

PHENOMENOLOGY OF MANIA - A FACTOR ANALYSIS APPROACH

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ABSTRACT

The phenomenology of mania has not been empirically studied adequately. Various studies have revealed 2, 4 & 5 factors as the core features defining the manic state. Differences in the Bipolar disorders have been reported across culture in the past further complicating the issue.

This study was carried out to study the core features of the manic state and compare it with similar studies across culture.

Hundred consecutive patients attending the Central Institute of Psychiatry's Out Patient Services for the first time with a diagnosis of manic episode or bipolar disorder, current episode mania as per Diagnostic Criteria for Research were taken up for the study.

Factor analysis using Principal Components with Varimax rotation was carried out. Factor score were tested for normal distribution using Kolmogorov Smirnov statistic.

The findings revealed three factors representing psychomotor acceleration, thought disorder and mood. All distributions were normal. Mood was found to be on a continuum with euphoria and irritability on the opposite poles.

Key words : Mania, phenomenology, factor analysis

Kraepelin (1921) separated the functional psychoses into manic depressive insanity and dementia praecox. His description of the manic state still holds good. Attempts over the years to delineate the key components of the manic episode, which may explain the entire phenomenological presentation of the disease, have been few. Clayton et al (1965) described three core features - elevated mood, flight of ideas and psychomotor overactivity. These were also considered to be the cardinal symptoms by Winokur et al. (1969). Cassidy et al. (1998a) derived four cardinal features from earlier studies - euphoric mood, psychomotor pressure, grandiosity and irritable aggression.

Unlike the case of schizophrenia and depression, where numerous empirical studies have been done to arrive at factors (Andreasen et al., 1995; Miller et al., 1993; Peralta et al., 1992; Kulhara et al., 1986; Salamero and Marcos, 1992,

Golin and Hartz, 1979; to list a few), such studies are scarce in mania. Furthermore, while previous studies (Murphy and Biegel, 1974) had a small sample size, recent studies (Double, 1990; Cassidy, 1998b; Dilsaver et al., 1999) have come out with two to five factor solutions.

The presentation of bipolar disorders may also be different across cultures. It has been reported that patients in Eastern India have a greater frequency of manic relapses in comparison to depressive relapses and recurrent mania was the most common presentation. There were no patients with rapid cycling in this sample (Khanna et al., 1992). In mania, male sex has been found to be overrepresented in hospital based studies (Khanna et al., 1992; Khesht et al., 1997) and the meta analysis of epidemiological studies has found mania to be more prevalent in males when compared to females (Reddy and Chandrasekhar, 1998).

PHENOMENOLOGY OF MANIA

With such a difference in the presentation of bipolar disorders, this study was conducted to study the core features of pure manic states in Eastern India and compare it with similar studies in the west

MATERIAL AND METHOD

This study was conducted in the Central Institute of Psychiatry (CIP), Ranchi. This is a 643 bedded tertiary referral hospital for psychiatric disorders and its catchment area includes the whole of Eastern India.

For the purpose of this study, patients were selected from all patients attending the Out Patient Services (OPD) for the first time. All consecutive patients who came to the OPD for the first time above the ages of 18 years and received a diagnosis of either Manic Episode or Bipolar Affective Disorder, Current episode Mania were included in the study. All patients were diagnosed using the criteria laid down in the Diagnostic Criteria for Research of ICD-10 (WHO, 1993).

The subjects were excluded if they received a diagnosis of Organic Psychosis (F06.3) or Substance Induced Psychosis (F1x.55). They were also excluded if they had received a diagnosis of mixed mania. This was done because the conceptualization of mixed mania is still inconsistent due to variations in definitions regarding the required degree of associated depression and the required temporal relationship between manic and depressive symptoms (McElroy et al., 1992).

All patients were rated on the Scale for Manic States (Cassidy et al., 1998a). This is a 20 item scale measuring all aspects of mania. Each item is measured on 6 points from 0 to 5 and anchor points are provided for points 1, 3 & 5.

Before starting the study, 10 patients were administered the scale independently by two members of the research team and the inter rater reliability was assessed.

The symptom interrelationships were studied by principal components factor analysis. The factors were subjected to a varimax rotation.

Item loadings with absolute values greater than 0.4 were used to describe the factors.

RESULTS

The total sample size was 100 and consisted of 77 males and 23 females. The mean age of the sample was 31.05 ± 9.9 years. Family history of mental illness was present in 59 cases and 66 cases were in their first manic episode. 68 patients were Hindu, the rest belonging to other communities. The mean mania total was 42.18 ± 7.7 and the distribution of the mania total across the sample was normal (Kolmogorov Smirnov statistic, $p=0.7619$).

Inter rater reliability was assessed using weighted Kappa and the value obtained was 0.8527.

On plotting the mean values of all items of the Scale for Manic States, it was seen that items depressed mood, guilt and suicide had a mean of almost zero (Figure 1). These items were therefore not considered for factor analysis.

