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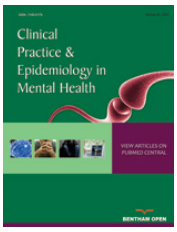

Swedish Version of Mood Spectrum Self-Report Questionnaire: Psychometric Properties of Lifetime and Last-week Version

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Abstract:

Background:

Mood Spectrum Self Report (MOODS-SR) is an instrument that assesses mood spectrum symptomatology including subthreshold manifestations and temperamental features. There are different versions of the MOODS-SR for different time frames of symptom assessment: lifetime (MOODS-LT), last-month and last-week (MOODS-LW) versions.

Objective:

To evaluate the psychometric properties of the MOODS-LT the MOODS-LW.

Methods:

The reliability of the MOODS-LT and MOODS-LW was evaluated in terms of internal consistency and partial correlations among domains and subdomains. The known-group validity was tested by comparing out-patients with bipolar disorder (n=27), unipolar depression (n=8) healthy controls (n=68). The convergent and divergent validity of MOODS-LW were evaluated using the Montgomery Åsberg Depression Rating Scale (MADRS), the Young-Ziegler Mania Rating Scale (YMRS) in outpatients as well the General Health Questionnaire (GHQ-12) in healthy controls.

Results:

Both MOODS-LT and MOOODS-LW showed high internal consistency with the Kuder-Richardson coefficient ranging from 0.823 to 0.985 as well as consistent correlations for all domains and subdomains. The last-week version correlated significantly with MADRS (r= 0.79) and YMRS (r=0.46) in outpatients and with GHQ-12 (r= 0.50 for depression domain, r= 0.29 for rhythmicity) in healthy controls.

Conclusion:

The Swedish version of the MOODS-LT showed similar psychometric properties to other translated versions. Regarding MOODS-LW, this first published psychometric evaluation of the scale showed promising psychometric properties including good correlation to established symptom assessment scales. In healthy controls, the depression and rhythmicity domain scores of the last-week version correlated significantly with the occurrence of mild psychological distress.

Keywords: Bipolar, Mood, Questionnaire, Scales, Spectrum, Unipolar.

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1. INTRODUCTION

Mood disorders are some of the most prevalent disorders in modern society causing high burden of disease [1]. Despite the high public health impact, the clinical psychopathology of mood disorders and their classifications are still developing and hence validation and evaluation of measuring instruments is important [2].

The debate on whether mood psychopathology would be best conceptualized by a dimensional approach rather than a categorical approach is a longstanding one. During the last three decades different attempts to expand the boundaries of bipolar disorders have been tried, focusing on subthreshold forms of depression and on temperaments [3 - 5]. Several authors proposed a more dimensional view of mood psychopathology as a complement to the categorical approach of the DSM [6 - 8]. Over the following years, clinicians and researchers of the University of Pisa, Italy, and of the Universities of Pittsburgh, Columbia (New York) and California (San Diego), promoted the "Spectrum Project Collaborative Group" (SPCG). Aim of the SPCG was to create and validate instruments able to recognize the wide halo of phenomenology surrounding the 'core' features of each DSM mood category as well as overcome the classic unipolar/bipolar dichotomy [9]. The latest version of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [10] still proposes a discrete nosological dichotomy between major depression and bipolar disorder, whereas efforts to operationalize bipolar subthreshold syndromes are increasingly made [11]. On the other hand other authors have criticized this approach. In particular, some authors have pointed out that boundaries with other psychiatric disorders may become blurred [12].

The Mood Spectrum Self-Report questionnaire (MOODS-SR) was created and validated by the "SPCG" [13] as a self-administered adaptation of the Structured Clinical Interview for Mood Spectrum (SCI-MOODS) [14]. With respect to other validated instrument such as the MDQ, the HCL-32 and the BSDS, the SCI-MOODS and the MOODS-SR aim to assess not only the typical symptoms of mood disorders but, together with the nuclear aspects, the whole halo of atypical and subthreshold features that surround the full blown disorders. There are different versions of the MOODS-SR which address different time frames of symptom assessment: lifetime, last-month and last-week versions.

