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Research report

Cross validation with the mood disorder questionnaire (MDQ) of an instrument for the detection of hypomania in Spanish: The 32 item hypomania symptom check list (HCL-32)

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Abstract

Background: The detection and diagnosis of present or past hypomanic episodes is of key importance for the differential diagnosis between depressive disorders and type II bipolar disorder. However, there are few instruments available to satisfactorily screen for the latter condition. The Hypomania Symptom Checklist-32 (HCL-32) is a self-applied questionnaire with 32 hypomania items and 8 severity and functional impact items which is being developed in several European countries for this purpose. Our aim was to develop and validate the psychometric properties of the HCL-32 scale in Spain in patients with bipolar disorder and to compare its properties with other instruments available for the detection of bipolar II disorder.

Methods: Patients were selected from 15 psychiatric outpatient departments, diagnosed with type I or type II bipolar disorder (BDI and BDII) and unipolar major depression (MD) according to DSM-IV-TR criteria. A control group of healthy subjects (HS) was likewise assessed. The patient selection criteria included a well-established diagnosis and a stable disorder and pharmacological treatment. The HCL-32 was administered to 237 subjects distributed among the above groups, on two occasions four weeks apart. We analysed the internal consistency, test–retest reliability and discriminative capacity of the HCL-32.

Results: The internal consistency of the Spanish version of the HCL-32, evaluated by Cronbach's alpha, was 0.94. Mean of affirmative questions by group were 21.2 (SD 5.8) for BDI, 19.3 (SD 6.2) for BDII, 8.6 (SD 6.6) for MD and 6.6 (SD 6.1) for HS, with statistically significant differences between them (Kruskal–Wallis test, $p<0.001$). Concurrent validity using the diagnosis variable was 0.72. Test–retest reliability was 0.90. We analysed the best cut-off point by means of a ROC curve analysis; for 14 affirmative responses, a sensitivity of 0.85 95%CI (0.78, 0.91) and specificity of 0.79, 95%CI (0.72, 0.87) were obtained. The

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positive and negative probability ratios were 4.1 and 5.3 (1/0.19 respectively). HCL-32 shows a dual factor structure of items, one as an energy-activity factor and another one as a factor involving items related to disinhibition and problems with self-control and attention.
Limitations: The sample size of bipolar patients (particularly type BDII) should be increased in further studies.
Conclusions: The Spanish version of the HCL-32 has good psychometric properties and sufficient sensitivity and specificity, detecting 8 out of every 10 patients with BD. The HCL-32 is a useful screening tool of patients with bipolar disorder in clinical settings. In its present form it adequately discriminates between bipolar and unipolar or healthy subjects, but not between BD I and BII.

Keywords: Questionnaire; Bipolar disorder; Detection; Hypomania; Validation

1. Introduction

Different epidemiological studies indicate a prevalence of bipolar II disorder of around 5% of the population (Berk et al., 2005). However, a systematic check on the existence of a history of hypomania or hypomanic features (symptoms or conduct) yields greater prevalence rates for this disorder (Benazzi and Akiskal, 2003; Hadjipavlou et al., 2004). The correct identification of a prior episode of hypomania is required to correctly diagnose bipolar II disorder. The clinical guidelines published by the American Psychiatric Association indicate that bipolar II disorder is often misdiagnosed initially as major depressive disorder, leading patients to receive incorrect treatment (American Psychiatric Association, 2002). Studies indicate that an accurate diagnosis of bipolar disorders usually takes from 8 to 10 years (Ghaemi et al., 1999). As BDII patients tend to see a psychiatrist when they are depressed (Hantouche et al., 1998; Hirschfeld et al., 2003), an instrument that would be able to detect prior hypomania would be extremely useful, because hypomanic symptoms may be masked by depressive symptoms.

The results obtained from recent studies indicate that the diagnostic criteria of the American Psychiatric Association (American Psychiatric Associacion, 1994) for BDII are highly specific but not very sensitive. A self-applied instrument for the detection of hypomanic episodes would be of great clinical use, reducing the time required to reach a correct diagnosis and eligible for use in epidemiological studies (Benazzi and Akiskal, 2003; Angst et al., 2005). The Hypomania Checklist-32 (HCL-32) is a self-applied questionnaire being internationally developed. It aims at identifying hypomanic symptoms in patients with major depressive disorder, helping to establish a diagnosis of BDII in usual clinical practice (Hantouche et al., 2003; Akiskal et al., 2003; Angst et al., 2005; Carta et al., 2006).

The purpose of this study was to develop a Spanish version of the HCL-32 and describe its psychometric characteristics for the detection of patients with bipolar disorder in clinical practice, and to set a cut-off point. The Spanish adaptation of the HCL-32 was performed in this study together with the validation of the Spanish version of the Mood Disorders Questionnaire (MDQ) (Sánchez-Moreno et al., 2005), which is a brief instrument, especially designed for the detection of bipolar disorder. The original English version has been validated in psychiatric and general population. The MDQ has shown adequate sensitivity and specificity for psychiatric clinical practice, correctly identifying 7 out of every 10 patients with bipolar disorder, and ruling out 9 out of every 10 subjects without bipolar disorder (Hirschfeld et al., 2000). A further objective of the present study was to compare the sensitivity and specificity of both questionnaires.

