Reprinted from the German Journal of Psychiatry http://www.gjpsy.uni-goettingen.de ISSN 1433-1055

A Comparative Study of Seasonality and Chronotype in Unipolar Mania *vs.* Bipolar Affective Disorder

Pankaj K. Mittal[1], Shubham Mehta[1], Ram K. Solanki[2], Mukesh K. Swami[3], and Parth S. Meena[1]

[1]Department of Psychiatry, Sawai Man Singh Medical College, Jaipur, Rajasthan, India
[2]Department of Psychiatry, Dr. Sampurnanand Medical College, Jodhpur, Rajasthan, India
[3]Department of Psychiatry, BPS Government Medical College for women, Sonepat, Haryana (India)

Corresponding author: Shubham Mehta, M.D., Resident, Department of Psychiatry, Sawai Man Singh Medical College, Jaipur, Rajasthan, India, E-mail: drshubhammehta@gmail.com

Abstract

Background: The identification of differences in seasonality and chronotype may provide useful information regarding unipolar mania as a distinct entity. Therefore, the present study was planned to compare seasonality and chronotype in patients with unipolar mania and bipolar disorder.
Method: A cross-sectional study included 60 euthymic outpatients, 30 affected by bipolar affective disorder (both manic and depressive episode) and 30 affected by unipolar mania (2 or more manic episodes). Seasonality and chronotype were evaluated by using the Seasonal Pattern Assessment Questionnaire (SPAQ) and the Morningness-Eveningness Questionnaire (MEQ) scales. We used t and chi-square tests to compare groups.
Results: Patients with bipolar disorder reported significantly higher seasonality as well as significantly higher problems associated with seasonal changes. The chronotype in majority of patients in both the groups was 'moderate morning', followed by 'intermediate'.
Conclusion: Lower seasonality in unipolar mania supports its validity as a distinct entity (German J Psychiatry 2013; 16(4): 124-129).

Keywords: seasonality; unipolar mania; chronotype

Received: 14.6.2013
Revised version: 19.8.2013
Published: 20.12.13

Introduction

Due to varying presentation, in recent times bipolar disorders are often categorized as bipolar spectrum disorders including Bipolar I disorder, Bipolar II disorder, antidepressant induced bipolar disorder; substance use associated bipolar disorder etc (Akiskal, 1996; Akiskal & Pinto, 1999; Angst & Gamm, 2002). Among these unipolar mania is often debated as a course specifier for bipolar disorder (Harish et al., 2005). Researchers argue that a subgroup of patients with bipolar disorder never experience a depressive episode. Some recent longitudinal studies have found that unipolar mania does exist, and they support the diagnostic validity of unipolar mania. Varying proportion (2% to 65%) of bipolar disorder patients has been reported as having unipolar mania (Aghanwa, 2001; Beesdo et al., 2009; Dakhlaoui et al., 2008; Yazici et al., 2002). Differences in phenomenology of unipolar mania have also been reported by some studies. More mood congruent psychotic symptoms, more frequent chronic course of the current episode, lower severity of disability, and less depressive features, hostility, and anxiety has been reported in patients with unipolar mania (Perugi et al., 2007). A study also found that this subgroup is less responsive to lithium prophylaxis (Yazici et al., 2002). These findings warrant further investigation of unipolar mania as a separate entity.

Another debatable issue is seasonality and differences in chronotype among bipolar disorder patients. Seasonality is often defined as the degree to which seasonal changes affect mood and behavior on parameters like energy, sleep length, appetite, food preference and socialization (Kasper et al., 1989). Initially seasonality was studied in reference of seasonal affective disorder (SAD), but later studies demonstrated that seasonality can be considered as a continuum and patients with mood disorders not diagnosed as SAD also have seasonal worsening of symptoms (Kasper and Kamo, 1990). Studies have shown

that seasonality is likely to affect course of bipolar disorder. A study by Simonsen et al., (2011) found that bipolar disorder patients have more seasonal fluctuation and associated problems in comparison to primary care patients.