The lifetime version (MOODS-LT) was designed to assess lifetime occurrence of the typical mood symptoms as well as a range of clinical features associated with mood psychopathology. The objective of MOODS-LT is to screen for symptoms which resemble the DSM criteria and, at the same time, considering subthreshold manifestations and temperamental features which may not reach a diagnostic threshold but have diagnostic and therapeutic significance [15]. The lifetime version has been validated in English, Italian and Spanish [16].

The last-month (MOODS-LM) and last-week (MOODS-LW) versions were designed to measure changes in mood spectrum symptomatology over time and provide accurate assessment of recent mood changes which has been shown for MOODS-LM [17]. To our knowledge, the last-week version has not been previously evaluated.

The aim of this study was to translate and evaluate the psychometric properties of the Swedish adaptation of the MOODS-SR both for the lifetime and last-week versions. In addition, a sub-analysis of outpatients with unipolar and bipolar mood disorders was performed to measure the MOODS-SRs ability to discriminate between these. Furthermore, the correlation was examined between current mild psychological distress, rated with the General Health Questionnaire (GHQ-12), and the scores of MOODS-LW in healthy controls.

2. METHODS

The study evaluated the psychometric properties of the Swedish adaptation of the MOODS-LT and MOODS-LW using Classical Test Theory methods. The reliability of the scale was evaluated in terms of internal consistency and partial correlations among scales domains and subdomains. The known-group validity was tested by comparing the patient group to a healthy control group without history of psychiatric care.

The convergent and divergent validity of the scale of the last week-version was evaluated using rating scales which are considered to be the "gold standard" in depression and mania assessment in Sweden; the Montgomery Åsberg Depression Rating Scale (MADRS) and the Young-Ziegler Mania Rating Scale (YMRS). In the control group, the total score and the domain scores in MOODS-LW were correlated to the score in the General Health Questionnaire (GHQ-12).

2.1. Participants

The total study sample consisted of 103 adults, 35 patients with a previously diagnosed mood disorder and 68 healthy participants. All subjects provided written informed consent before participating in the study. The study was reviewed by the Regional Ethical Review Board in Gothenburg (Dnr: 091-12).

The patient group was recruited over a 12-month period from outpatient services at Sahlgrenska University Hospital. All patients had an established diagnosis of either bipolar or unipolar mood disorder according to DSM-IV-TR criteria [18] and had no other significant psychiatric disorder. Patients were compared with a sample of unselected controls (n=68) which were recruited during the same time period. The sample consisted mainly of hospital staff and their relatives. All controls reported that they had not been diagnosed or treated for a psychiatric disorder. Self-assessment with GHQ-12 was conducted to exclude current moderate or severe psychological distress.

2.2. Measures

2.2.1. Demographics

All participants completed a brief demographic questionnaire which included self-reported items for age, sex, education, occupation, housing, medication and history of previous or current psychiatric care. Education attainment was categorized into three levels, primary, secondary and higher. Occupation was defined as working or being able to work full time, student, retired, receive welfare benefits.

2.2.2. Instruments

2.2.2.1. Mood Spectrum Self-Reported Questionnaire, Lifetime and Last-Week Version (MOODS-LT, MOODS-LW)

MOODS-SR includes 161 items exploring the experience of a range of mood-spectrum symptoms and behaviors including subthreshold manifestations. The instrument is organized into 3 domains: depression, mania and rhythmicity. In turn, the mania and depression domains are each divided into 3 subdomains: mood, energy and cognition. 154 items of the scale assess symptoms from the above domains and responses are coded in a dichotomous way (yes/no). Each ‘’yes’’ answer counts as 1 point, the final score summarizes these. The other seven items explore the degree of impairment associated with the specific symptoms in each of the subdomains. The scoring algorithm is available at the website www.spectrum-project.org.

