

## Review Article

**Depression and Physical Illnesses: an Update**M A Mohit<sup>1</sup>, M M Maruf<sup>2</sup>, H Ahmed<sup>3</sup>, M T Alam<sup>4</sup>**Abstract**

Many chronic illnesses have a strong effect on an individual's mental and emotional status, and, in turn, undiagnosed mental disorders can affect a person's ability to cope with an illness and participate in the treatment and recovery process. Depression is the most common complication of almost all chronic or serious medical conditions. Major depression among persons experiencing chronic medical conditions like cardiovascular diseases, diabetes, respiratory diseases, obesity, cancer etc. increases the burden of their physical illness and somatic symptoms, causing increased functional impairment along with increased medical costs. Depression in

long-term illnesses impairs ability for self-care and for maintenance of treatment regimens thus causing increased mortality. Yet, effective treatments, for depression exist. Many factors point to reasons that mental illnesses are not adequately addressed as evidenced by the literatures. Primary care services need to improve ways of identifying depression associated with particular chronic illnesses. we must develop new ways to understand the extent of this mental health problem, and optimal ways to evaluate manage and treat depression in patients with other co-morbid medical conditions.

**Introduction**

Depression is a feeling of unhappiness. A depressed mood and a loss of interest and pleasure are the key symptoms of depression.<sup>1</sup> It is seen that the prevalence of depression ratio-wise is 3-4% when male-female ratio is 1:2.<sup>2</sup>

In Bangladesh, the life-time prevalence of major depressive disorder is 4.6%.<sup>3</sup>

Due to adverse social circumstances, the incidence of depression is more common in females. The point prevalence of major depression ranges from 2.6% to 5.5% among men and from 6.0% to 11.8% among women.<sup>4</sup>

A recent Canadian study using data from the national population health survey suggests that the highest rates of first onset of depression (1.4% - 9.1% of the population) occur among young adults (aged 12 to 24) and lower rates (1.3%-1.8%) occur among people 65 years of age or more.<sup>5</sup>

The neurobiological approaches to etiology of depressive disorders, postulate alteration in monoamines receptors as well as in the

concentration or the turnover of the amines and the patients of depression having no medications have abnormalities in various aspects of monoamines functions. There may be a disorder of the hypothalamic centers controlling the endocrine system found in patients of depressive disorders.<sup>6</sup>

In case of Depression, immune changes are found which with lowered proliferative responses to lymphocytes to mytogens, lowered natural killer cell activity, increase in positive acute phase protein and increases in cytokine levels.<sup>6</sup>

The World Health Organization estimates that depression will become the second most important cause of disability after ischemic heart disease world-wide by 2020.<sup>7</sup>

Depressive illness is strongly associated with physical disease. Up to a third of physically ill patients attending hospital have depressive symptoms.<sup>7</sup> In a Bangladeshi study, the psychiatric morbidity in chronic physically ill patients is 57%. Among them, depressive disorder is 59.6%. That means, overall, depressive disorder in chronic physical illness is 34%.<sup>8</sup>

Recent clinical research has shown a higher prevalence of depression in the medically ill. The rates vary between the various diagnoses but have been estimated to be from 10%-40%. This prevalence rate is 2 to 8 times higher than general population. Understanding the relationship between depressive disorders and medical illness is important to assess and manage Approaches that are vital in depressive disorders with chronic medical illness.

In many patients, treatment for a mental disorder can create an improvement in their overall medical condition, contributing to a better quality of life and allow the person to adhere to treatment plans,

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life-style changes and physical limitations.<sup>10</sup>

### Methodology

Searches have been made to collect available literature through a Medline search of the terms depression crossed with the physical illnesses and some specific conditions like diabetes, cardiovascular disease, cancer, obesity, respiratory disease etc. Information is also collected from texts, published journals and scientific documents.

### Discussion

Most of the chronic medical illnesses are the common cause of physical disability psychiatric morbidity and death. Depressive disorders are frequently characterized by recurrent or chronic course and co-morbidity with other medical illness. The life time prevalence of major depressive disorder is almost double in patients with diabetes, stroke or cancer. Moreover major depressive disorder worsen the prognosis, quality of life and treatment compliance of patients with co-morbid medical illnesses.<sup>11</sup>

In elderly people it is more likely to occur any medical illness and depression as the consequences of that primary illness and or as co-morbidity.