Chronotype is an attribute of human beings, reflecting at what time of the day their physical functions (hormone level, body temperature, cognitive faculties, eating and sleeping) are active, change or reach a certain level. This phenomenon is commonly reduced to sleeping habits only, referring to people as morningness types (those who wake up early and are most alert in the first part of the day) and eveningness types (those who are most alert in the late evening hours and prefer to go to bed late) (Roenneberg et al., 2003). Also, a normal person's activity-rest pattern is endogenously controlled by circadian rhythms. Changes in circadian rhythm have been hypothesized as biological mechanisms underlying mood disorders. A recent review of circadian rhythms in bipolar disorder concluded that circadian processes interact with neurobiological pathways known to be important in bipolar disorder and emphasized their identification since they are open to behavioral manipulation (Murray & Harvey, 2010).

Previous studies have been carried out to assess the seasonality in Bipolar Affective Disorder (BAD), unipolar mania and unipolar depressive disorder individually; but literature search did not reveal any study comparing BAD with unipolar mania. Since seasonality and chronotype, both represent the biological underpinning of bipolar disorder, any difference found on these parameters may substantiate the diagnostic validity of unipolar mania. Therefore, the present study was conceptualized to compare seasonality and chronotype between patients with unipolar mania and bipolar disorder.

Methods

A cross-sectional study was conducted at the Department of Psychiatry, Sawai Man Singh Medical College, Jaipur. The study included sixty euthymic patients with the diagnosis of bipolar affective disorder (BAD). The sample was recruited during follow-up visit of patients in the outpatient service. Consecutive euthymic patients were recruited in two groups (thirty in each group). The first group included patients having BAD, diagnosed according to ICD-10 criteria who had both manic and depressive episodes in past (World Health Organization, 1992). The second group included patients who had two or more episodes of mania without any depressive episodes and were labeled as "unipolar mania" (Abrams et al., 1979). Euthymic patients having normal range of mood were characterized by a score on the Hamilton Depression Rating Scale (HDRS-17) <8 and a Young Mania Rating Scale (YMRS) score of 0. Included patients were literate enough to read and understand consent form and questionnaires. Patients having a history of any significant medical and neurological illness, a history of significant head injury, any co-morbid psychiatric illness, mental retardation (based on medical records or clinical assessment conducted prior to inclusion in study), or a current and past history of substance dependence were excluded from study.

Informed consent was taken from all the subjects prior to inclusion in the study. A screening performa was used to satisfy all selection criteria (including HDRS-17 and YMRS). After that, the patient's socio-demographic data (name, age, sex, marital status, education, occupation, monthly income, religion, type of family, locality and address of the participant) and a clinical profile including number and type of episodes, duration of illness, duration of euthymia, family history and medications given were recorded. It was followed by assessment of subjects through the following questionnaires.

Seasonal Pattern Assessment Questionnaire (SPAQ) - The SPAQ is a self-administered questionnaire (Kasper et al., 1989) which quantifies (regardless of the presence or absence of a psychiatric disorder), the individual's tendency to seasonal mood and behavioral changes i.e. "seasonality." The individuals grade the effect the changing of the seasons has on them in six areas (sleep length, social activity, mood, weight, appetite, and energy level) on a scale of 0 to 4, with 0 being no change and 4 being extremely marked change. A global seasonality score (GSS) with a total score ranging from 0–24 is calculated by summing score on these six items and it represents degree of seasonality. Higher GSS scores indicate higher seasonality. A score equal to or greater than 11 can qualify for a formal diagnosis of SAD. The individuals are also asked if the changes they experience over the course of the seasons are a problem for them or not.

Morningness-Eveningness Questionnaire (MEQ) – The 'morningness type' applies to people who particularly prefer diurnal activity, while 'eveningness types' are those who prefer nocturnal activities. The MEQ is a self-report questionnaire (Horne & Ostberg, 1976) for the assessment of morningness/eveningness dimensions and hence the circadian typology of a person. The questionnaire is normally distributed (Chelminski et al., 1997). This allows us to consider the circadian types as a continuum (Natale & Cicogna, 2002). The sum yields a global score, ranging from 16 to 86 with lower scores indicating greater eveningness tendencies and higher scores indicating greater morningness tendencies.

In the present study, for convenience, the year was divided in four seasons, i.e., summer (May to July), rainy season (August to October), winter (November to January) and spring (February to April) (Avasthi et al., 2001).

Statistical analysis was done with help of the Statistical Package for the Social Sciences (SPSS) version 17.0. Chi-square (X^2) and independent t-tests were used for group comparisons.

Results

Most of the participants in both study groups were Hindu, were married, males, farmers and laborers by occupation, educated up to middle school, having monthly family income less than Rs. 6000, and belonging to nuclear family with rural background (Table 1).

