Biogenetic and environmental factors in mental health and mental disorders

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Abstract
Health encompasses mental and physical well-being, and the concept of “healthy mind in a healthy body” has been generally upheld as a resounding precept of a healthy person. It means that mental health problems affects both the mind and the body and immensely contributes to the global burden of disease and disability. In fact, the question as to the cause of mental disorders is as old as humanity itself. This article evaluates scientific investigations or studies that try to underscore the etiological basis for behavioral, emotional or mental abnormalities in human. People had believed that mental illness was caused by evil spirit, demons, ancestral spirits or individual's wickedness. Today, some researchers claimed that biological factors are precursors to mental health problems, while others claimed multiple factors. But advancement in human knowledge, in which family, twin, adoption and post-mortem studies have been used to establish that the combinations of biological, psychological and environmental factors as the major contributing factors to mental illnesses is the dominant claim. However, the theoretical and practical frameworks in which these concepts can be applied to clinical practices and evidence-based interventions are still loomed with controversies. This article explores the extent or proportion to which genetic and environmental factors play roles in the cause or exacerbate of mental health problems. That is, do mental health conditions depend on only on natural causations or a combination of many factors? 

Keywords: Biomedical model, Mental health, Gene, heritability Mental illness, Behavioral phenotype, Biopsychosocial model.

Introduction
Mental health, which includes behavioral, emotional, and cognitive well-being, is a widespread condition that could affect how individuals think, feel, and act. It also signals how we respond and handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood. Over the course of individual’s life, one may experience mental health problems that could alter one's thinking, mood, and behavior. Many factors have been discovered to contribute to mental health problems, including:

- Biological factors, such as genes or brain chemistry
- Life experiences, such as trauma or abuse
- Family history of mental health problems
- Environmental condition

The term “mental health” connotes “health of the mind” as in the “health of the body.” Health the classical definition of health propounded by the World Health Organization (WHO) defined health as a state of complete physical, mental and social well-being and not merely the absence
This highlights the important aspects of mental health which includes "subjective well-being, perceived self-efficacy, autonomy, competence, inter-generational dependence, and self-actualization of one's intellectual and emotional potential, among others as the same condition with physical health (WHO, 2001). Mental health formally studied as “mental hygiene is the art of preserving the mind against all incidents and influences calculated to deteriorate its qualities, impair its energies, or derange its movements (Mandell, 1995). It also deals with prevention and treatment of the mentally ill.

Even though family, twin, and adoption studies have demonstrated the roles of both genes and environment in the causes of mental illnesses, but implicating the genes or precipitating environmental circumstances under which psychopathology emerges have presented an ongoing challenges. From the very nature of mental disorders, it is known that multiple factors or comorbid conditions may be responsible for a single mental disorder to occur. Whether it is linked to genes or environment, combination of genetic or environmental factors may remotely or directly act together or in isolation to cause mental illness. Furthermore, our knowledge that the environment affect genes just as in the same way the genes environment has led to the conclusion that our phenotype can be influence by both genes and environment. The world Health Organization (2001) recognized that to all individuals, families and communities, mental, physical and social health conditions are vital strands of life that are closely interwoven and deeply interdependent. One can be play against the other because a nation that claims good physical health for all its citizens, while most of its citizens suffer from mental health problem is certainly not a healthy nation. So, the inter-connectedness of mental and physical cannot be compromised. However, as understanding of this relationship grows, it becomes ever more apparent that mental health is crucial to the overall wellbeing of individuals, societies and countries (WHO, 2001).

Unfortunately, in most nations of the world, mental health and mental disorders are not given the same importance as with physical health. Instead, they have been largely ignored or neglected due to factors that may include poverty, ignorance, corruption, and poor information network. For this reason, the world is suffering from an increasing burden of mental disorders, and a widening “treatment gap” (WHO, 2001). For example, today, about 450 million people suffer from a mental or behavioural disorder, yet only a small minority of these people receive even the most basic treatment and care (U.S. Public Health Service, 1999). In developing countries, most individuals with severe mental disorders are left to cope as best they can with their private burdens such as depression, dementia, schizophrenia, and substance dependence. Globally, victimization, stigmatization and discrimination of people suffering from mental illnesses are very rampant and many become the targets of human right violation (WHO, 2001). These attitudes have further increases the suffering of this population and make recovery very difficult. Furthermore, other factors that impede better treatment procedures for people suffering from mental illness include aging of the population, worsening social problems, and civil unrest.
This supports the reason why mental disorders represent four of the 10 leading causes of disability worldwide. This growing burden amounts to a huge cost in terms of human misery, disability and economic loss. Mental and behavioural disorders are estimated to account for 12% of the global burden of disease, yet the mental health budgets of the majority of countries constitute less than 1% of their total health expenditures (WHO, 2001). The relationship between disease burden and disease spending is clearly disproportionate. More than 40% of countries have no mental health policy and over 30% have no mental health programme (WHO, 2001; Weare, 2000; U.S. Public Health Service, 1999). Over 90% of countries have no mental health policy that includes children and adolescents. Moreover, health plans frequently do not cover mental and behavioural disorders at the same level as other illnesses, creating significant economic difficulties for patients and their families (Weare, 2000). And so the suffering continues, and the difficulties grow.