Depression can be understood as the consequence of the brain damage in neurodegenerative disorder such as Parkinson's disease and Huntington's disease. Similarly, vascular depression is mostly considered to be the consequences of micro-vascular lesions on pre-frontal and sub-cortical regions. It may be postulated that geriatric depression could both result from brain lesions of vascular origin and also share some pathogenic genetic determinants.<sup>12</sup>

There is growing evidence that late life depression may carry a higher illness burden than depression encountered earlier in life and that severity is lined to medical and psychiatric co-morbidity.<sup>13</sup>

Regarding management of depressive disorders in medically ill patient, it should be considered that for this group of patient major physical illness itself is major life event and besides the pharmacotherapy for depression, and they need supportive psychotherapy and counseling.<sup>2</sup>

A prospective, observational, cohort study was carried out on 380 older medical in patients with major and minor depression in Montreal Canada and results found that among patients with major depression at enrollment. 13% were recovered, 14% partially recovered and 73% remained depressed with a protracted stable or protracted fluctuating course. Among patients with minor depression, 28% were recovered and 72% had a

protracted course.<sup>14</sup>

### Depression In Specific Physical Illnesses

#### Depression and Cardiac Diseases

It has been shown that as many as 30-40% of cardiac patients experience clinically important depressive symptoms.<sup>15</sup>

Depressive disorders have been shown to present in more than 45% patients admitted for myocardial infarction and among coronary artery disease patients, the prevalence of major depression has been three times more than that general population who have not coronary disease.<sup>9</sup> Among coronary heart patients without a history of heart attack 18-20% may experience depression.<sup>10</sup>

One study shows, up to 15 percent of patients with cardiovascular disease and up to 20 percent of patients who have undergone coronary bypass graft surgery experience major depression.<sup>10</sup>

Research has documented a high correlation between depression and increased risk of dying or impairment in patients with coronary heart disease. A land-mark study shows, six months after myocardial infarction in depressed patients, mortality is five times higher than the non-depressed post-myocardial infarction patient.<sup>16</sup>

Depression has been proven to be such a risk factor cardiac disease that the American Heart Association (AHA) recommended that all cardiac patient be screened for depression.<sup>10</sup>

Regarding treatment, use of selective serotonin reuptake inhibitors in depressed patient who experienced an acute myocardial infarction, might reduce subsequent cardiovascular morbidity and mortality.<sup>17</sup> Selective serotonin reuptake inhibitors (Sertraline) have also antiplatelet effects protecting against MI and safer in overdose.<sup>18</sup> SSRIs are also less likely to induce arrhythmia than other classes of antidepressant medication.<sup>19</sup> Paroxetine Another SSRI has also been shown effective and safer in patients of depression with coronary artery disease.<sup>9</sup>

It has been concluded that combination of cognitive behavioural therapy (CBT) with an SSRI is most effective treatment of depression in persons with cardiovascular disease.<sup>20</sup>

#### Depression and Diabetes

According to the International Diabetes Federation, the number of people around the world suffering from diabetes has skyrocketed in the last two decades, from 30 million to 230 million, claiming million of lives severely taxing the ability of health care systems to deal with the epidemic. Diabetes is considered one of the most

psychologically demanding of the chronic illness because it requires such a strict daily routine. Individuals with diabetes commonly must undergo extensive lifestyle changes in order to properly manage their disease, and often experience substantial stress and negative effect - which significantly impacts quality of life and the ability to adhere to the new lifestyle changes. Studies confirm that people with diabetes frequently experience emotional disorders, specially anxiety and depression. Estimates indicate that one in four persons with diabetes suffers depressive symptoms. The odds developing depression and the rate of depression are doubled for people who have diabetes.<sup>10</sup>

