

Italian translation, cultural adaptation, and validation of the Intermittent Catheterization Acceptance Test (I-CAT)

A. Berardi,¹ M.A. Marquez,^{2,3} L. Ottone,⁴ I. Ruotolo,⁴ F. Panuccio,⁴ M. Tofani,⁵ J. González-Bernal³, G. Galeoto^{1,6}

¹Department of Human Neurosciences, Sapienza University of Rome, Rome, Italy; ²Universidad Fernando Pessoa-Canarias, Las Palmas, Spain; ³Health Sciences, University of Burgos, Burgos, Spain; ⁴Sapienza University of Rome, Rome, Italy; ⁵Department of Human Neurosciences, Sapienza University of Rome, Rome, Italy; ⁶IRCSS Neuromed, Pozzilli, (IS), Italy

Abstract

Aims. The purpose of the present study was to translate and culturally adapt the Intermittent Catheterization Acceptance Test (I-CAT) for Italian individuals with spinal cord injury and spina bifida and to measure its psychometric properties.

Methods. Consent from the authors of I-CAT was received, and then, following international guidelines, it was culturally adapted to Italian. The included participants adults who practice self-catheterization. In order to evaluate criterion validity, the Qualiveen-30, Spinal Cord Independence Measure (SCIM-self reported), and the Moorong self-efficacy scale (MSES) were administered together. Test-retest reliability was assessed administering the I-CAT a second time within a week. Following the COSMIN checklist, psychometric properties were evaluated.

Results. All translated items resulted identical or similar to the original versions. Internal consistency, evaluated on 34 individuals, showed values of Cronbach's alpha of 0.889, test-retest reliability was evaluated through the intraclass correlation coefficient with values of 0.96. Statistically significant correlation between the I-CAT and Qualiveen were found through Pearson's correlation coefficient and Spearman's Correlation Coefficient for criterion validity.

Conclusions. The Italian validation of I-CAT allows Italian professionals to investigate psychological barriers linked with self-catheterization in people with urinary tract dysfunction before learning about aseptic Intermittent Self Catheterization (IC) and improving patients' acceptance of it. This tool can also be used as follow-up after the training of intermittent self-catheterization techniques. Finally, it is an important tool for medical research. *Clin Ter* 2023; 174 (1):8-13doi: 10.7417/CT.2023.5002

Key words: Assessment, catheterizations, neurological bladder; psychometric, rehabilitation

Introduction

People with neurogenic lower urinary tract dysfunction, as first choice should consider the use of intermittent catheterization, in fact both in short and long term it is considered a safe and effective solution. Also in non-neurological dysfunctions, for example partial or total urine retention, it should be preferred forcing to catheterize for periods longer than 30 days, in a hospital or home setting¹.

A patient can easily perceive anxiety and stress from the body language of a teacher who is uncomfortable teaching the technique. Thus, the program must have a fully trained aseptic Intermittent Self-Catheterization (IC) teacher with emphatic attitude to his/her patient. An empathetic teacher will do his/her best and use all necessary resources to achieve the result: a patient who can self-catheterize and understand the program's philosophy.^{2,3}

Therapists, therefore, need an instrument to evaluate patients' acceptance of self-catheterization.

In literature are reported some questionnaires on self-catheterization, however the only one to measure acceptance of the aseptic IC is the Intermittent Catheterization Acceptance Test (I-CAT).⁴

Responding to patients' questions before their introduction to the IC procedure can improve the adherence to IC, in fact secondary patient anxiety resulting from the use of this technique can decrease thanks to a better understanding of the procedure.⁵ The I-CAT is useful for assess global acceptance of aseptic IC in people using this techniques for all lower urinary tract dysfunction. This technical procedure should not be considered an additional deficit, but it should become a logical component of a patient's everyday life⁵.

The purpose of this study was to translate, culturally adapt and validate in Italian a tool that can assess psychological aspects about anxieties and fears regarding self-catheterization, to carry out a rehabilitative pathway that considers the patient globally.

Methods

This study was conducted by a research group from Sapienza University of Rome and the Association of “Rehabilitation and Outcome measure Assessment” R.O.M.A.^{6–18}.

After receiving consent from the developers of the tool, it was translated and culturally adapted following “principles of good practice for the translation and cultural adaptation process”¹⁹.