Table 1. Socio-demographic profile of patients

Variable	Mean ± SD		t Value	*p*
Age				
Bipolar Disorder	34.63 ± 7.5		2.29	0.026*
Unipolar Mania	30.37 ± 7.2			
	Bipolar disorder	**Unipolar Mania**	***X²* (df)**	***p***
Sex				
Male	26	26	0.00 (1)	1.0
Female	4	4		
Marital status				
Married	23	25	2.08 (2)	0.353
Unmarried	5	5		
Divorced/separated	2	0		
Occupation				
Unemployed (including house wives)	7	10	0.74 (1)	0.390
Farmer/laborers	23	20		
Education				
Up to middle	12	18	2.60 (2)	0.272
Middle to sr. secondary	12	7		
graduate / post graduate	6	5		
Income				
Nil – 6000	25	21	1.50 (1)	0.222
6001 – 15000	5	9		
>15000	0	0		
Religion				
Hindu	30	26	4.29 (1)	0.038*
Muslim	0	4		
Others	0	0		
Family				
Nuclear	19	17	0.78 (2)	0.678
Nuclear extended	9	9		
Others	2	4		
Locality				
Urban	2	3	0.29 (1)	0.640
Rural	28	27		

SD, standard deviation; df, degree of freedom, X², chi square value; *p value<0.05

The number of episodes was significantly higher in the bipolar disorder group as compared to the unipolar group (p <0.0001). There were no significant differences among the groups with regard to total duration of illness, number of months in euthymia, and duration of illness (Table 2).

Most of participants in both groups were taking antipsychotics, mood stabilizers (sodium valproate) and benzodiazepines. No difference between the groups was found in exposure to medication (Table 3).

Table 2. Comparison of clinical variables of both groups

Variable	Mean ± SD		t	*p*
	Bipolar disorder	**Unipolar Mania**		
Total Duration of Illness (Months)	82.8±65.8	58.6±48.6	1.62	0.111
Euthymia (Months)	21.9±22.1	26.0±37.7	0.51	0.612
Episodes (Total)	4.1±1.2	2.5±0.7	4.12	0.0001**
Episodes (Manic)	2.5±1.3	2.5±0.7	0.24	0.814
Duration of Treatment (Months)	22.7±15.7	27.1±37.4	0.60	0.555

SD, standard deviation; **p value<0.01

Table 3. Comparison of exposure to drugs in both groups

Medications	Bipolar disorder	Unipolar mania	*X²* (df)	*p*
Antipsychotics				
Yes	28	28	0.00 (1)	1.0
No	2	2		
Mood stabilizers				
No	2	0	5.02 (2)	0.081
Valproate	28	27		
Valproate and lithium	0	3		
Benzodiazepines (BZD)				
None	6	6	0.137 (2)	0.93
One BZD	19	20		
Two BZD	5	4		

df, degree of freedom, X², chi square value

Table 4. Comparison of seasonal pattern between the groups (percentage of subjects reporting change in particular season)

Variable	Group	Seasons (Percentage of subjects reporting change)				
		Summer	Rainy	Winter	Spring	No change
Feel best	Bipolar disorder	26.7	10.0	16.7	43.3	3.3
	Unipolar mania	33.0	10.0	30.0	26.7	0
Weight gain	Bipolar disorder	10.0	0	56.7	16.7	16.7
	Unipolar mania	20.0	6.7	46.7	3.3	23.3
Socialize most	Bipolar disorder	16.7	3.3	30.0	33.3	16.7
	Unipolar mania	33.3	3.3	30.0	33.3	0
Sleep least	Bipolar disorder	50.0	0	30.0	10	10.0
	Unipolar mania	40.0	0	40.0	3.3	16.7
Eat most	Bipolar disorder	6.7	0	60.0	30	3.3
	Unipolar mania	3.3	0	53.3	33.3	10.0
Lose most weight	Bipolar disorder	63.3	0	16.7	0	20.0
	Unipolar mania	53.3	0	20.0	0	26.7
Socialize least	Bipolar disorder	36.7	3.3	30.0	0	30.0
	Unipolar mania	40.0	10.0	33.3	10.0	6.7
Feel worst	Bipolar disorder	40.0	0	46.7	0	13.3
	Unipolar mania	26.7	0	53.3	0	20.0
Eat least	Bipolar disorder	66.7	0	20.0	0	13.3
	Unipolar mania	63.3	0	13.3	0	23.3
Sleep most	Bipolar disorder	33.3	0	40.0	0	26.7
	Unipolar mania	40.0	0	40.0	3.3	16.7

The mean Global Seasonality Score (GSS) in the bipolar group (8.60) was significantly higher than in the unipolar group (7.27) (p=0.021). Eighty percent of the patients in the bipolar group reported seasonal changes as problematic as compared to 30% in unipolar group (p value<0.0001).

