J. J. Molina Castillo[1]
J. Martínez de la Iglesia[2]
C. Albert Colomer[3]
G. Berrios[4]
M. Sierra[5]
R. Luque Luque[3]

Cross-cultural adaptation and validation of the Cambridge Depersonalisation Scale

[1] Equipo de Salud Mental Talarrubias (Badajoz). Spain
[2] Unidad Clínica de Occidente Distrito Sanitario Córdoba. Spain
[3] Hospital Universitario Reina Sofía Córdoba. Spain
[4] Psychiatrist Department University of Cambridge Cambridge. United Kingdom
[5] Depersonalisacion Research Unit Insttitute of Psychiatry London. United Kingdom

Introduction. The Cambridge Depersonalisation Scale (CDS) is a self-rating questionnaire constructed to capture the frequency and duration of depersonalization symptoms over the last six months. The instrument has proved to be valid and reliable and can be useful in both clinical and neurobiological research.

Methods. This paper presents the Spanish adaptation and validation of the CDS. The study was carried out in two stages. First, we developed the Spanish version of the CDS by means of a cross-cultural adaptation methodology. Second, the CDS was tried on a sample of 130 subjects: 77 patients meeting DSM-IV-TR criteria for schizophrenia, 35 with depression disorders and 18 with anxiety disorders. Scores were compared against clinical diagnoses (gold standard). Furthermore, all the subjects of the study were administered the following: Dissociation Experiences Scale (DES), Positive and Negative Syndrome Scale (PANSS), Beck's Depression Inventory (BDI), and the Hamilton Anxiety Rating Scale (HARS).

Results. 38 patients (29.2 %) had depersonalization symptoms. The scale showed high internal consistency (Cronbach's alpha > 0.9 and split-half reliability > 0.8) and a test-retest reliability of 0.391. Convergent validity was 0.65 ($p < 0.001$) and discriminant validity was 0.308 ($p < 0.05$). The area under the ROC curve was 0.94. A cut-off of 71 appears to be most useful (sensitivity and specificity were 76.3 % and 89.1 %, respectively).

Conclusion. The Spanish version of the CDS has good reliability and validity, similar to the original instrument.

Key words:
Cambridge Depersonalisation Scale. Cross-cultural adaptation. Depersonalization. Validation

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Adaptación y validación al castellano de la Escala de Despersonalización de Cambridge

Introducción. La Escala de Despersonalización de Cambridge (CDS) es un cuestionario autoadministrado construido para capturar la frecuencia y duración de los síntomas de despersonalización en los últimos 6 meses. El instrumento ha mostrado ser válido y fiable y puede ser útil tanto en la clínica como en la investigación neurobiológica.

Método. Este trabajo presenta la adaptación y validación al castellano de la CDS. El estudio fue llevado a cabo en dos etapas. En la primera desarrollamos la versión española de la CDS siguiendo la metodología de adaptación transcultural. En la segunda la CDS fue aplicada en una muestra de 130 sujetos: 77 pacientes reunieron criterios del DSM-IV-TR para esquizofrenia, 35 con trastorno depresivo y 18 con trastorno de ansiedad. Las puntuaciones obtenidas fueron comparadas con el diagnóstico clínico (patrón oro). Además, todos los sujetos del estudio completaron los cuestionarios Escala de Experiencias Disociativas (DES), Escala de los Síndromes Positivo y Negativo (PANSS), Inventario de Depresión de Beck (BDI) y Escala de Ansiedad de Hamilton (HARS).

Resultados. Treinta y ocho pacientes (29,2 %) presentaron síntomas de despersonalización. La escala mostró una consistencia interna elevada (alfa de Cronbach > 0,9 y fiabilidad al dividir por la mitad *[split-half reliability]* > 0,8) y una fiabilidad test-retest de 0,391. La validez convergente fue de 0,65 ($p < 0,001$) y la discriminativa fue 0,308 ($p < 0,05$). El área bajo la curva ROC fue de 0,94. El punto de corte de 71 pareció ser el más favorable (la sensibilidad y especificidad fueron 76,3 % y 89,1 %, respectivamente).