Translation process

The original version of the I-CAT was firstly translated from English to Italian by three translators. The three independent translations’ were merged by a fourth professional. This temporary version was then translated back into the original language by three Italian translators who were not been involved with the original translation. The back-translated version was compared with the original and approved by the authors of the tool.

Three Italian rehabilitation professionals who were familiar with English and Italian, reviewed the pre-final version. All items were either identical or similar in meaning to the original version. The expert committee consolidated all the questionnaire versions and developed what would be considered the pre-final version of the questionnaire for field testing. (Supplementary material 1).

Participants

Inclusion criteria for participants were adults with spinal cord injury and spina bifida who practice IC for at least 6 months. Exclusion criteria were to be patients with cognitive problems and age under 18. People suitable according to the inclusion criteria were informed about the study, and those who were interested signed the informed consent.

Instruments

The intermittent Catheterization Acceptance Test (I-CAT) was developed in 2017; it is a test that highlights the psychological problems related to the practice of self-catheterization²⁰. In order to evaluate criterion validity, the I-CAT was administered together with the Qualiveen-30 questionnaire, Spinal Cord Injury Independence Measure (SCIM-self report), and Moorong self-efficacy scale (MSES).

I-CAT is a 14-item scale (in the final version), which evaluates acceptance at a psychological level to address anxiety or fear issues related to it. The I-CAT comprises two dimensions: “multiple fears” (5 items) and “self-esteem” (8 items), as well as one global question.

The Qualiveen-30 questionnaire investigate health-related quality of life of people with urinary disorders in neurologic conditions. It consists of 30 items focusing on four aspects of individuals’ lives related to their urinary problems: bother with limitations (nine items), frequency of limitations (eight items), fears (eight items), and feelings (five items)²¹.

MSES consists of 16 items, it is a self-report questionnaire developed to measure self-efficacy in performing functional activities of daily living²².

Data analysis

Internal consistency was investigated through calculating Cronbach’s alpha, this analysis allow to measure the internal relation of the items and the tool’s by evaluating each item’s answer. In order to evaluate if the test remain stable after repeated administration, the test was proponed twice to the participants, the timeframe between administrations was 7-8 days; a period enough short to support the assumption that the person remain stable and sufficiently long to prevent recall. In order to measure test–retest reliability, the intraclass correlation coefficient (ICC) was calculated. The scale’s test-retest is considered stable if the ICC value is >0.70.

To evaluate criterion validity, the I-CAT was administered together with the SCIM self-report, the MSES, and the Qualiveen-30. The Pearson correlation coefficient and Spearman’s Correlation Coefficient were calculated by analyzing the individual total scores on the different questionnaires. The following values were considered: between -0.1 to 0.1 no relationship; + 1 / -1 perfect positive / negative relationship; a value between 0.1 and 0.3 is a weak positive (negative) relationship; values between 0.3 and 0.7 are a moderate positive (negative) relationship; values between 0.7 and 1.0 are a strong positive (negative) relationship. All statistical analyses were performed using IBM-SPSS version 23.00 and COSMIN checklist guidelines to validate the scale.

Results

The thirty-four subjects who met the inclusion criteria were enrolled in the study. In this study, included participants were adults ranging in age from 18 to 76. Table 1 reports the participant demographics.

Reliability

The Intermittent Catheterization Acceptance Test (I-CAT) can be considered to have very good degree of internal consistency: a total Cronbach’s alpha of 0.889, as reported in Table 2. The intraclass correlation coefficient (ICC), calculated for test-retest reliability showed a statistically significant value (0.96), as shown in Table 3.

Validity

Criterion validity has been performed: it allows to determine if the I-CAT correlates with other assessment tools that measure constructs theoretically expected to be related. The Pearson’s correlation coefficient and Spearman’s Correlation Coefficient obtained from the I-CAT correlation with the Italian version of Qualiveen-30, SCIM SR and MSES indicates that the I-CAT has a good concurrent validity (Table 4,5).

Table 1. Demographic characteristics of the 34 participants.

