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Brain and Mind

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ABSTRACT

The diagnosis and treatment of mental disorders has undergone little change from the time of the Roman Empire until now. Psychiatric diagnoses are simply based on conformity to lists of poorly described symptoms. There is neither cure nor any specific treatment for a psychiatric disorder. A recent map of mental functions, however, suggests a rational approach to diagnosis as well as the most appropriate treatments.

KEYWORDS: *Personality patterns; Neuroses (hysteria); Schizophrenia (madness); Mood disorders (melancholia)*

INTRODUCTION

Specific treatment is not possible when the cause of a problem is unknown, and there is no objective test or scan that can prove or disprove any psychiatric diagnosis. Unfortunately, there seems to be little or no effort to discover the causes. Most psychiatrists are apparently satisfied with the business of long-term symptom relief by means of symptom-blocking drugs; a cured patient is, after all, a lost customer.

The diagnosis and treatment of mental disorders can be dated, if not to Hippocrates, then certainly to Roman physician Claudius Galen (129 CE - 216 CE). Galen was personal physician to three consecutive Roman Emperors; and he produced a massive body of work that Western physicians followed for almost two millennia.

Galen and generations of physicians who followed him believed that the human body contains four colorful fluids (humors or coles): red blood, white phlegm, yellow bile, and a black bile that has yet to be identified. The predominant humor in a person determined the basic personality as sanguine (red blood), phlegmatic (white phlegm), choleric (yellow bile), or sad (black). Three of the humors actually exist, but neither the source nor constitution of the black bile has been identified.
Diseases were the result of humoral imbalance and Galen recognized four categories disorders that, with newer names, are the basis of psychiatric diagnosis even today: (DSM-5 code numbers in parentheses) inherent personality patterns (301), hysteria/neuroses (300), madness/schizophrenias (295), and melancholia/mood disorders (296). The last, most severe disorders madness melancholia were the result of an excess of the mysterious Black Bile [1].

Western physicians followed Galen's precepts until almost the end of the 19th century, when the Germ Theory of Disease brought about a revolution in medical practice. Beginning in the early 20th century, doctors could identify the real causes of

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diseases. They could then offer specific treatment and even prevention or cure. Doctors also discovered the actual functions of three of the humors, but the Black Bile remains a mystery, and so are the causes of the psychiatric or *functional* disorders for which is was long believed responsible.

The treatment of psychoses (madness and melancholia) has always been limited to the control of symptoms. The poor were often subjected to physical restraint while the rich might be treated at home by a resident physician. Hippocrates is believed to have used opium as a tranquilizer and so did Philippe Pinel; Galen recommended bleeding to cool an overheated brain. Bleeding was probably the most popular treatment for madness for almost twenty centuries. American psychiatrist Benjamin Rush (1745-1813) was a firm believer in bleeding and, during a 1793 yellow fever epidemic in Philadelphia, bled several thousand patients-some of whom might have survived without medical treatment. Dr. Rush also invented a chair into which patients could be confined if they were still troublesome after adequate bleeding [2].

For over a century psychiatrists have known that psychiatric disorders are not organic diseases but involve the functions of the mind. The discovery that many mental disorders are functional rather than organic can be credited to French neurologist Jean-Martin Charcot (1825-1893). Charcot identified cases of psychosis and classical hysteria, as well as many other problems that he first called typical hysterias but later coined the word *neurosis* to describe [3].

The early 20th century revolution in physical medicine may have prompted psychiatrists to look for more active methods of control. Egas Moniz (1874-1955) tried cutting the connections between the frontal lobes and the rest of brain, and shared the 1949 Nobel Prize for the discovery of the therapeutic value of leucotomy in certain psychoses. President Kennedy's sister Rose and H.L. Hunt's son Hassie are among those who underwent lobotomy. The results of the operation were generally unsatisfactory and the process has been largely abandoned [4].

In 1928, Ugo Cerletti (1877-1963), designed an electrical apparatus to provoke epileptic-like seizures in patients. Actress Frances Farmer and author Ernest Hemmingway underwent a series of electroshocks for depressive symptoms but showed little or no improvement.

Manfred J. Sakel (1900-1957) used insulin to produce hypoglycemic comas he believed might allow the brain to reorganize itself. Electric and insulin shock treatments erase the subject's memory of the events leading up to the treatment and of the treatment itself, which suggests the therapeutic value of these treatments may well lie in causing patients to temporarily forget their problems [5].

In the late 1930s, Paul Charpentier, while looking for a better antihistamine, synthesized promethazine, a drug that is even more sedative than most antihistamines. That suggested it might be profitably marketed as a tranquilizer, so Charpentier synthesized several derivatives, one of which is chlorpromazine. That drug entered the American market in 1954 as Thorazine and was found to suppress some symptoms of psychosis. Thorazine quickly became a clinical and commercial success and fostered the development of an extensive list of chemically similar *major tranquilizers* that are in popular use today [6].

In the latter half of the 20th century, American psychiatrists began to coin new names for the symptoms of most emotional disorders, but these new diagnostic terms have little or no clinical value. Impressive nomenclature can, however, profitably extend the customer base while seeming to justify the prescription of potentially addictive symptom-blocking drugs. At least one profitable new diagnosis, PTSD, does not require the presence of even one specific symptom-only a history of having experienced or even having heard of-a tragic event. The active promotion of psychoactive drugs has tricked many Americans into an addiction that will keep them dependent on the pharmaceutical industry for the rest of their lives.

The Brain and the Mind

The brain and the mind are often confused, but they are not the same. The mind is a function of the brain, much as digestion is a function of the intestinal tract. Brain anatomy was described in detail in the middle ages and many anatomical features still have the names given then; hippocampus, for instance, means sea horse. Most brain diseases were identified by the early 20th century, but the functions and disorders of the mind remain a mystery.