2.2.2.2. Mini International Neuropsychiatric Interview (MINI)

In the patient group, the diagnostic assessment was carried out with the Mini International Neuropsychiatric Interview (MINI), version 6.0.0. MINI allows diagnoses to be made according to DSM-IV-TR criteria in a brief structured interview. It was used to confirm the unipolar and bipolar disorder as well as to exclude other comorbidities of significance. All interviews were conducted by experienced clinicians.

2.2.2.3. Montgomery Åsberg Depression Rating Scale (MADRS)

The 10-item version of the diagnostic questionnaire [19] was used to measure depressive symptoms in the patient group. Each item is rated on a Likert type scale from 0 to 6. It is a widely used clinical rating scale and is considered to be gold standard in clinical research. Although MADRS covers a range of the depressive symptomatology, several symptoms such as atypical features or psychomotor retardation are not included in this instrument. The clinician-rated scale was preferred from self-rating version as the assessment took place at same time as other assessments.

2.2.2.4. Young-Ziegler Mania Rating Scale (YMRS)

The YMRS [20] is frequently used to assess manic symptoms. It consist of 11 items where four items are graded on 0 to 8 scale (irritability, speech, thought content, and disruptive/aggressive behavior), while the remaining seven items are graded on a 0 to 4 scale. Information for assigning scores is gained from the patient’s subjective reported symptoms over the previous 48 hours and from clinical observation during the interview. It was administrated in conjunction with MADRS. The MADRS and YMRS interviews were conducted by the authors trained and certified in the use of study instruments, prior to the administration of the MOODS-SR questionnaires.

2.2.2.5. General Health Questionnaire-12 (GHQ-12)

GHQ-12 is a self-administered screening tool designed to detect current mental disturbances and disorders [21]. It assesses changes in mood, feelings, and behaviors as breaks in normal functioning rather than lifetime traits. The scale has showed great psychometric properties even in a cross-cultural context [22]. It focuses on the last four weeks and covers mostly disorders or patterns of adjustment associated with distress. Respondents reply on a four-point response for each item: 'not at all' (0), (for questions 1, 3, 4, 7, 8 and 12): 'better than usual' (0), 'same as usual' (1), 'rather more than usual' (2), 'much more than usual' (3). Half the replies have positive direction ("better than usual") and half have negative direction ("worse than usual") [23].

Two scoring methods were used in this study. In the screening phase the binary scoring method (0-0-1-1, 1 indicating 'worse' or 'much worse than usual'.) was used [24]. A cut-off of 5 or more was used to exclude subjects with moderate or severe psychological distress while allowing an evaluation of mood spectrum in the control sample. In statistical analysis, we used the 0-1-2-3 scoring method.

2.3. Statistical Analysis

When comparing two groups, continuous variables were analyzed by t-test and categorical variables by $\chi 2$ analysis. In all calculations, two-tailed p-values <0.05 were considered statistically significant. Kunder-Richardson coefficient, a variant of the alpha coefficient [25], was used to test the internal consistency of the domains and subdomains and also the total score of both versions of the scale. Convergent and divergent validity was analyzed using Pearson's r correlation. They were measured by comparing to MADRS and YMRS for the patient group. In the control group domains and subdomains scores of MOODS-LW were compared to the GHQ-12 score.

The known-groups validity was examined for the bipolar and unipolar patients in comparison to control group. It was assessed by examining the between-groups differences for each domain using Kruskal-Wallis test. Post hoc comparisons were conducted with the Games-Howell test as the data did not meet the homogeneity of variances assumption. We excluded from analysis the score of a domain if the subject had more than 12% missing values in the given domain. That is a maximum of 1 missing value in energy subdomains and 3 missing values in the other subdomains. Analyses were carried out using SPSS version 22.0 (SPSS Inc. Chicago, IL, USA).