Among diabetic patients, psychiatric problems include and anxiety.<sup>6</sup> Depression is twice more prevalent among persons with diabetes than persons without diabetes.<sup>21</sup> The life time prevalence of major depressive disorder is up to 17% in general population and is up to 27% in patients with diabetes.<sup>11</sup>

According to research carried out in Bangladesh, 27.2% of diabetic patients have depression. Female sex, low level of education, low socio-economic condition, rural residence, family history of psychiatric illness, past history of psychiatric illness are significantly associated with co-occurring depression.<sup>22</sup>

Depression increases the risk of mortality in people with diabetes by 30 percent.<sup>10</sup>

Depressive symptoms are more likely persist among persons with multiple diabetic related complications and treatment of depression may also reduce diabetes related disability.<sup>23</sup>

In spite of the high rates of co-morbid major depression in patients with diabetes mellitus, depression is frequently unrecognized and untreated in approximately two thirds of patients with both conditions.<sup>24</sup> Depression impacts negatively on diabetes with non-adherence to diabetes self care, Including not following dietary restrictions, medication adherence and blood glucose monitoring, and worse overall clinical outcome.<sup>24</sup>

The economic burden of diabetes alone is significant. When depression is present with diabetes, it can have health care costs that are 4.5 times greater than those with uncomplicated diabetes.<sup>25</sup>

People who have both diabetes and depression have more severe symptoms diseases, higher rates of work disability and use of more medical services than those who have diabetes alone.<sup>10</sup>

The interaction between diabetes and depression is not well understood. However, whether as cause or an effect, the combination of diabetes and depression can be deadly. Interactions between diabetes and depression make each illness more difficult to control. Depression can lead to poor lifestyle decisions and unhealthy eating less exercise, smoking, alcohol abuse, and weight gain. All these are risk factors for diabetes and make it more difficult to control sugar levels.<sup>10</sup>

Multiple studies have shown use of SSRIs (Sertraline, Fluoxetine) more effective and safer than TCA (Tricyclic Antidepressants) in the treatment of depression in diabetic patients.<sup>9</sup> In diabetic patients, maintenance therapy with sertraline prolongs the depression free interval following recovery from major depression.<sup>26</sup>

As high co-morbidity of cardiovascular disease in diabetic patients, SSRIs should be considered as the first line therapy for depression because TCAs have cardio-toxic side effects. Another antidepressant, duloxetine, a dual serotonin-norepinephrine reuptake inhibitor approved for diabetic peripheral neuropathic pain acts both on diabetic neuropathy and depression.<sup>27</sup>

Multiple lines of evidence clearly support the integration of an effective stress reduction and emotional management intervention program as a Fundamental component of any diabetes management regimen. The best treatment is often a multidisciplinary team effort where many professionals are involved with the individual and the family: a physician to manage the diabetes a mental health therapist to help define and deal with emotional issues a family therapist to help the family, and dietitian to provide nutritional counseling and education.<sup>10</sup> Research has revealed that both cognitive behavior therapy (CBT) and antidepressants (nortriptyline-fluoxetine) are associated decreased severity of patients among persons with diabetes with improved glycemic control.<sup>9</sup>

### Depression and Stroke

A study was carried out in Bangladesh From 1996 to 1998 among patient with stroke and result revealed that 46.87% patients developed depressive episode after the stroke.<sup>2</sup>

In a Finnish study, it was shown that, the rate of depression 1 year after stroke was 42%-55%.<sup>28</sup> Another study showed, more than half of the patients with stroke report depressive symptoms within 18 months of having a stroke.<sup>29</sup>

Depression commonly develops after a stroke affecting the left hemisphere on brain.<sup>30</sup>

Multiple research studies suggest that SSRIs are effective in major depressive episodes with cerebro-vascular accidents. It was also shown that Sertraline especially has an additional benefit as it decreases post-stroke ability and demonstrated significant improvement in a global rating of emotionalism.<sup>9</sup>

### Depression and Respiratory Diseases

After cardiovascular disease, respiratory diseases, such as asthma and COPD, are the biggest global killers. There are more than 40 different respiratory conditions and many continue to progress and make it more difficult to adjust to the new challenges each disease stage presents. It can also affect a person's social, physical and personal activities. All of these changes can have a profound impact on a person's mental and emotional outlook.<sup>10</sup>

