

ORIGINAL ARTICLE

Spanish adaptation of the Quality of Life Index-Spinal Cord Injury version

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Study design: A cross-sectional, validation study.

Objectives: To (a) develop the Spanish version of the Quality of Life Index-Spinal Cord Injury version (SV-QLI/SCI) and (b) assess its psychometric characteristics among permanent wheelchair users and specifically among those with SCI.

Setting: Associations of wheelchair users in Mallorca (Spain).

Methods: Two forward and backward translations of the QLI/SCI into Spanish were carried out separately. Seventy-seven subjects were randomly selected among the members of the associations. They completed the SV-QLI/SCI and validated instruments to measure depression and spinal pain upon recruitment and 14 days later. Assessments included comprehensibility, reproducibility, floor and ceiling effects and correlations between quality of life, pain and depression (Spearman's correlation coefficient). Analyses were repeated excluding data from subjects without SCI.

Results: Three items of the SV-QLI/SCI required rephrasing. Reproducibility was 'almost perfect' for the entire questionnaire and its 'Health and functioning' subscale, 'substantial' for the 'Social and economic' and 'Family' subscales and 'moderate' for the 'Psychological/spiritual' subscale. Floor effect was not observed, and only for the 'Family' subscale >3% of the subjects reached the maximum possible score. The correlation between quality of life and depression was the strongest ($r = -0.628$). Results were virtually identical in the subsample with SCI.

Conclusion: These results support the use of the SV-QLI/SCI among Spanish-speaking wheelchair users.

Spinal Cord (2016) 54, 895–900; doi:10.1038/sc.2015.200; published online 17 November 2015

INTRODUCTION

To assess quality of life among subjects with spinal cord injuries, some studies have used generic instruments, such as the short form (SF)-36, SF-36V, SF-12, SF-6D or the Sickness Impact Profile, others have used questionnaires developed for this specific population, such as the Qualiveen, and still others have used specific adaptations of questionnaires originally developed for the general population.^{1,2} The variety of questionnaires render comparisons and pooling of data across studies difficult.¹ Moreover, most questionnaires were used in only a few studies and present poor psychometric characteristics.¹

The Quality of Life Index-Spinal Cord Injury version (QLI/SCI), is the specific adaptation of Ferran and Powers' Quality of Life Index for subjects with spinal cord injuries and is one of the most appropriate and commonly used questionnaires for assessing quality of life among wheelchair users.^{1–7} To enhance the use of the QLI/SCI internationally, and facilitate multinational collaborative research in this field, trans-culturally adapted versions in the most commonly used languages worldwide should be available, and their psychometric characteristics should be known. However, a version for Spanish-speaking subjects is currently not available.

Some instruments exist to assess quality of life in patients with conditions other than SCI, which can lead to the permanent use of a wheelchair (for example, multiple sclerosis). Nonetheless, these questionnaires are disease specific and have been developed irrespectively of whether the patient actually uses a wheelchair. Therefore, they are inappropriate for studies exploring the factors that influence quality of life of wheelchair users in general (that is, using one as a consequence of any type of condition).

Comparing the psychometric characteristics of the QLI/SCI, when used in a representative sample comprising all wheelchair users, with the psychometric characteristics obtained when used by the subsample, comprising only wheelchair users with SCI, would contribute to assessing whether the QLI/SCI can be used to determine quality of life in studies focusing on all wheelchair users, regardless of the condition that made them wheelchair bound.

Therefore, the objectives of this study were to (a) develop a Spanish version of the QLI/SCI (SV-QLI/SCI) and (b) assess its reproducibility, floor and ceiling effects and correlation with pain and depression, in a representative sample of permanent wheelchair users and in the subsample of subjects with SCI.