The Origins of Mental Health

The term mental hygiene has a long history in the United States, having first been used by William Sweetzer in 1843. After the Civil War, which increased concern about the effects of unsanitary conditions, Dr. J. B. Gray, an eminent psychiatrist, envisioned a community-based mental hygiene that would operate through education, social culture, religion and involvement in national life. In 1893, Isaac Ray, a founder of the American Psychiatric Association, provided a definition of the term mental hygiene as "the art of preserving the mind against all incidents and influences calculated to deteriorate its qualities, impair its energies, or derange its movements. The management of the bodily powers in regard to exercise, rest, food, clothing and climate, the laws of breeding, the government of the passions, the sympathy with current emotions and opinions, the discipline of the intellect—all these come within the province of mental hygiene." (Rossi, 1962). In other words, individual genes and environmental factors exert their effects only via interaction with other genes and other environmental factors. The issue has lead to vulnerability hypothesis in which we believe that combination of nature and nurture produce a behavioral phenotype (Weare, 2000).

Mental disorder has been defined by experts as a clinically significant behavioral or psychological syndrome or psychological pattern that occurs in an individual that can be linked to present disability, dysfunctionality, and with a significantly increased risk of suffering, death, pain, disability, or loss of freedom (American Psychiatric Association, 2000). That is to say, mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognitive, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress in social, occupational, or other important activities.
In a medical sense where biomedical perspectives are strictly upheld, it is defined as any of a broad range of medical conditions (such as major depression, schizophrenia, obsessive compulsive disorder, or panic disorder) that are marked primarily by sufficient disorganization of personality, mind, or emotions (De Lange et al, 2001). Mental illness impairs normal psychological functioning and cause marked distress or disability and that are typically associated with a disruption in normal thinking, feeling, mood, behavior, interpersonal interactions, or daily functioning (Beers, 2004).

The fundamental disclaimer of this paper is that:

- Mental health and mental illnesses cover all aspects of human life and endeavours, just as behavior covers many areas in human existence.
- Mental health and mental illnesses, like physical illnesses aren't personal defects, and therefore do make the sufferer less a human nor do they constitute evil or demonic inclinations.
- Mental illnesses are not more than behaviour, but behaviour that as gone dysfunctional. Even though they may have biological roots inside the person; (Brain Disorders: Mental Disorders vs. Behavioral Disorders), it is biology and environment at work.
- Mental illnesses can be defined as medical illnesses of the brain, but just as the brain is influenced by the environment, so also mental illness can be influence by environment;
- Mental illnesses are complex with multiple causes.

**What Causes Mental Illness? Biology, Genetics**

As stated above, mental health and mental illness can be caused by multiple factors, and the major factors that have attracted a lot of research include the link between:

- biology (neurochemistry, brain structure, and genetics) and environment
- personality and lifestyle, and
- combination of social interaction and risk factors

Studies have linked genetic to five major psychiatric disorders, namely, autism, ADHD, bipolar disorder, major depressive disorder, and schizophrenia (Demyttenaere et al, 2004). Irregular and abnormal functioning of neurotransmitter systems has been implicated (Costa, & McCrae, 1980) in several mental disorders, including serotonin, norepinephrine, dopamine and glutamate systems. Differences have also been found in the size or activity of certain brain regions in some cases (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). Psychological mechanisms have also been implicated, such as cognitive (e.g. reasoning) biases, emotional influences, personality dynamics, temperament and coping style. Studies have indicated (Beers, 2004) that variation in genes can play an important role in the development of mental disorders, although the reliable identification of connections between specific genes and specific categories of disorder has proven more difficult. Environmental events surrounding pregnancy and birth have also been implicated. Traumatic brain injury may increase the risk of developing certain
mental disorders. There have been some tentative inconsistent links found to certain viral infections, to substance misuse, and to general physical health (Gautam, 1991).

Studies of identical twins and of mentally ill parents and their children (Mental Illness in Children: Types, Symptoms, Treatments) indicate that there is indeed a genetic component to mental illness. However, it's inaccurate to say that mental illness is hereditary (Kitchener & Jorm, 2002; Folkman et al, 1986). For a trait to be hereditary, it must be passed directly from one generation to the next (or, in some cases, from a grandparent to grandchild). Characteristics like male pattern baldness and eye color are hereditary. While mental illness often runs in families, mental illness is not hereditary. Mental illness is heritable. This means that people don't inherit mental illness; rather, they inherit genes that make them susceptible to mental illness. Mental illness isn't a trait, so it can't be passed down directly from parent to child. The genes that have the potential to activate mental illness can be passed from parent to child, so mental illness is indeed genetic (Koyanagi & Goldman, 1991). The brain itself can also be a cause of mental illness. Its structure and neurochemistry—neurochemicals and other molecules in the brain—can make it vulnerable to the development of mental illness. Traumatic brain injury, too, can be a cause of mental illness (Kitchener & Jorm, 2002).