2. Method

The study was conducted in outpatient clinics of the Psychiatry Departments of 15 centres in different regions in Spain. Participation in the study was proposed to a consecutive sample of adult patients attending the clinics for follow-up relating to their clinical condition. The study was approved by the Hospital Clinic de Barcelona Ethics Committee and subsequently submitted to the research ethics committees of the other centres involved for their agreement to participate. Written informed consent of all the subjects was obtained before their inclusion in the study.

2.1. Subjects

Patients diagnosed with bipolar I disorder (BDI), bipolar II (BDII) and unipolar major depression (MD), according to DSM-IV-TR criteria as assessed by clinical interview, were selected. In each centre, upon completion of patient recruitment, healthy subjects for the control group (HS) were selected. Selection criteria included a well-established diagnosis, disorder stability within the last 6 months, and pharmacological treatment stability in the two months prior to the study. Stability

was assessed by using the Young Mania Rating Scale (YMRS ≤ 6) (Colom et al., 2002), the 17-item Hamilton Depression Rating Scale (HDRS-17 ≤ 8) (Hirschfeld et al., 2003; Bobes et al., 2003) and the Modified Clinical Global Impressions Scale for Bipolar Disorder (CGI-BP-M, a normal to moderate severity on the general subscale) (Vieta et al., 2002).The sample size was established so that the number of patients was approximately twice the number of items in the HCL-32 (Casas Anguita et al., 2001).

2.2. Measures

The HCL-32 is a self-applied questionnaire developed in different countries and languages (German, English, Swedish, Italian and Spanish) comprising a list of possible hypomanic symptoms that the patient has to assess as Yes or No. The HCL-32 also has 8 other sections evaluating the severity and impact of the symptoms on different aspects of patient's life. The total HCL-32 score is obtained by adding up the affirmative responses to the 32 symptoms of hypomania. The linguistic adaptation of the Spanish version was performed by means of translation/back translation of the English version (Bullinger et al., 1998; Beaton et al., 2000). The items without a perfect literal equivalence with the original were analysed by the team of investigators and translators until they agreed upon a suitable expression. Finally, the comprehension of each item was assessed in a pilot sample composed of 52 healthy controls and 10 bipolar patients.

2.3. Procedure

After informing the patient/healthy subject and obtaining consent, the psychiatrist obtained sociodemographic and clinical variables, and administered the YMRS, HDRS-17, and CGI-BP-M to confirm clinical stability. The medication prescribed to the patient in the 6 months prior to inclusion in the study was also recorded. The patient then completed the HCL-32 and MDQ questionnaires. All the assessments were performed on two occasions, four weeks apart. To detect significant life events at the retest visit, a simple question was included to record any important events that could have affected the patients since the last visit.

2.4. Statistical analysis

For the HCL-32, feasibility, internal consistency, concurrent validity using DSM-IV-TR, sensitivity and specificity, predictive validity and test–retest reliability were analysed. The discriminative capacity of MDQ and HCL-32 for bipolar disorder was then compared, as well as the equivalence between the sensitivity and specificity indices of both, by comparison of proportions. Except for test–retest reliability, the psychometric characteristics of the HCL-32 were derived from the first administration of the questionnaire, including all the patients who completed the survey. Feasibility was described by the percentage of patients who did not complete the questionnaire in its entirety (in relation to the 32 symptoms of hypomania). Internal consistency was evaluated by Cronbach's alpha for the total scale and each individual item. Concurrent validity was analyzed comparing DSM-IV-TR diagnostic criteria and the score obtained on the HCL-32, by means of the point biserial correlation coefficient. A one-factor analysis of variance to study the existence of statistically significant differences in the scores obtained on the HCL-32 between DSM-IV-TR diagnostic groups was performed as well. The cut-off point in the Spanish version of the HCL-32 was evaluated by ROC curves.

To study the sensitivity, specificity and efficacy of the HCL-32, the proportion of subjects correctly diagnosed with BDI and BDII, and the proportion of subjects without the disorder identified as such, was calculated. A discriminant analysis was then used to describe the percentage of subjects correctly classified based on the result obtained on the HCL-32. Test–retest stability was evaluated by analysing all re-assessed patients. An additional analysis was performed within the group of patients who remained stable between the two administrations of the questionnaire and who had referred serious life events between visits. The interclass correlation coefficient was calculated for these two populations. To study whether the most recent type of episode suffered by the patient has predictive value in relation to the result obtained in the HCL-32, a regression model in which the factor was the type of the most recent episode was used. The relation between the HCL-32 and other instruments available for the assessment of patients with bipolar disorder, the clinician-administered YMRS and the self-applied MDQ, in both cases was analysed by means of the Spearman rank correlation coefficient. The results of the HCL-32 and the MDQ were compared by studying the internal consistency of the two questionnaires based on the *t*-test (Feldt, 1980). The equivalence of the sensitivity and specificity indices of the scores obtained on the HCL-32 and MDQ was assessed, verifying whether

the confidence intervals for these indices in the Spanish version of the MDQ contain the value of the indices of the Spanish adaptation of the HCL-32. A principal component analysis to describe the internal structure of the HCL-32 was performed.