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Received 27 April 2015; revised 29 September 2015; accepted 8 October 2015; published online 17 November 2015

Table 1 Characteristics of study participants upon recruitment (n = 77)

Variable	N (%)
<i>Gender</i>	
Males	48 (62.3)
Females	29 (37.7)
Age, mean (s.d.)	45.1 (15.6)
<i>Academic level</i>	
No studies	8 (10.4)
Primary school	31 (40.3)
High school	27 (35.1)
University	11 (14.3)
Working	19 (24.7)
Smoking	25 (32.9)
<i>Family situation</i>	
Single	27 (36.0)
Married	28 (37.3)
Divorced	17 (22.7)
Widow/er	3 (4.0)
Missing	2 (2.6)
Living alone	18 (23.4)
Time elapsed since starting to use a wheelchair constantly (years); mean (s.d.)	13.5 (10.5)
<i>Reason for using a wheelchair</i>	
Traumatic spinal cord injury	43 (55.8)
Neurologic degenerative disease	33 (42.0)
Untreatable chronic musculoskeletal condition	1 (1.3)
Other	0
<i>Level of the injury</i>	
Cervical	16 (20.8)
Thoracic	25 (32.5)
Lumbar	2 (2.6)
Not applicable	34 (44.1)
<i>Type of neurological deficit^a</i>	
Complete	20 (26.0)
Incomplete, with some sensitivity remaining	15 (23.4)
Incomplete, with some movement remaining	5 (6.5)
With spasticity	31 (40.3)
Other/not applicable	6 (7.8)
Requiring help for daily activity	48 (62.3)
Driving (yes)	30 (39.5)
<i>Type of wheelchair</i>	
Manual	58 (75.3)
Electric	12 (15.6)
Other	7 (9.1)
Use of a cushion in the wheelchair	60 (78.0)
<i>Type of cushion</i>	
Silicone	11 (14.3)
Foam	8 (10.4)
Other	41 (53.2)
Not applicable (no cushion)	17 (22.0)
Thickness of the cushion (cm) ^b	13.1 (7.7)
Thickness of the cushion (categorized)	23 (29.0)
<i>Thick</i>	
Medium	31 (40.2)

Table 1 (Continued)

Variable	N (%)
Slim	6 (7.8.0)
Not applicable (no cushion)	17 (22.0)
Presenting decubitus ulcers	27 (35.1)
Able to distinguish neuropathic from mechanical pain	18 (32.7)
Having been prescribed drugs for treating pain	39 (50.6)
Analgesics (not opioids)	19 (24.7)
Opioids	2 (2.6)
Non-steroidal anti-inflammatory drugs	9 (11.7)
Muscle relaxants	7 (9.1)
Others	9 (11.7)
Reporting spinal pain at any level (neck, thoracic or low back) ^c	53 (68.8)
Reporting neck pain	34 (44.2)
Reporting thoracic pain	34 (44.2)
Reporting low back pain	34 (44.2)
Severity of neck pain (VAS) median (P25; P75) ^d	5 (3; 7)
Severity of thoracic pain (VAS) median (P25; P75) ^d	6 (3; 8)
Severity of low back pain (VAS); median (P25; P75) ^d	5 (3; 8)
Depression (CESD); median (P25; P75)	16 (11; 27)
QLI/SCI; median (P25; P75)	20.2 (18.5; 22.6)

Abbreviations: CESD, Center for Epidemiologic Studies Depression; QLI/SCI, Quality of Life Index-Spinal Cord Injury; VAS, visual analogue scale.

^aOn the basis of the medical report issued by the treating hospital.

^bAmong those subjects using a cushion.

^cThe same patient could report pain at more than one level. Therefore, the sum of subjects reporting pain at the neck, thoracic and low back levels is higher than the number of subjects.

^dAmong those subjects reporting pain at the corresponding level.

SUBJECTS AND METHODS

Trans-cultural adaptation of the QLI/SCI

Methods used to trans-culturally adapt the original version of the QLI/SCI into Spanish were based on recommendations included in the corresponding guidelines.⁸ The original version was translated into Spanish separately by two different native Spanish speakers who were fluent in English. Both were unaware of the purpose of the translation and of the fact that another translator was doing the same task.

Both Spanish translations were compared with identify inconsistencies. The two translations were then re-translated, also blindly and independently, into English by two native English speakers who were fluent in Spanish. Each of the English translations was then compared with the original English QLI/SCI and revised for inconsistencies.

