WINTER 2007/2008

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The Mid-Life Brain Switches to All-Wheel-Drive

Understanding Schizophrenia and Substance Use

What You Need to Know about Alzheimer's Disease

Self Concept: We Are What We Think

When the Loss of a Loved One Becomes Complicated Grief

The Cross-talk Between the Brain and Body

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Winter 2007/2008

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Editor's Message: The Life of the Mind

Hundreds of millions of individuals are affected by mental, neurological, behavioural and substance use disorders worldwide. Mental illness does not discriminate and can afflict individuals regardless of age, sex, culture, income, or education level. One in five Canadians will personally experience a mental illness at some point during their lifetime. The numbers suggest that each of us has, in some capacity, experienced the effects of mental illness. We have been touched by the impact of mental ill-health either firsthand or through the hardships of our family members, friends, and colleagues. The resulting personal, economic, and societal costs are staggering as many individuals remain untreated and suffer in silence.

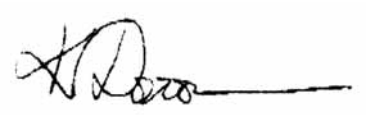
Mental health is fundamental for healthy living. Mental health influences one's ability to enjoy life and capacity to cope with daily stressors. Dr. Michael Paré expresses his personal experience with being diagnosed with double depression and his success with overcoming multiple hurdles (page 27). He speaks of his incredible empathy for others enduring similar difficulties. No one is immune to mental illness and one's mental health can be challenged at any point during the life cycle. In this issue we address various topics affecting those of all ages ranging from Dr. Gabor Maté's discussion on the treatment of ADHD/ADD for children (page 20) to Dr. Kenneth Rockwood's research on dementia and Alzheimer's disease (page 18).

The complexity, versatility, and intricacy of our brains make us distinctly human. The human brain is responsible for thought, language, perception, attention, emotion, memory, and reasoning. There is much that remains unknown about the brain, mind, and mental diseases. Like an enigma, the brain fascinates and mystifies us. And that which is unknown is often feared. Part of the reason why mental illness frightens individuals is that it introduces us to unfamiliar territory. Additionally, the possibility of disruption to one's daily functioning and faculties is upsetting. Through knowledge and discussion we can begin to break through the myths and stigma associated with mental illness.

Neuroscience and related fields are currently exploring one of the last frontiers – the brain. Psychoneuroimmunology, a branch of neuroscience, examines the communication between the mind, nervous system, and immune functioning. Dr. Cai Song provides a fascinating overview of this field and touches on the profound consequences that stressors can have on the body (page 15). There is a complex and dynamic interplay between the brain, body, environment, and experience. The plasticity, or flexibility, of the human brain is exemplified in Dr. Gene Cohen's book review The Mature Mind (page 6). In contrast to popular belief, there are numerous positive brain changes that occur with age along with psychological growth and development.

The take-home message is that as active agents we can influence the outcome of our lives both physically and mentally. More open and informed discussion can assist in raising awareness and correct the misconceptions associated with mental illness.

Warmest Regards,



Kirsten Donovan
Managing Editor

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Our editorial focus provides information on a wide variety of subjects principally written by researchers in a format that has not been previously available to Canadians.

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It's All Connected

It's a great pleasure to be able to deliver a few words at the start of this second issue of Mental Notes magazine.

A few years ago, the Public Health Agency of Canada embarked on a process to establish a series of health goals for Canada. The resulting overarching goal was as follows: "As a nation, we aspire to a Canada in which every person is as healthy as they can be – physically, mentally, emotionally, and spiritually."

This is a broad and comprehensive goal, and it shows how total health includes both the mental and the physical – we cannot separate the two. Public health is about making sure that the conditions exist in the community to allow everyone to meet that goal of being as completely healthy as possible.

It's important for Canadians to appreciate what truly constitutes mental health, and that it does not consist merely of the absence of a mental illness. Rather, it is a positive concept that deals with our own capacity to think and feel, to enjoy life, and to have options to control our own futures and deal with any challenges that come. Mental health promotion is how we go about making sure the conditions exist for this to happen.

This is how public health in general works, not just as a matter of prevention versus treatment, or about the mere absence of disease, but rather about the recognition of the need to strengthen the basic foundations that support everything we are as a society and a recognition of the connectedness between everything around us and between us: our environment, education, safety, security, shelter, income, and anything else that touches us. Those connections are clear, in the context of mental health, when we see how addressing something such as a person's employment status, or the legal environment around them, can have impacts on mental and physical health down the road.

There are undeniable links between mental and physical health. Those living with a chronic disease certainly understand the toll their physical suffering has on mental health and well-being. Those suffering from mental illness will tell of the impacts this has on their physical well-being.

We also recognize the relationship between mental health and the number of social connections we have. So we work to find ways to foster socially supportive environments, to provide conditions for people to feel free and in control of their own futures, to encourage social and community connections, to challenge discrimination in all forms and to promote respect for culture, equity, social justice, and personal dignity.

As well, we need to continue to make progress in eliminating the stigma associated with mental illness. Stigma is a major factor in influencing whether individuals seek treatment, talk about their illness, or feel that they are accepted in the community.

I'm encouraged by the establishment of the Mental Health Commission, the involvement of the Honourable Michael Kirby, and Canada's growing commitment to not just raise awareness and understanding of this important issue, but to develop a national mental health strategy through which to address it.

There's a great deal of work ahead, but we are on the right track and we are moving forward.

Dr. David Butler-Jones
Chief Public Health Officer of Canada

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Book Review: The Mature Mind
The Positive Power of the Aging Brain

Gene D. Cohen, MD, PhD
Director of the Center on Aging, Health & Humanities
George Washington University

The latest science is showing that many positive things happen in later life, not "despite" aging, but because of aging

Beyond the Myths and Stereotypes about Aging

For too long, images of aging have been guided by a series of negative myths, stereotypes, and misinformation about the process of aging and the experience of middle age and later life. There is no denying the problems that can occur with aging, but what has been denied and too often trivialized is the potential—potential that can be mobilized even in the face of illness and chronic disorders. The latest research reveals that this potential is very real. Contrary to the many negative myths about aging, we experience positive brain changes along with psychological growth and development throughout our entire lives. In the second half of life, our cognitive, emotional, and social skills, along with judgment, become more mature and better integrated with one another—a process I refer to as developmental intelligence. *Developmental intelligence* reveals itself through wisdom. The latest science is showing that many positive things happen in later life, not "*despite*" aging, but *because* of aging. The following examples illustrate this phenomenon.

Positive and Adaptive Brain Changes with Aging

Among the most exciting findings from research on aging is the growing number of positive brain changes being discovered after 40 and 50 years of age.

Neurogenesis. Modern neuroscience has put a stop to the longstanding myth that we develop all our brain cells by age three and that it's just a matter of time until slow gradual decline catches up with us as we enter our later years. We now know that new brain cells—neurons—are generated throughout the aging process, created by challenging activities and experiences. These new neurons help to keep the brain vital, flexible, and poised to respond to new demands and opportunities.

You can toss out the notion that "over 50" puts you "over the hill"

Brain cells themselves are modified by challenge and experience—regardless of age.

Research on aging is showing that when we challenge our minds, the neurons in our brain sprout new branchlike extensions referred to as dendrites. Brain cells communicate with one another when their extensions come in contact with one another, forming junctions known as synapses. The more dendrites the brain makes, the easier it is for brain cells to communicate with one another—to facilitate the exchange of new information, and to enhance the connections that help in the formation of new ideas. The capacity of the brain to be modified by external stimulation is referred to as plasticity. The capacity for brain plasticity knows no endpoint in the life cycle. It is the enhanced reserve of dendrites and synapses generated through challenging endeavours—including challenging leisure activities such as crossword puzzles, word games, taking up a musical instrument, and dancing—that is theorized to play a part in delaying the onset of Alzheimer's disease for those at risk for this disorder.

Just about the time you may be considering downsizing to get rid of excess material goods, your brain is on the job expanding memory storage. Specifically, the part of the brain involved in information processing, integrating thoughts and emotions, and initiating the process of memory storage, is called the hippocampus. Remarkably, studies have found that in humans the number, density, and length of dendrites in a key area (the dentate gyrus) of the hippocampus reach their greatest levels from our early 50s to our late 70s. So you can

toss out the notion that "over 50" puts you "over the hill." To the contrary, in those years critical parts of the hippocampus have maximized their ability to handle complicated information processing. Our aging brain is essentially working with and for us to maximize our mental capacities in the second half of life.

In midlife the brain begins to switch over to all-wheel-drive. Not only is the brain broadening its capacity to process and store information as we age, but after about a half-century of favouring the left side of the brain for some tasks and the right side for others, it's finally ready to put them both to work on the same task. Scientists only very recently have discovered that around middle age, we begin to use both sides of the brain simultaneously—in effect moving to all-wheel-drive. This phenomenon is described as the HAROLD Model (HAROLD is an acronym for Hemispheric Asymmetry Reduction in Older Adults). Rather than asymmetric—one hemisphere at-a-time use—adults in the second half of life more often use both hemispheres at the same time. This process throws light on other research findings of a better integration of right and left-brain capacities with aging. It is a remarkable illustration of the adaptive mobilization of brain reserve with aging, as well as the manifestation of new capacities.

Age allows our brains to accumulate a repertoire of strategies developed from a lifetime of experience

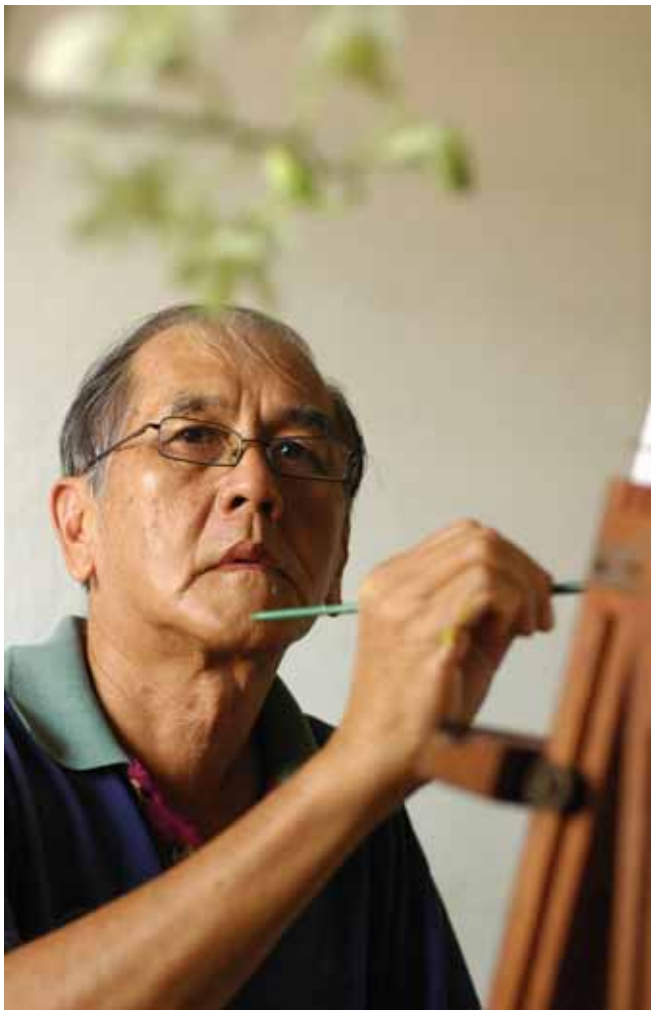
In middle age, we observe a better integration of analytic and synthetic reasoning, the objective and the subjective, the well defined and the intuitive—the heart and the mind, so to speak. As I see it, it's no coincidence that at the age our brain is making optimal use of both hemispheres operating together, we experience a deepening capacity for heart-and-mind thinking. This type of thinking, in Piagetian terms, is referred to as *postformal thinking*.

