixed UI. More than half (61.5%) of women stated that they had never seen a doctor for the UI and 35.6% of them perceived their UI as severe. About two thirds of them wore pads, and changed frequently the underwear. Baseline characteristics of the study participants are shown in Table 1.

### Descriptive statistics

The average time to complete the CONTILIFE was 6.82 min ( $\pm 2.23$ ), and all patients answered all items. Scores distributions are shown in Table 2. The score's mean for different scales ranged from 4.42, in Well Being (WB) scale, to 7.85 in Sexuality (SE) scale.

### Psychometric properties

#### Reliability

Subscales and all items of the Moroccan CONTILIFE showed a strong internal consistency. Cronbach's  $\alpha$  coefficient was found ranging from 0.87 to 0.96, and when removing of any item from the test, the Cronbach alpha reliability didn't drop below the acceptable value of 0.70 (Table 3).

**Table 1: Sociodemographic and clinical characteristics.**

Characteristics	Proportion (%)
Age (mean±SD)	54.30±12.7
<b>Marital status (n=104)</b>	
Single	2.9
Divorced	7.7
Married	69.2
Widow	20.2
<b>Education (n=104)</b>	
Illiterate	34.6
Koranic education	6.7
Primary	25
Secondary	21.2
Academic	12.5
<b>Occupation (n=103)</b>	
Employed	18.4
Unemployed	4.9
Student	1.9
Housewife	69.9
Retired	4.9
<b>Residence area (n=102)</b>	
Rural	24.5
Urban	75.5
<b>Health insurance <sup>a</sup> (n=100)</b>	
CNOPS	21
CNSS	11
RAMED	63
other	5
<b>Type of UI (n=104)</b>	
Stress UI	30.8
Urge UI	31.7
Mixed UI	37.5
<b>Importance of UI (n=104)</b>	
Few drops	52.9
A small amount	34.6
A large amount	12.5
<b>Micturitions per day (n=104)</b>	
1-4	31.7
5-10	(57.7)
>10	10.6
<b>Length of time with urinary incontinence (UI) (n=103)</b>	
< 1 month	4.9
< 1 year	39.8
>1 year	55.3
<b>Severity (n=104)</b>	
Mild	25
Moderate	39.4
Severe	35.6
<b>Visiting doctor for UI in past year (n=104)</b>	
0 visit	29.8
1- 3 visits	8.7
4+ visits	

<b>Wearing pads (n=104)</b>	
Yes	69.2
No	30.8
<b>Frequent change of underwear (n=104)</b>	
Yes	67.3
No	32.7
Time on filling in the questionnaire (mean±SD)	6.82± 2.23

<sup>a</sup> CNOPS: National Social Security Fund employees, CNSS: National Social Security Fund for self-employed civil servants, RAMED: Medical Assistance Plan

**Table 2: Scores distributions**

Scores	N	Mean ± SD	Score Min	Score Max
Daily Activities (DA)	104	5.44 (2.3)	0.35	10
Effort Activities (EA)	104	5.37 (3)	0	10
Self-Image (SI)	104	5.50 (2.69)	0.71	10
Emotional Impact (EI)	104	4.45 (3.14)	0	10
Sexuality (SE)	104	7.85 (2.87)	0	10
Well Being (WB)	104	4.42 (2.58)	0	10
ContiLife total score	104	5.49 (2.29)	1.66	9.81

The inter-rater reliability for the global score and de six subscale's scores were excellent. Additionally, test-retest reliability for the total score of the Moroccan CONTILIFE and the score of each subscale was found too well (ICC = 0.76–0.99) (Table 4).

### Construct validity

Results for multitrait scaling analysis are shown in Table 5. All items exceeded the 0.4 criterion for convergent validity in all scales. Item-discriminant validity was 100% successful for all items.

### Clinical validity

The CONTILIFE was able to discriminate between different levels of self- perceived Severity. Its total score and subscale scores was lower for severe versus moderate and mild UI.

In addition, significant differences were found in CONTILIFE total scores ( $p = 0,008$ ) according to the number of incontinence-related medical visits made by patients during the past year. However, there was no significant difference in “effort activities”, and “Sexuality” subscales scores related to the number of medical visits.

The CONTILIFE was also able to differentiate between different groups of patients according to the self-reported number of leaks

These finding indicate the good discriminant validity of the Moroccan version of the questionnaire. (Not shown in table)

## DISCUSSION

The present study is the first to validate the Moroccan version of CONTILIFE. Based on the findings of it, the Moroccan version of the CONTILIFE is a valid and reliable instrument to evaluate different aspects of HRQoL among Moroccan women suffering from UI. The internal consistency was showed excellent with a Cronbach's alpha values which exceeded 0.87 for all scales. The study also demonstrated that the inter-rater reliability and the test/retest reproducibility for the total score

