



*Affiliated with the Centre for
Addiction and Mental Health*

SPECIAL REPORT

By

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To

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Mental Health and Productivity

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DEPRESSION AND HEART DISEASE

A Dynamic Workplace Health Risk

1. Depression Kills

A year ago, my older brother died suddenly at home alone. The medical examiner told me that while a blood clot zapped his heart, effectively he was killed by his “depressed mood.”

Apparently, Bob wasn’t taking the medication that his doctor prescribed to control either his depression or blood disorder.

Scientists now know that depression may cause blood clotting, that depression may predict heart attack, that depression is as physical as a broken back. And as emotional as breast cancer. That depression kills.

Despite this knowledge, the myths of mental ill health persist alleging such conditions are an expression of moral weakness or character. Which is nonsense. Education is the mightiest weapon we have in fighting this imagery.

The Roundtable’s mission is to wield that weapon and to open a new front in the old war against mental illness – that new front being the workplace and commercial marketplace.

2. The Dangers of Sudden Death

Depression can kill.

It is a form of mental illness which can produce physical death, which is linked to physical functioning, which is projected by public health researchers at Harvard University to become the leading cause of work years lost through premature death and disability over the next two decades.

Consider the following:

- About 20 percent of the people who suffer heart attacks show signs of a major depression at the time.
- Heart victims who suffer depression do not have the same chance of surviving a heart attack after one year as those without depression.
- Women who are in hospital with a heart problem are twice as likely to have a major depression compared to men. But once depression sets in, men and women face about the same risk of experiencing a fatal heart attack.
- There is some evidence in Canadian studies which says that the rate of depression among women in specific coronary units runs at about 52 per cent. More than double the average in the general population of women. Research is needed to learn why.
- Heart research has been handicapped by limited understanding of gender issues.
- Women are more likely to die from their first heart attack than men.
- Three-quarters of women don't know heart disease and stroke are the disorders most likely to kill them.
- The risk of heart disease for women soars in the post-menopausal years.

Depression may predispose patients with damaged hearts to arrhythmia and sudden death. In turn, arrhythmias make up an estimated 25 per cent of all heart problems and it is believed five per cent of the population develops an arrhythmia at some point in their lives.

Medical knowledge is expanding our frontier of understanding on the systemic human links between depression and heart disease.

- Studies suggest that depression may increase blood clotting – which, in turn, can impair the supply of blood and oxygen to the heart. A cause of heart attack.
- Researchers at the famed Montreal Heart Institute say that symptoms of depression among heart patients may predate eventual heart attacks by many years.
- Among 222 post-heart attack patients studied by the Montreal Heart Institute, in the 18 months after hospitalization, the risk of death from cardiac causes for those with depression was 14 per cent higher than those in the study group not suffering depression.
- By the end of one year after a heart attack, the mortality rate of those who are depressed is three times higher than those heart victims who are not depressed.
- Studies in the Netherlands point to a condition called “vital exhaustion” which involves a combination of fatigue, irritability and poor morale predating the heart attack by several months.
- Depression, studies show, may predict cardiovascular disease – separate and apart from cardiac function itself. Thus, depression may increase the odds of a heart attack.

3. Depression and Angina

The Montreal Heart Institute has documented the negative impact of depression on the recovery outlook of patients admitted for unstable angina.

Studies found that depression following hospitalization for unstable angina quadrupled the risk of cardiac-related death or non-fatal heart attack.

Research indicates:

- Those who are depressed are less capable of defending themselves against germs and viruses. The immune system is compromised.
- In that respect, people who cope poorly in today’s stressful way of life experience a substantial outpouring of hormones, particularly steroids, which suppress the body’s basic defence against disease.
- Depression may increase blood clotting by affecting the regulation of platelets in the blood, a serious risk for heart patients.

- Middle-aged men who feel hopeless or think of themselves as failures may develop narrowing of the arteries faster.
- Conversely, the mind (our beliefs) can process hope and foster wellbeing.

Depression and heart disease are a “lethal mix”. Their links are becoming better known. The reasons behind this dynamic are still not well-understood scientifically.

Nonetheless, it is well established that a person’s emotional and psychological state can impair or uplift the functioning of the human heart.

4. The Physical Face of Depression

Physicians may well be preventing cardiovascular disease when they treat depression.

While depression may increase the odds of a heart attack, medical scientists are also looking at the effects that prolonged and chronic negative emotions have on recovery from heart disease – such as hostility, extreme competitiveness, attempts to dominate other people, pessimism, hopelessness and a depressed mood.

The Rand Corporation in the United States and the UCLA Neuropsychiatric Institute found that depressed patients frequently had health problems that went beyond the symptoms of the depression.