Conclusión. La versión al castellano de la CDS ha mostrado una validez y fiabilidad aceptables, similares a las del cuestionario original.

Palabras clave:
Adaptación transcultural. Despersonalización. Escala de Despersonalización de Cambridge. Validación.

The Spanish version of the Cambridge Despersonalisation Scale is available by request to the authors.
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Correspondence:
Juan J. Molina Castillo
Manuel Parejo Bahamonde, 3
06400 Don Benito (Badajoz). Spain
E-mail: juan.molina@ses.juntaex.es

INTRODUCTION

Depersonalization (DP) is a frequent phenomenon in neurology and psychiatry. However, although it was described more than one century ago[1], psychopathology and psychiatric health care have given it scarce attention. In the DSM-IV-TR, it is defined as «Persistent or recurrent experiences of feeling detached from, and as if one is an outside observer of, one's mental processes or body»[2]. Presently, it is not clear if the distinction between DP and derealization (DR) is due to simple descriptive differences of the same phenomenon[3] or if it has neurobiological validity[4]. Thus, both phenomena are included under the generic term of DP in this study.

In the present diagnostic classification, DP is included as a symptom and independent category (depersonalization disorder). However, the ICD-10[5] from a more classical European perspective, places it in neurotic disorders while the DSM considers it a dissociative disorder.

DP has been described in normal subjects, neurological and organic diseases, associated to drug consumption and in different psychiatric disorders[6]. Thus, it would be a non-specific and independent phenomenon[7] that sometimes occurs predominantly and is sufficiently serious to acquire the category of disorder[8]. However, there is still controversy due to descriptive problems[9].

Different instruments have been constructed over history to assess DP (table 1)[10-21]. In spite of this diversity, most of these instruments lack appropriate psychometric properties since they are influenced and limited by their originating theories. Furthermore, they do not include all the psychopathological richness of DP that is so necessary because the most relevant clinical traits that would make it possible to elucidate its neurobiology are still unknown. The Cambridge Depersonalisation Scale[22] was designed in an attempt to overcome these difficulties. It gathers the essential experiences making up the DP syndrome that were chosen after an extensive analysis of the descriptive psychopathology. The questionnaire, which has been shown to be an instrument with elevated validity and reliability, allows for the complete psychopathological assessment of the symptoms and distinction between the DP disorder and its phenocopies. Thus, the purpose of this present study is to make the cross cultural adaptation of the Cambridge Depersonalisation Scale and its subsequent validation in a population of psychiatric patients.

METHODS

A total of 130 patients belonging to the Cordoba Mental Health Area for a two year period were evaluated. The sample was formed by men and women whose ages ranged from 16 to 65 years, diagnosed of schizophrenic, depressive or anxiety disorder, with or without DP experiences. Patients with psychiatric disorder, cognitive and/or serious sensorial deficit the prevented the foreseen evaluation were excluded. The study was authorized by the corresponding local committees. After being informed of the study objectives, the patients authorized their inclusion in it.

The demographic data and medical and psychiatric history were obtained through a semistructured clinical interview. The out-patients filled out the questionnaires in some of their visits to the reference Mental Health Team. In the

Table 1 Instruments that evaluate DP experiences

	Authors	No. of items	Validation in normal subjects	Validation in psychiatric population
Specific questionnaires on DP				
Dixon Scale	Dixon, 1963	12	+	
Jacobs and Bovasso DP Scale	Jacobs and Bovasso, 1992	25	+	
Fewtrell Scale	Fewtrell, 2000	35		+
Cambridge DP Scale	Sierra and Berrios, 2000	29		+
Severity Scale DP	Simeon et al., 2001	6		+
DP-DR Inventory	Cox and Swinson, 2002	28		+
Questionnaire on dissociative experiences				
Dissociative Experiences Scale	Bernstein and Putnam, 1986	28	+	+
Perceptual Alteration Scale	Sanders, 1986	27	+	
Dissociation Experiences Questionnaire	Ryley, 1988	26	+	
Clinician Administered Dissociative Status	Bremner et al., 1998	27		+
State Scale of Dissociation	Krüger and Mace, 2002	56		+

case of hospitalized patients, this evaluation was done during their hospitalization, after stabilization of the acute condition. The subjects were diagnosed according to the DSM-IV-TR classification criteria[2]. This diagnosis was made by their usual psychiatrist and by one of the raters.

