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Review Article

Bipolarity, Types of Psychosis, Mood Incongruence and Trauma in Psychotic Depression

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Abstract

Psychotic depression is a distinct disorder with a different course and treatment than nonpsychotic depression.

INTRODUCTION

Psychotic depression is a distinct disorder with a different course and treatment than nonpsychotic depression [1,2], a lower rate of recovery [3], and a higher risk of relapse and suicide [4,5]. Despite its importance, psychotic depression continues to be overlooked in many clinical settings. The prevalence of psychotic features, the kinds of psychotic symptoms that occur in mood disorders, psychotic features that may differ in unipolar and bipolar psychotic depression, and the impact of traumatic experiences on psychosis, among other issues, remain to be clearly elucidated. To investigate these questions, we administered structured interviews to depressed inpatients and outpatients at two academic medical centers to compare psychotic and nonpsychotic unipolar and bipolar depression.

METHODS

This study was approved by the Combined IRB of the University of Colorado, and the Health Sciences IRB of the University at Buffalo. Based on validated interviews for mood disorders and for assessing dimensions of delusions and hallucinations such as pervasiveness, conviction, influence on behavior, mood congruence, frequency, duration, bizarreness, content, number and reality of hallucinations, as well as past history of trauma [6-11], we developed a structured interview (Psychotic Depression Inventory or PDI) to survey diagnostic criteria and features of major depressive disorder, bipolar disorder (current episode depressed, with or without mixed features), hallucinations, delusions, and traumatic experiences, including the degree to which psychotic symptoms were mood congruent and whether they reflected traumatic experiences ("trauma congruence"). After obtaining informed consent, the PDI was administered to inpatients and outpatients with a diagnosis by the primary clinician of a depressive disorder. Data were summarized and analyzed statistically with SPSS version 28.

RESULTS

The final sample included 171 patients (144 inpatient; mean age ± SEM 41.9 ±1.0; 62% female). Psychotic symptoms were identified in the charts of 6 patients (5%), while at least one psychotic symptom was identified on the PDI in 108 (75%) of patients with adequate data, a significant difference (Fisher's Exact Test, two-sided $p<0.0001$). In one case, psychosis reported in the chart was not confirmed by the PDI. Most psychotic patients reported more than one psychotic symptom on the structured interview; 57% endorsed delusions and hallucinations, 14% endorsed only hallucinations, and 29% endorsed only delusions. As summarized in Table 1, the most common hallucinations were auditory, but hallucinations were reported in every other modality. The most common delusions involved paranoia and delusions of reference, with delusions of guilt and grandiose delusions being somewhat less frequent and all other delusions being reported with varying frequency. Most patients with psychotic symptoms experienced more than one hallucination and/or delusion in more than one domain (Table 1).

Concordance of diagnoses

Among patients with adequate data for comparison, PDI and chart diagnoses were concordant for unipolar depression (major depressive disorder, MDD) in 48 (39%) patients, and for bipolar disorder in 46 (37%) patients. In 29 cases (23%), a chart diagnosis of MDD was contradicted by a PDI diagnosis of bipolar disorder; one chart included a diagnosis of bipolar disorder when

Table 1: Psychotic Symptoms Reported by Depressed Patients

Symptom	N (%)
Hallucinations	
Nonspecific auditory	28 (17)
Specific auditory	36 (21)
Illusions	12 (7)
Unformed visual	21 (12)
Distinct visual	21 (12)
Olfactory	20 (12)
Taste and/or haptic	23 (14)
Delusions	
Paranoid	50 (30)
Influence or control	17 (10)
Nihilistic	12 (7)
Thought transmission	9 (5)
Religious	17 (10)
Reference	35 (21)
Guilt	18 (11)
Hypochondriacal	7 (4)
Jealousy	7 (4)
Grandiose	20 (12)
Somatic	3 (2)
Mind reading	14 (8)
Thought insertion	6 (4)
Thought withdrawal	4 (2)
Other	7 (4)

the interview diagnosis was unipolar depression. Considering patients with enough data to assess polarity who had a consensus PDI diagnosis of unipolar depression (MDD), 35 (56%) endorsed any psychotic symptoms, compared with 73 (78%) of the 94 patients with a diagnosis of bipolar disorder. Psychotic symptoms were significantly more frequent in bipolar than in unipolar depression (Fisher's exact test, 2-sided p=0.0048).

