

Depression: The Physical and Fiscal Impact on Patient, Society and Payers

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Summary

Depression has a significant impact on patients, families, society, and payers. Because of the long-term consequences of this disease on the brain, aggressive and adequate identification and treatment of this disease are necessary to prevent functional and structural brain changes that can lead to a chronic course and disability. Integration of mental health services into a primary care setting may provide the key for optimally managing patients with depression.

Key Points

- Major depression is a costly, leading cause of disability that affects patients, families, and society.
- Depression is frequently associated with and may negatively impact other medical disorders.
- Inadequately treated depression may have a progressive course and may be associated with functional and structural changes in the brain.
- The goal of therapy is to get patients into remission as quickly as possible to prevent additional episodes and brain alterations.
- Comorbid anxiety disorder, substance abuse and dependence, noncompliance, and pain can complicate depression treatment.
- Integration of the mental health and primary care systems can lead to improved outcomes for depression and other mental health disorders.

DEPRESSION AFFECTS 17 TO 24 PERCENT OF the population. The incidence rate is highest in women. Depression has a high co-morbidity with anxiety disorders. Suicide is a frequent result of major depression.

Major depression is a costly and leading cause of disability affecting patients, families, and society (Exhibit 1).^{1,2} The estimated annual cost is over \$80 billion.¹ A majority of patients with depression report moderate to severe functional impairment (Exhibit 2).³ Depression is the third leading cause of disability.²

Thirty to 60 percent of work related costs of depression are related to presenteeism – low performance while at work.^{1,4} Absenteeism is also an issue. In one survey, patients with major depression with and without painful physical symptoms lost an average of 4.5 and 9.4 days of work per month.⁵

One impact on families that has been identified is an effect on children when their mother has depression. In one study, 35 percent of young children

of women with depression meet the criteria for depression, anxiety disorder, or conduct disorders.⁶ Remission of maternal depression has a positive effect on mothers and their children. Just treating the mother's depression to remission can lead to depression remission in the child.

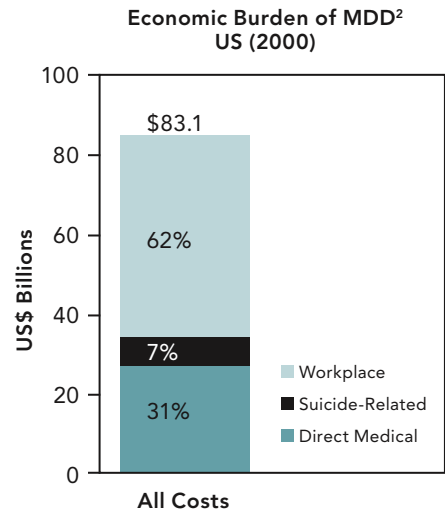
Depression is frequently associated with and may negatively impact many medical disorders. Depression has the greatest impact on overall health scores when the patient has another common chronic conditions such as asthma, angina, arthritis, and diabetes.⁷ The combination of depression and diabetes leads to the worst overall health scores.

Interestingly, there is an association between depression and stroke. The presence of depression increased the risk of stroke 2.3 to 2.7 times in elderly patients.⁸ Patients with five or more depressive symptoms at the time of a stroke have an increased risk of stroke mortality.⁹ Additionally, stroke patients have an increased risk of developing depression.¹⁰ In one study, post stroke depression increased mortality risk by 13 percent.¹¹

Exhibit 1: MDD is Disabling and an Economic Burden^{1,2}

| Disability ¹ | | |
|-------------------------|------------------------------|---------------------------------------|
| Rank* | 1990 | 2020 (est.) |
| 1 | Lower respiratory infections | Ischemic heart disease |
| 2 | Perinatal conditions | Major depressive disorder |
| 3 | HIV/AIDS | Road traffic accidents |
| 4 | Major depressive disorder | Cerebrovascular disease |
| 5 | Diarrheal diseases | Chronic obstructive pulmonary disease |

*Rank based on a composite measure of Disability Adjusted Life Year (DALY) in 15-44-year-olds



There are similar connections between depression and cardiovascular disease. The prevalence of depression is increased between 15 and 25 percent when coronary artery disease, acute myocardial infarction, angina, or congestive heart failure is present.^{12,13} Depression is associated with increased cardiovascular mortality.^{14,15}

