

# Catatonia in Affective Disorders

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**Abstract:** Catatonia was described by Kahlbaum in 1874 as a putative disease entity and was subsumed under dementia praecox by Kraepelin in 1896. Although a number of studies attested to the occurrence of catatonia in several other clinical conditions (major psychiatric disorders and organic brain disturbances), its place in modern classifications is still debated. While the traditional clinical stereotype have equated catatonia with schizophrenic psychosis, modern studies in the last three decades observed catatonia in approximately 10% of acute psychiatric admissions, most frequently in association with mood disorders. Catatonic signs (such as mutism, stereotypy, posturing, catalepsy, automatic obedience, negativism, echolalia/echopraxia, or stupor) occur in 13-31% of patients with affective disorders. Recent studies confirmed that catatonic signs are present in 28-66% in different phases of Bipolar Affective Disorder and Schizoaffective Disorder, bipolar subtype. In these cases, manic symptoms are more prominent and mixed states are more frequent. Catatonic signs occur most frequently (approx 61%) in mixed affective states and 46% of these patients require admission to an emergency psychiatric unit.

Catatonic symptoms are found in 31-62% of patients with mania. Presence of catatonia is associated with more severe manic phases. Depression is associated with catatonic signs in 20-53%. Catatonia usually indicates the severity of depressive state but its presence is also a predictor of favorable treatment response.

The prompt recognition of catatonic signs is important since catatonia in patients with affective disorders responds rapidly to benzodiazepines or electroconvulsive therapy which could be a lifesaving intervention. Appropriate prophylactic treatment of affective disorders is of crucial importance in this respect.

**Keywords:** Catatonia, mania, depression, bipolar disorder.

## INTRODUCTION

In his groundbreaking monograph in 1874, Kahlbaum described catatonia as an independent disease (Krankheit) [1]. Nevertheless, careful analysis of the cases described in Kahlbaum's book makes it clear that the etiology behind catatonic states was heterogeneous. Two decades later, based on its poor prognosis, Kraepelin subsumed catatonia under the group of "dementia praecox" [2]. In contrast, in the forthcoming few years several authors pointed out that catatonic symptoms/signs appear in many psychiatric conditions. [3,4]. In his 1916 book, Bleuler also considered that catatonic symptoms do appear in a variety of psychiatric disorders other than schizophrenia [5]. This view became the basis of the classification of catatonia in the DSM system [6].

One of the first reports about the association of catatonia with affective disorders was the study by George Kirby, published in 1913 where he presented five cases with manic-depressive illness, showing catatonic signs [7]. Only a few years later, in 1921, it was Kraepelin who described that

catatonia began with a depressive episode in 50% of the cases, and manic symptoms also often appear in association with catatonia [8]. August Hoch also confirmed the strong associations between catatonia and affective disorders: he reported about 25 catatonic patients including 13 with manic-depressive disorder in 1921 [9].

Unfortunately these findings were not paid wide attention for decades, and it was Gelenberg's seminal paper, published in 1976, that regained interest in this field [10]. After Gelenberg's publication, the view that catatonia is a neuro-psychiatric syndrome that could be associated with a large number of psychiatric and medical conditions, was generally accepted [11]. In the present review the complex relationship between catatonia, affective disorders and schizophrenia/psychotic disorders will be discussed.

## Catatonia in Different Psychiatric Disorders

Abrams and Taylor [12] identified 55 cases with catatonic symptoms in consecutive admissions to two inpatient psychiatric units of a municipal hospital over a 14-month period. For the diagnosis of catatonia, at least one of the following 8 symptoms: stereotypy, catalepsy, negativism, mutism, posturing, automatic obedience, echolalia/echopraxia, stupor had to be present. Only 4 (7%) of the 55

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cases were associated with schizophrenia, while 71% met diagnostic criteria of an affective disorder (62% mania and 9% depression). In 16% of the patients, the symptoms were related to a medical condition while the remaining 5% had a diagnosis of the now defunct diagnosis of reactive psychosis.