The patients filled out the following questionnaires:

- Cambridge Depersonalisation Scale (CDS)[22] in its Spanish version after cross cultural adaptation. It is a 29 item self-administered questionnaire that permits descriptive evaluation of DP. Each item includes two Likert type scales (frequency and duration). The sum of the scores in each one of them is considered the final measurement of intensity of the experiences. The authors obtained a cut-off of 70, with 75.7 % sensitivity and 87.2 % specificity.
- Spanish version of the Dissociative Experiences Scale (DES)[23]. It is a 28 items visual analogue scale containing three dimensions or factors: absorption, DP/DR and amnesia[24]. However, other studies have questioned this division and have indicated the existence in the scale of a single pathological dissociation type or taxon[25,26]. Simeon et al.[27] demonstrated that the DP/DR factor can be used as screening for the DP disorder.
- The patients' evaluation was completed with the Spanish versions of the Positive and Negative Syndromes Scale (PANSS)[28], Beck Depression Inventory (BDI)[29] and the Hamilton Anxiety Rating Scale (HARS)[30].

Cross cultural adaptation

After receiving the authorization of the authors of the scale to adapt it, the existing recommendations were followed[31-33]. In the initial phase, two separate translations of the scale to Spanish were done. After, a backtranslation was done by two bilingual translators outside of the study who ignored the existence of the original in English. Then a translation committee was formed. It was made up by the investigators, translators and authors who elaborated a first version to Spanish. An attempt was made to guarantee the correspondence of the content in the writing of the items. The comparison criteria were: *a)* literal, if the global meaning in the versions and changes of words were the same; *b)* similar, if there were changes in the meaning of some words, but not in the overall question; *c)* different, if there was loss of the original meaning, and *d)* change in the question, when changes were required in its formulation to adapt them to our culture. In a final phase, the final version (CDS-VE) was made after applying it in a pilot sample of 11 schizophrenic patients and 11 depressive ones.

Validation

All the study subjects filled out the previously mentioned questionnaires. The evaluation was made by some of the psychiatrists trained for it, one of whom underwent a specific training period in the Depersonalization Unit of the Psychiatry Institute in London. The clinical diagnosis of DP was made according to criteria A and B corresponding to the DP disorder diagnosis of the DSM-IV-TR[2]. This diagnosis is the «gold standard» used to establish the questionnaire validity. When there was any doubt on the presence or not of DP experiences, the case was discussed among the rater group and if this persisted, it was excluded from the study.

In order to evaluate the test-retest reliability, 21 subjects (6 schizophrenics, 8 depressive and 7 with anxiety disorder) were given an appointment at 7-10 days of the first evaluation to re-administered the CDS-VE, this being done by the same professional, after verifying that no psychopathological change had occurred.

Data analysis

The data were analyzed with the Statistical Package for Social Sciences (SPSS version 11,0). Descriptive analysis of the sample's sociodemographic characteristics was made in a first phase. The chi squared (for qualitative variables) Student's *t* test and ANOVA (in case of quantitative variables) were applied for the comparison between the variables, unless otherwise specified. The differences were considered statistically significant for a two-tailed $p < 0.05$.

Internal consistency of the CDS version was obtained with Cronbach's alpha statistics and split half reliability[34]. On the other hand, the test-retest reliability was obtained with the weighted kappa calculation, as a normal distribution of the questionnaire score was not obtained[35].