	Frequency	Percent
Gender		
Male	20	58.8
Female	14	41.2
Lesion level		
C6-C7	2	5.9
L-S	7	20.6
L1- L2	3	8.8
Spina bifida	1	2.9
T10-T12	7	20.6
T 7-T9	7	20.6
T1-T4	1	2.9
T3-T6	5	14.7
Education		
missing answers	14	41.2
Graduation	13	38.2
Elementary School	1	2.9
Middle School	6	17.6
Marital status		
missing answers	10	29.4
Maiden/Celibate	7	20.6
Divorced	3	8.8
Married	12	35.3
Widow/Widower	2	5.9
current job		
missing answers	10	29.4
Unemployed	3	8.8
Employee	10	29.4
Retired	11	32.4
Number of self-catheterizations per day:		
0-3	3	8.8
4	7	20.6
5	17	50.0
6	2	5.9
8	1	2.9
place for self-catheterization		
missing answers	4	11.8
Bathroom	7	20.6
Wheelchair	13	38.3
Bed	8	23.5
Car	1	2.9
No self-catheterization	1	2.9
need assistance when practice self.catheterization		
missing answers	5	14.7
Sometimes	4	11.8
No	23	67.7
Yes	2	5.9
need assistive devices when practice self-catheterization		
missing answers	4	11.8
No	25	73.5
Yes	5	14.7

Discussion

The aim of this study was translate and culturally adapt the Intermittent Catheterization Acceptance Test (I-CAT) and to evaluate its reliability and validity, according to the result obtained authors find the questionnaire to have an optimal internal consistency, test-retest reliability and validity. This tool can facilitate the expression of psychological barriers for the technique of Intermittent Catheterization (IC) such as unwillingness, aversion, or non-acceptance, and a therapist can gather the information of the possible need for care and follow-up. Logan et al.²³ reported in 2008 the importance of a professional and empathetic approach to the reduction of a patient's anxiety with respect to this specific procedure, and to the improvement of compliance. According to I-CAT's authors, the questionnaire can help to solve this discomfort since individuals could fill the I-CAT before starting a training on the technique. This would allow to anticipate their questions with IC and the therapists adapt training sessions to a patient's specific difficulties⁵. Patients requiring IC who do not adhere or have a partial adherence may develop urological complications. So, predicting which patient is more likely to adhere to IC is very important because it may interfere in the medical treatment decisions to prevent future complications²⁴.

The Italian version of I-CAT's showed internal consistency and test-retest stability to be acceptable and in line with previous studies.²⁰ Good criterion validity was found between the I-CAT and the other questionnaires by analyzing the Pearson's coefficient and Spearman's Correlation Coefficient. The correlation between the I-CAT and the subscale of Qualiveen-30 and SCIM SR was expected. Qualiveen-30 evaluates aspects of bladder problems related to discomfort, limits, and sensation such as I-CAT analysed problems based on self-esteem and fears, similar to Qualiveen-30; also, SCIM SR was found to have correlations with I-CAT only for the section "self-care" and the section "respiration and sphincter management" as expected.

Thus, the I-CAT is useful for the quantification of the global acceptance of the aseptic IC procedure, even though in this study it has been analysed only for people with neurological bladder, it can potentially be used for all lower urinary tract dysfunction. The quantification of global acceptance can anticipate responding to individuals' questions prior to their introduction to the IC procedure, the educational process can be adapt and personalized to the person and IC adherence could be improved over a period of several years. The I-CAT could eventually become an indicator for the effectiveness of IC learning sessions, and thus a tool for the validation of therapeutic educational methodologies.

Conclusions

In conclusion, the Italian version of I-CAT is a reliable and valid tool for measuring psychological barriers such as anxiety, fears, and self-esteem related to aseptic IC techniques. It is a new tool for Italian professionals working with self-catheterization for people with urinary track dysfunction, and it is also useful in improving patients' acceptance of it. The I-CAT can also be used for the follow-up of people

Table 2. Internal consistency for the Italian version of the Intermittent Catheterization Acceptance Test (I-CAT).

	Mean	Std. Deviation	Mediana	25 percentil	50 percentil	75 percentil	Cronbach's Alpha if Item Deleted
I am anxious about the idea of self- catheterization	0.77	1.28	0	0	0	1	0.86
I am afraid of feeling pain when I self-catheterize	0.53	1.04	0	0	0	1	0.87
I am afraid of injuring myself	0.83	1.26	0	0	0	1	0.87
I will worry constantly about having to self-catheterize	0.63	1.13	0	0	0	1	0.86
I am afraid that, with time, self-catheterization will damage my urethra	1.37	1.47	1	0	1	3	0.87
Self-catheterizing will always remind me that I have a disability	1.73	1.74	1	0	1	3,25	0.85
Self-catheterizing will be an additional handicap	1.97	1.67	2	0	2	4	0.85
I am afraid of being dependent on self-catheterization	1.63	1.81	1	0	1	4	0.85
I am afraid it will be irreversible	1.70	1.82	1	0	1	4	0.86
I will feel different	1.83	1.84	1	0	1	4	0.86
I am afraid of people knowing about it	1.23	1.61	1	0	1	1	0.86
I will be unable to self-catheterize anywhere	1.20	1.56	0,5	0	0,5	3	0.88
I will be unable to self-catheterize at work	0.50	0.94	0	0	0	1	0.87
Finally, it's difficult for me to accept the idea of self-catheterizing	1.29	1.53	0	0	0	1	0.88
Total Cronbach's alpha value = 0.889							