In a prospective study, Rosebush *et al* [13] surveyed catatonic symptoms in patients acutely admitted to a university-affiliated general hospital psychiatric ward. Of the 140 patients screened in a 12-month period, 12 (9%) presented with catatonic symptoms, 5 with non-organic and 1 with affective disorder related to a medical condition. In the latter case, mixed (excitatory and inhibitory) catatonic symptoms were found, while in all other cases immobility, mutism, rigidity and negativism were the leading symptoms.

The study of Chalassani *et al.* [14] also aimed to assess catatonic symptoms in acute psychiatric disorders. In two centers, a Welsh and an Indian, a predetermined number (104) of consecutively admitted patients were screened for the presence of catatonic symptoms in a general hospital psychiatric ward. After establishing ICD-10 diagnoses, authors assessed the frequency of catatonic symptoms in the F20 (schizophrenia), and F30 (manic episode) categories of ICD-10. The majority (26.92%) of diagnoses in Wales belonged to F30 categories, while in India the most common diagnoses (54.81%) were in the F20 category. The proportions of catatonic patients in the F20 category were significantly different between the two centers (1 catatonic patient of 24 in Wales versus 10 of 54 in India). In the F30 group, the difference between the two centers was not so prominent (7 catatonic patients of 28 in Wales and 4 from 27 cases in India). The authors, besides describing an ethnic/race/socio-cultural component of catatonia also concluded that it has a stronger association with affective disorders compared to the schizophrenia and related psychoses.

Another research group from India [15] published the results of a 4-year retrospective study in 2011. Files of patients admitted to a psychiatric unit between 2004 and 2008 were reviewed. Diagnoses were made according to ICD-10 criteria. Rating scales, selected according to the diagnosis were used to evaluate psychopathological symptoms. Altogether 1054 patients were admitted in the study period; 51 (4.8%) presented with catatonic symptoms evaluated using the Bush-Francis Catatonia Rating Scale. The mean age of study catatonic patients was 30.2±14.6 years; the gender distribution was nearly equal. In 74.8% of the cases, catatonic symptoms were associated with psychotic disorders (52.9% schizophrenia; 39.2% catatonic subtype, 13.72% acute and transient psychotic disorders, 1.96% delusional disorder and 1.96% schizoaffective disorder). In three cases – two in association with schizophrenia, one with delusional disorder – co-morbid major depression was diagnosed. In 7.84% of the cases depressive phase of bipolar affective disorder was diagnosed.

In a retrospective study, Pataki *et al.* [16] surveyed all admissions to a 30-bed psychiatric unit in New York between 1985 and 1990. Schizophrenia, catatonic type was diagnosed in 43 cases, of which the charts of 19 were suitable for examination. Only in 7 of these 19 cases (36.8%)

was the diagnosis of schizophrenia confirmed, in another 7 cases (36.8%) the diagnosis of affective disorder was established and 5 cases (26.3%) fulfilled the diagnostic criteria of organic affective disorder.

Rohland *et al.* in their retrospective study [17], investigated the documentation of patients admitted to a general psychiatric ward between 1989 and 1992. Twenty-two patients presented with catatonic symptoms: 8 (36.45) in the context of major depressive episode, 5 (25%) with bipolar disorder, 5 (25%) with schizoaffective disorder and 2 (9%) associated to medical conditions.

Krüger *et al.* [18] applied factor analysis to the catatonic symptoms of 165 patients. Four catatonic symptoms (catatonic excitement, catatonic inhibition, involuntary movements/mannerism, catalepsy) were included in this analysis. These symptoms were found responsible for 71.5% of the variance. As a result of the analysis, the following diagnostic groups were identified: schizophrenia, mania, mixed affective states and major depression. Distinctive catatonic symptom pattern occurred in each diagnostic group and the symptomatic overlap between the groups was negligible. The authors concluded that the current, two subtype conceptualization of catatonia is challenged by this four-factor symptom pattern.

Banerjee *et al.* [19] examined 246 patients consecutively admitted to a psychiatric unit over a 2-month period. Eighty-six cases received F20-39 diagnoses according to ICD-10 and were screened for catatonic symptoms. From the screened patients, 32 (37.2%) were presented with catatonic symptoms. Among them were 16 patients (31.4%) diagnosed with bipolar affective disorder, manic phase, and two with unipolar and bipolar depression.