A logistic regression models was built to assess the contribution to clinical diagnosis of the complementary questions included into the questionnaire. The Bonferroni correction was applied to all multiple comparison statistical tests. The SAS statistical package, release 8.2 was used for all the statistical analyses.

3. Results

3.1. Sample description

The patients and the healthy subjects were included consecutively at the respective centres, from December 2004 to May 2005. Two hundred and thirty-six participants provided written consent to participate. There were 118 bipolar patients (62 BDI and 56 BDII) 58 with unipolar depressive disorder and 60 controls. Nearly all the participants who completed the first visit attended the second retest visit (226 participants, 95.8%). Table 1 shows the demographic and clinical characteristics of the samples. The most prescribed pharmacological treatments were antipsychotic drugs (27% of the prescriptions, mostly corresponding to bipolar patients), antidepressants (25%, approximately 60% corresponding to the unipolar group and 40% to bipolar patients), anticonvulsant drugs or mood stabilisers (20%, 90% of which corresponded to bipolar patients) and hypnotic-sedatives-tranquillisers (19%, approximately 60% of which corresponded to bipolar patients). A small number of patients had changes in their treatment before or during the study: 6 patients (2.5%) in the 2 months prior to the study and 11 patients (4.6%) between the test and retest visits

Table 1
Sociodemographic and clinical characteristics, by group

Variable	Total (N=236)		Type I bipolar disorder (n=62)		Type II bipolar disorder (n=56)		Major depression (n=58)		Control group (n=60)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age (years)	43.5	11.9	40.0	12.1	44.1	11.4	50.9	10.4	39.4	10.1
Age of onset (years)*	31.2	12.4	25.0	8.7	28.4	8.9	40.4	13.3	–	–
Time of evolution of the disorder (in years)	13.8	10.9	15.4	11.8	15.6	9.9	10.4	10.4	–	–
Young mania scale	1.0	1.6	1.1	1.6	1.1	1.7	0.7	1.4	0.9	1.6
Hamilton depression scale	2.2	2.2	2.2	2.2	2.3	2.4	3.4	2.3	1.2	1.4
	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Gender										
Man	80	33.9	28	45.2	17	30.4	14	24.1	21	35
Woman	156	66.1	34	54.8	39	69.6	44	75.9	39	65
Educational level										
No education completed	7	2.9	3	4.8	1	1.8	2	3.5	1	1.7
Primary	65	27.8	18	29	14	25.5	25	43.9	8	13.3
Secondary	87	37.2	24	38.7	23	41.8	19	33.3	21	35
University	75	32.1	17	27.4	17	30.9	11	19.3	30	50
*Most recent episode**										
Single manic episode (296.0×)	12	6.8	12	19.4	–	–	–	–	–	–
Hypomanic episode (296.40)	9	5.1	9	14.5	–	–	–	–	–	–
Manic episode (296.4×)	24	13.6	24	38.7	–	–	–	–	–	–
Mixed episode (296.6×)	3	1.7	3	4.8	–	–	–	–	–	–
Depressive episode (296.5×)	14	7.9	14	22.6	–	–	–	–	–	–
Unspecified episode (296.7)	0	0	0	0	–	–	–	–	–	–
Hypomanic episode	25	14.1	–	–	24	42.9	–	–	–	–
Depressive episode	32	18.1	–	–	32	57.1	–	–	–	–
Depressive disorder-single episode (296.2×)	19	10.7	–	–	–	–	19	32.8	–	–
Depressive disorder-recurring (296.3×)	39	22	–	–	–	–	39	67.2	–	–

*For this variable, the statistics for the total are calculated in relation to the groups of patients not for control group.

had treatment changes. These changes were considered relevant at baseline in 2 (starting on risperidone and lithium) and after study start in 6 (starting on risperidone, venlafaxine, reboxetine, lamotrigine or lithium). Nevertheless, all the patients were included in the data analysis. The study of the stability of the patients upon inclusion resulted in scores on the YMRS and HDRS indicating clinical stability (see Table 1). The patients in the MD group, within clinical stability, obtained higher scores on the HDRS (Kruskal–Wallis test, df=3, $p<0.0001$). The condition of the participants in the 6 months prior to the study evaluated by the CGI-BP-M scale indicates that the clinical condition of most of the subjects was assessed as between normal and mild for each of the subscales.