Social influences have been found to be important, including abuse, neglect, bullying, social stress, traumatic events and other negative or overwhelming life experiences (Beers, 2004; Folkman et al, 1986). The specific risks and pathways to particular disorders are less clear, however. Aspects of the wider community have also been implicated (Kessler, Price & Wortman, 1985) including employment problems, socioeconomic inequality, lack of social cohesion, problems linked to migration, and features of particular societies and cultures. Risk factors associated with mental illness include genetic inheritance, such as parents having depression (Costa, & McCrae, 1980), repeating generational patterns (Beers, 2004; Cohen, 1983), and dispositions like personality. Correlations of mental disorders with drug use include cannabis, alcohol and caffeine. It has been known that a particular mental illness has a particular risk factor that may precipitate it. For instance including unequal parental treatment, adverse life events and drug use in depression (Demyttenaere, Bruffaerts, Posada-Villa, Gasquet, Kovess… Bernert, 2004) migration and discrimination, childhood trauma, bereavement or separation in families, and cannabis use in schizophrenia and psychosis, and parenting factors, child abuse, family history (e.g. of anxiety), and temperament and attitudes (e.g. pessimism) in anxiety. Many psychiatric disorders include problems with impulse and other emotional control (Beers, 2004).

**Argument for Biomedical model of Mental Health**

The general stand of biomedical model on mental health and mental disorders is that the brain governs the diseases of the mind, and therefore emphasizes pharmacological treatment as the treatment of choice for every mental abnormality. A biologically-focused approach to science, policy, and practice has dominated the American healthcare system for more than three decades
During this time, the use of psychiatric medications has sharply increased and mental disorders have become commonly regarded as brain diseases caused by chemical imbalances that are corrected with disease-specific drugs (Engel, 1989). However, despite widespread faith in the potential of neuroscience to revolutionize mental health practice, the biomedical model era has been characterized by a broad lack of clinical innovation and poor mental health outcomes. In addition, the biomedical paradigm has profoundly affected clinical psychology via the adoption of drug trial methodology in psychotherapy research (Double, 2002b; Engel, 1989). Although this approach has spurred the development of empirically supported psychological treatments for numerous mental disorders, it has neglected treatment process (Illich, 1995), inhibited treatment innovation and dissemination, and divided the field along scientist and practitioner lines (Double, 2002b). The neglected biopsychosocial model represents an appealing alternative to the biomedical approach, and an honest and public dialog about the validity and utility of the biomedical paradigm is urgently needed an overall distinction is also commonly made between a "medical model" (also known as a biomedical or disease model) and a "social model" (also known as an empowerment or recovery model) of mental disorder and disability, with the former focusing on hypothesized disease processes and symptoms, and the latter focusing on hypothesized social constructionism and social contexts (Kitchener & Jorm, 2002; Illich, 1995).

Hence, biological psychiatry has followed a biomedical model and focused on organic or "hardware" pathology of the brain (where many mental disorders are conceptualized as disorders of brain circuits), but disregarding other possible factors that have been linked to mental health and mental disorders, likely caused by developmental processes shaped by a complex interplay of genetics and experience (Kitchener & Jorm, 2002; Folkman et al, 1986).

Biological factors consist of anything physical that can cause adverse effects on a person’s mental health. This includes genetics, prenatal damage, infections, exposure to toxins, brain defects or injuries, chemical imbalances, and substance abuse (Archter, 1999). Many professionals believe that the sole cause of mental disorders is based upon the biology of the brain and the nervous system (Avila, Thaker & Adami, 2001; Andreasen, 1984).

Argument for Biopsychosocial model
The core tenet of biopsychosocial model is that health and illness are determined by a dynamic interaction between biological, psychological, and social factors (Wild S.; Roglic G.; Green A.; Sicree R.; King H. (2004), and therefore maintain a holistic approach to prevention, intervention and management of all health care systems, including mental health (Engel G. L. (1980)). So, it is a broad view that attributes disease outcome to the intricate, variable interaction of biological factors (genetic, biochemical, etc.), psychological factors (mood, personality, behavior, etc.), and social factors (cultural, familial, socioeconomic, medical, etc. (Armitage & Conner, 2000; Engel, 1980). The primary model of contemporary mainstream Western psychiatry is the
biopsychosocial model (BPS) (McLaren, 2002), which merges biological, psychological and social factors (Keyes, 2002). For instance one view is that genetics accounts for 40% of a person’s susceptibility to mental disorders while psychological and environmental factors account for the other 60% (Gatchel & Oordt, 2003; Armitage & Conner, 2000). It may be commonly neglected or misapplied in practice due to being too broad or relativistic, however (Gatchel & Oordt, 2003). The most common view is that disorders tend to result from genetic dispositions and environmental stressors, combining to cause patterns of distress or dysfunction or, more sharply, trigger disorders (Diathesis-stress model). A practical mixture of models may often be used to explain particular issues and disorders, although there may be difficulty defining boundaries for indistinct psychiatric syndromes (Kitchener & Jorm, 2002; Wild, Roglic, Green, Sicree & King, 2004).