Their physical and social function was more limited than those who suffered only chronic physical ailments, including coronary artery disease.

In fact, the study found that functional limitations were “significantly worse” for those suffering both depression and an advanced heart condition.

Depression is often masked by physical symptoms. The Rand Study, in fact, concluded that depression can mimic chronic medical conditions.

Research in the U.S. says that individuals with conditions such as cardiac disease, cancer and stroke face a greater risk of depression, and those suffering one or more chronic medical disorders have a four-in-ten chance of having suffered a recent psychiatric disorder, about twice the population average.

In a paper published in the American Journal of Psychiatry by the College of Physicians and Surgeons at Columbia University, depression was linked to death and disability associated with ischemic heart disease, and with cardiovascular conditions generally.

The authors said “it is amply clear that depression is strongly associated with more frequent and more malignant cardiovascular disease”. They said, “It is likely that depression’s effect is not limited to cardiovascular disease but involves all vascular disease including stroke.”

Researchers at the U.S. National Center for Health Statistics report that a high level of depression increases the risk of first-time stroke for men by 56 per cent and women by 95 per cent.

The Yale Cardiovascular Centre in New Haven, Connecticut says there is evidence “to support the idea that depression may cause a stroke or other cardiovascular events. By treating depression, physicians may be able to lower the incidence of stroke.”

Evidence from medical outcomes studies in the U.S. points to depression as being as much a cause of disability as any major medical illness except heart disease – and evidence suggests that depression is actually a major contributor to the course and severity of heart disease and that, later in life, the two conditions may well be synergistic.

Research tells us that while depression carries a psychological cost, it is an illness with real and dangerous physical concomitants.

When depression and medical illnesses co-exist in one person, hospitalization is longer and the patient is twice as likely to be readmitted compared to medical patients not suffering depression.

In one study, researchers in Finland found that men without a prior history of heart attacks but with elevated levels of depression were more likely to have a first heart attack even after biological and behavioural risks were accounted for (taken to mean, depression is an independent risk factor in cardiac trauma).

Another study found that among patients with coronary heart disease, about one in five met the formal criteria for major depression.

Researchers at Columbia University in New York underline the need to find effective treatments for depression among individuals suffering ischemic heart disease.

They expressed concern about the effect anti-depressants can have on the cardiovascular system, including heart rate, as potentially insidious and detrimental.

Research is needed to harmonize the treatment of depression with cardiac considerations where the two diseases co-exist.

In ill and frail populations, depression is believed to be a significant risk factor for death and researchers are studying whether treating associated depression can actually alter the course of medical illness such as cancer.

According to the Montreal Heart Institute, depression is an independent factor in the risk of death six months after heart attack.

As noted earlier, additional research is needed to determine whether treatment of depression can influence the chances of surviving a heart attack.

5. The Risks of Isolation

There is evidence that psychosocial factors including life stress, low educational level and social isolation influence (negatively) the outlook for recovery following a heart attack.

For example, depression can be associated with the lack of close friends. This underscores the importance of a support network to help fuel the recovery process.

More research is needed into the interaction among human relations, job issues and social factors as an influence on depression and the outcome of treating cardiac disorders.

If depression increases the odds that heart patients will die during the aftermath of a cardiac crisis, what factors produce a fatal event? What are the “biological mechanisms” that swing into action?

One is behaviour – the patient’s failure to do the things necessary to contain the risk of further cardiac trauma, such as diet, conforming with medical rules, smoking, drinking and facing off with killer stress.

Another possible mechanism of cardiac death triggered by depression pertains to the way in which the heart does its work.

Depressed cardiac patients experience what the experts call “decreased heart rate variability” over a 24-hour period.

Translated, the heart’s rhythm is abnormal. The depressed person’s heart, in effect, never sleeps.

Fluctuations or changes in the nervous system are considered an integral part of serious depression. There is also evidence that such fluctuations can cause problems in the ventricular system of the heart. According to Columbia University, “the direction of those changes is such that one would anticipate an increase in sudden death”.

“This could easily explain a good part of the increased mortality associated with depression following (a heart attack),” the Columbia research team concluded.

Other studies suggest alterations in the metabolism of depressed patients may increase the risk of vascular disease.

Further, it is conceivable, according to some studies that atherosclerosis – the degeneration and hardening of the arteries and valves of the heart – could be a cause both for depression and heart disease and, in fact, there is some evidence that late-onset depression may be one outcome of arteriosclerotic disease in the brain.

So far, however, the bottom line is that science does not know conclusively why cardiac patients with depression are more likely to die.