Peralta *et al.* [20] surveyed catatonic symptoms and signs in 567 psychotic patients. Catatonia was identified in 45 (7.9%) cases. The differences between the catatonic and non-catatonic schizophrenia groups were greater than those observed in the catatonic and non-catatonic affective groups. In the authors' opinion, catatonia is either a form of affective disorder or a separate nosological entity.

Rosebush *et al* [21] arrived to the same conclusion in their paper published in 2009. All patients admitted to a psychiatric unit were screened in a 20-year period; 148 patients (78 men) presented with catatonic symptoms, most frequently immobility, mutism, and negativism were seen. The majority (46%) of the patients were diagnosed with affective disorders, while schizophrenia, schizoaffective disorder, organic disorders, benzodiazepine withdrawal, and other psychiatric disorders were found in 20%, 6%, 16%, 4%, and 8 %, respectively. In conclusion the authors emphasize the frequent association of catatonic symptoms with affective disorders.

In their comprehensive reviews, Taylor and Fink [22,23] estimated the frequency of catatonia in 10% of all acute psychiatric admissions. Catatonia is most commonly associated with affective disorders: more than 25% of manic patients presented with catatonic symptoms and more than 50% catatonic patients suffer from bipolar disorder.

### Catatonia in Unipolar Affective Disorders

In 1973 Morrison published the results of a 50-year-long retrospective chart review. Documentation of patients admitted to a psychiatric hospital with the diagnosis of catatonic schizophrenia was scrutinized. Ten percent of patients, presenting with retarded catatonic signs fulfilled the diagnostic criteria of depression and 15% with mixed symptoms (retarded and excited) met diagnostic criteria of depression or mania [24].

Barnes *et al.* [25] reported 25 cases with catatonia observed in a neurological ward between 1972 and 1984. The diagnosis of catatonia required the combination of at least one motor sign (posturing, or waxy flexibility), one psychomotor sign of excitement or retardation (mutism, impulsivity, and negativism) and a bizarre, repetitive motor symptom (stereotypy, echophenomena). In 15 cases comorbid psychiatric disorders were also diagnosed: 9 (36%) were depressed, 5 (20%) had a brain disease, and 1 (4%) schizophrenia. In 10 cases (40%) there was no psychiatric co-morbidity. Seven depressed patients had recurrent catatonia. Catatonia responded well to electroconvulsive treatment (ECT) in most cases of depression and in the single case of schizophrenia.

Payee *et al.* [26] screened patients admitted to an Indian general hospital psychiatric ward for catatonic symptoms, in a 15-months-period. They found 30 patients (14 male) with catatonia. For diagnosing the catatonic syndrome the Bush-Francis Catatonia Rating Scale was used with the exception of stupor, because stuporous states were considered as catatonic syndromes *per se*, based on Benegal's study [27]. Patients already treated with antipsychotic medication or had a medical/ neurologic disease, (eg. Parkinson's disease, encephalopathy, etc.) were excluded from the study and so were patients with a psychiatric history. The three most common catatonic symptoms were mutism, rigidity, and negativism. The diagnostic distribution of the patients was as follows: 40% acute and transient psychotic disorder, 33.3% unspecified non-organic psychotic disorder, 20% schizophrenia and 6.6% depressive episode.

Starkstein *et al.* [28] surveyed catatonic symptoms in 79 depressed patients. In 16 cases (20%) were catatonic signs present. Catatonic patients were older, showed worse cognitive performance and experienced more difficulties in executing daily activities. These observations, as well as the higher values on Hamilton Depression Rating Scale indicated that catatonic depressed patients had more severe depression than those without catatonia. In addition, the family history for depression was more frequently positive in the catatonic group.

In the emergency department of a Taiwanese general hospital Huang *et al.* [29] diagnosed 7 patients (5 women) with major depressive episode with catatonic symptoms between 2002 and 2005. The same research team examined 15 women suffering in post-partum psychiatric disorder. At the 3-6-month follow-up, 8 (53%) patients were diagnosed with major depressive episode, 3 (20%) with bipolar affective disorder, manic phase, 3 (20%) with schizophrenia, and one with *organic* psychosis. Catatonic signs were

present in 4 of the 15 cases. Of these 4 cases, 2 were diagnosed with major depressive episode [30].