**Psychoanalytic theories**
Psychoanalytic theories focus on unresolved internal and relational conflicts. These theories have been posited as overall explanations of mental disorder, although today most psychoanalytic groups are said to adhere to the biopsychosocial model and to accept an eclectic mix of subtypes of psychoanalysis (Armitage C. J.; Conner M. (2000)Beck, 1987). The psychoanalytic theory was originated by Sigmund Freud. This theory focuses on the impact of unconscious forces on human behaviour (Allen N. A. (2004). According to Freud, the personality is made up of three parts: the id, ego, and superego (Epstein, 1985). The id operates under the pleasure principle, the ego operates under the reality principle, and the superego is the "conscience" and incorporates what is and is not socially acceptable into a person's value system (Foa & Kozak, 1986). Also, according to the psychoanalytic theory, there are five stages of psycho-sexual development that everyone goes through: the oral stage, anal stage, phallic stage, latency stage, and genital stage. Mental disorders can be caused by an individual receiving too little or too much gratification in one of the psycho-sexual developmental stages. When this happens, the individual is said to be fixated in that developmental stage (Epstein, 1985).

**Attachment theory**
Attachment theory is a kind of evolutionary-psychological approach sometimes applied in the context for mental disorders, which focuses on the role of early caregiver-child relationships, responses to danger, and the search for a satisfying reproductive relationship in adulthood (Carlson, Norman, Feltz, Franklin, Johnson & Locke, 2001). According to this theory, the more secure a child's attachment is to a nurturing adult, the more likely that child will maintain healthy relationships with others in their life. As found by the Strange Situation experiment run by Mary Ainsworth based on the formulations of John Bowlby, there are four main patterns of attachment: secure attachment, avoidant attachment, disorganized attachment and ambivalent attachment. These attachment patterns are found cross-culturally (Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). Later research found a fourth pattern of attachment known as disorganized disoriented attachment. Secure attachments reflect trust in the child-caretaker
relationship while insecure attachment reflects mistrust (*Garcia & Mann, 2003;* Schwarzer, 1992. The security of attachment in a child affects the child's emotional, cognitive, and social competence later in life (*McLaren, 1998; Foa & Kozak, 1986*).

**Evolutionary Theory**

Evolutionary psychology (or more specifically evolutionary psychopathology or psychiatry) has also been proposed as an overall theory, positing that many mental disorders involve the dysfunctional operation of mental modules adapted to ancestral physical or social environments but not necessarily to modern ones (*Allen & Sarich, 1988; Alexander, 1974*) Other theories suggest that mental illness could have evolutionary advantages for the species, including in enhancing creativity (*Allen & Badcock, 2003*) Some related behavioral abnormalities have been found in non-human great apes (*Archter, 1999*). Evolutionary psychology applies Darwinian principles to human behavior by saying that human minds are products of natural selection and have specific functions. Humans strive to carry on their genetic legacy through their offspring. This theory identifies the environment as having a great effect on a person's mental development (*Allen & Badcock, 2003; Alexander, 1974/1975*).

**Factors affecting choice of models and theories**

Psychiatrists may favor biomedical models because they believe such models make their discipline seem more esteemed (*American Psychiatric Association, 1994*). Similarly, families of mentally ill people tend to favor biomedical models because to do so gives less self-blame (*Pilgrim, 2002*). If patients are seen by a more ethnically similar doctor, they are more likely to adopt a non-biomedical mode (*Archter, 1999*). Actually, people are becoming more aware of the physiological and environmental interactions involving mental health, the modern perspective toady points to a holistic approach to mental health and mental disorder (*WHO, 2002*).

**Chemical imbalance:** This theory regarding the origin of mental disorders has become the foundation of most psychiatric treatment today. It has legitimized psychiatry by returning it to the world of biological medicine. Diabetes may offer a helpful analogy. In diabetes, a chemical necessary to health (insulin) is missing and can be replaced, essentially restoring the patient's health. In mental illness, the neurotransmitters in the brain may be present in insufficient amounts. These chemicals or transmitters allow communication between nerve cells; as a result, they coordinate information processing throughout the brain. As a person reads, for example, chemical levels rise and fall in response to the letters; the meaning they have; the reader's eye movements, thoughts, reflections and associations; and to the feelings the reader may have while reading. Thus, a person's brain chemistry is changed by everything that influences him or her, whether internally or externally. While the discovery of certain neurotransmitters and their roles in mental disorders has led in turn to the discovery of effective medications to treat these disorders, it has also resulted in the unfortunate notion that medication is the only method of
treatment that is helpful (Avila, Thaker & Adami, 2001).