The Growth of Pragmatic Creativity with Aging

Researchers in the field of aging have identified a growing capacity in the second half of life that is referred to as pragmatic creativity or practical intelligence. It is illustrated in the following example.

> My in-laws, Howard and Gisele Miller, were stuck. They had just emerged from the Washington, D.C. subway system into a driving snowstorm. Both in their 70s, they were coming to our house for dinner and needed a cab since it was too far to walk. But it was rush hour and no cabs stopped. Howard tried calling us to get a lift, but both my wife Wendy and I were tied up in traffic and weren't home yet. As his fingers began to turn numb from the cold, Howard noticed the steamy windows of a pizza shop across the street. He and Giselle walked through the slush to the shop, stepped up to the counter, and ordered a large pizza for home delivery. When the cashier asked where to deliver it, Howard gave him our address, and added, "Oh, there's one more thing."
>
> "What's that?" the cashier asked.
>
> "We want you to deliver us with it," Howard said.
>
> And that's how they arrived—pizza in hand—for dinner that night.

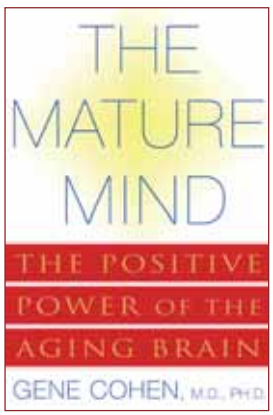
This favourite family story perfectly illustrates the sort of agile creativity that can accompany the aging mind. Would a younger person have thought of this solution? Possibly. Creativity knows no age limits. But in my experience, this kind of "out of the box" thinking is a learned trait that improves with age. It is known as "pragmatic creativity" in everyday problem solving, a capacity that research has found to be very strong in later life. Age allows our brains to accumulate a repertoire of strategies developed from a lifetime of experience—part of what has been referred to by other researchers as crystallized intelligence. Not that Howard had done the pizza parlour routine before, but that the accumulated experience of other successful strategies helped stimulate the thinking that produced his creative solution.



Around middle age, we begin to use both sides of the brain simultaneously—in effect moving to all-wheel-drive

Along with the experience of years and an agility of thought, Howard's solution reflects a mature psychological development that is prominent among those in their 60s and 70s. With age can come a new feeling of inner freedom, self-confidence, and liberation from social constraints that allows for novel or bold behaviour. From my research I have identified four psychological growth phases in the second half of life. They overlap one another, phasing in as we transition from one to the other—hence described as phases rather than stages. For example, in our mid-50s, we are entering the *liberation phase*, which is prominent throughout our 60s and as we move into our 70s. The liberation phase is, in effect, characterized by friendly metaphorical inner voices saying to us: *If not now, when? Why not? What can they do to me?* These liberating inner feelings give us a new level of comfort, confidence, and courage to try something novel, even bold. Howard, himself in the liberation phase, wasn't afraid to make an unusual request of perfect strangers, which was a key part of his success that night—*part of the positive capacity that comes with aging*—not *despite* aging, but *because* of it.

This article is adapted from "The Mature Mind: The Positive Power of the Aging Brain", *(Basic Books, 2006), by Gene D. Cohen, MD, PhD.*



*Gene D. Cohen, MD, PhD, is the founding Director of the Center on Aging, Health & Humanities (established 1994) at George Washington University. He is a Past President of the Gerontological Society of America. During his 20-year career at the National Institutes of Health, he was appointed the first Chief of the Center on Aging at the National Institute of Mental Health in 1975, and subsequently served as Acting Director of the National Institute on Aging during 1991- 1993. In 2000, he published "*The Creative Age*" (Harper Collins), the first book on creativity and aging.* ❍

Perinatal Depression: What all of us need to know

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Perinatal depression may lead to the disruption of the mother-infant bond

"I'm pregnant, shouldn't I be happy? Isn't this supposed to be the happiest time of my life? I thought I would enjoy this more. I thought this would be a lot easier. Why am I so miserable? I think I will be a terrible mother."

As a reproductive psychiatrist, the statements above are commonly heard in my practice. As a society, for the most part, we are made to believe that pregnancy is a joyous time in a woman's life. Thus the idea of depression during and after pregnancy can be hard to acknowledge and accept. Perinatal depression is defined as depression (including either major or minor depressive episodes) occurring either during pregnancy or up to one year postpartum[1].

The leading cause of disease related disability among women is depression, with women of childbearing age being at higher risk[2]. Furthermore, women who have had previous depressive episodes have an increased risk of developing perinatal depression, particularly if they discontinue their antidepressants. Those who stop taking their antidepressants while pregnant are 5 times more likely to relapse[3].

Pregnancy is a time when women have fairly regular contact with health care providers thus making it an opportune time to screen for depression[4]. Despite the above information, perinatal depression is often not talked about, not screened for and not treated. There are a number of factors that may attribute to this: denial of the illness, the stigma of having a mental disorder, the fear of being treated with medications, the misconception of pregnancy being protective against depression and the symptoms of depression being attributed to the symptoms of pregnancy[5].

Depression versus Symptoms of Pregnancy or Postpartum

What distinguishes symptoms of depression from the symptoms of pregnancy and postpartum? Often what are called the neurovegetative signs of depression (changes in

"I'm pregnant, shouldn't I be happy?"

In a vulnerable population, pregnancy triggers depression but is often missed until the postpartum period when symptoms worsen and may appear more obvious

sleep, appetite, energy and concentration) also occur in pregnancy and postpartum; thus, making it difficult to diagnosis depression[6]. Pregnant women routinely report problems with sleep (both falling asleep and staying asleep), feeling extremely fatigued, not being able to concentrate and having difficulty with their memory (often referred to as "baby brain"). These same symptoms may also be reported by an individual who is suffering from a depressive episode. However, when an individual begins to report feeling hopeless, has excessive guilt, is unable to find joy or pleasure in things she previously did and has suicidal ideation, for more than two weeks at a time, then she is likely suffering from depression as these are not common symptoms of pregnancy.

Depression often begins during pregnancy, most frequently during the third trimester, but is often missed until the postpartum period when symptoms worsen and may appear more obvious[7]. In fact, in a vulnerable population, pregnancy triggers depression. Thus, screening needs to begin from the first trimester and continue throughout the three trimesters.

What Factors May Increase the Risk of Developing Perinatal Depression?

Clinicians use a biopsychosocial model when looking at risk factors for psychiatric illnesses. The biological factors that may contribute to an increased risk of perinatal depression include: past or current history of depression, family history of depression (including perinatal depression), thyroid disorder or other medical conditions that can present with depressive symptoms, substance abuse and discontinuation of antidepressants. If there has been a history of previous depressive episodes it is important to consider the following: number of previous episodes, history of relapse following the discontinuation of an antidepressant and the severity of previous episodes (did the patient have to stop working, require hospitalization, develop psychotic symptoms or make a suicidal gesture?).

A history of childhood sexual abuse, a partner with substance abuse, recent immigrants, poor social supports, marital difficulties, financial stressors, an unplanned pregnancy and ambivalence about the pregnancy are some of the psychosocial factors to consider when thinking about risks for perinatal depression[6].

Consequences of Untreated Perinatal Depression

Consequences of untreated depression in the perinatal period can be far reaching. Maternal depression has been associated with: preterm birth, lower birth weight, smaller head circumference and lower activity, pulse, grimace, appearance and respiration (APGAR) scores[8]. Some studies have shown consequences up to five years of age[9]. Mothers who have depression during pregnancy have been found to exhibit poor self-care that can lead to compromised antenatal (occurring before birth) care[10]. They are at higher risk to self medicate and abuse substances. There is an increased risk of obstetrical complications.

Perinatal depression may lead to the disruption of the mother-infant bond, putting infants at risk for abuse and neglect[11]. Newborns of depressed mothers have been shown to perform poorly on neurological tests (including poor motor skills, activity, coordination and resilience)[12].

Treatment Options for Perinatal Depression

Once it has been determined that a woman is suffering from perinatal depression, what are the treatment options? There are both pharmacological treatments and nonpharmacological treatments[13]. The general public and most physicians are apprehensive about using any medications during pregnancy. The current research for the use of psychotropic medications (acting on the mind) in the antenatal period is at best controversial.

When thinking about using medications in pregnancy, we worry about the following factors: risk of teratogenicity (the capability of producing fetal malformation), adverse neonatal

effects at birth and potential negative infant development in the short and long term. All psychotropic medications are secreted in the amniotic fluid and easily diffuse across the placenta to the developing fetus[14].

Often it is the severity of the depression that will dictate whether medications are used or not. For moderate to severe depression (which would involve a significant decline in functioning, psychotic symptoms, hopelessness or suicidal ideation), pharmacotherapy may be the only and necessary option. Ultimately the risks and benefits of using pharmacotherapy to the mother and to the infant are thoroughly reviewed and difficult decisions are made.

For milder depression, one can consider nonpharmacological treatments which may include cognitive behavioural therapy, supportive therapy or interpersonal therapy. Also psychoeducation for the mother, her partner and their respective families is crucial. Another important aspect of treatment includes self care such as proper sleep, time away from the baby, exercise as well as a healthy diet.

As public awareness of perinatal depression continues to grow, hopefully fewer mothers and their infants will have to suffer. ❍

As public awareness of perinatal depression continues to grow, hopefully fewer mothers and their infants will have to suffer

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Self Concept: We are what we think

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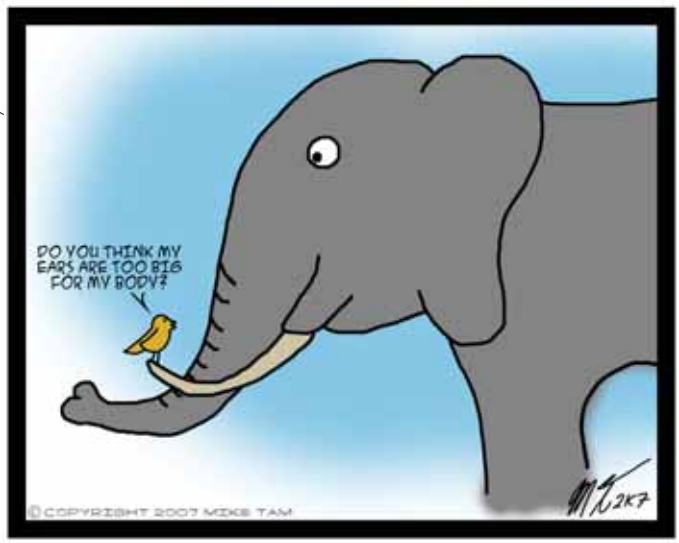
Our self perceptions are very powerful in shaping who we are

Our self perceptions are very powerful in shaping who we are. They influence what we do and how much energy and investment we put into various aspects of our life. Self perceptions can also have both direct and indirect effects on our mental health. For example individuals with low self evaluations of themselves tend to be at a higher risk for developing depression and anxiety than individuals who hold themselves in high regard. The developmental period of adolescence, which tends to be a time of heightened self awareness, is often viewed as a susceptible time for manifesting the negative ramifications associated with low self-esteem. As such, existing research has examined the nature and changes in self concept that occur during childhood and adolescence.