3. RESULTS

The patient group (n=35) and the control group (n=68) did not differ statistically in age, sex distribution, education level or marital status. However, employment and own housing rate was higher among controls (Table **1**). No participants were excluded from analysis after recruitment.

Table 1. Demographic characteristics of the sample. Continuous variables shown as mean ± standard deviation and categorical variables as number (%).

Variables		Patients n = 35	Controls n = 68	*p*
Female		26 (74)	46 (68)	0.49
Mean age (years)		40 ± 11	41 ± 13	0.70
Education	Primary school	3 (10)	1 (2)	0.09
	Secondary school	8 (28)	14 (21)	
	Higher education	18 (62)	51 (77)	
Marital status	Single	14 (48)	20 (30)	0.92
	Married/cohabiting	15 (52)	46 (70)	
Occupation	Employed/ Work-seeker	15 (52)	61 (92)	<0.001
	Student	2 (7)	3 (5)	
	Retired	4 (14)	2 (3)	
	Welfare/sickness benefit	8(27)	0	
Housing	Renting	16 (55)	29 (44)	0.006
	Own house/apartment	11 (38)	36 (55)	
	Other	2 (7)	1 (1)	

The diagnoses of the patients were; Bipolar disorder Type I (n=10), 10 Bipolar disorder Type II (n=10), Bipolar

disorder Not Otherwise Specified (NOS) (n=7) and unipolar depression (n=8). All patients were currently treated with specific drugs following the current clinical guidelines for mood disorders. All bipolar patients had at least one mood stabilizing medication prescribed. Less than 6% of all values were missing in the MOODS-LT (2.35%) and MOODS-LW (5.65%).

3.1. Internal Consistency and Known-Group Validity

Internal consistency was high for all domains on both MOODS-LT and MOODS-LW indicating a high level of homogeneity among items in the scale. All the reliability values for the MOODS-LT were higher than 0.9 which implies excellent reliability both for the total score and each of domains and subdomains (Table **2**). Homogeneity among items in each domain were lower (0.823-0.977) for MOODS-LW but still very good (Table **3**).

Table 2. MOODS lifetime version. Internal consistency, mean scores (± SD) of the domains, between groups differences and post hoc comparisons (Games-Howell test).

Domains and *subdomains*	KR	Patient group [p] (n=35)	Bipolar group [b] (n=27)	Unipolar group [u] (n=8)	Control group [c] (n=68)	Kruskal-Wallis test (P<.001)	Significant pairwise comparisons (P<.005)
Depression	0.975	44.6 ± 12.7	46.5 ± 11.3	38.1 ± 15.6	16.4 ± 12.9	45.60	b>c, u>c
mood	0.938	19.8 ± 4.8	20.6 ± 4.5	17.2 ± 5.2	8.8 ± 6.4	45.07	b>c, u>c
energy	0.905	7.2 ± 2.6	7.5 ± 2.4	6.3 ± 2.9	2.7 ± 2.6	38.15	b>c
cognition	0.953	17.8 ± 6.5	18.7 ± 5.8	14.7 ± 8.2	5.5 ± 5.4	44.70	b>c, u>c
Mania	0.970	35.2 ± 14.4	40.1 ± 11.1	16.3 ± 9.3	15.4 ± 13.1	39.49	b>c, b>u
mood	0.935	16.5 ± 6.2	18.6 ± 4.8	8.4 ± 3.6	7.4 ± 6.3	38.32	b>c, b>u
energy	0.913	8.0 ± 3.4	9.2 ± 2.6	3.3 ± 2.3	3.2 ± 4.0	37.19	b>c, b>u
cognition	0.913	10.6 ± 5.8	12.3 ± 4.9	4.8 ± 4.6	4.5 ± 4.6	32.11	b>c, b>u
Rhythmicity	0.902	18.0 ± 4.5	19.0 ± 4.0	14.3 ± 4.8	9.8 ± 6.1	34.68	b>c
Total score	0.985	97.4 ± 28.6	105.1 ± 24.0	65.4 ± 24.4	42.3 ± 27.4	41.85	b>c, b>u

SD= Standard Deviation; KR= Kuder-Richardson Coefficient; b= Bipolar Group; u= Unipolar Group; c= Control Group.