**Prenatal Damage:** Any damage that occurs to a fetus while still in its mother’s womb is considered prenatal damage. If the pregnant mother uses drugs or alcohol or is exposed to illnesses or infections then mental disorders can develop in the fetus. According to research, certain conditions, such as autism result from a disruption of early fetal brain progression (Archter, 1999)

Environmental events surrounding pregnancy and birth have been linked to an increased development of mental illness in the offspring (Blanchard, Courneya, Rodgers, Frasier, Murray Daub & Black, 2003). This includes maternal exposure to serious psychological stress or trauma, conditions of famine, obstetric birth complications, infections, and gestational exposure to alcohol or cocaine (Badcock, 1988). Such factors have been hypothesized to affect specific areas of neurodevelopment within the general developmental context and to restrict neuroplasticity (Badcock, 1988). Birth weight has been found to be an important predictor in both the infant’s survival and also its health (Carels R. A.; Douglass O. M.; Cacciapaglia H. M.; O’Brien W. H. (2004). Preterm birth is associated with almost half of all neurological birth defects. Birth weight is found to be affected by; demographic and socioeconomic factors, medical factors, prenatal behavioral and environmental factors, and medical conditions with the pregnancy (Badcock, 988)

**Infection, Disease and Toxins:** A number of psychiatric disorders have often been tentatively linked with microbial pathogens, particularly viruses; however while there have been some suggestions of links from animal studies, and some inconsistent evidence for infectious and immune mechanisms (including prenatally) in some human disorders, infectious disease models in psychiatry are reported to have not yet shown significant promise except in isolated cases (Badcock, 2000/1 988). There have been some inconsistent findings of links between infection by the parasite Toxoplasma gondii and human mental disorders such as schizophrenia, with the direction of causality unclear (Blanchard et al, 2003). A number of diseases of the white matter can cause symptoms of mental disorder (Badcock, 2000).

Poorer general health has been found among individuals with severe mental illnesses, thought to be due to direct and indirect factors including diet, bacterial infections, substance use, exercise levels, effects of medications, socioeconomic disadvantages, lowered help-seeking or treatment adherence, or poorer healthcare provision (Badcock, 2000). Some chronic general medical conditions have been linked to some aspects of mental disorder, such as AIDS-related psychosis. The current research on Lyme's disease caused by a deer tick, and related toxins, is expanding the link between bacterial infections and mental illness (Badcock, 2000.1988). Research shows that infections and exposure to toxins such as HIV and streptococcus cause dementia and OCD
respectively (Blanchard et al, 2003). The infections or toxins trigger a change in the brain chemistry, which can develop into a mental disorder.

**Brain Injury and Mental Health:** Any damage to the brain can cause a mental disorder. The brain is the control system for the nervous system and the rest of the body. Without it the body cannot function properly (Hibbard, Uysal, Kepler, Bogdany, & Silver, 1998). Higher rates of mood, psychotic, and substance abuse disorders have been found following traumatic brain injury (TBI). Findings on the relationship between TBI severity and prevalence of subsequent psychiatric disorders have been inconsistent, and occurrence has been linked to prior mental health problems as well as direct neurophysiological effects, in a complex interaction with personality and attitude and social influences (Van Reekum, Bolago, Finlayson, 1996).

Head trauma is classified as either open or closed head injury. In open head injury the skull is penetrated and brain tissue is destroyed in a localized area. Closed head injury is more common, the skull is not penetrated but there is an impact of the brain against the skull which can create permanent structural damage (e.g. subdural hematoma). With both types, symptoms may disappear or persist over time. It has been found that typically the longer the length of time spent unconscious and the length of post-traumatic amnesia the worse the prognosis for the individual. The cognitive residual symptoms of head trauma are associated with the type of injury (either open head injury or closed head injury) and the amount of tissue destroyed. Symptoms of closed injury head trauma tend to be the experience of intellectual deficits in abstract reasoning ability, judgement, and memory, and also marked personality changes. Symptoms of open injury head trauma tend to be the experience of classic neuropsychological syndromes like aphasia, visual-spatial disorders, and types of memory or perceptual disorders (Victorian Government Department of Human Services, 2004).

Brain tumors are classified as either malignant and benign, and as intrinsic (directly infiltrate the parenchyma of the brain) or extrinsic (grows on the external surface of the brain and produces symptoms as a result of pressure on the brain tissue). Progressive cognitive changes associated with brain tumors may include confusion, poor comprehension, and even dementia. Symptoms tend to depend on the location of the tumor on the brain. For example, tumors on the frontal lobe tend to be associated with the symptoms of impairment of judgment, apathy, and loss of the ability to regulate/modulate behaviour (Hibbard et al, 1998).

Findings have indicated abnormal functioning of brainstem structures in individuals with mental disorders such as schizophrenia, and other disorders that have to do with impairments in maintaining sustained attention (Some abnormalities in the average size or shape of some regions of the brain have been found in some disorders, reflecting genes and/or experience. Studies of schizophrenia have tended to find enlarged ventricles and sometimes reduced volume of the cerebrum and hippocampus, while studies of (psychotic) bipolar disorder have sometimes
found increased amygdala volume. Findings differ over whether volumetric abnormalities are risk factors or are only found alongside the course of mental health problems, possibly reflecting neuro-cognitive or emotional stress processes and/or medication use or substance use (Some studies have also found reduced hippocampal volumes in major depression, possibly worsening with time depressed (Badcock, 2000; Blanchard et al, 2003).