Individuals with low self evaluations of themselves tend to be at a higher risk for developing depression and anxiety

Historically, self concept, or our knowledge and beliefs about ourselves, was thought of as uni-dimensional and global. Current evidence, however, suggests that it isn't as simple as this and that one's self concept is a much more complicated phenomenon. Not only do we have unique perceptions of ourselves in different domains of our lives (ranging from our physical appearance and athletic competence, to our academic abilities and our ability to make and keep friends), but as we get older and accumulate more knowledge about ourselves, we come to see ourselves as increasingly multifaceted individuals. Susan Harter's work has documented this and has shown that younger children's self concepts are less differentiated and tend to be focused on concrete attributes (Harter, 1983, 1996, 1999). Specifically, she found that children distinguish themselves in terms of about five domains—physical



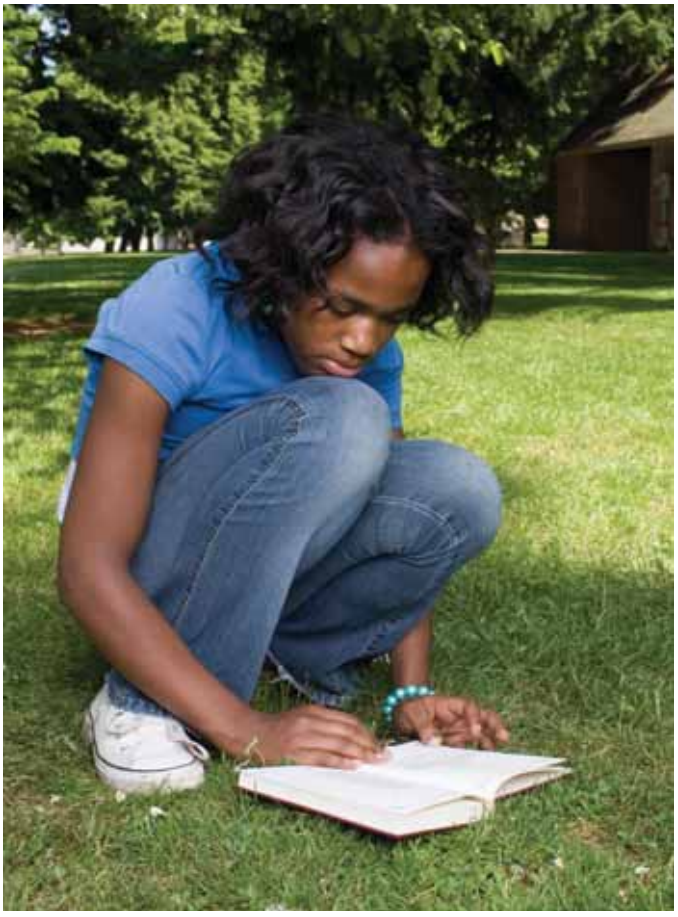
By Mike Tam

competence, physical appearance, peer acceptance, cognitive competence, and behavioural conduct. In contrast, adolescents, who are more cognitively capable and who have had a broader array of life experiences, evaluate themselves across many more facets of their life, including, physical appearance, athletic competence, ability to make close friends, job competence, scholastic competence, social acceptance, romantic relationships, and general self worth. Perceptions within each domain also become more elaborate as children get older—younger children tend to have dichotomous views about their ability within a domain—that they are either good or bad at something; whereas adolescents tend to rate themselves along a continuum, say from very bad to very good. As an example, a teenager might simultaneously perceive himself to be an 'okay' athlete, extremely good at school, but 'the worst' at making friends.

In addition to being multidimensional, self concepts are hierarchical in nature, with one's overall sense of self worth at the peak and the various domains influencing—to varying degrees—how high or low one's self worth is (Marsh, 1989). It also appears that certain domains are more closely tied to one's sense of global self worth than others (Harter, 1999). For instance, for adolescents, physical appearance tends to be most closely tied to self worth whereas athletic competence is least likely to be correlated with it. Social acceptance and scholastic competence tend to be moderately predictive, especially for older adolescents. This means that adolescents who perceive themselves to be attractive, popular, and smart will report the highest levels of self worth. Interestingly, this pattern of findings has been identified across various studies from several different western countries, including Australia, the United States, and Canada (Shapka & Keating, 2005).

Regarding changes in self concept during adolescence, given the prevailing view of adolescence as a period of storm and stress, it was initially expected that adolescent self perceptions would be relatively unstable and susceptible to dramatic, debilitating changes. We now know, however, that adolescence is not as developmentally turbulent as initially thought and not surprisingly self conceptions have also been shown to be fairly stable. It is likely that the stability in self concept reflects the fact that developmentally, adolescents' sense of self is becoming increasingly more integrated and consistent over time. That said, there are predictable changes occurring in self concept during adolescence. One of the most disturbing findings is that most of the domains of self concept drop between the ages of 11 and 13. Fortunately, most domains of self concepts tend to slowly rebuild over the course of adolescence, in a flat, u-shaped pattern (Harter, 1998). However, one of the hardest hit domains is in the area of scholastic abilities. In fact, for many students, one's self conceptions about their academic and scholastic abilities do not recover. It appears that as children progress through the educational system and the concern with rank ordering, competition, and focus on grades increases, their perceptions in this domain steadily decline. This decline in self concept is debilitating in terms of motivation and achievement, and unfortunately, recovery is difficult. Given the societal demand for greater knowledge skills throughout larger segments of the

Children distinguish themselves in terms of—physical competence, physical appearance, peer acceptance, cognitive competence, and behavioural conduct



One of the most disturbing findings is that most of the domains of self concept drop between the ages of 11 and 13

For adolescents, physical appearance tends to be most closely tied to self worth

population, the historical designs and cultural legacy of high schools likely merits serious reflection.

There are also known gender differences in self concept and these tend to emerge along predictable stereotypic lines. That is, boys tend to have higher self concepts in their physical world (including their physical appearance and their athletic competence, Shapka & Keating, 2005) and girls tend to have higher self conceptions in social domains (such as their perceived social acceptance and their ability to make friends, Shapka & Keating, 2005). These are quite robust findings which mean that our education system could be utilized to alleviate these differences. For example, schools could ensure that for girls all efforts are taken to reduce a focus on appearances during school times, and in particular during physical activities. It might be as simple as requiring a uniform for Physical Education. Unfortunately, this is a much larger societal problem in that body image is influenced through media exposure. At the very least, at the school level, awareness can be raised and the climate could be designed to counteract the negative messages girls may be receiving from other socializing agents. For boys, creating formal opportunities for socialization, both with other boys and with girls, might enhance boys perceptions of their social abilities, thereby narrowing the gender gap. Again, these messages are probably being received from multiple sources, but awareness at the school level will likely help. ❍

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Psychoneuroimmunology: The interrelationship between the mind, brain and body

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For hundreds of years scientists and doctors have separated the brain and body into two independent systems. Of the many advances in the neurosciences over the past four decades, the realization that the immune and endocrine systems are profoundly affected by the emotional state and, conversely, that these systems can change the emotional state, has helped to refocus the attention on the interrelationship between the mind and the body. However, in the last two decades, a research area linking the mind, brain, and body has revealed a close relationship between psychology, neuroscience, and immunology. This research area is called Psychoneuroimmunology (PNI). PNI attempts to integrate the behavioural, neuronal, endocrine and immune functions. Each of these "systems" has been shown to respond to information supplied by the other. To understand how the brain and body to talk to each other, let us begin by understanding the basic structures of the brain and the immune system.

The nervous system

The nervous system is composed of the *central nervous system* and the *peripheral nervous system* (Figure 1). The central nervous system consists of the spinal cord, the cortex, hippocampus, amygdala, hypothalamus, thalamus, midbrain and brain stem. The brain governs body functions by sending and receiving messages through the spinal cord. Once messages leave the central nervous system, they are carried by the peripheral nervous system to serve the peripheral limbs and organs. The central nervous system together with the peripheral nervous system plays a fundamental role in the control of behaviour. The cortex (outermost layer of the brain) can be divided into numerous parts which control and manage feeling, muscle movement, hearing, vision, speech, memory, emotion, attention and internal organ functions. The limbic system including the hippocampus, amygdala and hypothalamus controls emotion, cognitive activity, and is intimately involved in endocrine functioning and the psychobiological stress response. The communication between brain cells depends on a group of small pieces of proteins, neurotransmitters, and also on electric signals.

The immune system

The immune system has been working in your body your entire life and you probably know very little about it. The immune system protects the body from disease organisms and foreign bodies. The immune system can also clear dead cells or tissues in the body without damage to normal cells or tissues, which depends on the function of distinguishing "self" from

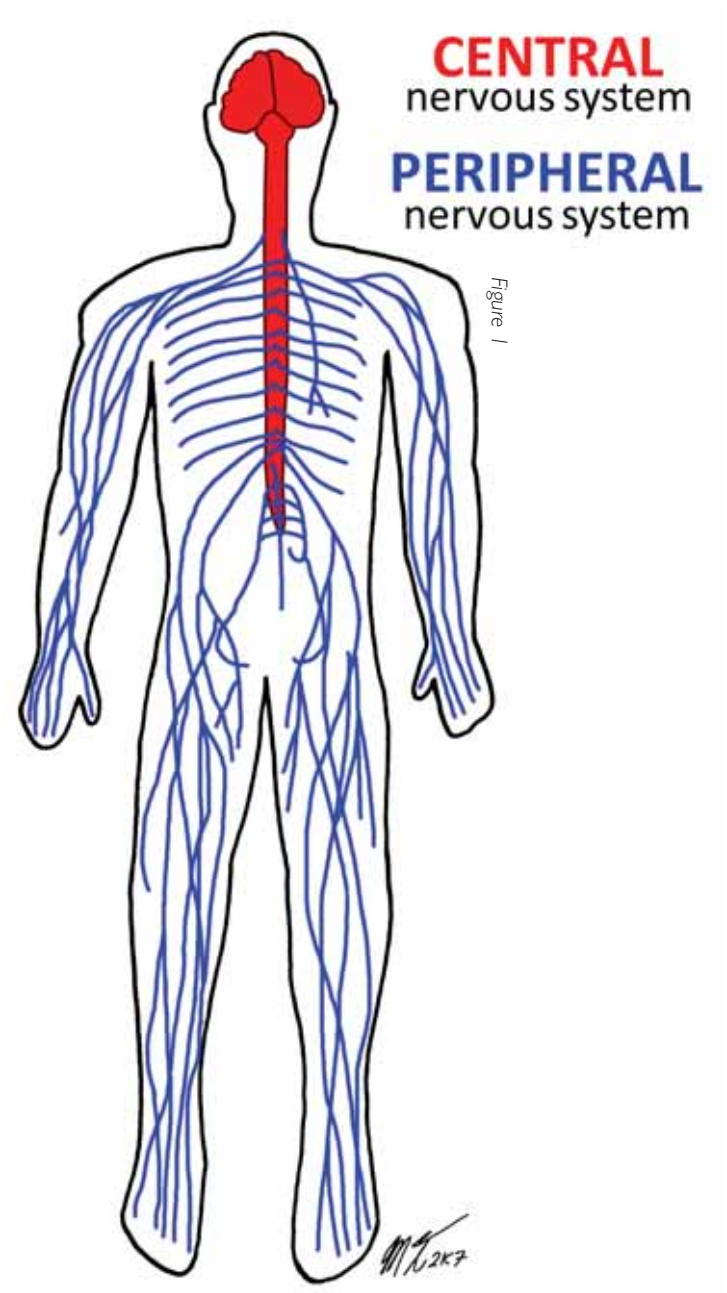


Figure 1

The immune system is affected by stress, anxiety, depression, and brain aging or degeneration

Stress affects immune functions, which may play an important role in the onset of depression

"non-self." Your immune system works around the clock in thousands of different ways, but it does its work largely unnoticed. One thing that causes us to really notice our immune system is when it fails for some reason.

