Mood Symptoms, Cognition, and Everyday Functioning in Major Depression, Bipolar Disorder, and Schizophrenia

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ABSTRACT

People with depression, bipolar disorder, and schizophrenia manifest considerable cognitive deficits and impairments in everyday functional outcomes. The severity of current mood symptoms is associated with the severity of cognitive deficits in people with unipolar and bipolar disorder, but impairments are clearly still present in cases with minimal current mood symptoms. In people with schizophrenia, depression is less strongly associated with cognitive deficits on a cross-sectional basis, and some evidence suggests that depression and cognitive impairments are inversely related. Furthermore, in schizophrenia, mood symptoms seem to affect everyday functioning in a way that is unassociated with the severity of deficits in cognition and functional capacity. In contrast, in bipolar disorder, mood symptoms seem to affect real-world functioning through an adverse effect on the ability to perform critical functional skills. In both mood disorders and schizophrenia, depression appears to impact the motivation to perform potentially reinforcing acts, possibly through the induction of anhedonia. Clearly, depression has a major adverse impact on everyday functioning in all variants of severe mental illness, and improving its recognition (in the case of schizophrenia) and management has the potential to reduce the adverse impact of severe mental illness on everyday functioning. Reducing disability has the potential to have positive impacts in multiple objective and subjective aspects of functioning in severe mental illness.

INTRODUCTION

Cognitive changes are seen in patients with mood disorders, and depression is commonly seen in people with schizophrenia. In fact, the severity of cognitive impairments in mood disorders is similar to the severity of depression in people with schizophrenia (as described below). People with major depression have mild-to-moderate impairments in cognitive performance compared to

healthy norms and compared to the generally moderate-to-severe impairments seen in people with schizophrenia. Individuals living with schizophrenia are commonly affected by depression, with some proportion of patients experiencing episodic major depression and others experiencing mild depression symptoms on a chronic basis. There are multiple aspects of morbidity in severe mental illness affected by depression, including suicide and subjective quality of life. This column focuses on cognition and everyday functioning. The impact of depression on functioning has been studied in detail in bipolar disorder, including the influence of persistent dysthymia on everyday functioning and the course of cognition across mood states, including depression, elevated moods, and euthymia.

Although the large amount of research literature available on cognitive functioning in people with mood disorders is too substantial to be reviewed in a column,[1,2] there are major consistent findings that can be easily highlighted. In this article, the author will discuss the differences in cognition associated with changes in mood states in major depression and bipolar disorder. The author will also consider whether the presence of depression, which is quite common, worsens cognitive functioning in people with schizophrenia. Finally, the author considers the impact of cognition on everyday functioning in depression, bipolar disorder, and schizophrenia. This assessment will consider whether depression leads to secondary effects, such as changes in hedonic capacity, which impact functioning.

PROFILE AND SEVERITY OF IMPAIRMENTS IN COGNITION

The overall profile of cognitive impairments appears similar in depression, bipolar disorder and schizophrenia, particularly during symptomatic periods. In neurological patients, these impairments would be considered "fronto-striatal" (formerly called "subcortical") in profile. Impairments include deficits in the rate of learning new information, but not in delayed recall memory; impaired executive functioning, attention, and concentration; and reduced processing speed. The overall level of impairments appears to be less in the two mood disorders than in schizophrenia, both during episodes and during periods of relative remission of clinical symptoms.[3,4]

DEPRESSED MOOD AND COGNITION

There is really no debate about whether people with major depression perform more poorly on cognitive tests while in a depressed mood state than when partially to fully remitted. Impairments in concentration and attention, as well as learning and memory, and, to some extent, executive functioning, have been reported to be worse when the patient is depressed than when partially recovered. An important additional question is the nature of the residual cognitive deficits seen in people with major depression. Considerable research suggests that deficits are present in the relatively euthymic/residual state. These deficits include persistent impairments in memory and processing speed, with many patients complaining that they just do not feel as "sharp" as they did prior to the onset of their condition, which leads to increased risk for relapse or reoccurrence of the condition.[5,6]

There are several factors that predict more severe impairments in cognitive functioning in mood disorders. The types of patients most likely to manifest more severe deficits include patients with a history of psychotic major depression.[7] In fact, even patients recovered from a first episode of psychotic major depression show deficits that seem more severe than those seen in patients with current nonpsychotic depression.[4] Furthermore, people with treatment-resistant depression also manifest deficits that seem slightly worse than nonresistant patients, and aging may have a modest adverse effect on the relative levels of impairments seen.[8]

In bipolar disorder, the presence of depression, mania, and residual dysthymia is associated with more severe cognitive impairments than estimates of baseline functioning or when the patient is seen during periods of euthymia. Performance may be somewhat worse overall in bipolar I compared to bipolar II patients.[9] There is considerable evidence that cognitive impairments and functional disability persist during relatively symptom-free periods, affecting up to 60 percent of people with a bipolar I diagnosis.[10] Some studies have found no differences in cognitive performance between patients with bipolar I disorder during symptomatic periods and euthymia. There does not appear to be a qualitative change in functioning during these periods, with the profile of impairment seeming similar in symptomatic and symptom-free periods.[3]