Next, construct and criterion validity were studied[34]. Convergent validity (correlation existing between CDS-VE and the DP/DR factor of the DES) and the divergent validity were obtained for the former. For the latter, the scores obtained on the CDS-VE and on the PANSS scale for schizophrenic patients were compared. In both cases, Spearman's correlation coefficient was calculated. Sensitivity (S), specificity (SP) and maximum likelihood ratios for positive and negative results (PLR and NLR, respectively) and the percentage of poorly classified patients were calculated for the criterion validation. Discriminative capacity of the questionnaire to differentiate subjects without DP from those who had these experiences was analyzed by receiver operating characteristic curve.

RESULTS

In relationship with the adaptation obtained, most of the items maintained literality regarding the original version. Items 13, 14, 16, 18 and 28 were considered similar in their translation. Only the formulation of question 20 had to be changed. It must be mentioned that the patients,

Table 2 Sociodemographic characteristics and scores obtained in the questionnaires on each diagnostic group

	Total sample n = 130	Schizophrenics n = 77	Depressives n = 35	Anxiety disorder n = 18
Gender				
Women	66 (50.8 %)	27 (35.1 %)	26 (74.3 %)	13 (72.2 %)
Men	64 (49.2 %)	50 (64.9 %)	9 (25.7 %)	5 (27.8 %)
Age	35.18 ± 10	33.86 ± 33	36.86 ± 36	37.61 ± 13
Education level				
Primary	63 (48.5 %)	38 (49.4 %)	16 (45.7 %)	9 (50 %)
Secondary	41 (31.5 %)	24 (31.2 %)	12 (34.3 %)	5 (27.8 %)
Upper	26 (20 %)	15 (19.5 %)	7 (20 %)	4 (22.2 %)
Unit				
Hospital	71 (54.6 %)	55 (71.4 %)	15 (42.9 %)	1 (5.6 %))
Mental Health Team	59 (45.4 %)	22 (28.6 %)	20 (57.1 %)	17 (94.4 %)
DP according to clinical opinion	38 (29.2 %)	14 (18.2 %)	16 (45.7 %)	8 (44.4 %)
BDI*	17.25 ± 11; 14	12.32 ± 9; 10	26.86 ± 10; 26	19.67 ± 9; 20
HARS*	12.3 ± 6; 11	10.66 ± 6; 10	15.74 ± 7; 17	12.61 ± 6; 12
DES	22.97 ± 20; 17.5	21.73 ± 20; 16.6	26.28 ± 20; 21.6	21.71 ± 22;17.12
DES-DP	20.59 ± 25; 8.3	18.37 ± 24; 7.8	24.9 ± 28; 9.17	21.44 ± 27;12.42
CDS-VE*	59.25 ± 51; 46	43.16 ± 37; 35	93.26 ± 64; 75	62 ± 42; 57.5

* Significant statistical differences (Kruskall-Wallis test; $p < 0.001$). The scores of the questionnaire are given: mean ± standard deviation; median; BDI: Depression Inventory Beck; HARS: Hamilton Anxiety Rating Scale; DES: Dissociative Experiences Scale; DES-DP: subscale of the DES; CDS-VE: Spanish version of the Cambridge DP Scale.

above all schizophrenics, found it difficult to answer the negatively expressed items (4, 5, 7, 9, 18, 20, 25, 28). However, the translation committee decided not to change them.

Out of the 130 patients evaluated, 77 (59.2 %) had the schizophrenia diagnosis, 35 depression and 18 anxiety disorder according to the DSM-IV-TR criteria. Mean age of the sample was 35 ± 10 years, 50.8 % being women. 54.6 % (71 patients) came from the hospitalization unit. Table 2 summarizes the main sociodemographic data and the scores obtained by diagnostic group in the different questionnaires. Score distribution of the CDS-VE did not reach normal distribution (Kolmogorov-Smirnov, Z = 1.783; p = 0.003). A total of 38 patients (29.2 %) had DP experiences, twenty nine (78.4 %) of whom had derealization experiences. Sixteen of these had depressive disorder criteria, 14 schizophrenia and 8 anxiety disorder. None of the cases had criteria C or D to be diagnosed of DP disorder according to the DSM-IV-TR.