The immune system consists of many types of proteins, cells, organs, and tissues, which interact in an elaborate and dynamic network. The immune system is comprised of five kinds of cells which are produced in the bone marrow, and then are differentiated and mature in the thymus and spleen. The brain releases chemicals and hormones that influence the immune system. The communication between the brain and immune system occurs through neurotransmitters released into the blood to directly influence immune functions. The brain also via the endocrine system indirectly affects the immune system. The brain and the endocrine system work together. The hypothalamus and the pituitary gland play a critical role in controlling the release of stress hormones.

The influence of the immune system on behaviour

Sick individuals experience weakness, malaise, listlessness and the inability to concentrate. They also experience excessive sleep, loss of appetite, depressed activity and loss of interest in daily activities. These non-specific changes are called "sickness behaviour" and are considered to be the result of the weakening process that occurs during infection or inflammation.

How the brain may affect the immune system

The immune system is affected by stress, anxiety, depression, and brain aging or degeneration. The brain and endocrine system can produce many proteins and hormones that directly and indirectly change immune functions. The peripheral nervous system can also directly control and influence immune organs. Psychoneuroimmunology is the study of the relationship and interaction between the brain and immune system in normal and disease conditions. Major findings in the research of psychiatric and neurodegenerative diseases are introduced below.

Stress

Stress is a normal process we use to assess and cope with emotional threats and challenges. Stressors are events and situations that cause stress. The way we perceive stressors determines whether stress is experienced as a challenge or panic. The effect of a stressor on the immune system also depends on the psychological condition and the personality of the individual. While normal stress protects the body in times of threat, prolonged stress may potentially damage the body, including the brain.

When a stressful situation occurs, the body reacts with an outpouring of hormones (adrenaline, norepinephrine, and cortisol). These hormones increase heart rate and respiration, send more blood to skeletal muscles, dull pain, and stimulate or suppress the immune system.

Acute psychological stress, with sudden onset and of short duration, such as waiting for a difficult academic examination can suppress the activity of natural killer cells, and reduce immune cell numbers. Chronic stress persists over longer periods such as marital conflict, care-giving or spousal bereavement, and can lower functions of natural killer cells and lymphocytes, while elevating inflammatory markers in the blood. Acute stressors often cause significant changes in the central nervous system and endocrine system, which may be absent following a chronic exposure to stress. Chronically stressed individuals in whom

immune suppression does occur may be more vulnerable to infections and disease. Such findings illustrate the importance of early life experience on the ability of the immune system to adapt to the effects of stress in later life. Immune responses to different types of stress are dependent on the severity of stressors. Severe stressors usually suppress immune function, and mild stressors sometimes stimulate immune activity or have little effect.

Depression

Stress and depression have similar effects on the central nervous, endocrine, and immune systems. Thus, it has been suggested that stress acts as a predisposing and precipitating factor in the onset of affective illnesses such as depression. Stress affects immune functions, which may play an important role in the onset of depression.

Early research into depression found that depression is accompanied by suppression in immune cellular functions and elevation of inflammatory markers. Depression is often provoked or exacerbated by stressful life events (i.e., bereavement), environmental stress (i.e., chronic difficulties and risk factors) and early adversity (i.e., child abuse). There is a general agreement that the likelihood of suffering from a depressive episode is increased five or six fold in the six months following stressful life events. There is also evidence to suggest that exposure to chronic low grade stress may be a predisposing factor in depression.

Many experimental and clinical studies have demonstrated that chronic or uncontrollable stress causes changes in neurotransmitter function, and behavioural, endocrine and immune aspects, that are similar to those occurring in depressed patients. However, it is still unclear whether the changes occurring in depression are independent of chronic stress or whether depression is a consequence of chronic stress.

Many chronic autoimmune diseases are accompanied by depressive symptoms. For example, patients with systemic lupus erythematosus, insulin-dependent diabetes, and rheumatoid arthritis often exhibit obvious emotional distress, anxiety, psychological problems, and cognitive deficits.

Schizophrenia

Despite the many decades of research into the possible biological basis of schizophrenia, no single abnormality has been identified that is exclusively associated with the disease. Nevertheless, there is considerable agreement that there is a familial basis for the condition which appears to have a genetic rather than purely environmental association.

Schizophrenia like many autoimmune diseases, is not expressed at birth but only appears later in life. Similarly, remission and relapses characterize both schizophrenia and autoimmune diseases. There is an increasing body of evidence that implicates a disorder in the immune system as a contributory factor in the biological changes that underlie schizophrenia.

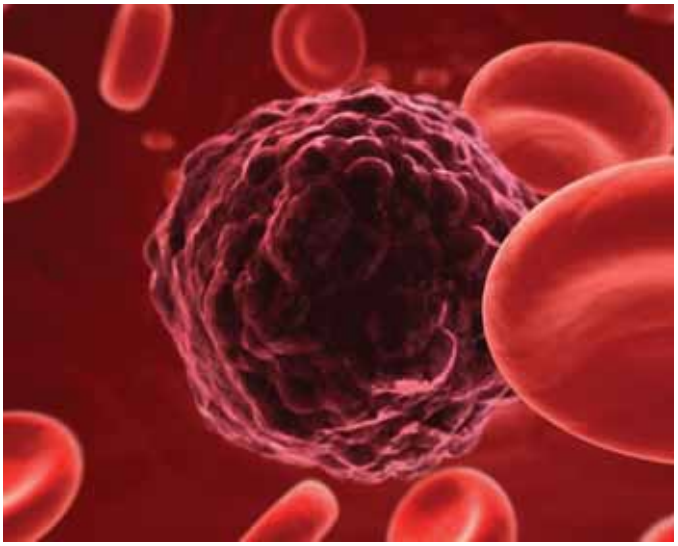
People born in the winter or spring are at increased risk to develop schizophrenia, consistent with a heightened exposure to viruses under these conditions, the immune disorder in this illness may result from a viral infection. The fetus is vulnerable to ascending infections of the genital tract, as well as viruses that cross the placenta.

Alzheimer's Disease

Alzheimer's disease (AD) is a neurodegenerative disease with cognitive impairments in memory, judgment, visuospatial (sight and space perception) function, planning, and language. AD is also accompanied by non-cognitive symptoms, such as disturbances in behaviour, mood, perception, and sleep. It has been associated with much impairment in neurotransmission, endocrine, and immune functions.

Aging leads to a decrease of immune function. Evidence of an increase in the inflammatory response has been found in the central nervous system of AD patients. Although the cause of AD still remains elusive, intensive efforts have been made to find the major risk factors associated with this disorder. In recent years, AD has been studied from many aspects including genetics, immune disorders, viral infection, toxic effects, environmental factors, and head trauma. Both inflammatory and autoimmune disorders have been reported in patients with AD.

The immune system has been working in your body your entire life and you probably know very little about it



Considering the short time during which any attention has been given to brain-immune relationships, significant advances in our understanding of the subject have taken place largely due to the pioneering research and enthusiastic support for Psychoneuroimmunology by neuroscientists. Both experimental and clinical studies have shown that changes in the immune system, caused by infections for example, can profoundly affect the mood state, as anyone who has had an attack of influenza will testify. Despite the major changes in neuroscience research that have taken place in recent years, there are many key questions that remain to be answered regarding the clinical importance of immune-brain interactions.

Psychoneuroimmunology at present is undoubtedly one of the most challenging fields in the neurosciences. The situation is perhaps best encapsulated by the following quote from the philosopher Arthur Schopenhauer: All truth passes through three stages. First it is ridiculed. Second it is violently opposed. Third it is accepted as being self-evident. At present, Psychoneuroimmunology is between stages one and two. ❍

Dementia and Alzheimer's Disease: Listening to people to better understand these disorders

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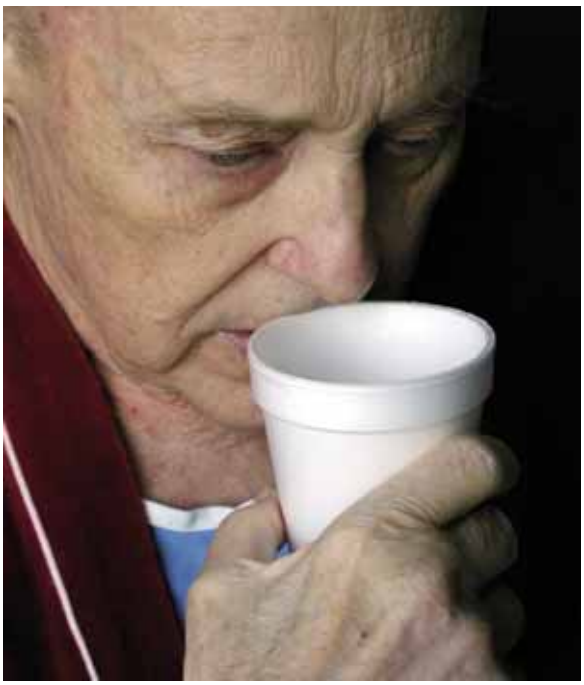
What is dementia?

The term dementia refers to a chronic, usually progressive, problem of cognition (the mental processes of knowing and understanding thoughts and perceptions about one's environment). This failure of the functions of the brain usually affects memory and almost always affects judgment, decision-making and relationships with others. The rate of failure happens at different speeds and affects different parts of the brain for each person.

Dementia refers to a chronic, usually progressive, problem of cognition



Two things make dementia into a syndrome and not just the memory complaints that most of us have. First, other parts of cognition are affected—usually language, but also attention and concentration, the ability to do simple calculations, or to draw (for example, to draw a clock).

There are many types of dementia, but the most common is Alzheimer's disease. Other types of dementia are diagnosed based on some of their characteristic findings. Because Alzheimer's disease is so common, it is often useful to contrast the other dementias with Alzheimer's disease. Most of the other problems seen in these other dementias are also seen in Alzheimer's disease. What happens in the other dementias is that they are seen 'out of order' in comparison to what we see with Alzheimer's disease. For example, many people with Alzheimer's disease eventually have trouble walking, but this is a late sign. When someone with dementia is seen to have a problem with walking early in the course of their illness, that suggests another cause, such as vascular dementia, dementia with Lewy bodies, Parkinson's disease dementia, or some type of frontotemporal dementia.