Unipolar versus bipolar psychotic depression

In patients with psychotic symptoms, 58 (78%) patients with bipolar and 28 (80%) with unipolar depression endorsed hallucinations (Fisher's exact test, 2-sided p=NS). Table 2 summarizes the numbers (and percentages) of unipolar and bipolar depressed patients with psychosis who endorsed specific delusions and hallucinations. The most common delusions involved paranoia, ideas of reference, and guilt. The most common hallucinations were specific auditory hallucinations involving voices of varying intensity and distinct visual hallucinations. Nonspecific auditory hallucinations such as hearing sounds and mumbling were frequent, but hallucinations in every modality were endorsed. There were no significant differences between groups in the prevalence of non-auditory hallucinations (29% versus 26%). There was no difference between patients with bipolar and unipolar depression in the total number of delusions (83% versus 88%). The only difference in specific psychotic symptoms between unipolar and bipolar psychotic depression was that grandiose delusions were significantly more common (10.3%% versus 23.1%) in the latter (Fisher's exact test, 2-sided p=0.0284) (Table 2).

Table 2: Psychotic Symptoms in Patients with Mood Disorders*

	Unipolar N (%)	Bipolar N (%)
Delusions		
Paranoid	17 (58.6)	29 (44.6)
Influence	4 (13.8)	12 (18.5)
Nihilistic	3 (10.3)	7 (10.8)
Thought transmission	2 (6.9)	7 (10.8)
Religious	2 (6.9)	11 (16.9)
Reference	15 (55.2) 15 (51.7)	18 (27.7)
Guilt	6 (20.7)	12 (18.5)
Hypochondriacal	2 (6.9)	5 (7.7)
Jealousy	1 (3.4)	6 (9.2)
Grandiose	3 (10.3)	15 (23.1)**
Somatic	0 (0.0)	2 (3.1)
Mind reading	4 (13.8)	10 (15.4)
Thought insertion	1 (3.4)	5 (7.7)
Thought withdrawal	0 (0.0)	4 (6.2)
Other	1 (3.4)	5 (7.7)
Hallucinations		
Nonspecific auditory	8 (28.6)	18 (31.0)
Specific auditory	12 (42.9)	20 (34.5)
Visual illusions	6 (21.4)	6 (10.3)
Visual hallucinations	10 (35.7)	31 (53.4)
Olfactory hallucinations	5 (17.9)	14 (24.1)
Taste and touch	6 (21.4)	16 (27.6)

*See text

**p=0.0284

Mood incongruent psychotic symptoms

The percentage of delusions that are traditionally considered to be incongruent with depressed mood (thought transmission, jealousy, mind reading, thought insertion, thought withdrawal) were reported by 32 (44%) bipolar and 8 (23%) unipolar psychotically depressed patients, a difference that missed significance when the group of these delusions was considered together (Fisher's exact test, corrected 2-sided p=0.0544). There were no significant differences between unipolar and bipolar psychotic depression in any of these specific delusions (one-way ANOVA SS=0.009899, DF=4, F=6.261, p=0.2420). The percentage of hallucinations that would traditionally be considered categorically to be mood incongruent (nonspecific auditory hallucinations, illusions, seeing movement out of the corner of one's eye, olfactory hallucinations, hallucinations of taste and/or touch) were acknowledged by 29 (83%) of unipolar and 70 (95%) bipolar psychotically depressed patients (Fisher's exact test, 2-sided p=NS), without any difference between groups in any one of these hallucinations (one-way ANOVA SS=1003, DF=3, F=0.1347, p=0.7380). Examined another way, ratings by interviewers of each reported delusion for mood incongruence found no difference between unipolar and bipolar psychotic depression in the percentage of specific delusions (Friedman statistic 11.82, p==0.6205) or hallucinations (Friedman statistic 4.500, p=0.4167) that were individually judged to be mood incongruent.