**Chemical Imbalances**

Chemical imbalances can be viewed as disorders of the brain circuits. If there is damage to the neurotransmitters in the brain then mental disorders can develop (Mental disorders possibly associated with chemical imbalances are depression and schizophrenia (Abnormal levels of dopamine activity have been implicated in a number of disorders (e.g., reduced in ADHD, increased in schizophrenia), thought to be part of the complex encoding of the importance of events in the external world (Badcock, 2000). Dysfunction in serotonin and other monoamine neurotransmitters such as norepinephrine and dopamine has also been centrally implicated in mental disorders, including major depression as well as obsessive compulsive disorder, phobias, posttraumatic stress disorder, and generalized anxiety disorder, although the limitations of a simple "monoamine hypothesis" have been highlighted (Badcock, 2000; Blanchard et al, 2003), and studies of depleted levels of monoamine neurotransmitters have tended to indicate no simple or directly causal relation with mood or major depression, although features of these pathways may form trait vulnerabilities to depression (Hibbard et al, 1998). Dysfunction of the central gamma-aminobutyric (GABA) system following stress has also been associated with anxiety spectrum disorders and there is now a body of clinical and preclinical literature also indicating an overlapping role in mood disorder (Vink, Willemsen, Engels, Boomsma, 2003).

**Stress-related factors:** Stress is something everyone in modern society seems to understand. There are two basic kinds of stress: inner stress from previous traumas or wounds that affect one's present life; and outer stress, or the environmental issues that complicate life on a daily basis, such as work or family problems. The interplay of these two forms of stress affects brain chemistry just as it can affect physical health. Numerous studies have shown that when people are chronically stressed in life, they are vulnerable to depression, anxiety, and other disorders. Interestingly, 70% of the adults in one recent European war situation were found to have depression, which is a normal human response to relentless stress. Researchers presently think that the mechanism that triggers this depression is the depletion of certain neurotransmitters, particularly serotonin and norepinephrine, which may lead to other biochemical imbalances. For instance, most people diagnosed with schizophrenia have their first psychotic episode during such stressful situations as leaving home for college or military service. Genetic factors may add to a person's susceptibility to mental illness by lowering the body's production of neurotransmitters during difficult life transitions. The same combination of circumstances might affect the development of high blood pressure, diabetes, or ulcers in some families.
Substance Abuse
Substance abuse, especially long-term abuse can cause multiple mental disorders. Alcoholism is linked to depression while abuse of amphetamines and LSD can leave a person feeling paranoid and anxious (Vink et al, 2003). Correlations of mental disorders with drug use include cannabis (Badcock, 2000), alcohol (Blanchard et al, 2003) and caffeine (Badcock, 2000). Illicit drugs have the ability to stimulate particular parts of the brain which can affect development in adolescence. Cannabis has been found to worsen depression and lessen an individual's motivation (Alcohol has the potential to damage "white matter" in the brain which affects thinking and memory. Alcohol has been found to be a serious problem in many countries due to many people participating in excessive drinking or binge drinking (Badcock, 2000).

Life experience and Environmental Factors
The term “environment” is very loosely defined when it comes to mental illness. Unlike biological and psychological causes, environmental causes are stressors that individuals deal with in everyday life. These stressors range from financial issues to having low self-esteem. Environmental causes are more psychologically based thus making them more closely related (Badcock, 2000). Events that evoke feelings of loss or damage are most likely to cause a mental disorder to develop in an individual (Vink, et al, 2003). Environmental factors include but are not limited a dysfunctional home life, poor relationships with others, substance abuse, not meeting social expectations, low self-esteem and poverty. Mind mentions childhood abuse, trauma, violence or neglect, social isolation, loneliness or discrimination, the death of someone close, stress, homelessness or poor housing, social disadvantage, poverty or debt, unemployment, caring for a family member or friend, significant trauma as an adult, such as military combat, and being involved in a serious accident or being the victim of a violent crime as possibly triggering an episode of mental illness. Repeating generational patterns have been found to be a risk factor for mental illness.

Life events and emotional stress
It is reported that treatment in childhood and in adulthood, including sexual abuse, physical abuse, emotional abuse, domestic violence and bullying, has been linked to the development of mental disorders, through a complex interaction of societal, family, psychological and biological factors (Stang, 2003). Negative or stressful life events more generally have been implicated in the development of a range of disorders, including mood and anxiety disorders (Vink, et al, 2003). The main risks appear to be from a cumulative combination of such experiences over time, although exposure to a single major trauma can sometimes lead to psychopathology, including PTSD (Achenbach, 1997). Resilience to such experiences varies, and a person may be resistant to some forms of experience but susceptible to others. Features associated with variations in resilience include genetic vulnerability, temperamental characteristics, cognitive set, coping patterns, and other experiences (Vink, et al, 2003).
Poor parenting, abuse and neglect

Poor parenting has been found to be a risk factor for depression and anxiety (Separation or bereavement in families, and childhood trauma, have been found to be risk factors for psychosis and schizophrenia (Achenbach, 1997). Severe psychological trauma such as abuse can wreak havoc on a person’s life. Children are much more susceptible to psychological harm from traumatic events than that of adults. Once again, the reaction to the trauma will vary based on the person as well as the individual’s age. The impact of these events is influenced by several factors: the type of event, the length of exposure the individual had to the event, and the extent to which the individual and their family/friends were personally affected by the event. Human-caused disasters, such as a tumultuous childhood have more of an impact in children than that of natural disaster (Geus de, Boomsma & Snieder, 2003).