3.2. Psychometric results

A small number of participants (21, 15.4% of the sample) left one question on the HCL-32 list of symptoms unanswered. A similar percentage of patients left one question unanswered in the other 8 sections (19, 13.9% of the sample). The coefficient of internal consistency obtained was high, with a Cronbach's alpha of 0.94, for the entire HCL-32, indicating that the questionnaire's items are sufficiently homogeneous. The correlation values for each item with the total result of the scale range from 0.33 to 0.73. The elimination of some of the items did not lead to a substantial increase in the questionnaire's internal consistency.

Concurrent validity based on DSM-IV-TR was 0.72. The patients in the bipolar groups obtained the highest HCL-32 scores. The mean number of affirmative responses to the HCL-32 list of symptoms was significantly different according to diagnosis (Kruskal–Wallis test, df=3, $p<0.0001$) (see item 3 on Table 2). The patients diagnosed with bipolar disorder admitted more hypomanic symptoms (ranging from 0 to 31) than the patients diagnosed with depression and the healthy subjects (ranging from 0 to 22), according to the score obtained. The number of recognised symptoms did not differ significantly between BDI and BDII. We analysed the scale's discriminative capacity for bipolar disorder by means of the diagnostic performance or ROC curve. The area under the curve is 0.92, indicating that the instrument's capacity is good and near to 1. With regards to sensitivity and specificity, the cut-off point with the best results is after 14 affirmative responses to the list of symptoms. A score of 14 provides the best balance between sensitivity and specificity. For this cut-off point, there is an adequate sensitivity value of 0.85 95%CI (0.78, 0.91) and a good specificity value of 0.79, 95%CI (0.72, 0.87), and the positive and negative probability ratios are 4.1 and 5.3 (1/0,19). A score of 14 on the HCL-32 discriminates between BDII and the other groups (unipolar depression and healthy subjects) with a sensitivity of 0.78 95%CI (0.65, 0.88) and a specificity of 0.79 95%CI (0.72, 0.87). For this cut-off point, the positive and negative probability ratios are 3.81 and 3.7 (1/0.27) respectively. The discriminant analysis showed that, based on the HCL-32 score, 46% of the participants were correctly classified in their diagnostic group (Wilks' Lambda=0.466, $F=87.844$, df1=3, df2=230, $p<0.000$). Specifically, the results obtained with the HCL-32 correctly classified 84.5% of the patients with bipolar disorder. By group, it correctly classified 64.5% of the patients with BDI and 34.6% of the patients with BDII. However, 15 unipolar patients (26.3%) and 9 healthy subjects (15%) had scores of 14 or above.

The mean time between the test and retest visits was 30.4 days (SD: 4.8, range 15–49). The questionnaire's reproducibility is 0.90 ($p<0.000$), indicating high test–retest reliability. By excluding 48 participants from the analysis (20.3% of the sample, 32 cases due to instability of over 1 point on one of the CGI-BP-M subscales, 10 cases presenting significant life events and 6 cases not considered to be clinically stable), a test–retest reliability of 0.92 ($p<0.000$) was found. This indicates that the short-term stability of the HCL-32 would not be altered by natural changes in patient's conditions. MDQ's test–retest reliability was 0.93 ($p<0.000$).

No relationship was observed between baseline YMRS score and HCL-32 score ($r=0.1$, $p<0.12$). However, there was a high correlation between the MDQ and the HCL-32 ($r=0.84$, $p<0.01$). There was no relationship between the polarity of the most recent episode (classified as manic, hypomanic, mixed or depressive) and the HCL-32 score.

The study comparing the internal consistency of the MDQ and HCL-32 questionnaires indicates that there are statistically significant differences between consistency indices. The HCL-32 scale presents greater internal consistency than the MDQ (0.94 versus 0.90), ($t=7.26>2.26=t(234)$). As for the discriminative capacity of the two instruments, we compared the HCL-32 sensitivity and specificity indices, verifying that the confidence intervals of the Spanish version of the MDQ contained the value of the HCL-32 indices. The sensitivity of the HCL-32 was 0.85 and the specificity 0.79. The confidence intervals for the

Table 2
Results obtained following administration of Hypomania Checklist-32 by groups

