Factor Analysis Study of Phenomenological Subtypes of Mania

Suman Prasad Adhikari*

Department of Psychiatry, Nepalese Army Institute of Health Sciences, Nepal

Abstract

Objectives: This research was conducted to study symptomatology & diagnosis in manic patient and to investigate the possibility that there might be a natural division of manic episodes into clinical sub-types.

Background: Factor analysis of signs and symptoms of mania have been done using different rating scales in different studies. This study was carried out to study the core features of the manic state. The objective was to search for the model of the symptomatology of manic patients.

Materials and Methods: We studied 75 individuals with mania. It was descriptive, cross sectional hospital based study. Patients with mixed episodes, substance induced mood episodes and those with features suggestive of organic etiology were excluded from the study. All patients were rated on Scale for manic states (SMS) and subsequent factor analysis was done.

Results: With principal component analysis three Eigen values greater than unity were extracted. The three factors were euphoric activation, dysphoria and psychosis. These factors accounted for 68.16% of the rotated variance.

Conclusion: This study identified at least three sub dimensions specific to mania. These findings support the multidimensional nature of manic symptoms. Use of sub dimensions, in addition to overall mania severity may enhance the ability to detect meaningful biological correlates of bipolar disorder.

Introduction

Descriptive phenomenology is synonymous with phenomenological psychopathology and involves the observation and categorization of abnormal psychological events, the internal expression of patient and consequent behavior. Descriptive psychopathology does not propose explanations accounting for subjective experience or behavior but simply observes and describes them [1-13]. Several empirical studies have been done to arrive at phenomenological subtypes of schizophrenia and depression but such studies are scarce in mania. Evidence from factor analysis suggests more categories or sub types of mania than what is included in classification systems [14-43]. Factor analysis of signs and symptoms of mania have been done using different rating scales in different studies. Recent studies have come out with two to five factor model and these studies have found that these factors can predict differences in treatment response and prognosis.

Methodology

The study was carried out between September 2014 to March 2015 after ethical approval from Institutional Review Board (IRB) of National Academy of Medical Sciences (NAMS). The subjects were 75 patients consecutively admitted for the treatment of manic episode at Mental Hospital, Lagankhel, a tertiary referral center. Patients were diagnosed as affected by manic episode according to the diagnostic guideline of ICD-10 DCR. Patients with mixed episodes, substance induced mood episodes and those with features suggestive of organic etiology were excluded from the study. Data was collected after obtaining informed written consent from the patient's primary care taker. A principal component factor analysis of the broad range of psychiatric symptoms covered by the Scale for Manic States (SMS) was conducted.

Results

Socio-demographic data

This study was conducted in 75 patients admitted in Mental Hospital with the diagnosis of

Table 1a: Demographic characteristics (Sex, marital status, residence).

Characteristics		Number of patients	Percentage
Sex	Males	48	64
	Females	27	36
Marital status	Married	39	52
	Widow/ widower	1	1.33
	Separated	3	4
	Unmarried	32	42.67
Residence	Urban	29	38.67
	Rural	46	61.33

Table 1b: Demographic characteristics (Religion, education, occupational status).

Characteristics		Number of patients	Percentage
Religion	Hindu	66	88
	Buddhist	4	5.33
	Christian	4	5.33
	Others	1	1.33
Education	Illiterate	5	6.67
	Literate	9	12
	Primary	9	12
	Secondary	33	44
	Higher Secondary	17	22.67
	Graduate	2	2.67
Occupational Status	Farmer	10	13.33
	Laborer	11	14.67
	Student	20	26.67
	Business	4	5.33
	Housewife	13	17.33
	Unemployed	6	8
	Others	11	14.67

Table 2a: Total variance before rotation.

	Initial Eigenvalues		
Item of SMS	Total	% of Variance	Cumulative %
1	6.23	31.16	31.16
2	4.15	20.77	51.93
3	2.38	11.9	63.83
4	1.19	5.96	69.8
5	0.98	4.92	74.71
6	0.83	4.17	78.88
7	0.74	3.69	82.57
8	0.55	2.76	85.32
9	0.52	2.62	87.94
10	0.39	1.94	89.88
11	0.38	1.89	91.78
12	0.33	1.67	93.44
13	0.3	1.48	94.92
14	0.26	1.29	96.21
15	0.19	0.95	97.16
16	0.17	0.85	98.01
17	0.13	0.65	98.66
18	0.12	0.62	99.28
19	0.09	0.43	99.71
20	0.06	0.29	100

Table 2b: Component matrix before rotation (Unrotated factor matrix).