In people with schizophrenia, the connection between depression and cognitive performance has been less studied. In chronic patients, depression has been found to be associated, somewhat paradoxically, with better social and cognitive functioning. This is likely to be a result of depression being seen in patients with much less severe negative symptoms.[11] In several studies that have been completed in different samples of people with schizophrenia, investigators have consistently found that the severity of depressed mood had very modest and generally nonsignificant correlations with performance on comprehensive neuropsychological assessments. For example, in a sample of 222 patients with schizophrenia, investigators found that depression was uncorrelated with the severity of cognitive impairments and deficits on tests measuring the ability to perform everyday living and social skills.[12] In a separate sample of 161 schizophrenia

patients, investigators found similar results.[13]

In the Bowie et al study,[13] the severity of current depression was significantly associated with lower scores on a performance-based measure of social skills in patients with bipolar disorder, although still not associated with neuropsychological test performance. Thus, these findings suggest that depression has an influence on aspects of functional skills performance in bipolar disorder that may not be present in people with schizophrenia. Similar studies have not been completed to date in people with major depression, so a comprehensive understanding of these relationships is not yet possible.

Depression is an important factor for understanding impairments in everyday functioning in schizophrenia, bipolar disorder, and depression populations. The relationship between improvements in depression from symptomatic to remitted states and improvement in everyday functioning is well understood in major depression. Further, the correlations between the presence of persistent dysthymia or more serious depression and impaired everyday functioning in bipolar disorder is also well established. In individuals with bipolar I disorder and in individuals with bipolar II disorder, these depression symptoms are associated with increased disability, reduced productivity, and other indicators of impaired everyday functioning.[14,15] In schizophrenia, the association between depression and everyday disability is becoming better understood, as the fact that people with schizophrenia commonly experience depression is also becoming more accepted.[16] Depression in schizophrenia is no longer considered to be a phenomenon only occurring during periods of partial recovery from psychosis. It is now widely known that depression occurs at all phases of the illness and affects everyday functioning.[12]

In our research, we have found that depression has an adverse impact on several domains of everyday functioning in schizophrenia and bipolar illness.[13] These impacts appear more direct in schizophrenia, where depression contributes to the adverse impact of deficits in cognition and functional skills and incrementally worsens everyday functioning. For bipolar illness, as noted above, the impact of current depression on real-world outcomes seems to be mediated through adverse impacts on the performance of functionally skilled acts.[13] This is clearly a finding in need of replication but makes clinical and intuitive sense: depression interferes with the ability to perform critical skills needed for positive social outcomes.

MOTIVATION AND HEDONIC CAPACITY IN MOOD DISORDERS AND SCHIZOPHRENIA

Motivation is an important concept in terms of everyday functioning. Many everyday acts are likely performed because of their intrinsically reinforcing consequences. Depression is known to reduce hedonic capacity and may reduce the motivation to perform otherwise reinforcing activities because of interference with either the pleasure experienced from them (consummatory anhedonia) or the anticipated pleasure that motivates a person to perform them (anticipatory anhedonia). Recent research on anhedonia has suggested that these different types of anhedonia may be operative in schizophrenia and major depression, with reduced ability to experience pleasure (consummatory anhedonia) the modal phenomena in major depression, with preserved ability to experience pleasure seen in people with schizophrenia.[17] In people with schizophrenia, anticipatory anhedonia apparently predominates in the absence of notable consummatory anhedonia. Interestingly, the little research done on depression and anhedonia in people with schizophrenia suggests an increased frequency of consummatory anhedonia in individuals with schizophrenia who have depressed mood symptoms.[18] Thus, depression's impact on everyday functioning in schizophrenia and mood disorders may be motivational in nature, through impacts on hedonic capacity. Depressed people with schizophrenia may have qualitatively similar hedonic deficits compared to people with major depression.[18] Individuals with persistent cognitive deficits, such as those seen in schizophrenia, may also be unable to volitionally retrieve their memories of previous positive experiences, leading to an increase in the inability to anticipate the pleasurable consequences of every-day actions.

CONCLUSIONS

One of the functionally relevant differences between the mood disorders of major depression and bipolar disorder and schizophrenia is that cognitive deficits appear to be worse during periods with more substantial mood symptoms in mood disordered patients. Furthermore, depression appears to impact everyday functioning in bipolar disorder and major depression in a different way than in schizophrenia. At the same time, a substantial proportion of people with mood disorders have cognitive deficits worse than their premorbid functioning even during periods of relative remission of mood symptoms. In depression, bipolar disorder, and schizophrenia, there seems to be the possibility for current depressed mood to potentiate anhedonia and impact everyday functioning in that manner. Keeping a finger on the pulse of developments in cognitive enhancement will likely be important for clinicians treating either schizophrenia or mood disorders.

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