HCL-32	Total (N=234)		Type I bipolar disorder (n=62)		Type II bipolar disorder (n=55)		Major depression (n=57)		Control group (n=60)	
	N	%	*n*	%	*n*	%	*n*	%	*n*	%
Item 1										
Feeling at the administration session										
Much worse than usual	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Worse than usual	9	3.8	0	0.0	5	9.1	4	7.0	0	0.0
A little worse than usual	18	7.7	5	8.1	6	10.9	5	8.8	2	3.3
Neither better nor worse than usual	138	59.0	28	45.2	25	45.5	34	59.6	51	85.0
A little better than usual	35	15.0	12	19.4	9	16.4	9	15.8	5	8.3
Better than usual	18	7.7	9	14.5	6	10.9	2	3.5	1	1.7
Much better than usual	16	6.8	8	12.9	4	7.3	3	5.3	1	1.7
No answer	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Item 2										
Level of activity compared to others										
Rather stable	138	59.0	35	56.5	21	38.2	26	45.6	56	93.3
Generally higher	18	7.7	4	6.5	10	18.2	3	5.3	1	1.7
Generally lower	36	15.4	9	14.5	9	16.4	18	31.6	0	0.0
Ups and downs	42	17.9	14	22.6	15	27.3	10	17.5	3	5.0
No answer	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Item 3										
(32 hypomaniac symptoms)	13.9	8.9	21.2	5.6	19.3	6.2	8.6	6.6	6.6	6.1
	N	%	*n*	%	*n*	%	*n*	%	*n*	%
Item 4										
Those symptoms describe how you are										
Sometimes	142	60.7	47	75.8	44	80.0	26	45.6	25	41.0
Most of the time	36	15.4	13	21.0	10	18.2	6	10.5	7	11.5
I never experienced such	52	22.2	2	3.2	1	1.8	23	40.4	27	44.3
No answer	4	1.7	0	0.0	0	0.0	2	3.5	2	3.3
Item 5										
Impact of your highs on										
Family life										
Positive and negative	46	19.7	15	24.2	20	36.4	7	12.3	0	0.0
Positive	35	15.0	5	8.1	5	9.1	11	19.3	14	25.0
Negative	66	28.2	37	59.7	24	43.6	5	8.8	0	0.0
No impact	42	17.9	3	4.8	5	9.1	14	24.6	20	35.7
No answer	1	0.4	0	0.0	0	0.0	1	1.8	0	0.0
Not applicable*	44	18.8	2	3.2	1	1.8	19	33.3	22	39.3
Social life										
Positive and negative	33	14.1	13	21.0	13	23.6	5	8.8	2	3.3
Positive	53	22.6	12	19. 4	18	32.7	8	14.0	15	25.0
Negative	42	17.9	27	43.5	13	23.6	2	3.5	0	0.0
No impact	57	24.4	8	12.9	10	18.2	19	33.3	20	33.3
No answer	5	2.1	0	0.0	0	0.0	4	7.0	1	1.7
Not applicable*	44	18.8	2	3.2	1	1.8	19	33.3	22	36.7
Work										
Positive and negative	25	10.7	5	8.1	10	18.2	5	8.8	5	8.3
Positive	41	17.5	9	14.5	13	23.6	7	12.3	12	20.0
Negative	51	21.8	30	48.4	19	34.5	2	3.5	0	0.0
No impact	64	27.4	14	22.6	10	18.2	20	35.1	20	33.3
No answer	8	3.4	1	1.6	2	3.6	4	7.0	1	1.7
Not applicable*	45	19.2	3	4.8	1	1.8	19	33.3	22	36.7

Table 2 (*continued*)

HCL-32	Total (N=234)		Type I bipolar disorder (n=62)		Type II bipolar disorder (n=55)		Major depression (n=57)		Control group (n=60)	
	N	%	*n*	%	*n*	%	*n*	%	*n*	%
Leisure										
Positive and negative	30	12.8	15	23.8	12	21.8	3	5.3	0	0.0
Positive	58	24.8	16	25.4	18	32.7	8	14.0	16	26.7
Negative	30	12.8	19	30.2	9	16.4	2	3.5	0	0.0
No impact	66	28.2	10	15.9	14	25.5	21	36.8	21	35.0
No answer	6	2.6	0	0.0	1	1.8	4	7.0	1	1.7
Not applicable*	44	18.8	3	4.8	1	1.8	19	33.3	22	36.7
Item 6										
People's reactions and comments										
Positively	40	17.1	12	19.4	9	16.4	9	15.8	10	16.7
Neutral	20	8.5	0	0.0	4	7.3	8	14.0	8	13.3
Negatively	56	23.9	30	48.4	21	38.2	5	8.8	0	0.0
Positively and negatively	40	17.1	16	25.8	18	32.7	4	7.0	2	3.3
No reactions	32	13.7	2	3.2	2	3.6	10	17.5	18	30.0
No ansewer	2	0.9	0	0.0	0	0.0	2	3.5	0	0.0
Not applicable*	44	18.8	2	3.2	1	1.8	19	33.3	22	36.7
Item 7										
Length of your "highs"										
1 Day	15	6.4	1	1.6	3	5.5	4	7.0	7	11.7
2–3 Days	22	9.4	6	9.7	3	5.5	6	10.5	7	11.7
4–7 Days	19	8.1	6	9.7	9	16.4	2	3.5	2	3.3
Longer than one week	41	17.5	23	37.1	16	29.1	2	3.5	0	0.0
More than one week	30	12.8	13	21.0	7	12.7	9	15.8	1	1.7
I can't judge/don't know	39	16.7	4	6.5	10	18.2	11	19.3	14	23.3
No answer	4	1.7	0	0.0	0	0.0	3	5.3	1	1.7
Not applicable*	64	27.4	9	14.5	7	12.7	20	35.1	28	46.7
Item 8										
Experienced a "high" in past twelve months										
Yes	53	22.6	16	25.8	14	25.5	8	14.0	15	25.0
No	116	49.6	37	59.7	33	60.0	28	49.1	18	30.0
No answer	2	0.9	0	0.0	1	1.8	1	1.8	0	0.0
Not applicable*	63	26.9	9	14.5	7	12.7	20	35.1	27	45.0
*Item 9**										
Days spent in "highs" past twelve months										
Number of answers**	48		16		12		6		14	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
About (days)**	55.5	87.7	57.0	97.4	30.5	24.0	88.3	63.8	61.1	117.0