Regarding known-group validity of both versions of the scale mean scores of each domain and total score were significantly different between patient and control groups (P<0.001). In the sub-analysis by unipolar and bipolar diagnoses both mean ranks of the domains and subdomains were significantly different across the diagnostic groups (P< 0.001) (Table **2** for MOODS-LT and Table **3** for MOODS-LW). Pairwise comparisons between groups (Table **2** for MOODS-LT and Table **3** for MOODS-LW) showed that bipolar patients had higher mean scores than the control group in each domain and subdomain (P< 0.005). In the lifetime version, the bipolar group rated significantly higher in all manic subdomains compared to the unipolar patients. Furthermore, the unipolar group rated significantly higher in all depressive subdomains of both versions compared to the control group except the energy subdomain in lifetime version (Table **3**).

Table 3. MOODS last-week version. Internal consistency, mean scores (±SD) of the domains, between groups differences and post hoc comparisons.

Domains and subdomains	KR	Patient group (n=35)	Bipolar group (n=27)	Unipolar group (n=8)	Control group (n=68)	Kruskal-Wallis test (P<.001)	Significant pairwise comparisons (P<.005)
Depression	0.966	18.3 ± 15.7	15.2 ± 14.0	28.4 ± 17.4	2.7 ± 5.3	36.272	b>c, u>c
mood	0.917	8.1 ± 6.7	6.8 ± 6.0	12.4 ± 7.6	1.4 ± 2.6	35.490	b>c, u>c
energy	0.887	3.4 ± 3.1	2.8 ± 3.0	5.3 ± 3.0	0.6 ± 1.4	29.598	b>c, u>c
cognition	0.926	6.8 ± 6.5	5.7 ± 6.0	10.6 ± 7.3	0.7 ± 2.0	40.098	b>c, u>c
Mania	0.941	10.9 ± 9.5	12.6 ± 9.6	4.7 ± 6.2	5.2 ± 8.2	21.376	b>u>c
mood	0.889	5.7 ± 4.7	6.4 ± 4.8	3.4 ± 3.7	3.0 ± 4.3	15.104	b>c

(Table 3) contd.....

Domains and subdomains	KR	Patient group (n=35)	Bipolar group (n=27)	Unipolar group (n=8)	Control group (n=68)	Kruskal-Wallis test (P<.001)	Significant pairwise comparisons (P<.005)
energy	0.837	2.4 ± 2.8	2.7 ± 3.0	0.9 ± 2.3	1.4 ± 2.5	21.224	b>c
cognition	0.823	2.9 ± 3.1	3.5 ± 3.1	1.3 ± 1.3	0.7 ± 1.9	15.445	b>c
Rhythmicity	0.869	9.3 ± 4.2	8.8 ± 3.7	10.6 ± 5.5	2.9 ± 3.9	33.571	b>c, u>c
Total score	0.977	37.6 ± 23.1	36.3 ± 21.5	42.3 ± 29.6	10 ± 14.2	32.578	b>c

SD= Standard Deviation; KR= Kuder-Richardson Coefficient; b= Bipolar Group; u= Unipolar Group; c= Control Group.

3.2. Correlations Among MOODS-SR Domains and Subdomains

Partial correlations among the rhythmicity, manic and depressive domains and their subdomains were significantly, positively correlated except the correlation between energy-depressive (e-d) and cognitive-manic (c-m) subdomain in the MOODS-LW (P=0.10) (Table **4** for MOODS-LT and Table **5** for MOODS-LW).