History of trauma

Of 149 patients for whom sufficient data were available, the

majority (122) endorsed a history of traumatic experiences on the interview and/or the Traumatic Antecedents Questionnaire [12,11]. Most patients endorsing past traumatic experiences reported childhood abuse in the domains of neglect, physical abuse, sexual abuse, and/or witnessing violence, while a few patients indicated adult traumatic experiences; 16 patients reported trauma in one domain, 12 patients reported trauma in 5 domains, and the remainder had intermediate numbers of traumatic experiences. Of 83 patients with sufficient data about traumatic experiences, 71 (86%) patients with psychotic depression reported a past history of trauma, versus 50 (78%) of 64 patients with nonpsychotic depression (Fisher's exact test, two-sided p=0.2795). Of 68 subjects with traumatic experiences who endorsed current psychotic symptoms in sufficient detail, 5 (7%) reported only "trauma congruent" psychotic symptoms (i.e., hallucinations or delusions that clearly reflected traumatic experiences such as paranoia that a parent who abused the patient and subsequently died was following the patient or hearing the voice of an adult who molested the patient) in the absence of other psychotic symptoms. In contrast, 44 (65%) psychotically depressed patients with histories of trauma had only trauma incongruent psychotic symptoms (i.e., psychotic symptoms unrelated to traumatic experiences). The remaining 19 patients (28%) reported both trauma congruent and trauma incongruent psychotic symptom. The number of patients with a past history of trauma who endorsed only trauma-congruent psychotic symptoms was too small for statistical comparison with patients with a traumatic history who did not have trauma congruent psychotic symptoms.

DISCUSSION

Our findings may help to explain the wide variation (6-53%) in the reported prevalence of psychotic features in depressed patients [1,4,13-16]. Consistent with previous observations that the true prevalence of psychotic depression is likely to be underestimated because psychotic symptoms are often overlooked in depressed patients [16], psychotic symptoms were not noted by primary clinicians in the majority of cases. One factor that could contribute to overlooking psychotic symptoms is that depressed patients may minimize or not report psychotic symptoms because they do not think that they are abnormal, they do not want to be considered ill, they want to be left alone, or in the case of inpatients, that they are trying to avoid being kept in the hospital. Some patients may not recall psychotic symptoms they experience in one mental state (e.g., more depressed) at a time they are in another state (e.g., less depressed). Patients did not always answer in the affirmative to broad general questions such as whether they see things or hear things that other people could not hear or see, or whether they feel persecuted; but they were more forthcoming about experiencing detailed hallucinations or delusions when they were asked first about nonspecific symptoms such as seeing movement out of the corner of their eyes, hearing mumbling or other sounds, or feeling unusually wary.

Differing definitions and assessment methods have undoubtedly contributed to varying estimates of the prevalence of psychotic depression. For example, nonspecific hallucinations, such as hearing noises, seeing movement out of the corner of one's eye, as well as hallucinations or delusions related to traumatic experiences, are not always considered "real" psychotic symptoms because they are fleeting or do not influence behavior [17-20]. In the present study, patients who endorsed such symptoms were also likely to experience more pervasive psychotic symptoms. Mild, nonspecific, or transient psychotic symptoms therefore may be an indication to inquire at greater length about more severe or pervasive symptoms. More research is needed to determine the impact on prognosis or treatment response of such symptoms when they are not accompanied by more obvious psychosis.