Alzheimer's Disease is a neurological disorder that affects memory and behaviour and impairs how a person can function

What is Alzheimer's disease?

Alzheimer's disease is a neurological disorder that affects memory and behaviour and impairs how a person can function. It is characterized by beta-amyloid plaques and neurofibrillary tangles in the brain. There are no known causes, but genetics and lifestyle are thought to play a role. Alzheimer's disease is a problem that primarily affects memory and thinking. Alzheimer's disease used to be called "senility" before it was understood to be a disease. Even today, there are many misconceptions about it, such as the idea that it only affects memory. In fact, Alzheimer's disease affects all aspects of thinking, including a person's ability to function and behave as they usually would have. Although Alzheimer's disease often follows a fairly clear pattern, it is still not known why it starts, or even what does the damage. Because Alzheimer's disease

It is important that any changes in normal activities, language and personality are discussed with your physician

has so many effects, it causes a lot of symptoms. The presence of so many symptoms can overwhelm families as they try and cope.

Most people over the age of 65 have annual check ups with their physician; however, unless your family doctor is seeing you on a regular basis, subtle signs of early dementia might not always be evident. It is important that any changes in normal activities, language and personality are discussed with your physician, who can carry out or arrange for further testing.

Although no cure exists for dementia and there is no medication that will stop or reverse its progression, there are treatments that work to improve the quality of life for people living with this disease.

Approved medications, including Ebixa, Reminyl, Aricept and Exelon, can help slow the progression of some symptoms such as those involving memory loss and language difficulties. There are also a number of strategies, such as exercise and vitamin intake, that individuals can use to manage symptoms.

Alzheimer's disease affects a person's ability to learn about what has just happened, what they have just said, or what they have just been told. This results in repetitive questioning about things like appointments, past events or the time of day. The person you care for also may repeat the same story or piece of information in a single conversation. They may become upset or angry when told that they are repeating themselves and their repetition increases with stress and fatigue. The person you care for sometimes may repeat the same single word or phrase over and over.

What is www.dementiaguide.ca?

It has taken over ten years of research to develop an easy to use, informative web enabled method to track symptoms and create a profile that can be used by persons with dementia and their caregivers. This website (www.dementiaguide.ca) makes available to people information on 60 common symptoms of dementia. People affected by dementia can build profiles that I hope will help them to track treatment effects and disease progression. I hope too that the information allows them to speak more knowledgably to their physicians and to family members, and to show graphs which track the course of the individual symptoms that they select.

The dementiaguide website is based on my experience in asking patients and care partners to set goals for treatment. Often we have done this using a technique called Goal Attainment Scaling[1]. With Goal Attainment Scaling patients and care partners first describe their current problems. In Alzheimer's disease, these typically are repetitive questioning, impaired recent memory, less initiative, poor function and impaired social conduct (e.g., withdrawal or being irritable with the grand-kids). For each goal area, they then describe what would count as improvement (both a little improvement and a lot) and what would count as worsening (both a little and a lot). Each person thus has individualized descriptions of each problem, tailored to their 3-6 most relevant issues. Changes on the scale can be summarized to give a score that represents the extent to which that person's goals—whatever they are—have been met.

In the years since, I have helped thousands of people set goals for dementia treatment. A pattern that soon emerged has persisted, including in a controlled clinical trial[2, 3]. Not knowing what "should" happen, patients and their care partners began to describe changes that were not anticipated. They said things like "the fog has cleared" or "my Dad's more like himself". Even today, people commonly describe recovery of initiative, and better insight and better judgment. By understanding these effects and relating them to what we know about how the brain works, we are beginning to have a clearer picture about which parts of the brain are involved, and in which order, in people with Alzheimer's disease. ❍

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Treating the Puzzling Condition of ADD/ADHD

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Physician, Author, Public Speaker

The basis of healthy brain development is a non-stressed environment

In the previous edition of *Mental Notes* I described the characteristics of Attention Deficit Disorder. How best to treat this puzzling condition?

Most physicians who deal with ADD/ADHD believe it to be a heritable, gene-based disorder and direct most of their efforts to minimizing its symptoms by means of medications and by techniques designed to teach adults or children with ADD to change their behaviours. Such approaches have value, but a limited one because the perspective on which they are based ignores new information about the human brain: about how it develops, and about its potential for new development throughout the lifetime, known as *neuroplasticity*.

Stresses on the pregnant woman and stresses on the parenting environment in the first three years of life have long-term consequences on the child's future brain functioning

As at least two articles in the first edition of *Mental Notes* made clear, human brain development is very much influenced by the environment. This is particularly so for the development of the infant's emotional self-regulation and impulse control circuits, children's stress-response mechanisms and, crucially, the development of important brain circuits in which essential neurotransmitters like endorphins, dopamine, norepinephrine and serotonin act. Stresses on the pregnant woman and stresses on the parenting environment in the crucial first three years of life when much of brain development takes place have long-term consequences on the child's future brain functioning. For example, the children of women abused during pregnancy or those of women who suffer post-partum depression are more likely to be diagnosed with ADD later on.

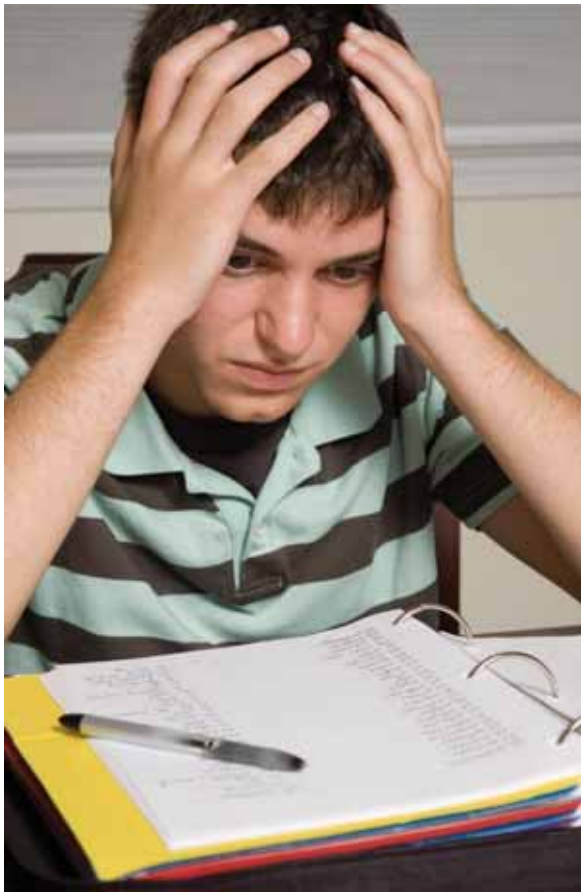
In short, ADD is not an inherited disease but a case of delayed development, as shown in a recently published study completed with the participation of researchers at the [U.S.] National Institute of Mental Health and at Montreal's Neurological Institute[1]. If we recognize this, the question becomes not only how we treat "symptoms," but, as with any organism—plant or animal—*what conditions must the environment provide in order to foster healthy growth?*

Unfortunately, many approaches consist of coercive attempts to change a child's behaviours, usually by punishments and other "negative consequences," or by rewards. Although rewards may be seen as benign, the underlying message to the child is still that he or she is not acceptable to the important adults in his or her life. Such methods undermine the ADD child's already fragile self-esteem. Developmental psychology has abundantly shown that the basis of healthy development is unconditional loving acceptance of the child by parents and other nurturing and mentoring adults, including teachers. Further, the basis of healthy brain development is a

non-stressed environment in which the parents have the capacity to interact with their child in a relaxed, warm and supportive way. For these reasons, my first advice to the parents of any child with ADD is to deal authentically with the stresses in their own lives, and to put the child's developmental needs ahead of considerations such as career or other external involvements (I speak from experience: as a parent I've made every possible mistake). In short, to nurture and rear these sensitive children effectively, parents must be mindfully caring of their own states of mind. How to do so is too vast a topic for a brief article, but I have provided a brief reading list below.

Adults with ADD also need to create the necessary conditions for their own development. This means, first off, to recognize and accept responsibility for their own immaturity—and, as someone diagnosed with ADD at age 52, I've had plenty of my own immaturity to deal with. In many ways ADD adults behave like children, which is why relationships fail, projects flounder and jobs vanish. All this can be reversed but only if one sees oneself not as "suffering" from a disease, but as a person in need of growth and of mindful self-examination that can be developed. Most adults will need counselling or some other supports to achieve such awareness.

Finally, a word about medications: they are no panacea, but they can be helpful—as I know personally. The key points are:



What conditions must the environment provide in order to foster healthy growth?

1. If one doesn't suit, either because of side effects or lack of efficacy, try a different one.
2. Medications should never be the only treatment, since on their own they don't promote development.
3. The prescriber has to be knowledgeable, flexible and in frequent contact with the parents, the child, or the adult patient.
4. A low dose should be tried first, increased gradually as need be.

There are no quick fixes for ADD, but given an approach that combines proper nutrition, stress reduction, loving acceptance of the child—or of oneself—with the appropriate medication, when needed, most people with ADD can grow out of the debilitating features of this condition.

Suggested reading: *Scattered Minds: A New Look at the Origins and Healing of Attention Deficit Disorder*, by Gabor Maté; *Parenting From the Inside*, by the UCLA child psychiatrist and brain researcher Daniel Siegel; *Unconditional Parenting*, by Alfie Kohn; and *Hold On To Your Kids*, by Gordon Neufeld and Gabor Maté. ❍

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Complicated Grief and Bereavement

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Sometimes grief can be so devastating that it resembles depression or other disorders

Approximately 3 million people die yearly in the United States and Canada (National Center for Health Statistics, Statistics Canada). It has been estimated that for each death, there may be 6-10 survivors bereaved. These survivors face grief or the keen mental suffering or distress over affliction or loss. Grief is normal and natural. However, sometimes grief can be so devastating that it resembles depression or other disorders, and thus becomes what is called complicated grief. Research suggests that complicated grief affects 10% to 20% of bereaved persons (Jacobs, 1993). This suggests that each year, well over 1 million North Americans suffer from complicated grief.

The loss of a significant other and the suffering that accompanies that loss are among life's most painful stressors. Typically, bereaved persons face four basic tasks of mourning: accepting the reality of the loss, working through the pain of grief, adjusting to life without the deceased, and finally moving on with life by emotionally "relocating" the deceased (Worden, 1991). Grieving survivors normally experience emotional reactions such as shock and numbness (or occasionally even

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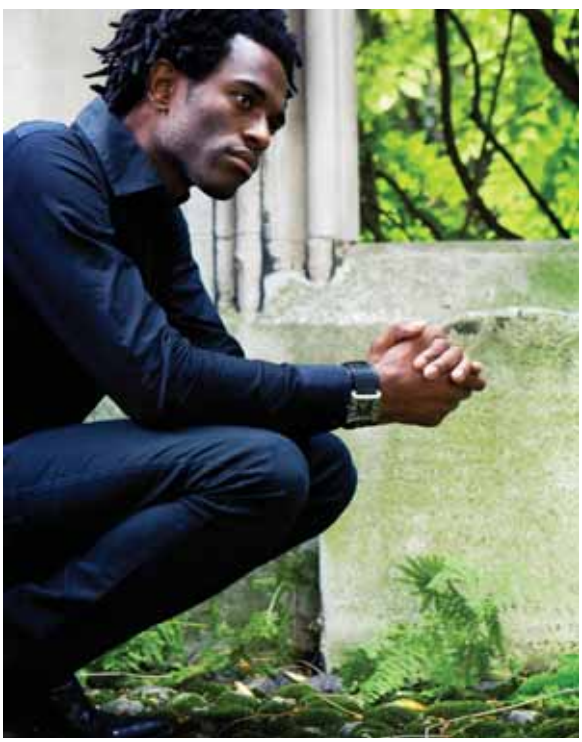

feelings of relief), as well as behavioural reactions like crying, sleep and appetite disturbances and absent-mindedness. Typical cognitive reactions are disbelief and confusion. Physical reactions may range from tightness in the throat and chest to depersonalization (the feeling that nothing seems real, not even one's self).