### Catatonia in Bipolar Affective Disorder

In an early study, Bonner and Kent [31] compared the symptom profiles of 100 manic ('manic-depressive psychosis') and excited catatonic ('dementia praecox') patients each. Surveyed 40 symptoms were categorized into the following groups: physical symptoms, mental symptoms, emotional state, verbal production, behavior. Authors observed a number of catatonic signs in manic patients as well such as mannerism (34%), posturing (9%) and mutism (8%), stereotypy (7%), verbigeration (12%), play of speech (rhyming, punning - 27%). There were significant differences between the two groups in terms of the following symptoms: distractibility (38% in catatonic patients and 74% in manic patients) hallucinations (87% in catatonic patients and 43% in manic patients) ideas of reference (34% in catatonic patients and 18% in manic patients) over-talkativeness (62% in catatonic patients and 96% in manic patients) flight of ideas (33% in catatonic symptoms, and 91% in manic patients) and sociability (55% in catatonic patients, 73% in manic patients).

Abrams and Taylor [32] studied 52 patients who met diagnostic criteria for mania but were diagnosed with schizophrenia or other illnesses. Catatonic symptoms were found in 13.5% of the cases. Frequent appearance of catatonic symptoms in mania was also confirmed in a study involving 55 patients by the same authors. They identified two syndromes that accounted for 32% of the total variance. The first syndrome (mutism, negativism and stupor) was not related to any specific nosological diagnosis. However, the second group (mutism, stereotypy, automatic obedience, waxy flexibility) was most commonly associated with manic states and usually predicted favorable therapeutic response [33]. The same authors screened catatonic signs, in 123 patients suffering in bipolar affective disorder, manic phase admitted to an acute psychiatric unit over a 14-month period. For the diagnosis of catatonia at least one catatonic sign had to be present. Twenty-eight percent of the patients were diagnosed with catatonia [34].

Morrison conducted a chart review of 250 patients diagnosed with catatonic schizophrenia in the Iowa State Hospital over 50 years, mainly in the pre-neuroleptic era. Eleven percent of the excited catatonic patients fulfilled the diagnostic criteria of mania. Ten percent of the retarded patients were re-diagnosed as depressed, while 15% of the patients showing both the symptoms of retardation and excitement fulfilled the diagnostic criteria of depression or mania. Six (stereotypes, nakedness, posturing, combativeness, mannerism, dilatation of pupils) of 16 catatonic symptoms predicted favorable treatment response while ten had no effect on the outcome. During a 2-year follow-up, the re-diagnosed catatonic manic patients showed a better outcome than those with catatonic schizophrenia [24].

Koehler *et al.* [35] surveyed catatonic symptoms in 89 cases. Charts of patients diagnosed with mania were reviewed. They found only minor catatonic signs (i.e. one of

the following symptoms: freezing, impulsivity, threatening or assaultive behavior, muscle tension, grimacing, nudity or exhibitionism, loquacity, mannerism), which were considered to be characteristic motor signs for hypomania both in their nature and severity, as described by Kraepelin.

Fein and McGrath [36] reported frequent catatonic symptoms in bipolar affective disorder and also pointed out the difficulties of diagnosing these states. They described twelve patients with catatonic symptoms, who were admitted to a psychiatric ward. Eight were diagnosed with schizophrenia. In a 2-year follow-up, eight of the 12 patients were re-diagnosed as having bipolar affective disorder.