Table 3. Test-retest reliability for the Italian version of the Intermittent Catheterization Acceptance Test (I-CAT).

	Mean test	St.dev test	Mean retest	St. dev retest	Intraclass Correlation	95% Confidence Interval	
						Lower Bound	Upper Bound
I-CAT Fear test	4.73	4.54	5.55	5.11	0.97	0.88	0.99
I-CAT self-esteem test	7.27	6.87	8.18	7.39	0.95	0.81	0.99
I-CAT global question test	0.64	1.21	0.64	0.92	0.96	0.83	0.99
SCORE	12.18	12.04	14.36	12.45	0.96	0.86	0.99

Table 4. Criterion validity: correlation between the Italian version of the Intermittent Catheterization Acceptance Test (I-CAT), Qualiveen-30, Spinal Cord Injury Measure Self-Reported (SCIM-SR) and Moorong self-efficacy scale (MSES) analyzed with Pearson's Correlation Coefficient.

	Qualiveen				SCIM-SR				Moorong	
	discomfort with limits	frequency of limits Qualiveen	sensation qualiveen	Total score	Selfcare-SCIM-SR	respiration & sphincter management-SCIM-SR	mobility-SCIM-SR	Total score	daily activities instrumental self efficacy	social functioning interpersonal self efficacy
I-CAT Fear	0.06	.390*	-0.05	0.11	0.07	0.03	0.18	-0.08	-0.44	-0.41
I-CAT self-esteem	0.62**	0.383*	0.65**	0.71**	-0.66**	-0.67**	-0.46**	-0.08	-0.21	-0.42
I-CAT global question	0.55**	0.04	0.55**	0.44**	-0.62**	-0.61**	-0.41*	0.16	-0.57**	-0.56**
SCORE	0.53**	0.43*	0.517**	0.61**	-0.52**	-0.54**	-0.31	-0.06	-0.34	-0.47*

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

-CAT=Intermittent Catheterization Acceptance Test; SCIM-SR=Spinal Cord Independence Measure III-Self Report.

Table 5. Criterion validity: correlation between the Italian version of the Intermittent Catheterization Acceptance Test (I-CAT), Qualiveen-30, Spinal Cord Injury Measure Self-Reported (SCIM-SR) and Moorong self-efficacy scale (MSES) analyzed with Spearman's Rho.

	Qualiveen-30					SCIM-SR				Moorong	
	discomfort with limits	frequency of limits Qualiveen	Fears qualiveen	sensation qualiveen	totale	Selfcare-SCIM-SR	respiration & sphincter management-SCIM-SR	mobility-SCIM-SR	PUNT-EGGIO	daily activities instrumental self efficacy	social functioning interpersonal self efficacy
I-CAT Fear	-0.076	.413*	-0.079	-0.129	-0.032	.415*	0.178	.348*	-0.069	-0.170	-0.214
I-CAT self-esteem	.616**	.442**	.538**	.643**	.726**	.956**	-.608**	-.439**	-0.139	0.039	-0.149
I-CAT global question	.415*	0.099	0.136	.578**	.434*	.552**	-.397*	-0.314	0.088	-0.253	-0.278
PUNT-EGGIO	.580**	.449**	.492**	.581**	.672**	.972**	-.538**	-0.311	-0.124	-0.112	-0.254

I-CAT=Intermittent Catheterization Acceptance Test; SCIM-SR=Spinal Cord Independence Measure III-Self Report.

after a training of intermittent self-catheterization techniques. Finally, it is an important tool for medical research.

Ethics committee

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Ethics committee approval is not required for this study, this research involve secondary use of clinical data which is provided without any identifier or group of identifiers which would allow attribution of private information to an individual. Informed consent was obtained from all participants for being included in the study.

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