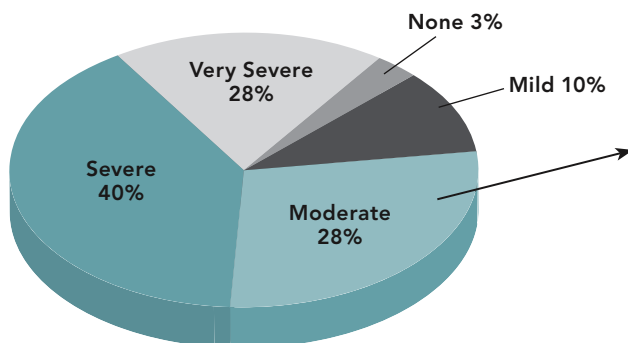
Few patients receive adequate treatment. Of people who actually get started on a medication, only 22 percent receive adequate treatment.¹⁶ Inadequately treated depression may have a progressive course

and may be associated with functional and structural changes in the brain.¹⁷

The goal of therapy is to get patients into remission and not just have a response to therapy (Exhibit 3).¹⁸ An additional goal is to also have recovery – which is prolonging the time until another episode of depression. Achieving remission of symptoms does delay the time until another episode. One study found that patients who were treated to remission went a median of 231 weeks before relapse compared with 68 weeks in patients who still had residual symptoms

Exhibit 2: A Majority of Patients with MDD Report Significant Functional Impairment³

Overall Functional Impairment* as Reported by Patients with MDD (n=622)



- 87% of patients reported moderate to very severe overall functional impairment
- The greatest severe or very severe impairment was reported in the "social role" domain (43%)

*Functional impairment assessed by the Sheehan Disability Scale

Exhibit 3: Major Depressive Disorder (MDD): Progression to Disorder and Discovery¹⁸

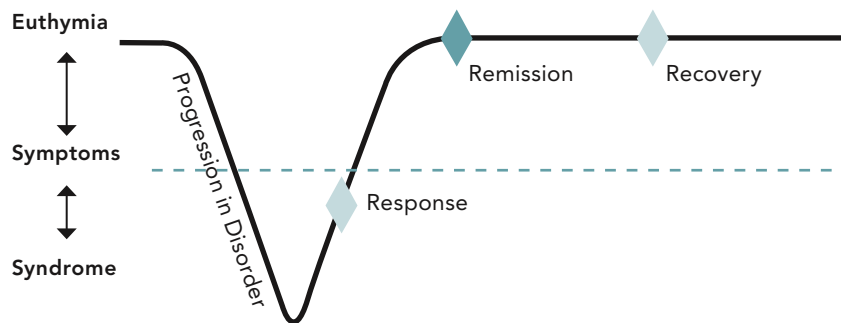
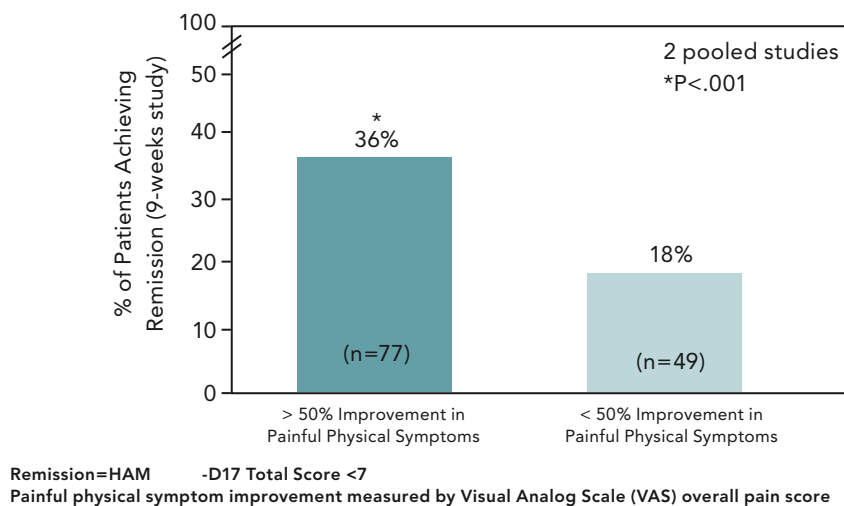


Exhibit 4: Improving Painful Symptoms in MDD Increases the Likelihood of Remission²²



after treatment.¹⁹ Thus, rates of recovery diminish with longer duration of depression symptoms. The longer the delay in beginning treatment, the harder it is to get a remission.