**Table 3: Internal consistency.**

contilife subscales	Cronbach's $\alpha$	CONTILIFE questions	Cronbach's Alpha if item deleted
Daily Activities (DA)	0.90	Item 1	0.960
		Item 2	0.962
		Item 3	0.960
		Item 4	0.960
		Item 5	0.961
		Item 6	0.959
		Item 7	0.962
		Item 8	0.960
Effort Activities (EA)	0.87	Item 9	0.964
		Item 10	0.961
		Item 11	0.961
		Item 12	0.961
		Item 13	0.960
Self-Image (SI)	0.92	Item 14	0.959
		Item 15	0.959
		Item 16	0.960
		Item 17	0.960
		Item 18	0.960
		Item 19	0.960
		Item 20	0.959
Emotional Impact (EI)	0.94	Item 21	0.959
		Item 22	0.959
		Item 23	0.959
		Item 24	0.960
		Item 25	0.962
Sexuality (SE)	0.87	Item 26	0.963
		Item 27	0.962
Well Being (WB)		Item 28	0.960
CONTILIFE total score	0.96		

**Table 4: Reliability of the I-QOL.**

	Reliability ICC (IC 95%)	
	Inter-rater	Intra-rater test-retest
Daily Activities (DA)	0.994 (0.992-0.996)	0.994 (0.989-0.997)
Effort Activities (EA)	0.927 (0.894-0.950)	0.987 (0.976-0.993)
Self-Image (SI)	0.981 (0.971-0.987)	0.793 (0.641-0.885)
Emotional Impact (EI)	0.992 (0.989-0.995)	0.980 (0.962-0.989)
Sexuality (SE)	0.994 (0.992-0.996)	0.990 (0.982-0.995)
Well Being (WB)	0.974 (0.961-0.982)	0.952 (0.910-0.974)
ContiLife total score	0.995 (0.992-0.996)	0.763 (0.595-0.867)

of the Moroccan CONTILIFE and for the scores of the six subscales were strong (all of them are over 0.76).

Our results are consistent with the previous studies, which showed that internal consistency, test-retest reliability, of the CONTILIFE were

**Table 5: Multitrait scaling analyse of the CONTILIFE questionnaire (Moroccan Arabic Version).**

Scales	Convergence (r, % success) <sup>a</sup>	Discriminance (r, % success) <sup>b</sup>
Daily Activities	0.67-0.88,100	0.06-0.71,100
Effort Activities	0.72-0.90,100	0.01-0.64,100
Self-Image	0.78-0.91,100	0.25-0.83,100
Emotional Impact	0.70-0.94,100	0.24-0.84,100
Sexuality	0.76-0.98,100	0.14-0.54,100

<sup>a</sup> Number of item-scale correlations greater than 0.40 /total number of item-scale correlations.

<sup>b</sup> Number of correlations of items with own scales significantly higher than correlations with other scale/total number of correlations.

satisfactory.<sup>13,14,18-20, 28</sup> The Cronbach's alpha values were over 0.70 in all this studies. The test-retest correlation was also very good.

Our results showed that the Moroccan version of CONTILIFE had good capacity to discriminate patients according to the number of incontinence-related medical visits in the past year. Also, the total score and subscale scores of the CONTILIFE was higher for mild versus moderate and severe UI, indicating the good discriminant validity of the Moroccan version of the questionnaire. Additionally, Clinical validity was demonstrated by the significant impairment of QoL as the UI frequency increases. Subsequent studies had also confirmed a significant correlation between the alteration of the QoL and self-reported number of urinary leaks,<sup>14,15,18,28,29</sup> and the self-reported severity.<sup>13,29</sup> The patients with the greater number of UI episodes had lower QoL scores on both the total and subscale scores of the CONTILIFE scale. In addition, when comparing the CONTILIFE total and subscale scores, patients with severe UI had lower scores compared with those with mild and moderate UI.

We also demonstrated that the convergent validity in all scales, and the Item-discriminant validity was 100% successful for all items. Amarenco *et al.*<sup>14</sup> has found that the convergent validity was good except for 1 item of the Daily Activities dimension. Scaling success rate in their study varied between 85.7% and 100 %.

The Moroccan Arabic version of CONTILIFE seems to be a practical tool, as illustrated by the lack of missing data and the short time needed to conduct the interviews. Therefore, and due to the high frequency of illiteracy among the participants, the questionnaire could not be used as a self-administered questionnaire, except for a minority of the Moroccan population. Then an interviewer administered the questionnaire to all patients.

On the other hand, in the present study, no objective measures (e.g., pad test, urodynamic test) were used, which could have allowed us to observe more significant effects, and to assess the correlation between it and the scores of the Moroccan version of CONTILIFE.

## CONCLUSION

In conclusion, the Moroccan version of CONTILIFE showed to be reliable and valid instrument to assess the impact of UI on the quality of life of patients suffering from UI. These properties will allow health providers to include this QoL measure in clinical practice to better assess the impact of UI in HRQoL, and let researchers conducting studies using this tool for the evaluation of treatment and especially for medico-economical studies. Also, women must be awarded that urinary leakage



should never be considered as normal, and that it must be treated to avoid its impact on their quality of life.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## ABBREVIATIONS

**ICS:** International Continence Society; **HRQoL:** health related quality of life; **QoL:** quality of life; **UI:** Urinary incontinence; **DA:** Daily Activities; **EA:** Effort Activities; **SI:** Self-Image; **EI:** Emotional Impact; **SE:** Sexuality; **WB:** Well Being; **ICC:** intraclass correlation coefficient.

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