When the grief accompanying the death of a loved one becomes complicated, it is often so stressful that it can resemble psychiatric disorders: not only depression, but also anxiety disorders and post-traumatic stress disorder. To help doctors and nurses in identifying those suffering from complicated grief, there have been attempts to develop a recognized diagnostic category for it. Some proposed criteria include the following: first, that sufferers experience bereavement by death, and second, their reactions involve an intrusive and distressing set of core symptoms that include yearning, longing for, and searching. Thirdly, in response to the death, individuals must also have four or more marked, persistent symptoms of traumatization including: avoidance of reminders of the deceased, purposelessness, feelings of futility, difficulty imagining a life without the deceased, detachment, feeling dazed or shocked, feeling that life is meaningless or that part of oneself has died, disbelief, excessive anger related to the death, and symptoms resembling those suffered by the

deceased (Prigerson, Maciejewski, et. al. 1995). Additional complicated grief criteria include lower social functioning, worse mental health scores, and lower energy levels.

Prigerson and others (1995; 1996) examined complicated grief symptoms among elderly subjects whose spouses died from a terminal illness. They assessed the bereaved individuals for complicated grief symptoms at baseline (between 3 and 6 months after the loss), and found sleep disturbances, low self-esteem, and sad mood 18 months after the loss. In another study, elderly bereaved with complicated grief were compared to those who did not meet criteria for complicated grief. Comparing their health status at 6-month and 25-month assessments, the individuals with complicated grief had substantially higher rates of heart trouble and cancer, as well as more reports of headaches and the flu at the anniversary of the spouse's death, than those who did not exhibit complicated grief. Several other adverse health behaviours (i.e., smoking and changes in eating habits) were also significantly associated with complicated grief at 13 months. Younger adults are also affected by complicated grief, as when suicide victims' friends and significant others experience suicidal ideation and actions of their own (Mitchell, Kim, Prigerson, & Mortimer, 2005).

The above results suggest that bereavement alone may not put individuals at risk for developing psychosocial and physical health problems. Complicated grief, however, appears to put individuals at risk for long-term negative health outcomes, including suicidal ideation. Doctors and nurses must therefore recognize the seriousness of complicated grief, and provide more comprehensive assessments of bereaved individuals to make sure complicated grief is not an issue. More research is needed to develop tools for assessing individuals at risk for complicated grief and for objectively measuring their physical health and health behaviours, to improve the treatment of all bereaved. ❍

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Complicated grief appears to put individuals at risk for long-term negative health outcomes

Schizophrenia and Substance Use

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Substance use complicates the course of illness and the treatment of people with schizophrenia

People with schizophrenia may have a tendency for addictive behaviour

This article provides an overview of some of the issues affecting people who experience coexisting schizophrenia and substance use disorders.

What is schizophrenia?

Schizophrenia is a serious mental illness that affects how a person thinks, feels, and behaves. The person finds it difficult to tell the difference between real and imagined experiences, to think logically, to express feelings, or to behave appropriately.

People with schizophrenia may hear internal voices not heard by others or may see things that are not really there. These experiences can seem threatening and can make them fearful and withdrawn. They also may have trouble organizing their thoughts and expressing themselves. Their speech and behaviour can be so disorganized that they may seem frightening to others.

The onset of schizophrenia usually takes place in the late teens or early 20's – sometimes later for women. Around the world, approximately 1% of the population – or one in a hundred people – will experience some form of schizophrenia.

Even though schizophrenia is rare, its early onset and the lifelong disability it brings to people affected, including their families, make schizophrenia one of the most catastrophic mental illnesses.

Symptoms of schizophrenia include the following:

- Positive symptoms - such as hallucinations, delusions, disorganized behaviour, changes in sensitivity
- Negative symptoms - such as loss of interest in daily activities, lack of energy
- Cognitive symptoms - such as poor concentration, thought disorder
- Emotional symptoms - such as depression, blunted emotions

Concurrent disorders

A concurrent disorder (CD) combines both a mental health problem and a substance use disorder. Substance use disorders involve dependence on or abuse of substances, such as alcohol, prescription and/or over-the-counter medication or illegal drugs. A person with major depression who also abuses alcohol has a concurrent disorder, for example, as does a person with schizophrenia who abuses cannabis. Nicotine is a major factor in the lives of people with concurrent disorders. Between 80-90% of people with serious mental illness and substance use disorders also smoke.

Concurrent disorder is also known as co-morbidity. In the United States these disorders are sometimes called dual diagnosis or dual disorder. In Canada, dual diagnosis usually refers to someone with a developmental disability and mental illness.

The impact of concurrent disorders

The prevalence of concurrent disorders among people with serious mental illness is higher than many people realize. Recent research indicates that between 40% and 60% of

Around the world, approximately 1% of the population - or 1 in a 100 people - will experience some form of schizophrenia

people with substance use disorder (with addictions to alcohol and/or street drugs) also have at least one mental illness[1]. The World Health Organization has ranked major mental illnesses such as schizophrenia, bipolar disorder and depression, as well as substance use disorders, among the top five contributors to burden of illness globally in the 19-44 age category[2].

People with serious mental illnesses such as schizophrenia who also have substance use problems tend to experience a wide range of serious problems. Common issues include[3]:

- more severe psychiatric symptoms, such as depression and hallucinations
- more dramatic effects after using substances, including a greater number of blackouts
- greater chance of not following treatment plans
- physical health problems
- increased experiences of stigma
- financial problems
- housing instability and homelessness
- poorer management of personal affairs
- serious relationship problems with family members
- more verbal hostility, tendency to argue, disruptive behaviour, aggression
- greater likelihood of ending up in jail
- increased suicidal feelings and behaviours

Having concurrent disorders affects not only the person experiencing the disorders, but also that person's family members and friends. As problems become more complex, family members are often confused about which problems are causes, and which are results. It is difficult for families to understand why their relative continues to use alcohol or other drugs when the consequences can be so severe.

The needs of people with serious mental illnesses and substance use disorders are complex; the problems posed by the severity of the symptoms of the disease, and the persistent stigma which surrounds mental illness and addictions are often compounded by the lack of integrated treatment services in the community.

Why is substance use so widespread among people with schizophrenia?

Research has shown that people with schizophrenia and other mental disorders often use drugs and alcohol for the same reasons as everyone else – to feel better or different, to relax and have fun, and to be part of a group.

There are several theories about the particular relationship between substance misuse and schizophrenia. A common hypothesis is that the choice and use of substances is a method of "self-medication", to treat adverse positive and negative symptoms or medication side effects.

Recent research suggests that increased vulnerability to addictive behaviour may be related to the impact of schizophrenia on the nervous system. This hypothesis suggests that people with schizophrenia may have a tendency for addictive behaviour as a primary disease symptom parallel to, and in many cases, independent from, their other symptoms[4].

The *"super-sensitivity model"* suggests that people with severe mental illness such as schizophrenia are more sensitive to the effects of alcohol and other drugs due to increased biological vulnerability and that they experience more negative consequences from relatively small amounts of alcohol or other drugs.

Between 80-90% of people with serious mental illness and substance use disorders also smoke

Multiple factors likely come into play for different groups of people, and even within the same person.

What is the impact of substance use?

Substance use complicates the course of illness and the treatment of people with schizophrenia, even when relatively small amounts of substances are used.

The misuse of substances adversely affects the medication taken for psychiatric symptoms, and can exacerbate all the symptoms. People in treatment for schizophrenia who are using substances may experience hallucinations, have reduced emotional responses, and may at times be thought-disordered or express delusions. These symptoms may be a result of, or be heightened by, the interaction between prescribed medication and substances. This extreme or heightened sensitivity is significant. It means that even moderate substance use can have negative consequences or dramatically increase the risk of more severe substance use. As a result, most people with concurrent substance abuse and severe persistent mental illness will not be able to sustain controlled substance use. It is

Use of substances is a method of self-medication

critical to educate consumers about their biological sensitivity to the effects of alcohol and drugs. In addition to the impact on symptoms, people who have both schizophrenia and substance use problems, compared to those with just schizophrenia:

- are at a higher risk for self-destructive and violent behaviours
- may be more vulnerable to homelessness, victimization, and poor physical health
- are more likely to have inadequate financial resources, a lack of social supports and meaningful daytime activity
- are less likely to follow recommended treatment plans

Identifying concurrent disorders

Warning signs include a number of subtle physical or behavioural symptoms or a combination of symptoms. For example, individuals may experience physical problems such as insomnia, fatigue, chest pain, cardiac arrhythmia, or headaches. When other physical or psychological causes cannot be found, substance use should be considered.

Screening tools are available to help health care providers who suspect that an individual may have a concurrent disorder. Screening is a way of identifying whether an individual may have a mental health or substance use problem that warrants more comprehensive assessment. Screening does not make a diagnosis or give a complete profile of psychosocial functioning or needs. The function of screening is to raise "red flags" that are generally based on observations about an individual's appearance, behaviour, cognition and their responses to a few simple questions.

An assessment is an in-depth investigation of the mental health and substance use problem and the inter-relationship between the two. The assessment is closely linked to treatment planning and the delivery of quality services that match the individual's needs. A number of assessment tools are available. (See the Schizophrenia Society website for more information about screening and assessment tools www.schizophrenia.ca)

What is the best treatment for someone with schizophrenia and a substance use problem?

People with concurrent substance abuse and severe and persistent mental illness such as schizophrenia are best treated in an integrated program or system of services that deal simultaneously with both mental health and substance use problems.

Integrated treatment addresses mental health and substance abuse problems in a coordinated and consistent manner. It requires enduring linkages between service providers or treatment units to facilitate the provision of services to individuals at the local level. These linkages may be within a system, or across multiple systems, including mental health and addictions.

The core components of specialized concurrent disorders treatment and support include:

- concurrent disorders assessment
- clinical case management based on stages of treatment
- motivational interviewing
- a harm reduction approach (e.g., flexible goals)
- cognitive-behavioural substance abuse counselling
- concurrent disorders group interventions, including social skills training groups
- self-help liaison (e.g., Double Trouble, AA)
- work with families including cognitive behavioural therapy and psychoeducation
- residential options including housing

Can people recover?

Recovery from schizophrenia and other psychotic disorders is more challenging for people who also abuse substances. The recovery process can be prolonged, and relapse is more likely.