No statistically significant difference (p=0.433) was found between the groups regarding chronotype, though a trend for more morningness was found in patients with unipolar mania. No significant differences were observed between the groups regarding seasonal pattern (Table 4). Significantly more seasonal changes were reported in bipolar disorder group in the parameters of social activity (p=0.010), weight (p value=0.028) and mood (p value=0.044) (Table 5).

Discussion

The main purpose of the present study was to compare seasonal pattern and chronotype in patients with unipolar mania and bipolar disorder, to identify probable differences, which may eventually underlie a different biological underpinning. Finding of such differences may emphasize on identification of unipolar mania as a distinct entity.

The results of our study suggest that patients with bipolar disorder exhibit higher seasonality than patients with unipolar mania and also report significantly more problem with such seasonal variation. The difference could not be explained on the basis of socio-demographic variables and clinical variables like number of manic episodes, duration of euthymia, total duration of illness, duration of current treatment and exposure to various medications since both groups were comparable on these variables except for age. Studies have reported a negative relationship between seasonality and age (Soriano et al., 2007). Therefore, it is unlikely that higher age would explain higher seasonality. In addition, the seasonal affective disorder is more commonly reported in younger age groups (Eagles et al., 1999). Furthermore, though the differences in age were statistically significant, the age range for both the groups was almost similar (18-50).

The groups also showed a significant difference in total number of episodes, with the bipolar disorder group having more number of episodes, though the number of manic episodes was not significantly different between the groups. It is possible that a higher burden of disease make subjects more sensitive to seasonal changes or *vice versa*. The higher seasonality in the bipolar disorder group is probably associated with having a biological vulnerability to depressive episodes. Similarly, a study found that patients with seasonal pattern predominantly present with bipolar II disorder, depressive onset, and depressive predominant polarity (Goikolea et al., 2007). The authors linked the presence of a seasonal pattern with a predominant depressive component.

Studies have shown that the peaks of manic episodes occur during springs and winter (Cassidy & Carroll, 2002; D'Mello et al., 1995; Sayer et al., 1991). Our study found that most of the patients felt best and slept least during these months. Decreased sleep has been reported as the most important variable for identification of a manic episode. Therefore, the findings of our study suggest that spring and summer is the period of increased vulnerability for manic relapse.

Some studies reported no consistent pattern of occurrence of manic episode (Jones et al., 1995; Mulder et al., 1990; Murray et al., 2011; Partonen & Lonnqvist, 1996). A recent study found that emergency psychiatric visits for mania are more frequent in late winter/spring (Volpe et al., 2010). So these contradictory findings require further validation in longitudinal, cross-cultural studies in different climatic zones. We found that the majority of subjects in both study groups had

Table 5: Comparison of components of GSS between the groups

Variable	Bipolar Disorder	Unipolar Mania	X^2 (df)	p
Sleep length				
1. No change	1	2	1.52 (3)	0.677
2. Slight change	14	13		
3. Moderate change	22	14		
4. Marked change	3	1		
Social activity				
1. No change	4	13		
2. Slight change	21	16	11.4(3)	0.010*
3. Moderate change	5	0		
4. Marked change	0	1		
Mood				
1. No change	0	3		
2. Slight change	12	14	9.06 (3)	0.028*
3. Moderate change	17	8		
4. Marked change	1	5		
Weight				
1. No change	2	0		
2. Slight change	11	20	8.07 (3)	0.044*
3. Moderate change	17	9		
4. Marked change	0	1		
Appetite				
1. No change	1	0		
2. Slight change	12	20	4.96 (3)	0.175
3. Moderate change	16	9		
4. Marked change	1	1		
Energy				
1. No change	0	4		
2. Slight change	19	18	4.61 (3)	0.203
3. Moderate change	9	7		
4. Marked change	2	1		

df, degree of freedom, X^2, chi square value; *p value<0.05

a moderate morning chronotype, followed by the intermediate type. None of the subjects reported eveningness in the study. This finding was in sharp contrast to earlier studies reporting higher eveningness in patients with bipolar disorder.