Emotional and physical symptoms of depression respond differently to treatment. In one study of response to selective serotonin reuptake inhibitor (SSRI) treatment, somatic symptoms such as pain were not as responsive to SSRI treatment as emotional symptoms.²⁰ In one study, 69 percent of diagnosed depressed patients reported unexplained physical symptoms as their chief complaint.²¹ Getting painful physical symptoms under control translates to higher remission rates (Exhibit 4).²²

The major areas of the brain involved in the regulation of mood are the prefrontal cortex, amygdala, and hippocampus. Serotonin and norepinephrine influence the balance between excitatory and inhib-

itory activity in the prefrontal cortex and the limbic system. Hippocampal dysfunction may contribute to cognitive impairment and emotional and neuroendocrine dysregulation observed in major depression. Atrophy of the hippocampus has been shown in depression (Exhibit 5).²³ The degree of hippocampal atrophy is related to the duration of symptoms and the number of depressive episodes.²⁴ The atrophy appears to be related to lowered levels of brain derived neurotrophic factor (BDNF) (Exhibit 6).²⁵⁻²⁷ BDNF is one of the factors for new neuron growth in the brain. Successful treatment of depression increases levels of BDNF.

There are many complicating factors in the successful treatment of depression. These include comorbid anxiety disorder, substance abuse and dependence, noncompliance, and pain. High anxiety is associated with higher suicide risk and reduced

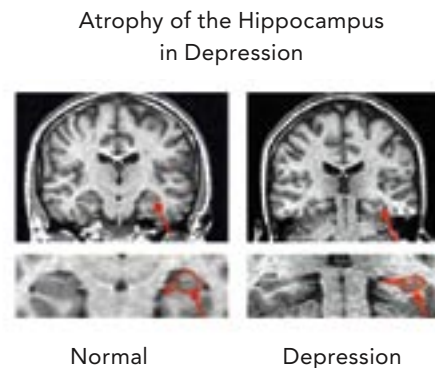
remission rates. Patients with high levels of anxiety frequently utilize medical services. Anxiety should be addressed early and aggressively. Short term use of benzodiazepines along with the antidepressant medication is recommended for these patients. Patients with anxiety should be referred for cognitive behavioral therapy which is very effective.

Substance abuse and dependence are frequently missed in clinical interviews but should always be considered as a possible comorbidity with depression. Once detected, these patients should be referred to a drug and alcohol treatment program. Patients need to be educated that treating depression or anxiety in presence of active substance abuse is minimally effective and at times dangerous. Practitioners should not get frustrated with patients who repeatedly relapse. Addiction is a chronic disease and requires life long treatment.

Noncompliance is an important reason for sub-optimal treatment outcomes. Common reasons patients report for not taking antidepressants are they read about the medication on the internet and were concerned about side effects, they took it for a week then stopped because it was not working, they only take the medication when they feel bad, or they stopped the medication once they felt better. Seventy five percent of antidepressants are discontinued by month four.

There are several interventions to reduce non-compliance. Patients need to be educated regarding the disease, treatment options, and common side effects of the chosen antidepressant. Patients should be

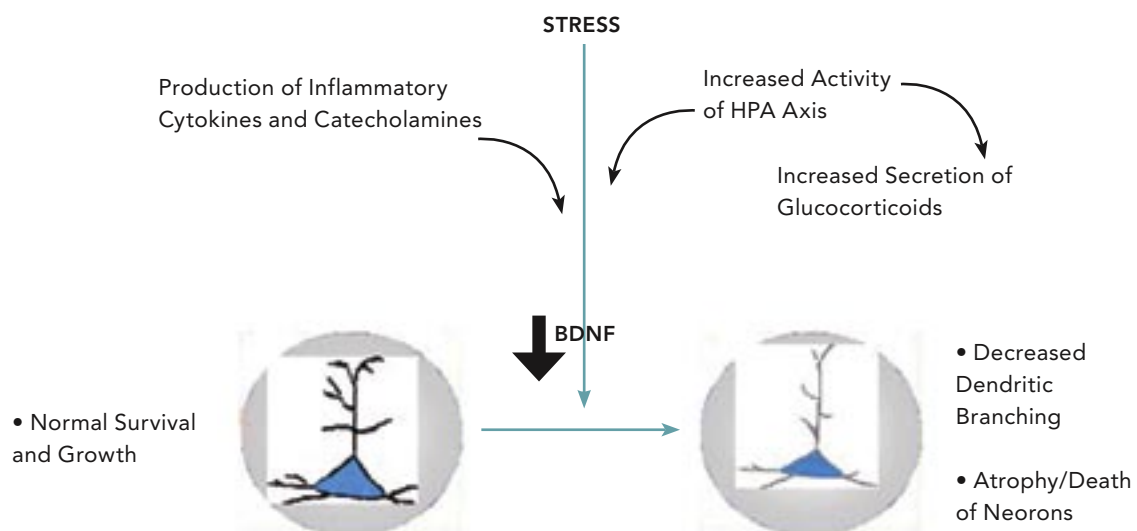
Exhibit 5: Brain Atrophy in Depression²³



reassured that other medication options can be explored in case of side effects. Especially important is an emphasis that these medications need to be taken on a daily basis to be effective. Patients also need to know that continued treatment with medication has a neuro-protective effect.