Despite the increased challenges, recent research is showing that beyond simply reducing symptoms, integrated treatment and supports can help most people with schizophrenia and substance abuse recover over time. Recovery is defined differently for each individual, but is generally thought to include measures such as: controlling the symptoms of schizophrenia, remission from substance abuse, living independently, having a job, having friends and social support, and quality of life.

People move toward recovery on different paths, so the supports that are needed are different for each individual. People need a range of options such as self-help groups, access to integrated treatment of mental health and substance use problems, vocational and housing support to promote and sustain recovery[5].

What can clinicians do?

It is critical to provide individuals with concurrent disorders with feedback and advice in a clear, concise, nonjudgmental, and supportive manner. Concurrent disorders are still associated with shame and guilt by many people—empathy is very important.

- Talk about these disorders in a matter-of-fact way—as treatable conditions—to put the person at ease and encourage cooperation.
- Develop relationships with local substance abuse and mental health treatment providers, especially those providing integrated treatment where available.
- Remain informed about research and practices and opportunities for training and continuing education.
- For more detailed information for professionals, as well as information for consumers and family members of individuals with schizophrenia and substance use problems, please see the SSC website www.schizophrenia.ca. ❍

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The Story of My Depression, My Suicide Attempt, and My Eventual Recovery

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I am so lucky to have survived

Michael Paré

In my early-twenties I became doubly depressed. I am not talking about the degree of my depression as being twice the usual magnitude, but rather, that I was likely suffering from – what has informally been referred to as – Double Depression. It was not quite a second dose of destructive despair but it sure felt that way. I was unlucky enough to be afflicted with a newly diagnosed case of Major Depressive Disorder, yet also – in addition to this very unwelcomed bio-psych-brain problem – I was also suffering a preexisting – more chronic depressive condition called dysthymia. So I went from feeling weird and crappy to feeling much worse.

It is best to regard dysthymia as a somewhat lower grade (yet still insidious and destructive) chronic depression. These (evil) twin depressive illnesses developed fairly steadily over a period of several years. So clearly my particular story of depressive illness is not a shocking tale of going from feeling Good to Bad, but rather more like a harrowing narrative of going from feeling Bad to Worse. Eventually to feeling very much worse indeed.

Initially as an undergraduate student taking Science in college I continued to function fairly well externally: meaning only that I could put one foot in front of other and wasn't flunking out.

Nevertheless internally I felt I was mentally falling apart. This strange impression was due to the unfortunate fact that I was, indeed, falling apart inside. I did not realize at the time that I was suffering this serious combination of Depressive Disorders, which are true medical conditions.

I was increasingly hopeless, intensely anxious and filled with a profound and hostile self-loathing

Clinical Depressive Disorders are genuine – often severely disabling medical conditions – that are not due to laziness, are not the result of a poor attitude, nor are they to be correctly explained by moral weakness.

I became increasingly socially anxious, developed progressively more and more alienation and, little by little, withdrew from most social contact. To simply say that I was excessively "self-conscious" and that I had a problem with a "negative self image" and leave the explanation at that – would be somewhat akin to saying something like: "the Nazis behaved impolitely to the Jews during the Second World War": a horribly ludicrous understatement to be sure.

As it is often said: it is very difficult to know how to accurately describe how depression actually feels. In this case the cliché is absolutely correct: it is simply not possible to adequately describe the experience of depression in mere words. For this reason I have decided to use some visual images to communicate where words plainly fail.

In point of fact I actually had a horrendously sadistic relentlessly self punishing self image. To say I hated aspects of myself is a huge understatement. I had an enormously exaggerated sense of my own social, academic, intellectual and physical imperfections.

Figure 1

For example, I did suffer from some acne: a normal amount of acne. Nevertheless I progressed to being overly sensitive and intensely ashamed of my acne (which was objectively never really <u>that</u> bad at all). I progressed to a psychological belief, where I didn't simply <u>have</u> a bad case of Zits – (even huge ridiculously embarrassing pimples): but rather I had a (non-psychotic) belief that I <u>was</u> a bad case of acne. Indeed I saw myself as a huge walking and sometimes talking pimple. It's bad enough for a person's self-esteem and self-confidence to have a bad case of acne, on the other hand it's a quantum jump of shame and embarrassment to actual be a "Giant walking Zit" (see Figure 1).

It's also very difficult to find other friendly and outgoing Zits to hang-out with. And even if I could find some fellow pimples, nobody – including me – would want to hang-out with other Zits (especially giant human ones). Eventually, understandably, I became a complete loner.

To say I hated aspects of myself is a huge understatement

Nevertheless, when around my family I was able to fake some sort of passing performance of mental health. Basically to do so I simply kept my mouth tightly shut, and that was enough to convince them that I was okay. Nevertheless, internally I was increasingly hopeless, intensely anxious and filled with a profound and hostile self-loathing.

And then my depression got worse.

I suffered huge harrowing pangs of emotional pain; I felt I was the outsider, the alien, the freak, the weirdo. I was in almost constant psychological turmoil. For me depression was like an endless and relentless burning of my mind or my brain. I felt my brain was on fire. Eventually that feeling of burning alive was completely consuming. At this point I started thinking of suicide. I felt almost constant mental torture: day by day (see Figure 2). Sounds painfully tedious does it not?

And then my depression got even worse.

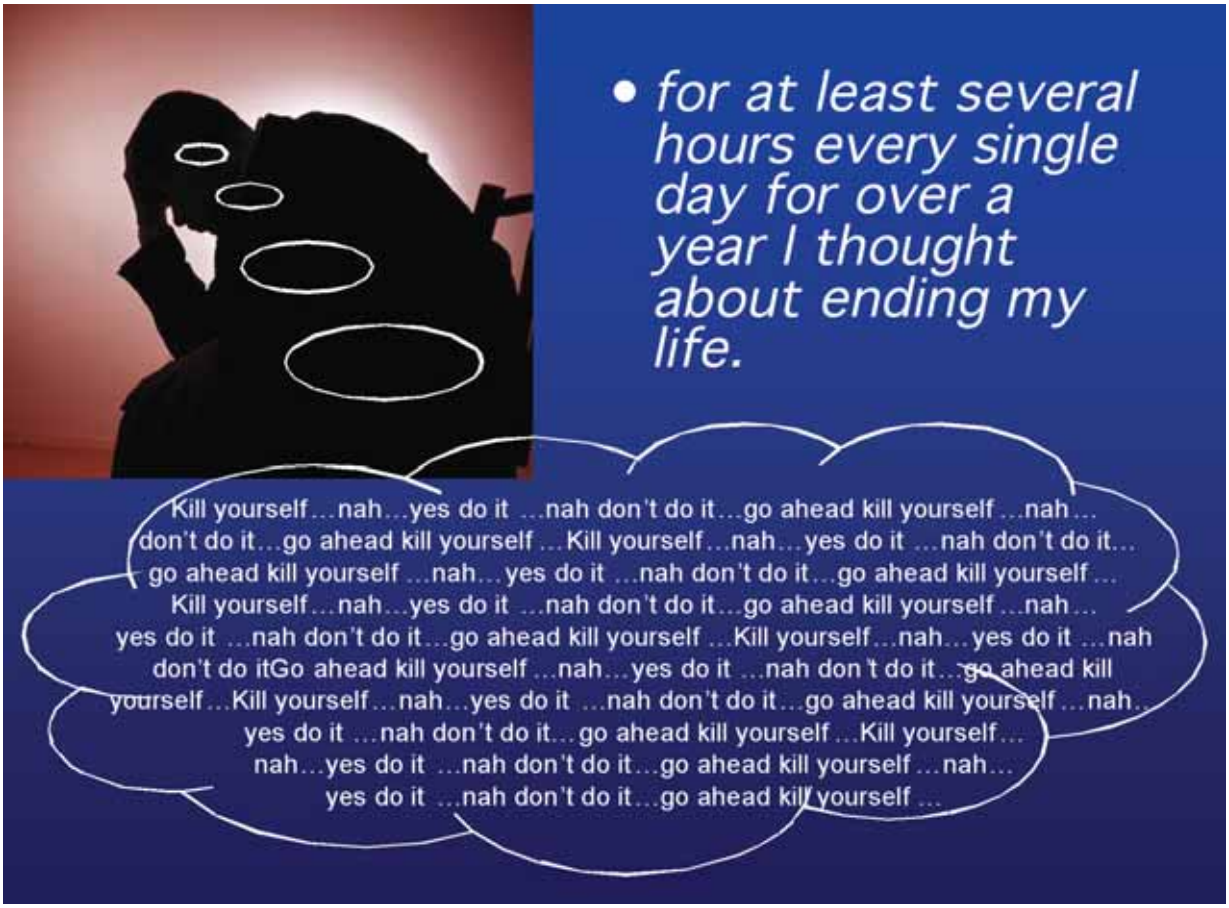


Figure 2

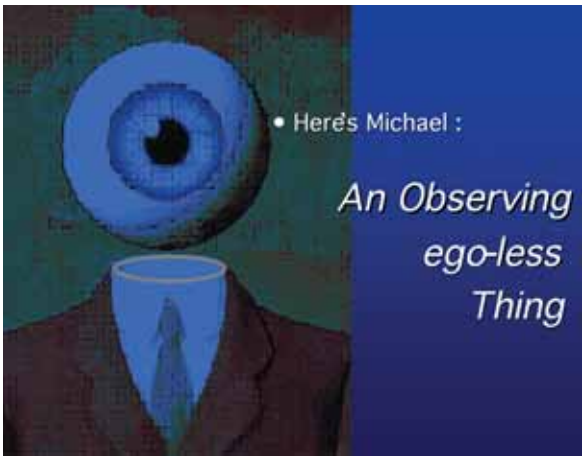


Figure 3

It was not so much that living was painful, it is more correct to say that living was pure pain. For most people the words: "Living", "Life", and being "Alive" when heard or contemplated lead logically at least to some positive emotional associations. These words bring with them some positive connotations of: physical health, positive enjoyment and various pleasurable and meaningful activities. Yet for me these words were by some means translated by the deeply distorted neuronal lexicon buried in my disordered brain/mind (in its' profoundly depressed state) as: "Living" = burning alive; "Life" = endless suffering; "Alive" = a living hell. These feelings went on for many agonizing months with only an occasional brief oasis of relief. Eventually there was no emotional relief at all (see Figure 3).

And then my depression got even worse.

I went from thinking of suicide to carefully planning my desperate escape from life by any means of suicide. To escape the endless torture, I made a truly serious suicide attempt by taking a very large overdose of muscle relaxant pills. I took enough pills to kill myself. I was admitted to hospital in a coma, yet I was quickly helped by medical and psychiatric treatment. Later psychotherapy and antidepressant medication helped me as well. Indeed, if it wasn't for the psychiatry teams'

Internally I felt I was mentally falling apart

medical care (and this includes psychiatric nursing, as well as social work, etc.) I would likely be dead now.

After being discharged from hospital, I immediately entered individual psychotherapy and also took part in group psychotherapy. I soon returned to college and resumed my previous academic life. At first I was still very shaky but at least I was much less depressed. The therapeutic act of self-disclosure and my open self-revealing of the deep dark secrets of my depression, and of my self-destructiveness had somehow helped me tremendously. The support and empathy I received from both family and therapists I also found very encouraging.