HCL-32. Hypomania Checklist-32 *The answer to the item only applies when subject's specific answer are provided in previous questions.**The answer to item 9 only applies when Item 8 has a positive answer.

sensitivity and specificity of the Spanish version of the MDQ were 95%CI (0.51, 0.69) and 95%CI: (0.94, 0.99) respectively. The sensitivity and specificity values of the Spanish version of the HCL-32 fell outside the confidence intervals described for the Spanish version of the MDQ. Hence, the HCL-32 showed higher sensitivity but less specificity than the MDQ.

3.3. Internal structure

After matrix rotation (using Kaiser's Varimax method), the HCL-32 proved to have a two-factor structure (Table 3). The components of each factor, including the items with components greater than 0.50, indicate that factor 1 would comprise 14 items (items 2, 3, 4, 5, 10, 11, 12, 13, 15, 18, 19, 20, 24 and

Table 3
Principal component analysis (varimax rotation) of Hypomania Checklist-32

Items		Factor 1	Factor 2
	Eigenvalue	8.1	6.1
1	I need less sleep	0.369	0.611
2	I feel more energetic and more active	0.711	0.217
3	I am more self-confident	0.686	0.083
4	I enjoy my work more	0.667	−0.068
5	I am more sociable (make more phonecalls. go out more)	0.702	0.290
6	I want to travel and/or do travel more	0.383	0.333
7	I Tend to drive faster or take more risks	0.185	0.552
8	I spend more/too much money	0.298	0.656
9	I take more risks in my daily life	0.424	0.566
10	I am physically more active (sport. etc..)	0.733	0.131
11	I plan more activities or projects	0.635	0.264
12	I have more ideas. I am more creative	0.728	0.218
13	I am less shy or inhibited	0.638	0.327
14	I wear more colourful and more extravagant clothes/make up	0.261	0.460
15	I want to meet or actually do met more people	0.545	0.304
16	I am more interest in sex	0.422	0.313
17	I am more flirtatious and/or more sexually active	0.473	0.406
18	I talk more	0.721	0.280
19	I think faster	0.617	0.475
20	I make more jokes	0.626	0.263
21	I am more easily distracted	0.328	0.549
22	I engage in lots of new things	0.450	0.455
23	My thoughts jump from topic to topic	0.436	0.625
24	I do things more quickly and/or more easily	0.676	0.230
25	I am more impatient and/or get irritable	0.232	0.705
26	I can be exhausting or irritating for others	0.287	0.612
27	I get into more quarrels	0.089	0.594
28	My mood is higher, more optimistic	0.738	0.072
29	I drink more coffee	0.041	0.517
30	I smoke more cigarettes	0.116	0.591
31	I drink more alcohol	0.045	0.518
32	I take more drugs (sedatives. anxiolytics. stimulants)	0.024	0.459
	44.5% Explained Variance	25.3%	19.2%

28) and factor 2 would comprise 12 items (items 1, 7, 8, 9, 21, 23, 25, 26, 27, 29, 30 and 31). For both factors, the results obtained by the patients differed according to diagnosis, bipolar patients obtaining higher scores than unipolar and control subjects (Kruskal–Wallis, df=3, $p<0.0001$) (Table 4). Neither factor enables to distinguish subtypes of bipolar disorder.

Multiple logistic regression analysis was used to determine predictive questions among complementary HCL items (Table 2). Higher HCL-32 total score was predictive of BDII diagnosis but not other qualitative data qualified into the logistic regression model. Some of the items that were selected by the regression model were related to the impact of the disease on patient's life and also to the patient's energy state in general compared to others and at the time of HCL-32 completion.

4. Discussion

Hypomania is perhaps the most difficult psychiatric syndrome to rule out retrospectively (Vieta et al., 2005). However, the retrospective detection of hypomania is crucial for a correct diagnosis of bipolar disorder, and particularly for BDII, and for treatment accuracy. Unfortunately, the misdiagnosis of BDII as unipolar depression is still very frequent, and may carry serious consequences (Ghaemi et al., 1999). The availability of a good screening tool for past hypomania episodes would be extremely helpful.