Similar to our study, in a study by Hakkarainen et al., (2003) patients with bipolar disorder were not more often the evening types. The majority of studies have suggested an inclination towards "eveningness" in bipolar patients (Ahn et al., 2008; Mansour et al., 2005; Nurnberger et al., 2000). A study by Wood et al., (2009) found that in bipolar disorder patients, individuals with more severe depressive mood ratings are more likely to be evening types. This finding suggests that "eveningness" in bipolar patients may be associated with depressive episode. In our study, though we could not find statistically significant difference in chronotype, still a trend away from morningness was observed in the bipolar disorder group.

It has been found that chronotype is affected by cultural differences. Caci et al. (2005a) found differences in the factorial structure of chronotype and suggested that cut-off scores used to categorize participants as morning and evening-types should be established for different cultural and age groups. Thus, findings of chronotype in our study should be viewed in light of unavailability of such cut-off scores in our culture.

The findings of our study should be viewed with certain methodological limitations like, use of retrospective questionnaires i.e. SPAQ (vulnerable to recall bias), small sample size, cross-sectional study design, lack of clear cut definition of unipolar mania and lack of control arm for comparison.

In spite of the above limitations, the findings of our study are important, as they explore a new area for examining the notion that unipolar mania is a distinct entity. However, more longitudinal studies and cross-sectional studies with large sample size and in different climatic and cultural context are required to substantiate the findings of present study.

References

Abrams R, Taylor MA, Hayman MA. Unipolar mania revisited. J Affect Disord 1979; 1:59-68

Aghanwa HS. Recurrent unipolar mania in a psychiatric hospital setting in the Fiji Islands. Psychopathology 2001; 34(6):312-317

Ahn YM, Chang J, Joo YH, Kim SC, Lee KY, Kim YS. Chronotype distribution in bipolar 1 disorder and schizophrenia in a Korean sample. Bipolar Disorders 2008; 10:271–275

Akiskal H. The Prevalent Clinical Spectrum of Bipolar Disorders: Beyond DSM-IV. J Clini Psychopharmacol 1996; 16(2):4S-14S

Akiskal HS, Pinto O. The evolving bipolar spectrum: Prototypes I, II, III, and IV. Psychiatr Clin North Am 1999; 22(3):517-534

Angst J, Gamm A. A new bipolar spectrum concept: a brief review. Bipolar Disorders 2002; 4(suppl 1):11-14

Avasthi A, Sharma A, Gupta N. Seasonality and affective disorders: a report from North India. J Affect Disord 2001; 54:145-154

Beesdo K, Höfler M, Leibenluft E, Lieb R, Bauer M, Pfennig A. Mood episodes and mood disorders: patterns of incidence and conversion in the first three decades of life. Bipolar Disorders 2009; 11(6):637–649

Caci H, Adan A, Bohle P, Natale V, Pornpitakpan C, Tilley A. Transcultural properties of the composite scale of morningness: the relevance of the "morning affect" factor. Chronobiology International 2005a; 22:523–540

Cassidy F, Carroll BJ. Seasonal variation of mixed and pure episodes of bipolar disorder. J Affect Disord 2002; 68(1):25-31

Chelminski I, Ferraro FR, Petros T, Plaud JJ. Horne and Ostberg questionnaire: a score distribution in a large sample of young adults, Personality and Individual Differences 1997; 23(4):647–652

Dakhlaoui O, Essafi I, Haffani F. Clinical particularism of bipolar disorder: unipolar mania. About a patient's study in Tunesia. Encephale 2008; 34(4):337-342

D'Mello DA, McNeil JA, Msibi B. Seasons and bipolar disorder. Ann Clin Psychiatry 1995; 7(1):11-18

Eagles JM, Wileman SM, Cameron IM, Howie FL, Lawton K. Seasonal affective disorder among primary care attenders and a community sample in Aberdeen. Br J Psychiatry 1999; 175:472–475

Goikolea JM, Colom F, Martinez-aran A, Sanchez-Moreno J, Giordano A, Bulbena A, Vieta E. Clinical and prognostic implications of seasonal pattern in bipolar disorder: a 10-year follow-up of 302 patients. Psychol Med 2007; 37(11):1595-1599