That said, studies from the Netherlands indicate that a condition known as “vital exhaustion” – involving a combination of fatigue, irritability and poor morale – frequently exists for several months before the heart attack.

The Montreal Heart Institute concludes, therefore, it is possible that, in addition to increasing the risk of becoming depressed after a heart attack, a prior episode of depression may impact the cardiac recovery process.

A 1996 study found that among 35 patients who met the diagnostic criteria of depression in-hospital, only nine both survived the cardiac threat and eventually threw off the depression.

6. Massing of Disability

Depression represents 12 per cent of the world’s calculated rates of disability, the principal single source.

Based on Harvard’s findings, depression could take a greater economic toll through lost workdays than cancer, heart disease, AIDS or violence.

As a percentage of the global burden of disease, neuropsychiatric disorders overall are growing at a 50 per cent faster rate than cardiovascular disease.

Depression, in Canada alone, is the cause of two-thirds of suicides – and Canada’s rate of teenage suicide is among the highest in the world. Similar patterns exist in the U.S.

The face of depression is getting younger. The average age of onset in Canada and the U.S. is 23. In cases of anxiety, it is age 12 in Canada and 15 in the U.S. and in both countries, the average age of onset for substance abuse is 18. These onset years are earlier than other countries. Why?

Depression or anxiety is among the top five conditions most frequently presented to family physicians – usually masked by physical complaints which one of Canada’s leading physician educators, Dr. Walter Rosser, says is “part of the stigma”.

Depression is treatable in 85 per cent of the cases that are diagnosed but fully three-quarters of all cases of depression go unrecognized, improperly diagnosed or inadequately treated.

There are themes of special interest to U.S. employers:

- Mental disorders – and most particularly depression and anxiety – are concentrated among men and women in their prime working years.
- The associated disability is paid for in the U.S. and Canada alike by working people, their families and their employers mainly through payroll contributions, lost capacity and private insurance fees and premiums. In that context, the way ahead will be defined by:
 - ◆ More research into the “cause and effect” dynamic between depression (and anxiety) and cardiovascular disease.
 - ◆ More public education of these connections to empower individuals and their family doctors with the insight to anticipate, diagnose and treat both conditions and their combined effect.
 - ◆ Dramatic improvements in the early detection, diagnosis and effective treatment of depression and its “partner-in-crime” anxiety disorders to create a threshold of prevention of the combined effect of mental ill health and cardiac disease.
 - ◆ A specific rehabilitation and return-to-work design customized around the recovery from either or both of these conditions including screening for depression at the early and latter stages of recovery from heart attack.

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The Roundtable is affiliated with the Centre for Addiction and Mental Health (University of Toronto), the Canadian Chamber of Commerce and the Canadian Manufacturers and Exporters Association.

The Roundtable also has U.S. links available on request.

Following are the sources drawn upon for the Special Report in the form of research studies commentaries published scientific articles and interviews:

U.S.

- American Journal of Psychiatry
- College of Physicians and Surgeons, Columbia University (Moose) (Glassman) (Shapiro)
- Harvard Medical School (Kessler et al)
- Johns Hopkins University (Ziegelstein)
- Rand Corporation
- Rutgers University (Pert via Moyers)
- St. Luke's Medical Center, Chicago (Cavanaugh et al)
- U.S. National Center for Health Statistics, Hyattsville, Maryland, (Jonas)
- UCLA (Kemeny via Moyers)
- UCLA Neuropsychiatric Institute
- University of Florida, Gainesville (Sheps et al)
- University of Rochester (Felten via Moyers)
- Yale Cardiovascular Center

Canada:

- Centre for Addiction and Mental Health, Toronto (Garfinkel)
- Homewood Health Centre, Guelph, Ontario
- Institute for Work and Health, Toronto
- McMaster University Health Sciences Centre, Hamilton, Ontario
- MINDSETS: The Ultimate Productivity Weapon (Perez & Wilkerson)
- Montreal Heart Institute (Lesperance et al)
- Ottawa Heart Institute (Swenson)
- Royal Ottawa Hospital, Ottawa, (Bradwejn)
- St. Michael's Hospital, University of Toronto, (Dorian)
- University of Alberta, (Bland)
- University of British Columbia; Simon Fraser University; Heart-Link Canada Inc., Vancouver, BC (Gaetz et al)
- University of Calgary (Patten) (Ramasubu)
- University Health Network, University of Toronto (Abbey) (Kennedy)
- University of Western Ontario, London, Canada (Fulgosi)

Europe

- The Rehabilitation Foundation, Helsinki, Finland (Julkuven et al)
- University of Maastricht and Vrije University, the Netherlands (Penniax et al) (deVries)

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