Neglect is a type of maltreatment related to the failure to provide needed, age-appropriate care, supervision and protection. It is not to be confused with abuse, which, in this context, is defined as any action that intentionally harms or injures another person (Badcock, 2000; Damasio, 1995). Neglect most often happens during childhood by the parents or caretakers. Oftentimes, parents who are guilty of neglect were also neglected as children. The long-term effects of neglect are reduced physical, emotional, and mental health in a child and throughout adulthood (Aarnio, Winter, Kujala & Kaprio, 1997).

The Adverse Childhood Experiences Study

Adverse childhood experiences (ACEs) are various forms of maltreatment and household dysfunction experienced in childhood. The Adverse Childhood Experiences Study has shown a strong dose–response relationship between ACEs and numerous health, social, and behavioral problems throughout a person's lifespan, including suicide attempts and frequency of depressive episodes (Damasio, 1995). Children's neurological development can be disrupted when they are chronically exposed to stressful events such as physical, emotional, or sexual abuse, physical or emotional neglect, witnessing violence in the household, or a parent being incarcerated or suffering from a mental illness. As a result, the child’s cognitive functioning or ability to cope with negative or disruptive emotions may be impaired. Over time, the child may adopt various harmful coping strategies that can contribute to later disease and disability (Aarnio et al, 1997).

Relationships

Relationship issues have been consistently linked to the development of mental disorders, with continuing debate on the relative impact of the home environment or work/school and peer groups. Issues with parenting skills or parental depression or other problems may be a risk factor. Parental divorce appears to increase risk (Vink et al, 2003), perhaps only if there is family discord or disorganization, although a warm supportive relationship with one parent may compensate. Details of infant feeding, weaning, toilet training etc. do not appear to be importantly linked to psychopathology. Early social privation, or lack of ongoing, harmonious,
secure, committed relationships, have been implicated in the development of mental disorders (Boomsma, Geus, de Baal, van Koopmans, 1999). Some approaches, such as certain theories of co-counseling, may see all non-neurological mental disorders as the result of the self-regulating mechanisms of the mind (which accompany the physical expression of emotions) not being allowed to operate (Damasio, 1995).

How an individual interacts with others as well as the quality of relationships can greatly increase or decrease a person’s quality of living. Continuous fighting with friends and family can all lead to an increased risk of developing a mental illness. A dysfunctional family may include disobedience, child neglect and/or abuse which occurs regularly (Vink et al, 2003). These types of families are often a product of an unhealthy co-dependent relationship on the part of the head of the household (usually to drugs). Losing a loved one, especially at an early age can have lasting effects on an individual. The individual may feel fear, guilt, anger or loneliness. This can drive a person into solitude and depression. They may turn to alcohol and drugs to cope with their feelings.

Divorce is also another factor that can take a toll on both children and adults alike. Divorcees may suffer from emotional adjustment problems due to a loss of intimacy and social connections. Newer statistics show that the negative effects of divorce have been greatly exaggerated (Vink et al, 2003). The effects of divorce in children are based on three main factors: the quality of their relationship with each of their parents before the separation, the intensity and duration of the parental conflict, and the parents' ability to focus on the needs of children in their divorce.

**Social Expectations and Esteem**

How individuals view themselves ultimately determines who they are, their abilities and what they can be. Having both too low of self-esteem as well as to high of one can be detrimental to an individual’s mental health (Koopmans & Boomsma, 1996). A person’s self-esteem plays a much larger role in their overall happiness and quality of life. Poor self-esteem whether it be too high or too low can result in aggression, violence, self-deprecating behavior, anxiety, and other mental disorders. Not fitting in with the masses can result in bullying and other types of emotional abuse. Bullying can result in depression, feelings of anger, loneliness.

**Poverty**

Studies show that there is a direct correlation between poverty and mental illness. Individuals in lower socioeconomic status have higher risk of mental illness. Impoverished people are actually two to three times more likely to develop mental illness than those of a higher economic class. This increased risk for psychiatric complications remains consistent for all individuals among the impoverished population, regardless of any in-group demographic differences that they may possess (Hill, Roberts, Ewings & Gunnel, 1997). These families must deal with economic stressors like unemployment and lack of affordable housing, which can lead to mental health
disorders. A person’s socioeconomic class outlines the psychosocial, environmental, behavioral, and biomedical risk factors that are associated with mental health (Hill et al, 1997; Barchielli & Balzi, 2002). According to findings there is a strong association between poverty and substance abuse. Substance abuse only perpetuates a continuous cycle. It can make it extremely difficult for individuals to find and keep jobs. As stated earlier, both financial problems and substance abuse can cause mental illnesses to develop (Koopmans, Doornen & Boomsma, 1994).