	Component			
	1	2	3	4
increased motor activity	0.83	0.16	-0.1	0.09
decreased sleep	0.61	-0.11	-0.18	-0.08
pressured speech	0.75	0.24	-0.04	0.28
racing thoughts/ disturbed concentration	0.76	0.35	-0.06	0.22
mood lability	0.49	-0.62	-0.18	0.18
euphoric mood	0.4	0.7	-0.3	0.23
depressed mood	0.32	-0.64	-0.42	0.11
Guilt	0.18	-0.64	-0.58	0.1
Suicide	0.34	-0.67	-0.48	0
Psychosis	0.59	-0.33	0.51	0.13
Paranoia	0.57	-0.34	0.55	0.13
Grandiosity	0.66	0.29	0.19	0.09
lack of insight	0.41	0.11	0.4	0.34
increased contact	0.6	0.37	-0.37	-0.45
increased sexuality	0.65	0.17	-0.3	-0.5
Humor	0.58	0.61	-0.2	0.12
Anxiety	0.21	-0.76	-0.12	0.16
Irritability	0.51	-0.38	0.5	-0.29
Aggression	0.56	-0.39	0.43	-0.44
Dress	0.62	0.17	0.05	-0.16

manic episode or Bipolar Affective Disorder, current episode mania. There were 48 (64%) male and 27 (36%) female patients with mean age of 28.63 years (range 18-60). The educational status of 2 (2.67%) patients was graduate level, 17 (22.67%) had higher secondary level education, 33 (44%) had secondary level, 9 (12%) had primary level education, 9 (12%) were literate and 5 (6.67%) were illiterate. Regarding occupation, most of the patients, that is 20 (26.67%) were students. 10 were (13.33%) farmers, 11 (14.67%) were laborers, 13 (17.33%) were housewives, 4 (5.33%) did business, 11 (14.67) were involved in other occupations and 6 (8%) were unemployed. Majority of patients (46% to 61.33%) were from the rural background. Among 75 cases, 39 (52%) were married. 32 (42.67%) were unmarried, 3 (4%) were separated and 1 (1.33%) was widowed. Regarding religion, 66 (88%) were Hindus. There were 4 (5.33%) Buddhists, 4 (5.33%) Christians and 1 (1.33%) practiced other religion. Majority of patients were from low socioeconomic status 57 (76%). (Tables 1a,1b).

Clinical variables

The shortest duration of illness was that of 3 days and the longest of 30 years.

Principal factor analysis: PFA with varimax rotation was conducted on 20 items of SMS. The first four eigenvalues were 6.23,

4.15, 2.38, and 1.19. One item, decreased need for sleep did not load on any factors and lack of insight loaded on two factors. Increased contact also loaded on two factors. These items were removed and

Table 2c: Total variance after rotation.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.23	31.16	31.16	6.23	31.16	31.16
2	4.15	20.77	51.93	4.15	20.77	51.93
3	2.38	11.9	63.83	2.38	11.9	63.83
4	1.19	5.96	69.8	1.19	5.96	69.8
5	0.98	4.92	74.71			
6	0.83	4.17	78.88			
7	0.74	3.69	82.57			
8	0.55	2.76	85.32			
9	0.52	2.62	87.94			
10	0.39	1.94	89.88			
11	0.38	1.89	91.78			
12	0.33	1.67	93.44			
13	0.3	1.48	94.92			
14	0.26	1.29	96.21			
15	0.19	0.95	97.16			
16	0.17	0.85	98.01			
17	0.13	0.65	98.66			
18	0.12	0.62	99.28			
19	0.09	0.43	99.71			
20	0.06	0.29	100			

Table 2d: Component matrix after rotation (Rotated factor matrix).