The values corresponding to internal consistency of the CDS-VE subscales obtained in each sample can be observed in table 3. In general, Cronbach's alpha was greater than 0.9 while the split half reliability of the items was greater than 0.8. Correlations between intensity items and global score ranged from 0.27 to 0.74. Test-retest reliability was obtained by weighted kappa, reaching a value of 0.391 ($p > 0.05$) for a 71 or greater cut-off.

Table 4 shows the Spearman correlation coefficients between CDS-VE and the different questionnaires used in the

Table 3 Values of internal consistency in each diagnostic group

	Total sample	Schizophrenics	Depressives	Anxiety
Cronbach's α				
Intensity	0.945	0.918	0.952	0.923
Frequency	0.937	0.898	0.947	0.939
Duration	0.943	0.914	0.949	0.901
Split Half R				
Intensity	0.894/0.899	0.823/.868	0.916/0.908	0.825/0.873
Frequency	0.883/0.885	0.787/0.856	0.907/0.892	0.891/0.878
Duration	0.888/0.897	0.826/0.864	0.910/0.907	0.775/0.862

Table 4 Spearman correlation coefficients between CDS-VE and remaining questionnaires (n = 130)

Other scales	CDS-VE
BDI	0.683**
HARS	0.496**
DES	0.706**
Amensia-DES factor	0.582**
DP/DR-DES factor	0.650**
Imaginative-DES factor	0.574**
Taxon-DES factor	0.697**
PANSS-P	0.308*
PANSS-N	0.264*
PANSS-PG	0.344*

* Significant statistical differences: $p < 0.05$. ** Significant statistical differences: $p < 0.001$. The values on the PANSS scale correspond to the schizophrenic group. BDI: Beck Depression Inventory; HARS: Hamilton Anxiety Rating Scale; DES: Dissociative Experiences Scale; PANSS: Positive and Negative Syndromes Scale; PANSS-P: PANSS Positive subscale; PANSS-N: PANSS Negative subscale; PANSS-PG: General Psychopathology subscale; CDS-VE: Spanish version of the Cambridge DP Scale.

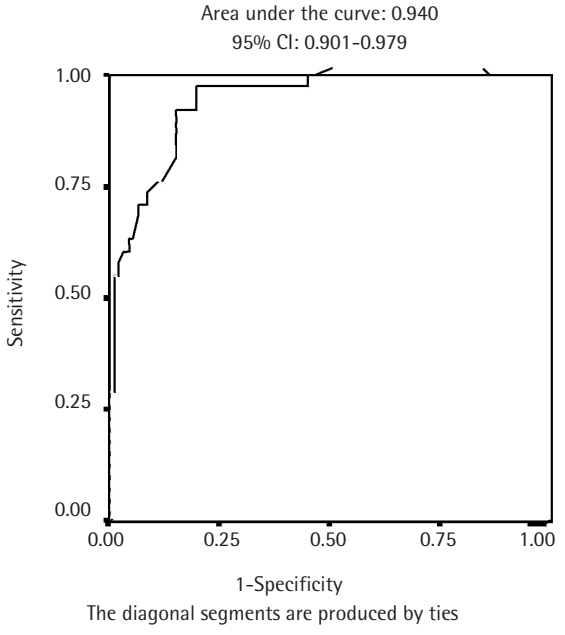

Figure 1 *Area under the ROC curve.*

study. Convergent validity reached a 0.65 ($p < 0.001$) coefficient when comparing the CDS-VE with the DP/DR factor of the DES. Divergent validity was obtained when correlating the CDS-VE score with that obtained on the PANSS positive scale in schizophrenic subjects. In this case, the coefficient was 0.308 ($p < 0.05$).