Hakkarainen R, Johansson C, Kieseppä T, Partonen T, Koskenvuo M, Kaprio J, Lönnqvist J. Seasonal changes sleep length and circadian preference among twins with bipolar disorder. BMC Psychiatry 2003; 3:6

Harish T, Grover S, Basu D. Recurrent Unipolar Mania: Does it Warrant a Separate Nosological Status? German Journal of Psychiatry 2005; 8(1):8-15

Horne JA, Ostberg O. A self assessment questionnaire to determine Morningness Eveningness in human circadian rhythms. Int J Chronobiol 1976; 4(2):97–110

Jones I, Hornsby H, Hay D. Seasonality of mania: a Tasmanian study. Aust N Z J Psychiatry 1995; 29(3):449-453

Kasper S, Kamo, T. Seasonality in major depressed inpatients. J Affect Disord 1990;19(4):243–248

Kasper S, Wehr TA, Bartko JJ, Gaist RA, Rosenthal NE. Epidemiological findings of seasonal changes in mood and behavior. A telephone survey of Montgomery County, Maryland. Arch Gen Psychiatry 1989; 46:823-833

Mansour H, Wood J, Logue T, Chowdari KV, Dayal M, Monk T, Kupfer D, Devlin B, Nimgaonkar V. Circadian phase variation in Bipolar I Disorder. Chronobiology International 2005; 22:571–584

Mulder RT, Cosgriff JP, Smith AM, Joyce PR. Seasonality of mania in New Zealand. Aust N Z J Psychiatry 1990; 24(2):187-190

Murray G, Harvey A. Circadian rhythms and sleep in bipolar disorder Bipolar Disorders 2010; 10:459-472

Murray G, Lam RW, Beaulieu S, Sharma V, Cervantes P, Parikh SV, Yatham LN. Do symptoms of bipolar disorder exhibit seasonal variation? A multisite prospective investigation. Bipolar Disorders 2011; 13(7-8):687-695

Natale V, Cicogna P. Morningness-eveningness dimension: is it really a continuum? Personality and Individual Differences 2002; 32(5):809–816

Nurnberger JI, Jr Adkins S, Lahiri DK. Melatonin suppression by light in euthymic bipolar and unipolar patients. Arch Gen Psychiatry 2000; 57:572–579

Partonen T, Lonnqvist JL. Seasonal variation in bipolar disorder. Br J Psychiatry 1996; 169: 641-646

Perugi G, Sanna Passino MC, Toni C, Maremmani I, Angst J. Is unipolar mania a distinct subtype? Compr Psychiatry 2007; 48:213– 217

Roenneberg T, Wirz-Justice A, Merrow M. Life between Clocks: Daily Temporal Patterns of Human Chronotypes. J Biol Rhythms 2003; 18:80-90

Sayer HK, Marshall S, Mellsop GW. Mania and seasonality in the southern hemisphere. J Affect Disord 1991; 23(3):151-156

Simonsen H, Shand AJ, Scott NW, Eagles JM. Seasonal symptoms in bipolar and primary care patients. J Affect Disord 2011; 132(1-2):200–208

Soriano JJ, Ciupagea C, Rohan KJ, Neculai DB, Yousufi SM, Guzman A, Postolache TT. Seasonal Variations in Mood and Behavior in Romanian Postgraduate Students. The Scientific World Journal 2007; 7:870–879

Volpe FM, da Silva EM, dos Santos TN, de Freitas DE. Further evidence of seasonality of mania in the tropics. J Affect Disord 2010; 124(1-2):178-182

Wood J, Birmaher B, Axelson D, Ehmann M, Kalas C, Monk K, Turkin S, Kupfer DJ, Brent D, Monk TH, Nimgainkar VL. Replicable differences in preferred circadian phase between bipolar disorder patients and control individuals. Psychiatry Res 2009; 166(2-3):201-209

World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical descriptions and diagnostic guidelines. Geneva, W.H.O. 1992

Yazici O, Kora K, Uçok A, Saylan M, Ozdemir O, Kiziltan E, Ozpulat T. Unipolar mania: a distinct disorder? J Affect Disord 2002; 71(1-3):97-103

The German Journal of Psychiatry ISSN 1433-1055 http:/www. gjpsy.uni-goettingen.de
Dept. of Psychiatry, The University of Göttingen, von-Siebold-Str. 5, D-37075 Germany; tel. ++49-551-396607; fax: ++49-551-398952; E-mail: gjpsy@gwdg.de