The Spanish version was then jointly reviewed by a bilingual team including the four translators, two physicians, two methodologists and two medical researchers, to assess the necessity of conducting a cultural adaptation and to fine tune it for Spanish-speaking subjects. Once again, the team compared the resulting Spanish version with the original English version to detect expressions, which might allow misinterpretations and ensure that no nuances had been missed out, and finalised the first Spanish version of the QLI/SCI (SV-QLI/SCI).

Pilot study

Subjects. As detailed in the Discussion section, Spanish associations of wheelchair users include the vast majority of wheelchair users in the country. Affiliation rates are specially high among those who are younger, more active or have been using a wheelchair for long. Eligible participants were identified through the databases of the associations of wheelchair users in the region where the study was conducted (the island of Mallorca, in Spain). All subjects signed informed consent approved by the Regulatory instances

Inclusion criteria were being ≥ 18 years of age and signing the corresponding informed consent form. Non-inclusion criteria were intermittent or temporary (that is, not permanent) use of wheelchair, physical or mental inability to respond to the interviewer's questions (for example, paraplegia or senile

Table 2 Reproducibility of the QLI/SCI

	Intraclass correlation coefficient			
	Entire sample		Subsample: subjects with spinal cord injury	
	N ^a	ICC (95% CI)	N ^a	ICC (95% CI)
Total score quality of life	72	0.801 (0.699; 0.870)	41	0.830 (0.704; 0.906)
Health and functioning subscale score	72	0.833 (0.745; 0.892)	41	0.853 (0.741; 0.919)
Social and economic subscale score	72	0.732 (0.604; 0.824)	41	0.686 (0.482; 0.819)
Psychological/spiritual subscale score	72	0.485 (0.287; 0.643)	41	0.576 (0.329; 0.749)
Family subscale score	70	0.795 (0.690; 0.868)	40	0.818 (0.681; 0.899)

Kappa index (bi-square weights)	Entire sample (n = 77)	Subsample: subjects with spinal cord injury (n = 43)
First section of the QLI/SCI (satisfaction)	0.547	0.566
Second section of the QLI/SCI (importance):	0.461	0.485

Abbreviations: CI, confidence interval; ICC, intraclass correlation coefficient; QLI/SCI, Quality of Life Index-Spinal Cord Injury.

^aData in this column relate to the number of subjects who responded to all the items in the corresponding subscale, on both occasions. In total, the entire sample included 77 subjects, and 43 had spinal cord injury. Lower numbers in columns 'N' are due to missing data.