Figure 1 shows the ROC curse of the CDS-VE, that obtained an area under the curve of 0.94 (CI: 0.901-0.979; $p < 0.001$). The best sensitivity/specificity ratio was obtained for a cut-off of 71 (S = 0.763; SP = 0.891). The percentage of poorly classified patients was 14.61 %. In the schizophrenic patient group, the area under the curve obtained was 0.991 (CI: 0.976-1.006; $p < 0.001$). In the case of depressive patients, the area obtained was 0.911 (CI: 0.82-1.002; $p < 0.001$). On the other hand, the anxiety disorder group had an area under the ROC curve of 0.694 (CI: 0.444–0.944; $p > 0.05$).

Table 5 reflects the sensitivity, specificity, positive and negative likelihood ratio data for different cut-offs and diagnostic groups. The best cut-off was 58.5 in the schizophrenic patient group. However, the analysis provided a higher cut-off (86) in the depressive group. It was not possible to obtain an optimum cut-off in anxiety disorder patients.

DISCUSSION

DP is considered to be one of the most frequent psychiatric symptoms[36-38]. However, it has been studied less than other syndromes, perhaps due to the difficulty entailed in describing these experiences and to the non-existence of an appropriate evaluation instrument. The authors who in-

Table 5 Validity parameters according to cut-off based on diagnostic group

	Sensitivity	Specificity	PLR	NLR
General sample				
65	81.6 %	84.8 %	5.37	0.217
69	76.3 %	88 %	6.36	0.269
71	76.3 %	89.1 %	7	0.266
73	73.7 %	91.3 %	8.47	0.288
74.5	71.1 %	91.3 %	8.17	0.316
Schizophrenics				
52	100 %	92.1 %	12.66	–
55	100 %	95.2 %	20.83	–
58.5	92.9 %	95.2 %	19.35	0.07
64.5	85.7 %	95.2 %	17.85	0.15
70	85.7 %	96.8 %	36.78	0.15
Depressives				
76	81.3 %	78.9 %	1.03	0.23
81	75 %	84.2 %	4.75	0.3
86	75 %	89.5 %	7.14	0.28
93	68.8 %	89.5 %	6.55	0.35
104.5	68.8 %	94.7 %	12.98	0.33

PLR: positive likelihood ratio; NLR: negative likelihood ratio.

itially studied it had already mentioned the obstacles in the description of the phenomenon due to the modifications in subjective aspects of the self that are only accessible by introspection. Furthermore, there is also no agreed on definition of DP that is accepted by everyone. The character of strangeness of the experiences and syndromic structure of the phenomenon have hindered the definition of this concept[9].

In addition, as has already been mentioned, the instruments developed for its study lack sufficient psychometric properties and have been influenced by theoretical models and the objectives for which they were created. However, the Cambridge Depersonalisation Scale originated from the review of existing descriptive psychopathology on this phenomenon. It is an instrument that is useful in the diagnosis of DP experiences and its phenocopies[22]. At present, it is being used in the neurobiological investigation of DP.

In regards to the adaptation, the questionnaire content had no significant changes and it was only necessary to change the writing of item 20. However, it should be kept in mind that some patients had problems to understand the negatively written items. It was not possible to change their form since they correspond to negative components of the syndrome that have been widely mentioned in the literature[3]. On the other hand, the self-administered character of the questionnaire was well-accepted by the study population. When the level of studies necessary to understand the items of the Dissociative Experiences Scale (DES) was evaluated, 43 % of the items required an upper level of studies[39]. Icaran et al.[23] also indicated the difficulties that the patients had to interpret the DES items, which sometimes resulted in a clinical interview due to the extension of the explanations needed. These difficulties were expressed in their extension and in the interpretation of the response form. We have observed that the shortness in the formulation of the CDS-VE items and the response system have not generated these difficulties. Furthermore, although those patients with a very low cultural levels were discarded, the sample was made up of 48.5 % of subjects with primary studies, which did not prevent the study performance.