An additional influence on estimates of the prevalence of psychosis in depression may depend on whether bipolar as well as unipolar depression is included in the sample. As was true in this study, episodes of bipolar depression are more frequently associated with psychotic symptoms than are episodes of unipolar depression [21]. Indeed, a strong predictor of psychosis in the course of a mood disorder is bipolarity [22]. Of adults with psychotic depression in community samples, 48.5% have received a diagnosis of bipolar I, and 10.5% a diagnosis of bipolar II, mood disorders [18]. An eventual diagnosis of bipolar disorder is especially common in early onset psychotic depression [14,23]. Given the number of patients whose diagnosis of unipolar depression by the primary psychiatrist was changed to bipolar depression on the structured interview, some of the under estimation of the prevalence of psychosis in this sample may have been related to overlooking cases of bipolar depression. By the same token, the high prevalence of bipolar disorder in this population of depressed patients may explain a higher prevalence of psychosis than is usually reported in studies of psychotic depression. The difference in prevalence of psychosis between unipolar and bipolar psychotic depression suggests that studies restricted to the former may find a lower prevalence of psychosis than studies including bipolar as well as unipolar depression.

A common assumption is that hallucinations that occur in psychotic depression are most frequently auditory, but in our sample hallucinations in other modalities were also common. For example, specific auditory hallucinations (i.e., intelligible voices) were reported by 21% of all patients with psychosis, while about the same percentage of patients (20%) endorsed non-auditory (visual, olfactory and tactile) hallucinations. Delusions were also more diverse than is usually considered typical of severely depressed patients. Consistent with observations more than four decades ago [24], delusions that are often attributed to schizophrenia such as delusions of influence and thought withdrawal were endorsed by patients with mood disorders in this sample. Although psychosis was significantly more common in bipolar than in unipolar depression, the only significant differences between unipolar and bipolar depression in the kinds of psychotic symptoms that were experienced was a greater prevalence of grandiose delusions in bipolar psychotic depression, possibly suggesting a covert mixed manic element.

In contrast to previous reports that mood incongruent (i.e., not reflective of a depressed or manic mood) psychotic symptoms convey greater likelihood of bipolar than unipolar depression [18,21,25], in this study, categories of psychotic symptoms that are traditionally considered mood incongruent were not reported more frequently in bipolar psychotic depression. No specific one of these delusions was more common in bipolar depression, and analysis of specific delusions and hallucinations revealed no difference between unipolar and bipolar psychotic depression in the prevalence of mood incongruence in any specific delusion or hallucination. These findings may not be surprising in that most patients experienced both mood congruent and mood incongruent psychotic symptoms.

The diagnostic and prognostic implications of mood congruence are a subject of ongoing discussion. Some investigators propose that mood incongruent psychotic features indicate a distinct subtype of psychotic depression with a worse prognosis, regardless of the severity of depression [26]. This point of view appeared to be supported by a finding that mood incongruent psychotic features aggregated in families and predicted a worse course [27]. However, outcome studies of psychotic depression with mood incongruent symptoms are difficult to interpret because of lack of consistency of criteria for this category. For example, are delusions of persecution by the devil, the FBI or neighbors, in different categories? And what is the impact of the combination of clearly mood congruent symptoms such as delusions of guilt or command hallucinations to commit suicide and clearly mood incongruent symptoms such as voices commenting on the patient's actions or delusions of being controlled by an alien force? How should investigators classify patients for whom 50% of psychotic symptoms are mood incongruent? What about 10%? Or one mood incongruent psychotic symptom? Regardless of how psychosis is categorized, aside from a growing consensus that mood incongruent psychotic symptoms convey greater likelihood of bipolar depression [18,25], the bulk of evidence suggests that there is no reliable difference in outcome between psychotic depression with mood congruent versus mood incongruent symptoms [26,28-30]. The results of the present study suggest that the mood congruence of psychotic symptoms may not always be diagnostically important either.

Unlike previous research suggesting that a history of childhood trauma is more common in psychotic than in nonpsychotic depression [15,31], there was no significant difference in the present study between patients with psychotic and nonpsychotic depression in history of traumatic experiences. This discrepancy may reflect a higher rate of childhood trauma in this sample, or a higher rate of positive responses to more extensive questioning. The latter possibility is supported by a finding that women receiving treatment for post-traumatic stress disorder (PTSD) related to childhood abuse and neglect were more likely to endorse auditory hallucinations on standardized instruments that asked multiple questions about these symptoms [32].