Table 4. Correlations among the domains and subdomains of the MOODS-SR lifetime version.

	D	M	m-d	m-m	e-d	e-m	c-d	c-m	Rh
D	1								
M	0.75**	1							
m-d	0.97**	0.66**	1						
m-m	0.75**	0.95**	0.68**	1					
e-d	0.92**	0.74**	0.85**	0.72**	1				
e-m	0.68**	0.87**	0.59**	0.75**	0.71**	1			
c-d	0.97**	0.71**	0.89**	0.70**	0.87**	0.64**	1		
c-m	0.65**	0.93**	0.56**	0.83**	0.65**	0.73**	0.62**	1	
Rh	0.83**	0.72**	0.79**	0.72**	0.82**	0.63**	0.81**	0.66**	1

* p< 0.05; ** p< 0.01. D= Depression Domain; M= Mania Domain; m-d= Mood Depressive; m-m= Mood Manic; e-d= Energy Depressive; e-m= Energy Manic; c-d= Cognition Depressive; c-m= Cognition Manic; Rh= Rhythmicity.

Table 5. Correlations among the domains and subdomains of MOODS-SR last-week version.

	D	M	m-d	m-m	e-d	e-m	c-d	c-m	Rh
D	1								
M	0.46**	1							
m-d	0.98**	0.48**	1						
m-m	0.46**	0.96**	0.49**	1					
e-d	0.92**	0.37**	0.85**	0.39**	1				
e-m	0.51**	0.87**	0.52**	0.79**	0.46**	1			
c-d	0.97**	0.40**	0.92**	0.41**	0.85**	0.48**	1		
c-m	0.24*	0.88**	0.27**	0.76**	0.17	0.65**	0.22*	1	
Rh	0.71**	0.50**	0.69**	0.47**	0.64**	0.44**	0.70**	0.43**	1

* p< 0.05; ** p< 0.01. D= Depression Domain; M= Mania Domain; m-d= Mood Depressive; m-m= Mood Manic; e-d= Energy Depressive; e-m= Energy Manic; c-d= Cognition Depressive; c-m= Cognition Manic; Rh= Rhythmicity.

3.3. Convergent and Divergent Validity of MOODS-LW

A strong positive correlation was found between the depressive subdomains of MOODS-LW and MADRS (r = 0.79). A less strong but still significant correlation was found between YMRS and mania domain (r = 0.46) and its subdomains except the cognition-mania subdomain. These indicate good concurrent validity of the instrument for both current depression and mania in the patient group (Table **6**).In the control group, the scores of MOODS-LW (in each domain, subdomain and total) were correlated to the presence of mild psychological distress, rated by GHQ-12. The GHQ-12 score was significantly correlated with the depression domain (r=0.50) and its subdomains as well as the rhythmicity domain (r=0.29) (Table **6**).

Table 6. Convergent and divergent validity of MOODS last-week version.

Domains and subdomains		MADRS Patient group (n=35) r*p*	YMRS Patient group (n=35) r*p*	GHQ-12 Control group (n=68) r*p*
Depression domains		0.79 <0.01	0.18 0.34	0.50 <0.01
	mood	0.72 <0.01	0.18 0.34	0.52 <0.01
	energy	0.76 <0.01	0.13 0.51	0.35 <0.01
	cognition	0.80 <0.01	0.19 0.33	0.46 <0.05
Mania Domains		-0.17 0.34	0.46 <0.05	0.01 0.95
	mood	-0.20 0.25	0.42 <0.05	0.07 0.62
	energy	0.54 0.76	0.56 <0.05	0.02 0.88
	cognition	-0.27 0.13	0.28 0.14	-0.06 0.67
Rhythmicity		0.49 <0.01	0.24 0.26	0.29 <0.01
Total score		0.52 <0.01	0.281 0.18	0.10 0.51

4. DISCUSSION

The present study evaluates the psychometric properties of the Swedish adaptation of two different versions of the MOODS-SR, the lifetime version and the last-week version. The findings for the lifetime version are in line with previous validation studies which found similar psychometric properties [14, 16, 26]. The patient group (bipolar and unipolar patients) displayed consistently higher mean scores than the control group in all domains of MOODS-LT. The bipolar group rated significantly higher in all domains compared to the control group as well as in all manic subdomains compared to the unipolar patients.