The CDS-VE has been characterized by having high homogeneity[40], in agreement with the values found by Sierra and Berrios[22], and those obtained in the validation of the German version of the scale[41]. These scores are comparable with those reached in studies done with the DES[42] and other questionnaires. However, the DP Severity Scale[14] only had a moderate internal consistency.

On the contrary, the Spanish version of the CDS obtained a fair test-retest reliability (0.21-0.40)[43]. This contrasts with the German version that showed a higher value[41]. This result may be due to differences in the composition of the samples. On the other hand, when the weighted kappa was obtained in each diagnostic group, the patients with anxiety disorder had a kappa of –0.167 ($p > 0.05$). Another possible explanation would be the difficulty found when describing these experiences[44]. Thus, the first interview would act as therapeutic (decreasing the phenomenon intensity) or as a facilitator of the expression of the different components, thus increasing the score on the scale[45,46]. Therefore, this divergence is due to differences in the sample composition and nature and stability of these experiences.

On the other hand, as was to be expected, the CDS-VE showed high correlations with the DP/DR of the DES. However, there were difficulties in the divergent validity. In fact, we only found low correlations with the PANSS subscales in the schizophrenic group. Similar results were already obtained in the original study[22]: in the patients with DP disorder, only positive and high correlations with the DP/DR factor of the DES appeared, and not with the other scales. However, in those with DP experiences as secondary symptom, there were significant correlations with the DES, its subscales and the depression scale used. These data were also obtained with other questionnaires[13,15]. The relationship between DP and depression, anxiety or dissociation have been widely mentioned in the literature[47-49]. This would indicate that the intensity of the DP experiences depends on other symptoms when these appear in the context of other mental disorders. Future investigations must determine what this relationship consists in.

Obtaining a low area under the ROC curve of 0.94 represents the good general capacity that the scale has to differentiate subjects with DP from those who do not have these experiences[50]. The cut-off having the best sensitivity/specificity ratio was 71. This result practically coincides with that obtained in the original version (cut-off: 70). However, subjects with DP disorders were included in this. This leads us to think that the intensity and frequency of both the primary and secondary experiences could be the same. In any event, the characteristics of both samples cannot be compared and subsequent studies on this matter are necessary. Furthermore, it must be remembered that both this and other questionnaires should not ever be considered diagnostic tests but rather rapid screening methods and, in any event, as an aid to classify patients susceptible of being evaluated with more reliable criteria[51]. In fact, one of the objectives of the questionnaire in question was that of the descriptive analysis of these experiences.

Finally, the relationship between DP and anxiety has been a debatable aspect. In 1959, Roth coined the term of «phobic-anxiety depersonalisation syndrome» to describe this relationship[52]. Other authors[53,54] have defined a subgroup of anxiety disorders characterized by DP experiences. In addition, Trueman[48] found that patients with DP have higher anxiety levels than normal subjects. It seems that the anxiety level together with precipitating factors may favor the appearance of the experiences in question. Another aspect to consider is the distinction between the DP experiences during an anxiety episode versus those experiences of chronic DP that appear in the anxiety disorders. In fact, a

questionnaire aimed at specifically studying this aspect has recently appeared[15]. Thus, the relationship between anxiety and DP is still unknown.

CONCLUSIONS AND LIMITATIONS

The Spanish version of the CDS has psychometric properties comparable to those of the original version. The cut-off obtained with the greatest sensitivity/specificity ratio was 71. Therefore, it may be used as an evaluating instrument in the Spanish psychiatric population. Having the CDS will make it possible to advance in the field of psychopathological and neurobiology investigation of the DP phenomenon.

The limitations of the present study mainly come from the sample composition. It must be remembered that an attempt was not made to conduct a representative sampling of the population. In addition, the way it was obtained may suggest a screening bias, although given the study characteristics (validation of a questionnaire), it does not seem that it has excessively influenced the results. Finally, except for the anxiety disorder group where it was not possible to obtain conclusions, these results may be applied to the psychiatric population.

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