About half of the patients suffering from asthma have significant depressive symptom.<sup>23</sup>

It is hoped that by treating depression in asthma, the negative effects of the co-existence can be minimized. While treating depression may increase adherence to medical treatment and more effective asthma self-management, and even decrease asthma-related mortality, treating depression is likely to dramatically improve quality of life.<sup>10</sup>

Besides antidepressants, cognitive behavioral therapy significantly decreases depression as well as asthma symptoms. The individual is instructed to monitor and challenge self-negating thoughts in this type of CBT.

### Depression and Cancer

About half of all cancer patients have mental disorders, such as adjustment disorder (68%), major depressive disorder (13%) and delirium (8%). Most of these disorders are thought to be reactive to the knowledge of having cancer.<sup>1</sup>

A study carried out on 50 cancer patients in Bangladesh found out that 54% developed depressive episode and another 12% developed depression as symptom after the onset of cancer.<sup>2</sup> In another study carried out in 100 hospitalized cancer patients Bangladesh, 53% were found suffering from psychiatric disorders. Among them, 56.6% were suffering from major depressive disorders. That means, overall, 30% of the hospitalized cancer patients developed depressive disorders.<sup>31</sup>

Recent studies demonstrate that untreated mental illnesses can prolong the length and increase the number of hospitalizations, hamper effective treatment, and ultimately reduce the chances of

survival. Death rates are as much as 25% higher in cancer patients who felt depressed and 39% higher in cancer patients who received a diagnosis of depression.<sup>10</sup>

Adequate recognition and treatment of depression in patients with cancer can enhance quality of life and help patients and families make the best use of their remaining time together. A Stanford university study led by David Spiegel, M.D., Shows that women with advanced breast cancer who attended a weekly support group lived approximately twice as long as a similar group who didn't have a support group. Dr. Spiegel says that treating depression in people with cancer not only eases symptoms of pain, nausea, and fatigue but it may also help them live longer and maintain a better quality of life.<sup>10</sup>

Regarding management of depression in cancer patients, research suggests that cognitive behavioral therapy (CBT) significantly decreases depressive symptoms, symptomatic distress and cancer pain.<sup>23</sup>

### Depression and Obesity

Obesity is a medical condition characterized by excess body fat. It is a chronic, indeed lifelong problem. It is diagnosed when body mass index (BMI) exceeds 30%.<sup>6</sup>

There is no simple association between obesity and depression. Some research studies indicate that obesity in adolescence may lead to depression in adulthood, while other studies indicate that depression in adolescence leads to obesity in adulthood.<sup>10</sup>

With a BMI > 30 among women associated with a 50% increase in lifetime prevalence of depressive disorders is compared with non-obese women.<sup>23</sup>

Evidence from the Swedish Obese Subjects (SOS) study indicates that clinically significant depression is three to four times higher in severely obese individuals than in similar non-obese individuals. A recent University of Minnesota study reveals that children who were teased about being overweight were more likely to have poor body image, low self-esteem, and symptoms of depression. The study found that 26 percent of teens who were teased at school and home reported they had considered suicide, and 9 percent had attempted it.<sup>10</sup>

Regarding management of depression in obesity, it is found that newer antidepressant which does not cause over-weight and/or cognitive behavior therapy (CBT) demonstrated significant reduction of symptoms.<sup>23</sup>

## Conclusion

This review shows that a large proportion of medically ill patients are having depression and poorer outcome. We should pay more attention to management of depressive disorders with medical illness. The role of liaison psychiatry is very much important for proper diagnosis and management of depressive disorder in physical illnesses. Early notification of depression in physical illnesses can reduce the disease burden. Specific treatments of depression in physical illness need attention to choose antidepressants drugs which do not have any adverse effect on the concerned physical illness as well as those which do not interact with other drugs, and which are being used for that physical illness. Beside the pharmacotherapy, the role of cognitive behavioral therapy (a form of psychotherapy) has effective value to treat depression in physical illness.

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