	Component			
	1	2	3	4
increased motor activity	0.73	0.2	0.26	0.29
decreased sleep	0.37	0.35	0.22	0.34
pressured speech	0.8	0.12	0.2	0.09
racing thoughts/ disturbed concentration	0.83	0.05	0.15	0.18
mood lability	0.15	0.76	0.32	-0.01
euphoric mood	0.78	-0.2	-0.35	0.17
depressed mood	0.01	0.83	0.07	0.06
Guilt	-0.08	0.87	-0.12	0.07
Suicide	-0.03	0.87	0.07	0.18
Psychosis	0.27	0.18	0.78	-0.11
Paranoia	0.24	0.16	0.81	-0.14
Grandiosity	0.64	-0.11	0.34	0.15
lack of insight	0.46	-0.11	0.41	-0.25
increased contact	0.46	0.01	-0.06	0.78
increased sexuality	0.36	0.13	0.1	0.8
Humor	0.8	-0.16	-0.13	0.28
Anxiety	-0.14	0.74	0.29	-0.14
Irritability	-0.01	0.11	0.83	0.21
Aggression	-0.04	0.14	0.82	0.37
Dress	0.45	0	0.3	0.38

PFA repeated with three factors emerging as optimal and explaining 68.16% of total variance. Table 2a, 2c represents total variance before rotation and after rotation respectively. Table 2b, 2d depicts component matrix before rotation and after rotation respectively. Table 2e, 2f represent three factor repeat PFA variance and component matrix respectively. All items had high loading onto their respective factor and no significant cross loading. Scree plot and interpretability also suggested extraction of three factors.

Discussion

Phenomenology of mania

In the present study phenomenology of 75 hospitalized patients with mania were examined. Mania consists of different identifiable dimensions. The present study detected and replicated three dimensions unique to mania (euphoric activation, dysphoria, psychosis).

Factor 1 represented euphoric activation. This factor had loadings from increased motor activity, pressured speech, racing thoughts/ disturbed concentration, euphoric mood, grandiosity, increased sexuality, humor and dress. This finding is similar to finding from cluster analysis by Steven C et al. which revealed manic activation as the first factor [44-58]. The study by Frederick et al. [59] had also identified motor activation, accelerated thought process and pressured speech as frequently noted signs and symptoms in mania [59]. It corresponds to factor 2 of study by Raveen Hanwell et al. [56] which was consistent with factor 1 of other studies [43,57,60-62].

Factor 2 represented dysphoria with significant loading from mood lability, depressed mood, guilt, suicide and anxiety. This is similar to finding from cluster analysis by Steven C et al. [57] Dysphoria was third factor in study by Tetsuya et al. [55] and second factor in study by Subash Chandra Gupta et al. [54], whereas in study by Frederick et al. [47] dysphoria was the first and the strongest factor. Dysphoric mood, mood lability, anxiety, guilt, suicidality were

Table 2e: Repeat PFA variance.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.45	32.07	32.07	5.45	32.07	32.07
2	3.99	23.46	55.53	3.99	23.46	55.53
3	2.15	12.63	68.16	2.15	12.63	68.16
4	0.94	5.51	73.67			
5	0.8	4.71	78.38			
6	0.68	4.01	82.39			
7	0.49	2.87	85.26			
8	0.45	2.62	87.88			
9	0.38	2.25	90.14			
10	0.37	2.18	92.32			
11	0.33	1.92	94.24			
12	0.25	1.45	95.69			
13	0.2	1.2	96.89			
14	0.17	1	97.89			
15	0.15	0.89	98.78			
16	0.12	0.71	99.49			
17	0.09	0.51	100			

Table 2f: Three factor PFA component matrix (Repeat PFA).

	Component		
	1	2	3
increased motor activity	0.78	0.17	0.26
pressured speech	0.79	0.07	0.21
racing thoughts/ disturbed concentration	0.85	0	0.17
mood lability	0.15	0.73	0.35
euphoric mood	0.78	-0.2	-0.36
depressed mood	0.04	0.83	0.09
Guilt	-0.04	0.88	-0.11
Suicide	0.06	0.89	0.09
Psychosis	0.21	0.14	0.78
Paranoia	0.17	0.12	0.83
Grandiosity	0.68	-0.11	0.34
increased sexuality	0.63	0.2	0.09
Humor	0.85	-0.15	-0.15
Anxiety	-0.18	0.72	0.32
Irritability	0.08	0.12	0.82
Aggression	0.1	0.14	0.83
Dress	0.58	0.01	0.29

prominent in the mixed group in study by Frederick et al. [59] but this study reveals that dysphoria is itself important construct of mania. It was also consistent with findings from other studies [57,63-66].

