

Document downloaded from:

<http://hdl.handle.net/10251/74910>

This paper must be cited as:

Ferri, J.; Noe, E.; Llorens Rodríguez, R. (2015). The Spanish version of the coma recovery scale-revised: Events on a correct timeline. *Brain Injury*. 29(7-8):1002-1003.
doi:10.3109/02699052.2015.1022884.

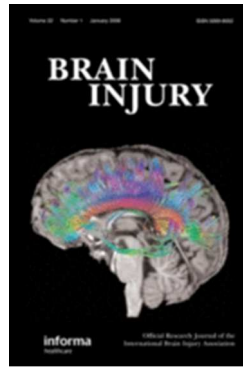


The final publication is available at

<http://dx.doi.org/10.3109/02699052.2015.1022884>

Copyright Taylor & Francis

Additional Information



**The Spanish version of the Coma Recovery Scale-Revised:
Events on a correct timeline**

Journal:	<i>Brain Injury</i>
Manuscript ID:	Draft
Manuscript Type:	Letter to the Editor
Keywords:	Glasgow Coma Scale, minimally conscious state, vegetative state, assessment

SCHOLARONE™
Manuscripts

Letter to the editor

The assessment of the degree of consciousness has traditionally posed a challenge for clinicians. Different structured scales have been presented to quantify the severity of the disorder of consciousness. The Glasgow Coma Scale (GCS), the Disability Rating Scale (DRS), the Coma Recovery Scale, later revised (CRS-R), and the Loewenstein Communication Scale (LCS)¹ are good examples. However, the interpretation of the patients' reactions has been reported to be dependent on the variability of their behavior and arousal level, but also on the examiner². This sensitivity urges to minimize the factors that can lead to misinterpretation of the signals. In this regard, the use of assessment tools in native language may help clinicians to avoid mistakes derived from particularities of each language. In a recent paper, Tamashiro and colleagues have presented a validation of a Spanish version of the CRS-R³. The concurrent validity of the translated scale with the GCS and the DRS, and its inter-rater reliability are presented. However, the authors stated that no Spanish version was available at the moment of publication, which is not true. A Spanish version of the CRS-R was published two years before by our group⁴, in a prospective study with a cohort of patients who presented disorders of consciousness after severe brain injury. The scale was also used for assessing patients in vegetative state and minimally conscious state in a randomized placebo-controlled trial to determine the effectiveness of a single daily dose of Zolpidem⁵. To create our version, the CRS-R was back-translated to Spanish and refined by four clinicians, who finally agreed on the definitive version. This version was, in fact, provided as a supplementary appendix to the article, and is available for examination. A similar method has been used by our colleagues to create their version. We regret that a simple search in a scientific library engine (as PubMed.gov) before the elaboration of the second Spanish version of the CRS-R including the keywords 'coma

1
2
3 recovery scale revised Spanish' would have displayed our paper, thus avoiding
4
5 duplication of efforts. The variability of the patients' behavior, the difficulties in
6
7 detecting subtle changes, and to unambiguously interpret them could be better coped
8
9 with more collaboration between groups. In this case, it could have led to a greater
10
11 sample, which could have helped both groups to extract more reliable conclusions.
12

13
14 As a proof, we assessed the concurrent validity of the CRS-R, the GCS, the
15
16 DRS, and the LCS using the data derived from the initial assessment of our study.
17
18 Interestingly, participants were very similar in both studies (Table 1).
19

20
21
22
23
24
25 Insert table 1 about here
26
27
28
29

30
31 While all the participants in our study (n=32) were assessed with the CRS-R, the DRS,
32
33 and the LCS, only participants with traumatic brain injury (n=15) were assessed with
34
35 the GCS. Replicating the procedures of the study by Tamashiro et al. we estimated the
36
37 Spearman correlations of the scores of the three scales collected from the participants in
38
39 our study. Surprisingly, the correlation coefficient between our version of the CRS-R
40
41 and the DRS ($r=-0.53$, $p<0.01$) was almost equal to their finding ($r=-0.54$, $p<0.01$). This
42
43 tendency was also supported by the correlation with the LCS ($r=0.71$, $p<0.01$).
44
45 However, we did not find significant correlation with the GCS. The limited sample of
46
47 participants assessed with this scale, and the lower sensitivity of the GCS to small
48
49 changes could have led to this result¹. This was evidenced by the fact that 12
50
51 participants (80 %) had a score of three in this scale in the baseline.
52
53
54

55
56 In conclusion, we commend the authors for their work at validating their version
57
58 of the scale, but we encourage them to better research previous work. This could have
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

avoided not only the replication of work, which seems to be evidenced by the similar characteristics of both versions, but also the dilemma for Spanish-speaking clinicians of choosing one version or another.

For Peer Review Only

Bibliography

1. American Congress of Rehabilitation Medicine BI-ISIGDoCTF, Seel RT, Sherer M, Whyte J, Katz DI, Giacino JT, Rosenbaum AM, Hammond FM, Kalmar K, Pape TL and others. Assessment scales for disorders of consciousness: evidence-based recommendations for clinical practice and research. *Arch Phys Med Rehabil* 2010;91(12):1795-813.
2. Schnakers C, Vanhaudenhuyse A, Giacino J, Ventura M, Boly M, Majerus S, Moonen G, Laureys S. Diagnostic accuracy of the vegetative and minimally conscious state: clinical consensus versus standardized neurobehavioral assessment. *BMC Neurol* 2009;9:35.
3. Tamashiro M, Rivas ME, Ron M, Salierno F, Dalera M, Olmos L. A Spanish validation of the Coma Recovery Scale-Revised (CRS-R). *Brain Inj* 2014;28(13-14):1744-7.
4. Noe E, Olaya J, Navarro MD, Noguera P, Colomer C, Garcia-Panach J, Rivero S, Moliner B, Ferri J. Behavioral recovery in disorders of consciousness: a prospective study with the Spanish version of the Coma Recovery Scale-Revised. *Arch Phys Med Rehabil* 2012;93(3):428-33 e12.
5. O'Valle M, Moliner B, Navarro MD, Balmaseda R, Colomer C, Ferri J, Noé E. Accepted Abstracts from the International Brain Injury Association's Ninth World Congress on Brain Injury. *Brain Injury* 2012;26(4-5):519.

Table 1. Comparison of the participants in both studies

	Participants of the study by Noé et al.	Participants of the study by Tamashiro et al.
Age (years)	40.2 (16-64)	30.0 (18-62)
Chronicity (days)	118 (38-370)	146 (28-1154)
Gender (n, %)		
Males	22 (68.8 %)	23 (65.7 %)
Females	10 (31.3 %)	12 (34.3 %)
Etiology (n, %)		
Traumatic brain injury	15 (46.9 %)	24 (68.6 %)
Stroke	12 (37.5 %)	4 (11.4 %)
Anoxia	5 (15.6 %)	6 (17.1 %)
Tumor	0 (0 %)	1 (2.9 %)
CRS-R	8.47±7.74	9.31±4.39
DRS	23.59±2.45	23.20±1.89