The psychometric study of the development of the HCL-32 scale in Spain exhibits high internal consistency and similar stability over time, in comparison with other instruments such as the MDQ and suggests that this scale may be very useful for

Table 4
Results obtained in the factors of the Hypomania Checklist-32 by group

HCL-32	Total ($N=234$)		Type II bipolar disorder ($n=62$)		Type II bipolar disorder ($n=55$)		Major depression ($n=57$)		Control group ($n=60$)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Factor 1 (14 items; 2, 3, 4, 5, 10, 11, 12, 13, 15, 18, 19, 20, 24 and 28)	8.6	4.8	11.9 [a, b]	2.1	11.5 [a, b]	2.7	5.8	4.4	5.2	4.6
Factor 2 (12 items; 1, 7, 8, 9, 21, 23, 25, 26, 27, 29, 30 and 31)	3.8	3.5	6.7 [a, b]	3.0	5.6 [a, b]	3.0	2.2 [c]	2.2	0.8	1.2

HCL-32, Hypomania Checklist-32.
[a] Statistically significant differences in relation to the control group ($p<0.0001$).
[b] Statistically significant differences in relation to the group with depressive disorder ($p<0.0001$).
[c] Statistically significant differences between the control group and the patients with depressive disorder ($p=0.0022$).

the detection of bipolar disorder and past hypomania. The analysis of discriminant properties shows that a cut-off point of 14 affirmative responses indicates good sensitivity (0.85) and specificity (0.79). Compared with the MDQ, the HCL-32 presents greater sensitivity for the detection of bipolar disorder. Furthermore, a cut-off point of 15 affirmative responses increases the questionnaire's specificity (0.83 versus 0.79), with its sensitivity remaining unaltered (0.85). In psychiatric population, the criterion of either 14 or 15 affirmative responses to hypomanic symptoms in the Spanish version of the HCL-32 is sensitive enough to alert about the presence of possible bipolar disorder requiring a more detailed psychiatric assessment to establish a definite diagnosis.

4.1. Usefulness of the HCL-32 for different bipolar disorder subtypes

Because of the severity of symptoms and clinical progression, BDI is easier to detect than BDII. The identification of past hypomanic episodes is particularly important for psychiatric patients referring depressive symptoms. The HCL-32 was useful to discriminate between BDII and unipolar patients, and also between BDII and controls, and therefore may be used in clinical practice for this purpose. Interestingly enough, though, 26% of unipolar patients had a HCL-32 score of 14 or above, indicating either some false positives or, alternatively, as postulated by Akiskal et al. (2003) that "soft" hypomania may be present even in clinically undisputable "unipolar" patients.

4.2. Internal structure of the HCL-32

The internal structure of the HCL-32 shows better results than those obtained in prior studies conducted in several European countries, in which the factorial solution only explained 26.8% of the variance (Angst et al., 2005). As in precedent studies, one of the two factors would be an indicator of hypomanic symptoms related to energy-activity (increase in activity, energy, social contacts, verbal fluency, communication with others and self-confidence) and the other would be related to disinhibition, self-control and attention capacity (irritability, distractibility, mental control difficulties, risk behaviour, being unpleasant to others and excessive spending). This dual structure of hypomania with "classic" driven euphoria and irritable-risk taking expressions was previously described by using a preliminary version of Hypomania Checklist (Angst's checklist — HCA-) as "dark" and "sunny" expressions of soft bipolarity (Hantouche et al., 2003; Akiskal et al., 2003). We confirm the existence of this two factors, higher scores in these factors would be indicative of suffering a bipolar disorder. The Spanish version of the HCL-32 includes a reference to the calculation for the two factors (Appendix A).

In summary the HCL-32 has been shown to be a useful instrument for the detection of hypomania in patients with affective disorders, thus leading to better detection of bipolarity than with the MDQ, although with the possibility of obtaining more false positives. The Spanish version exhibits good psychometric properties in relation to sensitivity and specificity. Given the difficulties involved in both the retrospective and cross-sectional diagnosis of hypomania, a key aspect of appropriate management of bipolar disorders, this questionnaire represents a potential improvement in clinicians' ability to detect and correctly treat bipolar disorder, and in some aspects such as internal consistency, obtains better results than the MDQ.

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Appendix A

En diferentes momentos de la vida se experimentan cambioso fluctuaciones de energía, actividad yestado de ánimo (altibajos). El objetivo de este cuestionario es evaluar las características de los períodos de estado de ánimo elevado.

1) En primer lugar, indique cómo se encuentra hoy en comparación con su estado habitual:

(Por favor, marque sólo una de las siguientes opciones)

Mucho peor que de costumbre	Peor que de costumbre	Un poco peor que de costumbre	Ni mejor ni peor que de costumbre	Un poco mejor que de costumbre	Mejor que de costumbre	Mucho mejor que de costumbre
☐	☐	☐	☐	☐	☐	☐

2) Comparado con otras personas, ¿cómo se siente usted habitualmente?
Independientemente decómo se encuentra hoy, por favor, indíquenos cómo se siente usted normalmente en comparación con otras personas marcando cuál de las afirmaciones siguientes le describen mejor.