Factor 3 represented psychosis with loadings from psychosis, paranoia and irritability and aggression. This was similar to finding by Raveen Hanwella et al. [56] whose factor 3 was psychois but dissimilar in sense that its factor 1 consisted of irritability [56], whereas in this study irritability also loaded on factor 3. In study by Tetsuya et al. [55] psychosis was second factor and in study by Steven

C et al. [57] irritability/paranoia was fourth factor. The finding was consistent with findings from other previous studies [54,47].

The three factors revealed in this study bear striking similarity to the core feature of mania derived from earlier descriptive works of Cassidy et al. [59]. This study differed from other studies in excluding mixed affective states from our sample which had not been done in the previous studies [50,57,59,61]. Even after exclusion of mixed states the study confirms that the occurrence of depression during mania is not confined to a minority of cases but is relevant to the construct of mania itself as suggested.

Similar to studies by Murphey et al. [61] and Double [50] the first factor was not that of mood only but that of overall activation which is in contrast to current nosological criteria in ICD-10 and DSM-IV-TR in which changes of mood are hallmark of mania.

Conclusion

Descriptive phenomenology is synonymous with phenomenological psychopathology and involves the observation and categorization of abnormal psychological events, the internal expression of patient and consequent behavior. Mania is one of the potentially disabling conditions, significantly affecting person's ability to function in work and social situations. This study was aimed at studying the phenomenology of mania.

This was a descriptive cross sectional study conducted on 75 patients of either sex and aged 18-65 years. Attempts were also made to identify the socio-demographic and clinical factors associated with mania. Factor analysis revealed three clinically meaningful factors that support the notion that mania is multidimensional.

References

1. Berrios GE. What is phenomenology? A review. J R Soc Med. 1989;82(7):425-8.

2. Finlay L. Debating phenomenological research. Phenomenology &

Practice. 2009;3(1):6-25.

3. Smith JA, Eatough V. Interpretative Phenomenological Analysis. In: Breakwell G, Hammond SM, Smith JA. (Eds.) Research Methods in Psychology. Sage Publications Ltd. 2006.

4. Heidegger M. Being and Time. Stambaugh J. (Translator). Albany: State University of New York Press; 1927/1996.

5. Husserl E. Ideas pertaining to a pure phenomenology and to a phenomenological philosophy - First book: general introduction to a pure phenomenology. Kersten F. (Translator). The Hague: Nijhoff. (1913/1982).

6. Kafle NP. Hermeneutic phenomenological research method simplified. Bodhi: An Interdisciplinary Journal. 2011;5.

7. Langdridge D. Phenomenological psychology: Theory, research and methods. London: Pearson. 2007.

8. Von Eckartsberg R, Valle RS. Heideggerian thinking and the eastern mind. Metaphors of consciousness. New York and London: Plenum Press. 1981;287-311.

9. Wilberg P. The awareness principle, Advaita and European phenomenology. 2006.

10. Barendregt HP. Mysticism and beyond, Buddhist phenomenology part II. The Eastern Buddhist. 1996;262-87.

11. Sims A. Symptoms in the Mind (3rd edn). W.B. Saunders, London. 2003.

12. Jaspers K. General psychopathology (7th edn). Manchester University Press. 1963.

13. Gelder MG, Andreasen NC, Gedder JR. New Oxford Textbook of Psychiatry (2nd edn). Oxford University Press. 2009.

14. Shah BN, Parmar MC. Phenomanology of mania (Bipolar -1). International Journal of Pharmaceutical and Medical Research. 2014;1-12.

15. Angst J, Marneros A. Bipolarity from ancient to modern times: conception, birth and rebirth. J Affect Disord. 2001;67(1-3):3-19.

16. Alexander F, Selsnick S. The history of psychiatry. New York, NY: Harper & Row. 1996.

17. Luneberg H. Hippocrates. Sämtliche werke: München. 1897.

18. Pinel P. Nosographie Philosphique Ou La Methode De L'analyse Appliquee. A Lamedecine, 6th edn. Brosson: Paris. 1818.

19. Liddell HG, Scott R. A Greek-English Lexicon. Clarendon Press: Oxford. 1940.

20. Kraepelin E. Manic-depressive Insanity and Paranoia. Livingstone, Edinburgh; 1921.

21. Lattimore R. The Iliad of Homer (Transl.). University of Chicago Press: Chicago. 1961.

22. Basco, Ramirez M. The Bipolar Workbook: Tools for Controlling Your Mood Swings. 2006.

23. Deckersbach T, Perlis RH, Frankle WG, Gray SM, Grandin L, Dougherty DD, et al. Presence of irritability during depressive episodes in bipolar disorder. CNS Spectr. 2004;9(3):227-31.