The pimple (that was me) had been popped, the contents drained. That fulminating abscess excised, opened, drained and cleaned. My damaged psyche, had been somewhat renewed, and definitely rejuvenated, and although certainly not yet entirely restored, at least was on the way in that positive healing direction. Psychiatric hospital day treatment was also very helpful to me. Nevertheless for a full healing process, I needed long-term psychodynamic psychotherapy. My ongoing commitment to psychotherapy has in the past helped me substantially and also currently psychotherapy continues to aid me tremendously.

The therapeutic act of self-disclosure and my open self-revealing had somehow helped me tremendously

I am so lucky to have survived. I came close to not making it.

I am now a physician and medical psychotherapist who treats patients suffering from clinical depression and other emotional disorders. I believe my own experience of severe depression has helped me identify with, and have extra empathy for these unfortunate people. I have also been keenly motivated – because of my own traumatic emotional experiences – to help educate the public and decrease the stigma experienced by others who have also been afflicted by mental illness.

I now have a very rewarding and successful career in clinical medicine. My work has several interesting and constructive facets, including: patient care, teaching, educational development, administrative innovation, and with further learning and scholarly components as well. With the essential and much needed help that I received, I am so fortunate to have survived a severe depression.

Dr. Michael Paré, MD, BSc (Psychology), MSc (Neuroscience), MEd. Michael's story highlights that physicians (and others) are not immune to mental illness and yet; that with proper treatment and ongoing care, it is possible to continue to function at a highly productive level; and that speaking about it openly will raise needed awareness of this issue and provoke more thought and open discussion. ❍

Film Review: Iris (2001)

Topic: Alzheimer's Disease (AD)

Cast: Judi Dench, Jim Broadbent and Kate Winslet

Plot: The movie Iris celebrates the life and follows the intellectual decline of British novelist and philosopher Iris Murdoch.

Dench's portrayal of Iris, a great mind that succumbs to the ravages of Alzheimer's disease is unbearably moving. The film shows us the two phases of Iris's life – as a free-spirited young woman in 1950's Oxford, England and as an aging woman trying to survive her last days in the 1990s while her husband tends to her needs.

Brilliantly illustrated is the power of the mind and the tragedy of losing it along with being a very touching love story. Alzheimer's disease is more than simply forgetting where you put your car keys; it is a progressively deteriorating disease that profoundly affects family members.

Iris's husband, John Bayley (Jim Broadbent), also a professor and novelist, demonstrates the challenges of coping with the loss of a spouse's faculties. With time he becomes upset by his increasing resentment.

This film educates and informs individuals of the struggles and pain experienced with AD patients and their loved ones.

Film Review: Mozart and the Whale (2005)

Topic: Asperger's syndrome

Cast: Josh Hartnett and Radha Mitchell

Plot: Director Petter Naess' heart-warming film depicts the lives of two individuals suffering from Asperger's syndrome a form of autism. The title refers to the Halloween costumes Donald and Isabelle wear on their first date that represents the beginning of their togetherness.

Donald (Josh Harnett) plays a kind-hearted math savant plagued by indecision. Donald organizes and leads an autism support group where he meets Isabelle (Radha Mitchell) who shows up at one of his meetings. Isabelle is a flamboyant artist with an abrasive laugh who freely speaks her mind.

The film carefully portrays a diverse range of autistic people. Their common trait, other than loneliness, is extreme mental preoccupation that contributes to difficulty dealing with the outside world or other individuals. They are consumed with statistics or esoteric knowledge, and are into their own heads to an extent that makes them natural loners unlikely to make meaningful connections with others.

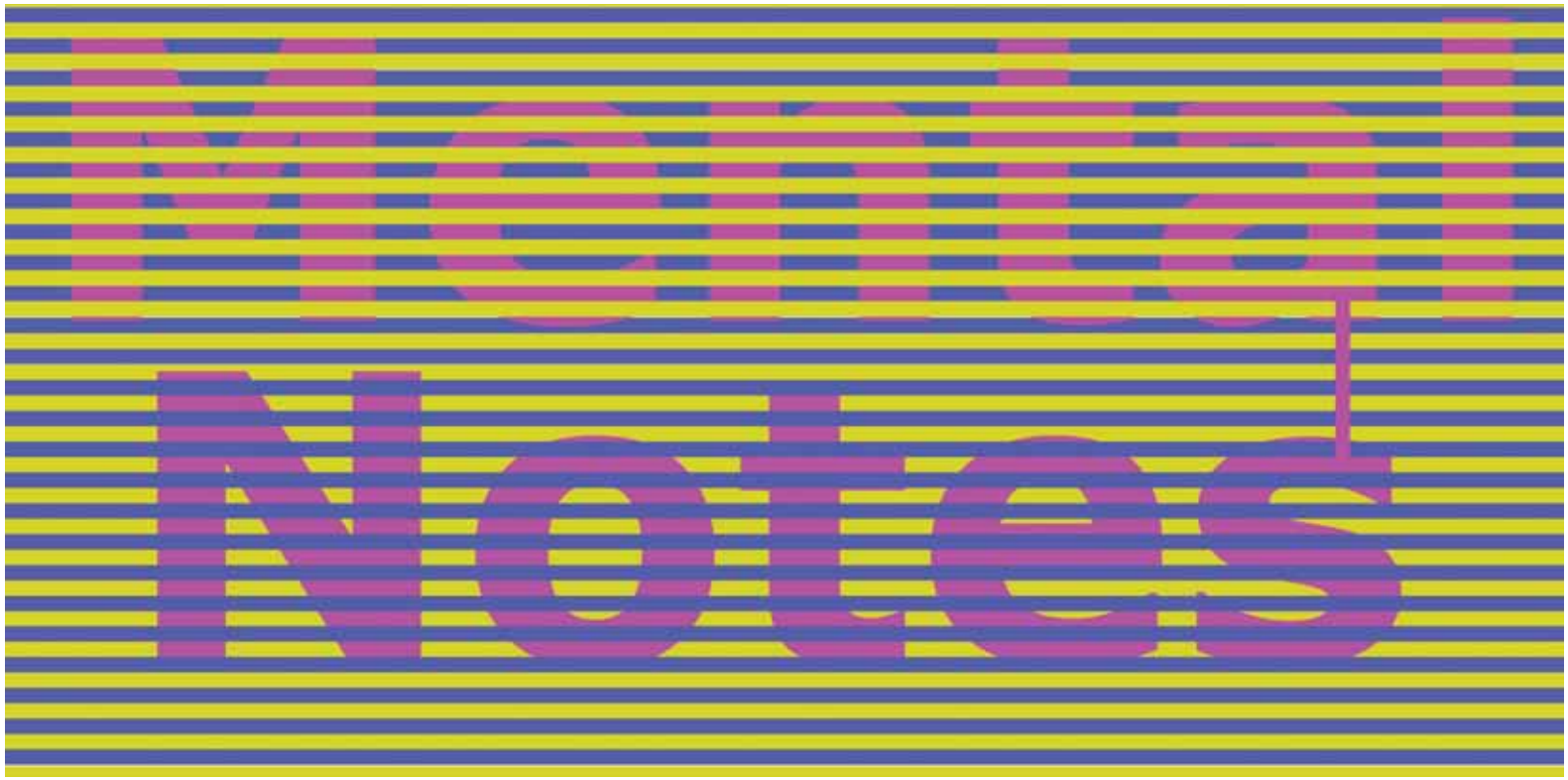
Isabelle and Donald soon become an item, much to the fascination of the group, whose members' behavioural oddities, intelligence and humour are well captured by the cast.

The wonderfully colourful couple fall in love, fight, make up, and deal with the specific struggles of autistics in love. ❍

Resources

Mental Health Crisis Line	www.crisisline.ca
Suicide Prevention	www.suicideinfo.ca
Domestic Violence and Abuse	http://hotpeachpages.net/canada/index.html
Parent Helpline	www.parenthelpline.ca
Kids Helpline	www.kidshelpphone.ca
Canadian Association of Sexual Assault Centres	www.casac.ca
Telecare Distress Centres of Canada Inc.	www.members.tripod.com/telecarecanada
Canadian Network for the Prevention of Elder Abuse	www.cnpea.ca
Shelternet	www.shelternet.ca
Canadian Association of Foodbanks	www.cafb-acba.ca
ADHD Canada	www.adhdcanada.com
CH.A.D.D. Canada (ADD)	www.chaddcanada.org
Canadian Centre on Addiction Abuse	www.ccsa.ca
Centre for Addiction and Mental Health	www.camh.net
Alzheimer Society of Canada	www.alzheimer.ca
Canadian Coalition for Seniors' Mental Health	www.ccsmh.ca
Ami Québec: Alliance for the Mentally Ill Inc.	www.amiquebec.org
Anorexia Nervosa and Bulimia Association	www.phe.queensu.ca/anab
National Eating Disorder Information Centre	www.nedic.ca
Anxiety Disorders Association of Canada	www.anxietycanada.ca
Aspergers Society of Canada	www.aspergers.ca
Online Asperger Syndrome Information	www.udel.edu/bkirby/asperger/suppCAN.html
Autism Society Canada	www.autismsocietycanada.ca
Mood Disorders Society of Canada	www.mooddisorderscanada.ca
Schizophrenia Society of Canada	www.schizophrenia.ca
S.A.F.E. Self Abuse Finally Ends Canada	www.safeincanada.ca
The Learning Disabilities Association of Canada	www.ldac-taac.ca
Responsible Gambling Council	www.responsiblegambling.org
Canadian Sleep Society	www.css.to
Mental Health Commission of Canada	www.mentalhealthcommission.ca
Mental Health Canada/Santé Mentale Canada Inc.	www.mentalhealthcanada.com
Canadian Mental Health Association	www.cmha.ca
Canadian Medical Association	www.cma.ca
The College of Family Physicians of Canada	www.cfpc.ca
Canadian Psychiatric Association	www.cpa.-apc.org
Canadian Psychological Association	www.cpa.ca
Canadian Psychoanalytic Association	www.psychoanalysis.ca
Canadian Association of Social Workers	www.casw-acts.ca
Canadian Counselling Association	www.ccacc.ca
Canadian Group Psychotherapy Association	www.cgpa.ca
Canadian Psychiatric Research Foundation	www.cprf.ca

Mental Notes Optical Illusion



The entire staff at Mental Notes extends a huge thanks to Dr. Kingdom for creating this customized optical illusion.

"The words "Mental" and "Notes" are actually drawn in the same ink, but appear very different in colour (you can tell they are the same colour by inspecting the narrow vertical line connecting the two words). And the trick is all in your mind! The illusion happens because the two words are embedded in different contexts: the arrangement of the horizontal yellow and blue lines is different in relation to each word. The neurons in our brain that detect colours are not only stimulated by the colours that they 'look at' directly, but also by colours nearby; as a result the colours we experience are also influenced by nearby colours. In general however we don't notice the effects of nearby colours because the effects are small. However, one can design patterns that maximize the influence of neighbouring colours on colour-detecting neurons, and hence maximize the effect on colour perception; the figure here is a good example.

The illusion was designed by Professor Frederick Kingdom at the McGill Vision Research Unit, Department of Ophthalmology, McGill University. It is similar to one recently published in the journal 'Annual Review of Psychology', in an article on colour vision written by Frederick Kingdom and Steven Shevell from the University of Chicago. Colour illusions are a "spin-off" from Professor Kingdom's research into human colour vision funded by the Canadian Institute of Health Research. "