En comparación con otras personas mi nivel de actividad, energía y estado de ánimo...

(Por favor, marque sólo una de las siguientes opciones)

… es siempre bastante estable y equilibrado	... es generalmente superior	.... es generalmente inferior	... repetidamente muestra altibajos
☐	☐	☐	☐

3) Por favor, trate de recordar un período en el que usted estuviera en un estado de ánimo elevado.
¿Cómo se sintió entonces? Por favor, conteste todas estas afirmaciones independientemente de su estado actual.

En ese estado:

	Sí	**No**
1. Necesito dormir menos	☐	☐
2. Me siento con más energía y más activo/a	☐	☐
3. Me siento más seguro/ade mí mismo/a	☐	☐
4. Disfruto más de mi trabajo	☐	☐
5. Soy más sociable (hago más llamadas telefónicas, salgo más)	☐	☐
6. Quiero viajar y viajo más	☐	☐
7. Suelo conducir más rápido o de forma más arriesgada	☐	☐
8. Gasto más/demasiado dinero	☐	☐
9. Me arriesgo más en mi vida diaria (en mi trabajo y/u otras actividades)	☐	☐
10. Físicamente estoy más activo/a (deporte, etc.)	☐	☐
11. Planeo más actividades o proyectos	☐	☐
12. Tengo más ideas, soy más creativo/a	☐	☐

13. Soy menos tímido/a o inhibido/a	☐	☐
14. Llevo ropa / maquillaje más llamativo y extravagante	☐	☐
15. Quiero quedar y, de hecho, quedo con más gente	☐	☐
16. Estoy más interesado/a en el sexo y/o tengo un mayor deseo sexual	☐	☐
17. Flirteo más y/o soy más activo/a sexualmente	☐	☐
18. Hablo más	☐	☐
19. Pienso más deprisa	☐	☐
20. Bromeo más o hago más juegos de palabras cuando hablo	☐	☐
21. Me distraigo más fácilmente	☐	☐
22. Me embarco en muchas cosas nuevas	☐	☐
23. Mis pensamientos saltan de un tema a otro	☐	☐
24. Hago las cosas más rápidamente y/o más fácilmente	☐	☐
25. Estoy más impaciente y/o me irrito más fácilmente	☐	☐
26. Puedo seragotador/a o irritante para los demás	☐	☐
27. Me meto en más broncas	☐	☐
28. Mi estado de ánimo es más elevado, más optimista	☐	☐
29. Tomo más café	☐	☐
30. Fumo más cigarrillos	☐	☐
31. Bebo más alcohol	☐	☐
32. Tomo más fármacos (tranquilizantes, ansiolíticos, estimulantes...)	☐	☐

4) Las preguntas anteriores, que caracterizan un período de estado de ánimo elevado, ¿describen cómo es usted...

(Por favor, marquesólo una de las siguientes opciones)

... algunas veces? ☐ → *Si marca esta casilla, por favor, responda a todas las preguntas de la 5 a la 9.*

...la mayor parte del tiempo? ☐ → *Si marca esta casilla, por favor, responda sólo a las preguntas 5 y 6.*

... nunca he experimentado un estado de ánimo elevado de este tipo. ☐ → *Si marcaesta casilla, por favor, no continue respondiendo al cuestionario.*

5) Consecuencias de sus perÌodos de euforia en varios aspectos de su vida:

	Positivas y negativas	Positivas	Negativas	Sinconsecuencias
Vida familiar:	☐	☐	☐	☐
Vida social:	☐	☐	☐	☐
Trabajo:	☐	☐	☐	☐
Ocio:	☐	☐	☐	☐

6) Reacciones y comentarios de otras personas acerca de sus estados de ánimo elevado.
¿Cómo fueron las reacciones o comentarios de las personas cercanas a usted sobre sus períodos de estado de ánimo elevado?

(Por favor, marque sólo una de las siguientes opciones)

Positivas (animando o apoyando)	Neutras	Negativas (preocupación, molestia, irritación, crÌtica)	Positivas y negativas	Ningunareacción
☐	☐	☐	☐	☐

7) La duración de sus períodos de estado de ánimo elevado por norma general (por término medio) es de...

(Por favor, marque sólo una de las siguientes opciones)

☐ 1 día
☐ 2 – 3 días
☐ 4 –7 días
☐ Más de una semana
☐ Más de un mes
☐ No sabría valorarla / no lo sé

8) ¿En los últimos 12 meses ha experimentado un período de estado de ánimo elevado?

☐ Sí ☐ No

9) En caso afirmativo, por favor, estime cuántos días pasó con el estado de ánimo elevado durante los últimos 12 meses

En conjunto: unos ☐☐☐ días

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