24. Pasquini M, Picardi A, Biondi M, Gaetano P, Morosini P. Relevance of anger and irritability in outpatients with major depressive disorder. Psychopathology. 2004;37(4):155-60.

25. MacQueen GM, Young LT, Robb JC, Cooke RG, Joffe RT. Levels of functioning and well-being in recovered psychotic versus nonpsychotic mania. J Affect Disord. 1997;46(1):69-72.

26. Van Riel WG, Vieta E, Martinez-Aran A. Chronic mania revisited: Factors associated with treatment non-response during prospective follow-up of a large European cohort (EMBLEM). World J Biol Psychiatry. 2008;9(4):313-20.

27. Psychiatry, Third Edition. Edited by Allan T, Jerald K, Jeffrey A, Michael B. First and Mario Maj. John Wiley & Sons, Ltd. 2008.

28. Akiskal HS, Bourgeois ML, Angst J, Post R, Möller H, Hirschfeld R. Re-evaluating the prevalence of and diagnostic composition within the broad clinical spectrum of bipolar disorders. J Affect Disord. 2000;59 Suppl 1:S5-S30.

29. Akiskal HS, Hantouche EG, Bourgeois ML, Azorin JM, Sechter D, Allilaire JF, et al. Toward a refined phenomenology of mania: combining clinician-assessment and self-report in the French EPIMAN study. J Affect Disord. 2001;67:89-96.

30. Angst J, Gamma A. A new bipolar spectrum concept: a brief review. Bipolar Disord. 2002;4 Suppl 1:11-4.

31. Angst J, Gamma A, Benazzi F, Ajdacic V, Eich D, Rössler W. Diagnostic issues in bipolar disorder. Eur Neuropsychopharmacol. 2003;13 Suppl 2:S43-50.

32. Angst J, Gamma A, Benazzi F, Ajdacic V, Eich D, Rossler W. Toward a re-definition of sub-threshold bipolarity: epidemiology and proposed criteria for bipolar-II, minor bipolar disorders and hypomania. J Affect Disord. 2003;73:133-46.

33. Janowsky DS, Morter S, Hong L, Howe L. Myers Briggs Type Indicator and Tridimensional Personality Questionnaire differences between bipolar patients and unipolar depressed patients. Bipolar Disord. 1999;1:98-108.

34. Hollander E, Tracy KA, Swann AC, Coccaro EF, McElroy SL, Wozniak P, et al. Divalproex in the treatment of impulsive aggression: efficacy in cluster B personality disorders. Neuropsychopharmacology. 2003;28(6):1186-97.

35. Grunze H, Vieta E, Goodwin GM, Bowden C, Licht RW, Moller HJ, et al. The World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for the biological treatment of bipolar disorders: update 2009 on the treatment of acute mania. World J Biol Psychiatry. 2009;10(2):85-116.

36. Akiskal HS. Mood disorders: clinical features. In Kaplan and Sadock's Comprehensive Textbook of Psychiatry; 2000:1338-77.

37. American Psychiatric Association. Practice guideline for the treatment of patients with bipolar disorder (revision). Am J Psychiatry. 2002;159(4 Suppl):1-50.

38. Leonhard K. Pathogenesis of manic-depressive disease. Nervenarzt. 1957;28(6):271-2.

39. Angst J, Perris C. On the nosology of endogenous depression. Comparison of the results of two studies. Arch Psychiatr Nervenkr. 1968;210(4):373-86.

40. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th text revision (DSM-IV-TR); 2000.

41. Arora M, Daughton J. Mania in the medically ill. Curr Psychiatry Rep. 2007;9(3):232-5.

42. Sadock BJ, Sadock VA, Ruiz P. Kaplan & Sadock's Comprehensive Textbook of Psychiatry: Lippincott Willams and Wilkins; 2009.

43. Kumar R, Sinha B, Chakrabarti N, Sinha VK. Phenomenology Of Mania - A Factor Analysis Approach. Indian J Psychiatry. 2001;43(1):46-51.