Braunig and colleagues [37] screened for catatonic symptoms 61 patients with bipolar affective disorder manic or mixed phase consecutively admitted to a university-affiliated acute psychiatric unit. Fifteen patients (24.6%) fulfilled the criteria of bipolar affective disorder, manic phase, while 46 (75.4%) met criteria for bipolar affective disorder, mixed state according to DSM-III-R. The authors used their own, 21-item scale to detect catatonic symptoms; 16 items probed motor symptoms and 5 targeted behavioral ones. A minimum of four catatonic symptoms had to be present in at least moderately severe form to establish the diagnosis of catatonia. Catatonic symptoms were assessed three days after admission, and three days after discharge. On admission, 19 patients (31.1%) had 5-16 catatonic symptoms in moderate or severe form (rate 2 or higher). At discharge, only 9 (14.7%) presented motor symptoms, without reaching the threshold for diagnosis. The only exception was the inhibition and excitement, which were rated moderate in two cases. Manic patients with catatonic symptoms had more severe manic symptoms and they were more often diagnosed with mixed affective states. Manic states were often associated with co-morbid conditions such as anxiety disorders, dysthymia, or impulse control disorders. Suicide attempts were more frequent in the history of the catatonic patients and they required approximately twice longer hospitalization compared to their non-catatonic counterparts. Fifty-five and 100 percents of the non-catatonic and catatonic patients respectively received benzodiazepines; there were no differences with respect to other psychotropic drugs. These results confirm the strong correlation between catatonic symptoms and bipolar affective disorder, mixed phase as diagnosed by modern diagnostic criteria. One must consider that the diagnostic signpost between schizophrenia and manic-depressive illness was significantly moved since Kraepelin's time and that also accounts for the 'new' results.

Krüger *et al.* [38] screened catatonic symptoms in consecutively admitted 99 patients with bipolar affective disorder, manic or mixed phase. Twelve patients were excluded as they did not consent to participate in the study. Screening was performed with their own Catatonia Rating Scale, which measures 16 motor and 5 behavioral symptoms. The severity of symptoms was assessed on a 4-point Likert scale. For the diagnosis of catatonia, four symptoms had to be present in moderately severe form. In 39 cases (36.4%) bipolar affective disorder mixed phase was diagnosed, while in 60 cases (60.6%) pure mania was found. Twenty-seven patients (27.3%) fulfilled the diagnostic criteria of catatonia; 24 were diagnosed with mixed-phase, and three with mania.

Nineteen (48.7%) patients with mixed phase required acute care including 18 with catatonic symptoms. The authors concluded that catatonic symptoms indicate the severity of mixed phase. They underlined the importance of recognition of the catatonic symptoms for the selection of the adequate acute and long-term therapy.

## DISCUSSION

Although catatonia is still closely related to schizophrenia, the accumulating scientific evidence is increasingly challenging this relationship. The classification of schizophrenia and affective disorders has also undergone major changes, and thus nowadays several conditions, previously considered as schizophrenia regarded as psychotic affective disorders. In line with these changes in the diagnostic practice, new research data confirm that nowadays catatonia occurs most frequently in association with affective disorders. The high variance in the frequency of catatonic symptoms and the wide variety of the associated psychiatric disorders draw attention to two problems: both the diagnostic criteria of catatonia and its assessment methods should be improved [39,40]. Further barrier in the detection of catatonia, that patients presenting with catatonic syndrome can be easily misdiagnosed as they have only behavioral problems. Furthermore catatonic signs are often not recognized at all by the clinicians.

Standardized assessment tools were only recently created; the first catatonia scale was published in 1996 [41]. Current catatonia measuring scales vary widely, thereby making difficult to compare the different test results. Choosing the best tool for clinical or research purposes could be difficult due to the lack of conceptual clarity of catatonia. In clinical practice, most frequently the Bush Francis Catatonia Rating Scale is used [42]. More frequent use of the rating scales in everyday practice would undoubtedly improve the detection of catatonia and thus should be encouraged.

## CONCLUDING REMARKS

To sum up the close relationship of catatonia with affective disorders is well established. The presence of catatonic symptoms often indicates the severity of the condition both in depression and bipolar affective disorder. Catatonic signs are at the same time favorable prognostic factors of treatment response in manic states. The importance of recognizing catatonic symptoms is also highlighted by their favorable treatment response to benzodiazepines and ECT [43]. Appropriate long-term (prophylactic) treatment of affective disorders should also have a prominent role in preventing new episodes of catatonia.

## CONFLICT OF INTEREST

The author(s) confirm that this article content has no conflict of interest.

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