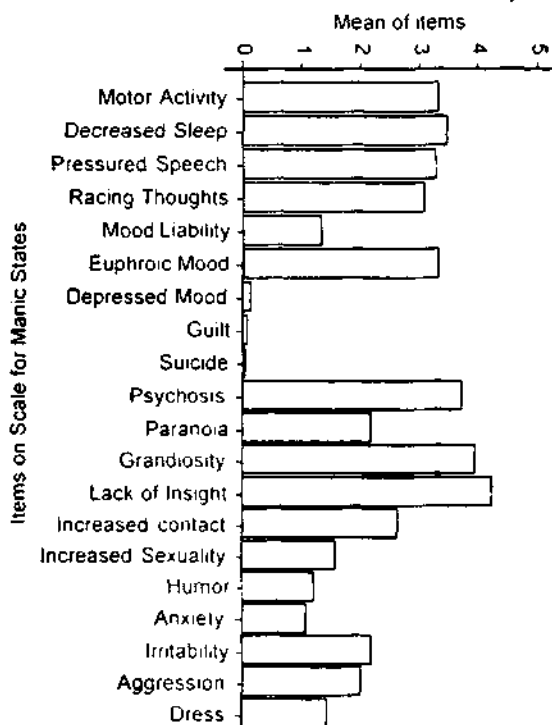


Fig. 1. Mean of each item on the Scale for Manic States

TABLE 1
ROTATED FACTOR LOADINGS FOR SCALE ITEMS

	Factor 1	Factor 2	Factor 3
Motor activity	0.72452		
Pressured speech	0.84920		
Racing thoughts	0.78392		
Increased sexuality	0.49104		
Increased contact	0.53647		
Psychosis		0.82279	
Paranoia		0.67487	
Grandiosity		0.78250	
Lack of insight		0.65747	
Euphoria			-0.51346
Irritability			0.82447
Aggression			0.70438
Anxiety			0.59254
Variance	18.3%	14.0%	13.8%

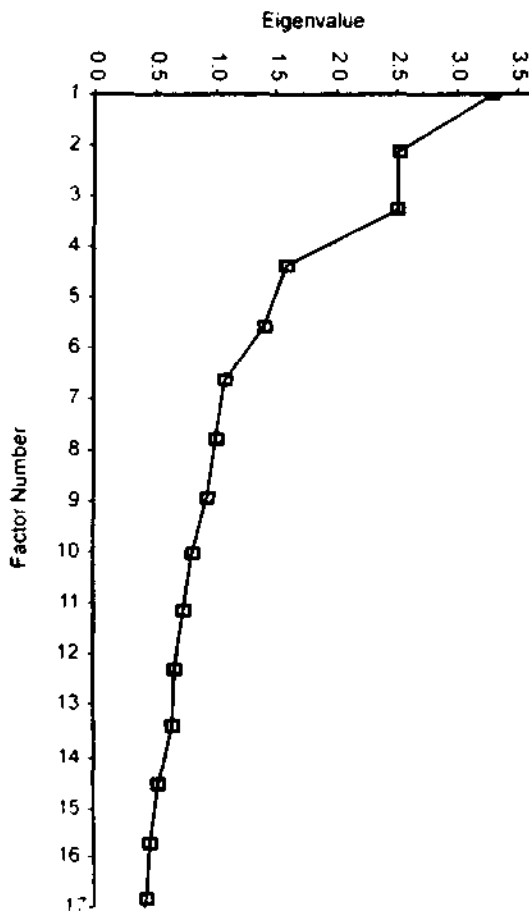


Fig 2. Factor Scree Plot

Five eigen values greater than unity were obtained. However on analyzing the scree plot (Figure 2), the number of factors obtained was 3. (Streiner,1994). The three factors captured 46.1% of the variance. Varimax rotation was carried out on 3 to 5 factor solutions and the results seen for clinical interpretation. It was seen that the rotated three factor solution was the best and is discussed below. The Kolmogorov - Smirnov statistic was used to test the distribution of the factor scores. All the distributions were found to be normal (factor 1: p=0.9805, factor 2: p=0.9309, factor 3: p=0.9906). The individual item loading on each factor with a value greater than 0.4 is shown in table 1. The items of sleep, mood lability, humor and dress did not load on any factor. None of the items loaded on more than one factor. The items of dress and sleep also did not load on any factor in the study of Cassidy *et al.* (1998b).

DISCUSSION

Consistent with earlier studies (Khanna *et al.*, 1992, Khess *et al.*, 1997), our sample has a male preponderance. This paucity of females is most likely to be due to a greater prevalence of mania in males than in females in India (Reddy and Chandrasekhar, 1998). This could also be due to the exclusion of the mixed states. It has been reported that mixed mania may be more common in women (Winokur *et al.*, 1969; Krishnan *et al.*, 1983). It could be also due to the fact that females suffer more commonly from depression rather than mania (Weissman and Klerman, 1985).