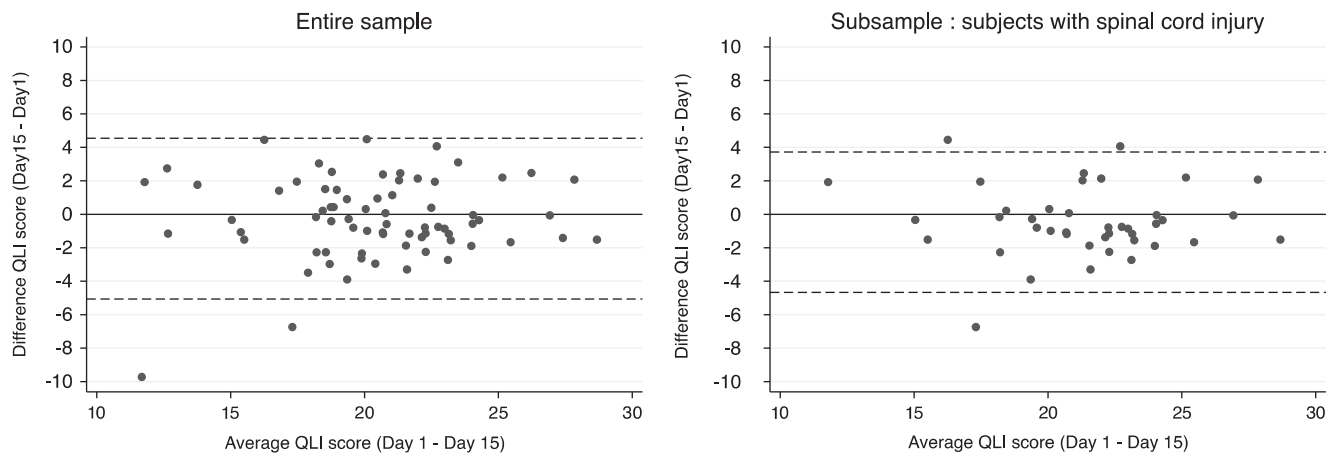


Figure 1 Reproducibility of results from the QLI/SCI (Bland–Altman plot). The y axis represents the difference between QLI/SCI scores obtained in day 1 and day 15. The x axis represents the mean of both assessments. Dashed lines represent the limits of agreement computed as mean difference \pm 1.96 times the s.d. of the difference.

dementia), fever, diagnosis of cancer, systemic infection or rheumatoid inflammatory disease (spondylitis, rheumatoid arthritis and so on).

The sample size for the pilot study was established at 75. Subjects were randomly selected out of the list of subjects included in the databases of the associations of wheelchair users and invited to participate. Subjects who had been selected and complied with ≥ 1 exclusion criterion were substituted by other subjects who were also randomly selected, until the sample size was reached.

Variables. Table 1 presents and classifies the variables that were gathered through personal interviews with the subjects. These included basic demographic characteristics, employment and marital status, reason for using and type of wheelchair, level and type of injury, cushion type and thickness, presence of pressure ulcers, self-reporting status of neuropathic vs mechanical pain and treatment if any.

In addition, three visual analogue scales (VASs) were used to assess neck, thoracic and low back pain separately.⁹ Depression and quality of life were measured with the Spanish versions of the Center for Epidemiologic Studies Depression (CESD) scale¹⁰ and the QLI/SCI (SV-QLI/SCI), respectively.^{5,6} Value ranges are (from best to worst) 0–10 for VAS and 0–60 for CESD and (from worst to best) 0–30 for the QLI/SCI.^{5,6,9,10}

Procedure. All the associations of wheelchair users in the region communicated the objectives and characteristics of the study to the subjects included in their databases.

Subjects were visited at their home by a previously trained research assistant, who gathered the variables recorded during the personal interview and handed out the QLI/SCI and the VASs and the CESD scales.

After filling out the questionnaires, the interviewer asked participants what they had understood by each item in the SV-QLI/SCI.

The research assistant returned to the participants' home 14 days later and handed out empty VASs, CESD and SV-QLI/SCI to be completed again.

All data collected by the research assistant at the subject's home were transferred to the database by administrative personnel at a coordination office, using a double transcription mechanism to avoid transcription errors. The administrative staff calculated the scores for the VASs completed by each participant.

Analysis

The scores for the CESD and the SV-QLI/SCI were calculated at the analysis phase. As data were not normally distributed, data on these scores and VASs were described by their median and 25 and 75 percentiles (P25; P75).

Table 3 Highest and lowest scores recorded: floor and ceiling effects

	Entire sample (n = 77)				Subsample: subjects with spinal cord injury (n = 43)			
	Lowest Score recorded	Number of patients with the lowest score recorded (floor effect)	Highest score recorded	Number of patients with the highest score recorded (ceiling effect)	Lowest score recorded	Number of patients with the lowest score recorded (floor effect)	Highest score recorded	Number of patients with the highest score recorded (ceiling effect)
Quality of life (QLI score) ^a	6.82	1 (1.3%)	28.87	1 (1.3%)	12.75	1 (2.3%)	28.87	1 (2.3%)
Health and Functioning subscale (QLI score) ^a	5.08	1 (1.3%)	27.86	1 (1.3%)	10.53	1 (2.3%)	27.86	1 (2.3%)
Social and economic subscale (QLI score) ^a	2.40	1 (1.3%)	30	2 (2.7%)	11.56	1 (2.3%)	30	2 (4.6%)
Psychological/spiritual subscale (QLI score) ^a	6.57	1 (1.3%)	30	2 (2.7%)	6.57	1 (2.3%)	30	2 (4.6%)
Family Subscale (QLI score) ^a	7	1 (1.4%)	30	9 (12.2%)	7	1 (2.3%)	30	6 (13.9%)

Abbreviation: SV-QLI/SCI, Spanish version of the Quality of Life Index-Spinal Cord Injury. ^avalues range (from lowest possible score to highest possible score): 0–30.