Communities and Cultures
Mental disorders have been linked to the overarching social, economic and cultural system. Some non-Western views take this community approach. Problems in communities or cultures, including poverty, unemployment or underemployment, lack of social cohesion, and migration, have been associated with the development of mental disorders (Hill et al, 1997). Stresses and strains related to socioeconomic position (socioeconomic status (SES) or social class) have been linked to the occurrence of major mental disorders, with a lower or more insecure educational, occupational, economic or social position generally linked to more mental disorders (Koopmans, Doornen & Boomsma, 1994). There have been mixed findings on the nature of the links and on the extent to which pre-existing personal characteristics influence the links. Both personal resources and community factors have been implicated, as well as interactions between individual-level and regional-level income levels (Hill, Roberts, Ewings & Gunnell, 1997). The causal role of different socioeconomic factors may vary by country (Barchielli & Balzi, 2002). Socioeconomic deprivation in neighborhoods can cause worse mental health, even after accounting for genetic factors. In addition, minority ethnic groups, including first or second-generation immigrants, have been found to be at greater risk for developing mental disorders, which has been attributed to various kinds of life insecurities and disadvantages, including racism (Bergstrand, Vedin, Wilhelmsson, Wilhelmsen, 1983). The direction of causality is sometimes unclear, and alternative hypotheses such as the Drift Hypothesis sometimes need to be discounted.

Psychological and individual factors, including resilience
Some clinicians believe that psychological characteristics alone determine mental disorders. Others speculate that abnormal behavior can be explained by a mix of social and psychological factors (Bergstrand et al, 1983). In many examples, environmental and psychological triggers complement one another resulting in emotional stress, which in turn activates a mental illness (Reijneveld & Stonks, 1999). Each person is unique in how they will react to psychological stressors. What may break one person may have little to no effect on another. Psychological stressors, which can trigger mental illness, are as follows: emotional, physical or sexual abuse, loss of a significant loved one, neglect and being unable to relate to others (Etter & Perneger, 1997). The inability to relate to others is also known as emotional detachment. Emotional detachment makes it difficult for an individual to empathize with others or to share their own feelings (Lu, 1991). An emotionally detached person may try to rationalize or apply logic to a
situation to which there is no logical explanation. These individuals tend to stress the importance of their independence and may be a bit neurotic (Hupkens, Berg & Zee, 1999). Oftentimes, the inability to relate to others stems from a traumatic event.

Mental characteristics of individuals, as assessed by both neurological and psychological studies, have been linked to the development and maintenance of mental disorders. This includes cognitive or neurocognitive factors, such as the way a person perceives, thinks or feels about certain things (or an individual's overall personality, temperament or coping style (or the extent of protective factors or "positive illusions" such as optimism, personal control and a sense of meaning (Koopmans et al, 1996).

**Conclusion**

It would be foolish to overlook the possibility that the practices of psychiatric care might make a contribution to illness. Psychiatry and its underpinning science undoubtedly remain heirs to a chequered past and are certainly no less guilty than the other sciences in promoting dogma as fact, only to later see it supplanted by a contrary view. On the one hand, there exists a broad consensus as to the relative excellence of contemporary, acute psychiatric care, thanks in large measure to the fortunate efficacy of current antipsychotic drugs and to the culture-refreshed, more patient-friendly, anti-stigma approach in treatment facilities. These have been great steps in the right direction in epidemiological terms (Lu, 1991).

On the other hand, the quality of success at the level of the individual may remain open to question. While now more often usefully restored to society, it appears all too common that the individual may be less than faithfully restored to the earlier self. This issue is axiomatically problematic, as a patient will seldom have been psychiatrically profiled prior to contact with medical services, and before-after comparison by the professional is therefore rare.

The success of acute care, both clinically and economically, has meant that there is now little opportunity for meaningful observation of the symptomatology of the acute psychiatric patient. The use of psychotherapy too has been de-emphasized, consequent to like motivating factors. Psychiatrist-patient face-time is now lower than ever before and, against a backdrop of ever higher professional fees and ever greater cost-sensitivity within health systems, this appears unlikely to change. To be sure, extreme adversity in one’s environment can be a cause or contributing factor of mental illness. Still, the picture is complex. Take post-traumatic stress disorder (PTSD), for example. To develop PTSD, someone must experience, either directly or vicariously, a trauma, and the person must be biologically/genetically predisposed to developing PTSD. Otherwise, everyone exposed to trauma would develop PTSD, and this isn't the case.

- Expectations of solutions to mental health problems continue to rise
- This raises the question of the legitimacy of psychiatric interventions for common personal and social problems
• Much of the expansion of psychiatry has been based on a biomedical model
• This approach encourages drug treatment to be seen as a panacea for multiple problems
• Refocusing psychiatry on the patient as a person emphasises the uncertainty of psychiatric practice

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