Regarding the last-week version this is the first published psychometric evaluation to our knowledge. In terms of convergent and divergent validity the MOODS-LW showed higher significance of correlation than MOODS-LT, especially between depressive domains and MADRS as well as between the manic domains and YMRS. Furthermore, for healthy controls, there was a correlation between current mild psychological distress and the depression domain, its subdomains and the rhythmicity domain of the last-week version. Differences in the mean score between MOODS-LT and MOODS-LW in all the domains indicate some sensibility to change over time of the last-week version, although further studies are required.

An interesting finding was the statistically significant correlation between the GHQ-12 score and the depressive subdomains and rhythmicity in MOODS-LW for the control group. The finding supports the spectrum approach to mood symptomatology in contrast to the categorical as well as the validity of the scale as a screening and measuring instrument even among subclinical cases.

The usefulness of MOOD-SR in several research fields was shown in a review by Benvenuti *et al.* [27]. The clinical utility of the instrument has been previously proved in different clinical samples but still needs to be confirmed in larger samples. As opposed to the symptom rating scales MADRS and YMRS, the MOODS-SR also assess subthreshold and atypical traits and symptoms of mood disorders. These manifestations may be neglected by clinicians despite being significant predictors of quality of life, functioning and the risk of relapses as previously showed [28, 29]. Furthermore, lifetime mood spectrum symptoms have also been correlated with current maladaptive symptoms of loss in patients with complicated grief and major depression [30] as well as with the occurrence of post-traumatic stress symptoms [31]. In a recent study, a classification-tree analysis was used to determine the 33 most relevant MOODS-SR items which discriminate bipolar disorder from unipolar depression [32]. These items could be used as a shorter version of the MOODS-SR primarily as a routine screening instrument in a clinical context [33].

5. LIMITATIONS

Although the sample size was small, the statistical power was sufficient and the results were in line with previous studies. A more significant limitation of the study was the control group selection process as it was partly a convenience sample. However, the internal consistency was excellent and unlikely to be affected by the selection process. Furthermore, most patients showed low symptom levels, as could be expected at routine follow up visits. This affected mostly the analysis of convergent analysis and specifically the correlations with YMRS scale. We would therefore

caution that the validity and the reliability of the scale cannot be guaranteed for use in patients with moderate or severe mania.

CONCLUSION

The Swedish version of the MOODS-SR lifetime version is a promising instrument for reliable and valid screening of mood spectrum psychopathology in the Swedish population. Furthermore, the last-week version showed also encouraging psychometric properties including good convergent validity in correlation with MADRS and YMRS. Current mild psychological distress, rated with GHQ-12, was correlated positively with scoring in the depression and rhythmicity domains. Further validation studies of last-week version need to be done for evaluating the clinical utility of the scale and measuring the sensitivity to change during treatment and over time.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

CONTRIBUTORS

Michael Ioannou wrote the protocol, collected data, managed the analyses and drafted the manuscript. Marzia Dellepiane translated and adapted the scale in swedish, contributed to the writing of the protocol, collected data and participated in the revision of the manuscript. Antonella Benvenuti co-designed the study, contributed to the literature search and revision of the manuscript. Konstantinos Feloukatzis and Nektaria Sondra contributed both to the data collection and revision of the manuscript. Liliana Dell'Osso co-designed the study, contributed supervising the project. Steinn Steingrimsson co-designed the study, participated in the data analyses and writing of the manuscript as well as supervising the project. All authors read and approved the final manuscript.

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