Comprehensibility of the SV-QLI/SCI was measured by the number of questions for which the subjects requested clarification from the interviewer and the number of questions they misinterpreted. Any question misinterpreted by ≥ 3 participants had to be rephrased.

The floor and ceiling effects for the SV-QLI/SCI and its subscales ('health and functioning', 'social and economic', 'psychological/spiritual' and 'family')^{4,5} were assessed by calculating the minimum and maximum scores that were recorded and the proportion of patients who had these scores.

Reproducibility was assessed by comparing the scores at the two assessments conducted with a 14-day interval. The intraclass correlation coefficient and its 95% confidence interval were calculated for the score corresponding to the SV-QLI/SCI and to each of its subscales. The bi-squared weighted kappa index was calculated to measure agreement between the answers provided in both assessments for each item. The mean of kappa values for all the items included in each section in the questionnaire ('satisfaction' and 'importance') was calculated separately. Kappa and intraclass correlation coefficient values were classified as reflecting a 'poor' (if values were < 0.00), 'slight' (0.00–0.20), 'fair' (0.21–0.40), 'moderate' (0.41–0.60), 'substantial' (0.61–0.80) and 'almost perfect' (> 0.81) agreement.¹¹ The Bland–Altman plot was drawn to show subjects' answers to the items included in the SV-QLI/SCI, in both assessments.¹²

Reproducibility of the VASs and the CESD scores obtained at both assessments was also calculated. Correlations among the scores for the SV-QLI/SCI, the VASs (for neck, thoracic and low back pain, separately) and the CESD were calculated using the Spearman's correlation coefficient.

Analyses were repeated twice. The first data set included all available data from the whole sample. The second data set excluded all data from subjects without a spinal cord injury.

Analyses were conducted with Stata 13 statistical package software (StataCorp. 2013. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP, College Station, TX, USA) and SPSS version 15 (SPSS Inc., Chicago, IL, USA).

All applicable institutional and governmental regulations concerning the ethical use of human volunteers were followed during the course of this research.

RESULTS

Two of the subjects randomly selected were undergoing diagnostic procedures to rule out cancer (1 case) and infection (1 case) and were therefore excluded. However, when these diseases were ruled out, these two subjects requested to be included. Therefore, sample size was 77. The typical subject participating in the study was male aged 45.1 years (62.3%) who had been using a wheelchair permanently for 13.5 years, required help for daily activity (62.3%), did not drive (60.5%) and was suffering from pain (68.8%) at the neck, thoracic or low back levels (Table 1).

Thirty-five subjects (45.5%) requested clarification for at least 1 item on the SV-QLI/SCI. Clarifications were requested for 13 (35.1%) out of the 37 items in the first section of the SV-QLI/SCI and 3 (8.1%) of the second one. Three (3.9%) items from the first section and the same 3 from the second section were misinterpreted by ≥ 3 subjects, which led to these questions being rephrased in the final version of the instrument (Supplementary Appendix 1).

Scores for the SV-QLI/SCI and its subscales were very similar on day 1 and day 15 (Table 4). In fact, the reproducibility of the SV-QLI/SCI was 'almost perfect' (intraclass correlation coefficient (95% confidence interval):0.801 (0.699–0.870)). Reproducibility was 'almost perfect' for the 'Health and functioning' subscale, 'substantial' for the 'Social and economic' and 'Family' subscales and 'moderate' for the 'Psychological/spiritual' subscale (Table 2). Kappa values were 0.547 for the first section of the index ('Satisfaction') and 0.461 for the second section ('Importance'; Table 2). The Bland–Altman plot shows that results from the SV-QLI/SCI were reproducible for all the range of values, both when data from the whole sample were included and when data from subjects without spinal cord injury were excluded