More than 30 years ago, Dr. Paul D. MacLean (1913-2007) suggested that the functions of the human mind can reasonably be classified according to three factors: the order of evolutionary acquisition, degree of sophistication, and sensitivity to drugs. Psychiatrists objected to Dr. MacLean's map, saying that the brains of all mammals consist of essentially the same structures, which is true but irrelevant. All mammals also have what is essentially the same skeleton, but bats, people, and giraffes use that skeleton in radically different ways [7].

Primary

All mammalian brains maintain primary life-support systems and basic behavioral predispositions essentially the functions of the human brain stem, which contains all connections between the brain, the body, and the external world. The stem is roughly comparable to the entire brain of a reptile. It monitors breathing, heartbeat, swallowing, and even the way we swing our arms when we walk. It is apparently the site of human imperatives to stand, walk, learn a language, and the most likely site of genetically-linked predispositions such as autism and addiction. Frightening nightmares may originate in the stem and can reveal fundamental but forgotten or unconscious inherent predispositions.

Brainstem functions and genetically-linked personality patterns are notoriously resistant to drugs, but excessive amounts can suppress vital processes and be fatal. Inherent tendencies such as autism and addiction are also resistant to change but may respond to active involvement in an appropriate group.

Secondary

Higher mammals like dogs have achieved a secondary level of functioning that includes an impressive ability to learn and remember new information and abilities. These faculties are apparently stored in the great bulk of the human brain above the stem and below the cortex.

This area apparently stores all the information we learn and the abilities we develop. Everything that rises to consciousness, and every conscious action, passes through circuits in this area and may be modified there, influencing both our perception of reality and our reaction to it.

Learning to walk, for example, requires no instruction and little if any conscious thought. Learning a language is also inherent, but requires considerable interaction with native speakers.

Children, as they learn a language, also acquire a vast amount of information about the world, and a number of ideas, opinions, and prejudices. Many of these ideas and opinions such as the number of continents or the existence of human races are entirely arbitrary, but are frequently accepted as established fact. Some pre-judgments may continue to affect our interpretation and reactions to reality throughout our lives. Acquired or secondary abilities such as walking and speech can be impaired by even moderate amounts of alcohol and other sedatives.

Anxiety, depression, and many other symptoms may be the result of conflict between acquired judgments (in the mid-brain) and natural predispositions (in the stem). Two kinds of psychoactive drugs sedative/analgesics and stimulants can temporarily block most symptoms, but such drugs must be taken regularly, and they carry a significant risk of addiction. In any case, resolution of inner conflict usually requires the development of insight, often with the help of a therapist.

Dreams that seem to tell a story can sometimes reveal a conflict and be of use in the development of insight. As one example, a professional woman, depressed at her lack of advancement in her career, dreamed that a man stepped out of her closet and said, I won't hurt you; I've been here all along. That helped her realized that, as a result of childhood experiences, she had unconsciously suppressed much of a natural more aggressive drive as 'unladylike' and this realization her advance in her chosen field.

Tertiary

Consciousness, reason, and judgment are unique functions of the human mind. These abilities and the senses of sight, sound, and fine touch register in the neocortex, a layer of grey cells covering the surface of the brain. Perhaps by coincidence, the three wise monkeys on the Toshogu shrine north of Tokyo-see no evil, speak no evil, and hear no evil-represent the faculties that are frequently impaired in the disorders currently designated as schizophrenias and mood disorders.

The ability to evaluate possible consequences is the last of our intellectual abilities to develop, and appears at about age seven years. Cortical functions are highly sensitive to drugs and even small amounts of alcohol or other sedatives can interfere with reason and judgment.

A few dreams probably arise in the cortex are simply continue the day's work. As one example, chemist Friedrich August Kekulé (1829-1896), while trying to discover the structure of benzene, dozed and dreamed he saw a snake swallow its tail. He woke with the realization that the benzene molecule is a ring [8].

Impairment of the cortical functions of speech, vision, hearing, reason, or judgment are signs of a psychotic process that usually requires medical management. Hallucinations of the non-cortical senses of taste and smell are, by contrast, often a sign of physical disease rather than a mental disorder and require medical intervention. George Gershwin, during a January 1937 concert in Los Angeles, stumbled on an easy passage and later told a friend that he had experienced a curious odor of some burning smell. Gershwin consulted a psychiatrist, but died of a brain tumor later that year [9].

Infectious agents, genetic linkages, and environmental pollutants have been suggested as possible causes of psychosis (madness and melancholia).A case of psychosis that appears in a period of frequent social contact, such as early adulthood, for instance, suggests an infectious process and all such cases should be studied together in the hope of finding the cause.

The history of Sergei Pankejeff (Freud's Wolf Man) suggests genetic factors as a cause of a psychotic depression. Pankejeff was severely depressed after the suicide of his sister Anna in 1906 and that of his father the following year. Freud saw Pankejeff intermittently from 1910 to 1919, but finally discharged him as cured, with a diagnosis of childhood obsessional *neurosis*. Pankejeff continued seeing other analysts for the rest of his life and later developed the belief that a doctor had drilled a hole in his nose.

A psychosis that appears where neither family members nor peer contacts are affected might be due to environmental contaminants. Chemicals, non-biodegradable plastics, heavy metals, and volatile organic compounds such as methylene chloride (as in aerosol spray paints) are possibilities.

CONCLUSION

Psychiatric disorders should be diagnosed and treated according to which operational level is involved, in order to encourage the search for causes, specific treatment, and the possibility of cure.

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