Similar to the study of Cassidy *et al.* (1998b), the first factor obtained in our study is not a general factor for mania as found in the studies of Murphy and Biegel (1974) and the unrotated solution of Double (1990). In our study the first factor represented psychomotor acceleration. It consisted of motor activity, pressured speech, racing thoughts, increased contact and increased sexuality. This is similar to the second factor of Cassidy *et al.* (1998b) - psychomotor acceleration, the difference being that increased sexuality was not a component in

PHENOMENOLOGY OF MANIA

their factor. This factor is included in the general factor of Murphy and Biegel (1974) and factor three of Double (1990). Factor three of Dilsaver et al. (1999) included the items of psychomotor acceleration.

The second factor represented thought disorder. It consisted of general rating for psychosis (hallucinations and delusions), paranoia, delusional grandiosity and lack of insight. This factor is similar to the third factor of Cassidy et al. (1998b). This factor does not have a clear counterpart in the analysis of Murphy and Biegel (1974) which may be due to the reason of their using a mania scale which did not have defined items for psychosis. This factor is somewhat analogous to the fourth factor of Dilsaver et al. (1999) who along with delusions and suspiciousness also found irritability in his factor. It is also analogous to factor 1 of Double (1990) which contained items of insight, language thought disorder and content of Youngs mania scale.

The third factor obtained by us represented mood. It had positive loading on irritability, anxiety and aggression and negative loading on euphoric mood. This is similar to the study of Murphy and Biegel (1974) which supported their previous suggestion of subtyping the manic state into irritable/aggressive and elated/grandiose types (Biegel and Murphy, 1971). Empirical statistical testing on the unrotated solution was done by Double (1990) and similar to our study we did not get a bimodal distribution. Thus our finding suggests that mood can be viewed as a continuum with poles of aggression and irritability on one end and euphoria on the other end. Irritability and aggression loaded on factor 5 of Cassidy et al. (1998b) along with lack of insight. However there was no negative loading of euphoric mood in their study on this factor which loaded negatively on their factor 1.

The three factors revealed in our study bear striking similarities to the core features of mania derived from earlier descriptive works of Clayton et al. (1965), Winokur et al. (1969) and Cassidy et al. (1998a). Our findings differed from other similar studies in the absence of the prominent role of depressive symptoms. This could

be due to a number of reasons. We excluded mixed affective states from our sample which had not been done in the previous studies (Double, 1990, Cassidy et al., 1998b; Dilsaver et al., 1999; Murphy and Biegel, 1974). We had also excluded depressive items from the analysis as their mean score was very low. Cassidy et al. (1998b) does mention that their results were not different when only pure manics were analysed. This could be due to our sample being more severely ill than theirs (a mean of mania total of 42.18 in our sample compared to 33.8 in that of Cassidy's). According to Court (1968) continuum hypothesis of bipolar disorders, depression lies between normalcy and mania. Thus, the more severe the episode, more the manic features. A lesser severity of the episode would be more likely to include depressive features.

Consistent with the studies of Murphy and Biegel (1974) and Double (1990), the factor of mood had opposite loading on euphoria and irritability. As this factor was not statistically bimodal, we cannot hypothesize the presence of two types of mania - the irritable and euphoric types. However, the results may be interpreted as the variation of mood on a continuum with euphoria on one end and irritability on the other.

Similar to the studies by Murphy and Biegel (1974) and Double (1990) the first factor was not that of mood but that of overall activation. Changes in mood are the hallmark of mania in the current nosological criteria of ICD-10 (WHO, 1992) and DSM-IV (APA, 1994). Another important facet is the importance of thought disorder which has come as a separate factor in our study similar to that of Double (1990) and Cassidy et al. (1998b) which would amount to psychosis in the severe state. This result is indirectly supported by the latent class analysis of psychosis by Kendler et al. (1998) who found a class of schizomania rather than pure mania. These results reveal the need for a revision of the relative weight of the items needed for the diagnosis of mania in the nosology.

These findings can come in handy while studying the course of the illness, the onset and resolution of illness across the factors, clinical

response to drugs across factors, and the relationship to biological markers to different factors for a greater diagnostic accuracy. Mania has been reported to result in ruined careers, destroyed friendships, divorces and financial disasters (Jacobson, 1965). It also places a great stress on the fabric of family systems and manics are reported to be subject to more restraint than schizophrenics (Kumar et al., 1999). A better understanding of the disease process will therefore help in customizing the treatment for maximum efficacy and minimum morbidity.

Our study was limited by a small sample size. However the sample size satisfies the criteria for factor analysis and it included only pure manic states while the other studies also included mixed states in their samples. It also had a relative paucity of females which may make generalization across gender difficult but as discussed, this phenomenological difference has been previously reported.

The authors hope that studies in this area will be undertaken in the future so that the phenomenology of mania in particular and bipolar disorders in general is further clarified empirically in our culture.

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PHENOMENOLOGY OF MANIA

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