Table 4 Scores for QLI/SCI and its subscales, on day 1 and 15

	Entire sample (n = 77)				Subsample: subjects with spinal cord injury (n = 43)			
	Day 1		Day 15		Day 1		Day 15	
	N ^a	Value	N ^a	Value	N ^a	Value	N ^a	Value
Quality of life (QLI score) ^b	75	20.3 (3.9)	72	20.5 (3.7)	41	21.1 (3.6)	41	21.6 (3.6)
Health and functioning subscale (QLI score) ^b	75	18.6 (4.9)	72	19.1 (4.4)	41	19.9 (4.1)	41	20.5 (4.0)
Social and economic subscale (QLI score) ^b	75	20.8 (4.5)	72	21.1 (3.9)	41	21.9 (3.9)	41	22.0 (3.5)
Psychological/spiritual subscale (QLI score) ^b	75	21.6 (4.8)	72	21.7 (4.3)	41	21.5 (5.1)	41	22.5 (4.2)
Family subscale (QLI score) ^b	74	22.8 (4.8)	71	22.4 (5.4)	40	23.2 (4.7)	41	22.9 (5.4)

Abbreviation: QLI/SCI, Quality of Life Index-Spinal Cord Injury.

^aData in this column relates to the number of subjects who responded to all the items in the corresponding subscale, on both occasions. In total, the whole sample included 77 subjects, and 43 had spinal cord injury. Lower numbers in columns 'N' are due to missing data.

^bData given as mean (s.d.). Values range (from worst to best): 0–30

Table 5 Correlation between quality of life, pain and depression levels in the entire sample (77 subjects) and the subsample of subjects with spinal cord injury (43 subjects)

	Quality of life (QLI/SCI)	Depression (CESD)	Neck pain (VAS)	Thoracic pain (VAS)
<i>Depression (CESD)</i>				
Entire sample	-0.628			
Subsample with spinal cord injury	-0.664			
<i>Neck pain (VAS)</i>				
Entire sample	-0.111	-0.096		
Subsample with spinal cord injury	-0.091	-0.175		
<i>Thoracic pain (VAS)</i>				
Entire sample	-0.150	0.136	0.494	
Subsample with spinal cord injury	-0.259	0.250	0.491	
<i>Low back pain (VAS)</i>				
Entire sample	-0.105	0.052	0.398	0.244
Subsample with spinal cord injury	-0.127	0.156	0.358	0.282

Abbreviations: CESD, Center for Epidemiologic Studies Depression; QLI/SCI, Quality of Life Index-Spinal Cord Injury; VAS, visual analogue scale.

(Figure 1). The graphical representation for each of the subscales of the SV-QLI/SCI also shows symmetric and accurate distribution of points along all the abscise axis (data not shown).

No subject received the minimum possible score for the SV-QLI/SCI or its subscales, and <3% reached the maximum possible score for the SV-QLI/SCI score and its subscales, except for the 'Family' subscale, for which 12.2% of the subjects had the maximum possible score (Table 3).

The reproducibility of the scores for pain and depression was 'substantial' (Table 4). Correlations between quality of life (as measured with the SV-QLI/SCI), pain and depression are shown in Table 5. The strongest correlation (-0.628) was found between quality of life and depression.

Results from analyses including all wheelchair users were virtually identical to results obtained when data from subjects without spinal cord injury were excluded (Tables 2,3,4 and 5).

DISCUSSION

Results from this study reflect that the comprehensibility of the Spanish version of the SV-QLI/SCI is high and that, although the reproducibility of its 'Psychological/spiritual' subscale is only 'moderate', the reproducibility of the whole instrument and its other subscales is also very high. Floor and ceiling effects do not appear to be a concern, except for a potential ceiling effect for the 'Family' subscale, which may reflect the importance of family support in the Spanish cultural environment. All of the above suggest that this version can be used in studies including Spanish-speaking wheelchair users. Moreover, results from this study suggest that the Spanish version of the QLI/SCI can be used to assess quality of life in studies focusing on permanent wheelchair users, both with and without SCI (Tables 2–5).

The reproducibility of the VAS for assessing pain and the CESD for assessing depression is consistent with previous studies^{9,10,13,14} and suggests that the severity of depression and pain were stable among the subjects included in this study, despite the treatments they were receiving (Table 1).