The number of patients who endorsed only psychotic symptoms that clearly reflected traumatic experiences was too small to assess the contention that such symptoms should be considered "pseudo" psychosis related to flashbacks or dissociative re-experiencing of elements of trauma [18,32]. However, the frequent co-occurrence of "trauma congruent" and "trauma incongruent" psychotic symptoms, and the lack of apparent differences in clinical presentation between patients with this combination of symptoms and those without any psychotic symptoms related to trauma, raise the possibility that identification of trauma congruent psychotic symptoms is likely to predict other kinds of psychotic symptoms if they do not by themselves have the same clinical significance as any psychotic symptom in depressed patients [33]. Prospective outcome data with or without antipsychotic drugs in a sufficiently large sample are necessary in order to determine whether trauma congruent psychotic features, especially in the absence of trauma incongruent symptoms, predict a different course or treatment response than other forms of psychotic depression.

LIMITATIONS

This study is limited by the use of a structured interview protocol that has not been independently validated, although it is derived from other validated instruments. However, we were able to obtain more detailed descriptions of psychotic symptoms in unipolar and bipolar depressed patients than have previously been reported, and our method reflected careful clinical practice. Diagnoses by primary psychiatrists were made according to unstated criteria, and we did not have information about how detailed the clinical evaluations might have been when these diagnoses were made. We coined the term "trauma congruent psychotic symptoms," which has not been consensually defined or studied formally, although psychotic symptoms that are thought to reflect traumatic experiences directly have been the subject of extensive discussion. The finding that most patients with trauma congruent psychotic symptoms (at least by our definition) also had trauma incongruent symptoms requires further study. Similarly, more prospective research is needed into the association of nonspecific and fleeting hallucinations with more consistent psychotic symptoms, with the implication that the presence of one is likely to indicate the presence of the other.

The cross-sectional design of this study limits any conclusions about possible influences of the kinds of psychotic symptoms that were elucidated on the course, treatment or outcome of the mood disorder. A prospective study in a large enough sample to assess the impact of bipolar versus unipolar psychotic depression and of mild versus severe, mood congruent versus mood incongruent, and trauma congruent versus trauma incongruent symptoms, would inform a randomized trial of antipsychotic-antidepressant combinations versus monotherapy in different forms of psychotic depression.

CONCLUSIONS

These results suggest that psychotic features in mood disorders are overlooked more frequently than has been

reported previously, even in hospitalized patients. The frequency of nonspecific and non-auditory hallucinations in patients with mood disorders and their common association with more specific and pervasive psychotic symptoms, indicate that identification of milder symptoms should be followed up with additional patient examination. Whether patients conceal psychotic symptoms from their primary providers, consider these symptoms normal, or have state dependent recall of psychosis, repeated detailed questioning about specific psychotic experiences appeared sufficient to reveal these symptoms. Consistent with studies in nonpsychotic depression [34,35,36], bipolar mood disorders were also overlooked by primary clinicians in a sizable minority of patients. Overall, psychosis was more common in bipolar than in unipolar depression, although the only specific symptoms that were endorsed more frequently in bipolar depression were grandiose delusions. The commonly asserted distinctions between mood incongruent and mood congruent psychotic symptoms, and between psychotic symptoms that could be interpreted as reflecting traumatic experiences and those that could not, were not apparent in this sample; indeed, these categories of psychosis often accompanied each other. Prospective studies are needed to assess the impact of trauma- and mood- congruent and incongruent psychotic symptoms, as well as mild and fleeting psychotic symptoms, on the course and treatment response of psychotic depression.

CRediT Authorship Contribution Statement

Steven L Dubovsky: Conceptualization, Methodology, Investigation, Writing- original draft, Writing- review & editing, Visualization, Supervision, Project administration. Biswarup M Ghosh: Writing-review & editing, Visualization, Supervision. Jordan C Serotte: Investigation, Writing-review & editing. Amelia N Dubovsky: Investigation, Writing: review & editing, Sevie Kandefer: Data curation, Formal analysis, Writing- review & editing, Project administration. Elsa Daurignac: Data curation. Jack Kostrinsky: Formal analysis, Writing- review & editing.

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