44. Jackson S. Melancholia and Depression: From Hippocratic Times to Modern Times. Yale University Press: New Haven, CT; 1986.

45. Ghaemi SN. Feeling and Time: The Phenomenology of Mood Disorders, Depressive Realism, and Existential Psychotherapy. Schizophr Bull. 2007;33(1):122-30.

46. Cheniaux E, Filgueiras A, Silva RA, Silva LA, Santos AL, Fernandez L. Increased energy/activity, not mood changes, is the core feature of mania. J Affect Disord. 2014;152-154:256-61.

47. Cassidy F, Forest K, Murry E, Carroll BJ. A factor analysis of the signs and symptoms of mania. Arch Gen Psychiatry. 1998;55(1):27-32.

48. Goodwin FK, Jamison KR. Manic-Depressive Illness, 2nd edn. Oxford

University Press: New York; 2007.

49. Depue RA, Krauss SP, Spoont MR. A two-dimensional modelof seasonal affective bipolar disorder. In: Magnusson D, Ohman A, editors. Psychopathology: An Interactionist Perspective. AcademicPress: New York. 1987;95-123.

50. Double DB. The factor structure of manic rating scales. J Affect Disord. 1990;18(2):113-9.

51. Güclü O, Şenormancı Ö, Aydın E, Erkıran M, Köktürk F. Phenomenological subtypes of mania and their relationships with substance use disorders. J Affect Disord. 2015;174:569-73.

52. Berrios GE. Of Mania: Introduction (Classic Text No. 57). Hist Psychiatry. 2004;15(57 Pt 1):105-24.

53. Berrios GE, Porter R. A history of clinical psychiatry. New York: New York University Press. 1995.

54. Gupta SC, Sinha VK, Praharaj SK, Gandotra S. Factor structure of manic symptoms in adolescents. Ann Clin Psychiatry. 2011;23(4):243-9.

55. Sato T, Bottlender R, Kleindienst N, Möller H. Syndromes and Phenomenological Subtypes Underlying Acute Mania: A Factor Analytic Study of 576 Manic Patients. Am J Psychiatry. 2002;159(6):968-74.

56. Hanwella R, de Silva VA. Signs and symptoms of acute mania: a factor analysis. BMC Psychiatry. 2011;11(1):137.

57. Dilsaver SC, Chen YR, Shoaib AM, Swann AC. Phenomenology of mania: evidence for distinct depressed, dysphoric, and euphoric presentations. Am J Psychiatry. 1999;156(3):426-30.

58. Cassidy F, Pieper CF, Carroll BJ. Subtypes of Mania Determined by Grade of Membership Analysis. Neuropsychopharmacology. 2001;25(3):373-83.

59. Cassidy F, Murry E, Forest K, Carroll BJ. Signs and symptoms of mania in pure and mixed episodes. J Affect Disord. 1998;50(2-3):187-201.

60. Goodwin FK, Jamison KR. Manic-depressive illness. New York: Oxford University Press; 1990.

61. Beigel A, Murphy DL. Assessing clinical characteristics of the manic state. Am J Psychiatry. 1971;128(6):688-94.

62. Bauer MS, Crits-Christoph P, Ball WA, Dewees E, McAllister T, Alahi P, et al. Independent assessment of manic and depressive symptoms by self-rating. Scale characteristics and implications for the study of mania. Arch Gen Psychiatry. 1991;48(9):807-12.

63. Swann AC, Suppes T, Ostacher MJ, Eudicone JM, McQuade R, Forbes A, et al. Multivariate analysis of bipolar mania: retrospectivelyassessed structure of bipolar I manic and mixed episodes in randomizedclinical trial participants. J Affect Disord. 2013;144(1-2):59-64.

64. Gonzalez-Pinto A, Ballestros J, Aldama A, Perez de Heredia JL, Guiterrez M, Mosquera F, et al. Principal components of mania. J Affect Disord. 2003;76(1-3):95-102.

65. Pedley R, Mansell W. The Ascent into Mania: A review of Psychological processes associated with the development of manic symptoms. Clin Psychol Rev. 2008;28(3):494-520.

66. Cassano GB, Mula M, Rucci P, Frak E, Kupfer DJ, Oppo A, et al. The structure of lifetime manic -hypomanic spectrum. Journal of Affective Disorders. 2009;112(1-3):59-70.