As expected, depression showed a relatively strong correlation with quality of life, as measured with the Spanish version of the QLI/SCI (Table 5). However, correlations between pain at different levels and quality of life were <0.11, which contrasts with what has been found in the same geographical environment among subjects with spinal pain who were not wheelchair users, in whom the correlation between quality of life and pain was significantly higher (between 0.442 and 0.760).^{15,16} This might suggest that the impact of spinal pain on quality of life is less pronounced among permanent wheelchair users than among persons who do not require a wheelchair to ambulate. This should be confirmed in future studies.

Limitations of this study, as well as representativeness of the sample, should be discussed. This study focused on subjects using a wheelchair permanently, and it excluded those who use it temporarily or intermittently. Therefore, results may not apply to the latter. However, subjects using a wheelchair temporarily (for example, for fractures or recovery from surgery) represent a different population from permanent wheelchair users and similar to the general population, for which validated instruments for assessing the quality of life are already available. This study focused on subjects using a wheelchair

permanently, irrespective of the reason for doing so. Therefore, the sample was representative of wheelchair users at large and included subjects with and without traumatic spinal cord injury. This emanates from the objective of this study and the psychometric characteristics of the SV-QLI/SCI were good among the whole sample. Some patients left items on the QLI/SCI unanswered on one of the two occasions in which they are requested to complete the questionnaire. This impeded the analysis of the reproducibility of their answers to these specific items, which explains the few missing data (Tables 2 and 4). However, missing data were <5% and, whatever their value, they would not have had a significant impact on results. Some psychometric characteristics of the Spanish version of the QLI/SCI were not measured in this study; it was not deemed necessary to assess internal consistency, as this version emanates from the original one, and validity could not be measured because no other instruments have been validated to assess quality of life specifically among wheelchair users.¹⁻⁷ Therefore, although future studies could further assess these characteristics, this should not impede using this instrument among Spanish-speaking subjects who use a wheelchair permanently.

Subjects not affiliated to associations of wheelchair users were not eligible for this study. In Spain, disability pensions are paid directly by the Government to each individual person, and other social measures implemented by regional or local authorities (for example, receiving help from social workers, getting permissions to park motor vehicles in special places and so on) are also granted on an individual basis. This implies that individuals do not need help from the associations of wheelchair users to gain access to these benefits. However, the administrative procedures required are cumbersome, and the associations help their members to successfully navigate the system. They also plan leisure activities and provide additional support (for instance, financial support from private institutions to upgrade the type of wheelchair). As a result, the typical wheelchair user not affiliated to any associations is one who has started using a wheelchair at an elderly age, in home bound and, therefore, is less likely to participate in studies measuring quality of life, in which the use of SV-QIL/SCI would be suitable. In this study, the sample was randomly selected from the census of all the associations of wheelchair users, and there were no exclusions or losses to follow-up, which suggests that its representativeness of Spanish, permanent wheelchair users is not a major concern.

The Royal Academy of the Spanish Language is a multinational agency committed to maintaining the unity of the Spanish language throughout the world. It ensures that academic language, dictionaries and semantic and grammatical rules are homogeneous throughout the Spanish-speaking world. Therefore, this version of the QLI/SCI may be used for any Spanish-speaking person worldwide, although some minor fine-tuning may be necessary to adapt it to the specific terms that may be more commonly used in informal language in some specific geographic environments.

CONCLUSION

Results from this study support the use of the Spanish version of the QLI/SCI for assessing the quality of life of permanent wheelchair users.

DATA ARCHIVING

There were no data to deposit.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENTS

We thank the Kovacs Foundation, a not for profit private Institution with its own funding and with no links to the health industry, for having funded this study. No benefits in any form have been or will be received from a commercial party related directly or indirectly to the subject of this article. We do not have any financial or personal relationships with third parties that could influence this work inappropriately. This study was funded by the Kovacs Foundation, a not for profit private Institution with its own funding and with no links to the Health industry.

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Supplementary Information accompanies this paper on the Spinal Cord website (<http://www.nature.com/sc>)