Chronic pain frequently results in depression and exacerbates existing depression. Depressive symptoms lower pain threshold and result in exaggerated pain response. Improvement of pain symptoms increases the odds for remission. Aggressive treatment of depressive symptoms will allow for better pain management and reduce utilization of medical services. Tricyclic antidepressants and the selective norepinephrine reuptake inhibitors (SNRI) are the most effective for these patients but the SNRIs are pre-

Exhibit 6: The Role of BDNF in Neuronal Changes in Depression²⁵⁻²⁷



HPA = Hypothalamic pituitary adrenal axis

Exhibit 7: The Continuum of Integration

| Modal | Desirability | Attributes |
|----------------------------|--------------|---|
| Separate Space and Mission | -- | Traditional BH Specialty Model |
| 1:1 Referral Relationship | + | Preferred Provider/Limited Information Exchange |
| Co-Location | ++ | Onsite BH Unit/Separate Team |
| Collaborative Care | +++ | Onsite/Shared Cases w/BH Specialist |
| Integrated Care | +++++ | BHC as PC Team Member |

ferred due to a better safety and tolerability profile.

In patient's who are taking their medication yet are still not responding, augmentation can be considered. Conventional augmentation strategies have been addition of bupropion, buspirone, lithium, or levothyroxine. Second generation antipsychotics can also be used for treating depression. The mechanism of action with antipsychotics appears to be through changes in dopamine and serotonin.

A problem in the current health care environment is access to mental health care providers. Some is due to stigma and some due to shortage of providers. A large part is due to lack of integration of the mental health and primary care systems.

A significant number of patients who present to primary care have mental health issues. Forty to seventy percent of community health patients have a mental health disorder or psychosocial reason for the visit. The vast majority of the most common complaints seen in primary care have no organic basis. Overall, fifty percent of all mental health care services are delivered by a primary care provider (PCP). Sixty seven percent of all psychoactive agents and 80 percent of antidepressants are prescribed by PCPs.

In addition to the frequency of mental health issues in primary care, there are several other drivers for integrating the delivery of primary care and behavioral health services. Medical and functional impairments of mental health conditions are on par with major medical illnesses. Psychosocial distress correlates with morbidity and mortality risk. Mental health outcomes in primary care patients are currently only slightly better than spontaneous recovery. Additionally, there is a 50 to 60 percent risk of noncompliance to psychoactive medications within the first four weeks of therapy. Lastly, only one in

four patients who are referred to a mental health specialist actually go to their first appointment.

There are several models to improve mental health care access and outcomes through integration into primary care (Exhibit 7). The hallmarks of a successful primary care behavioral health service include the following: timely access for PCP, integrated service within a primary care setting, service is viewed as a form of primary care, behavioral health care is used by all PC providers, PCPs use interventions targeted by behavioral health more frequently, and the service is provided as part of the health care process.

There are also health benefits of integration. There is improved recognition of mental health disorders and improved PCP skills in medication prescription practices. There is increased use of behavioral interventions by PCPs. Studies have shown a significant improvement in depression remission rates by 42 to 71 percent when behavioral health services are integrated into primary care.²⁸ Improved patient satisfaction and better quality outcomes have also been shown.²⁹ In addition, high level of patient compliance and retention in treatment have been shown.³⁰

Integrating behavioral health service adds \$264.00 per case of depression treated in primary care. The treatment success rate and overall patient adherence to treatment doubles with this expenditure. The result of integration is a positive cost effectiveness index of \$491.00 per case of depression treated.³¹ A meta-analysis of 57 controlled studies showed a net 27 percent cost savings.³²

Conclusion

The impact of major depression on patients, families, and society can be devastating. Depression is frequently associated with and may negatively im-

pact medical disorders. Major depression may cause repetitive brain cell damage and eventual neurodegeneration. Aggressive, early, and sustained treatment might prevent this damage and has been shown to delay relapse. Antidepressants appear to restore neuronal function and structure. The regulation of BDNF may be a key factor in successful treatment outcomes. **JMCM**

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