

## CHAPTER 1.

### INTRODUCTION TO PSYCHIATRY

The aim is to present a readable account of the mental disorders and their management. The target population is medical students, but members of the general public may find something of interest.

The mental disorders are a huge and incompletely understood entity. They remain a major challenge to science, government and humanity. When the less severe forms are included, it is claimed that about 25% of the people in western populations will experience a mental disorder at some time in their lives (The World Health Report, 2001).

The terms **mental disorder**, psychiatric disorder, mental illness all mean much the same. They refer to a group of recognized medical conditions in which the central feature is psychological distress or disability. There is impact on one or more of mood, thinking and behaviour.

There is no clear and easy definition of 'mental disorder'. From the everyday perspective, however, this is not a great concern, as there is general agreement about which disorders are covered by this 'umbrella'. There is agreement, for example, that schizophrenia, bipolar disorder, and obsessive-compulsive disorder are among the mental disorders, while armed robbery, chicken pox and getting old are not.

An authoritative opinion: "Mental disorders are a diverse group of brain disorders that primarily affect emotion, higher cognition" (thinking) "and executive function" (ability solve problems). "The boundary between mental and neurological disorders is arbitrary" (Hyman, 2007).

The Diagnostic and Statistical Manual is a leading diagnostic system (list of disorders). The 5<sup>th</sup> Edition (DSM5, released 2013) is currently in use.

From the theoretical and political perspective, the lack of a clear and easy definition of mental disorder allows for new "disorders" to creep (or be pushed) in under the 'mental disorder umbrella'. We need to be alert to the danger of classifying all forms of human experience (such as normal disappointment) as mental disorders. For example, shyness can now be diagnosed as "social phobia" (Francis, 2013), and 'sex addiction' has recently been proposed as a mental disorder (rejected in the recent formulation of DSM5).

## **Classification systems**

Currently, there are two main classification systems. They are composed by large teams of informed professionals using extensive resources. These separate teams also work together, so that their documents are very similar or the same, in most respects.

The American Psychiatric Association produces the DSM.

The World Health Organisation produces the the International Classification of Diseases. The 10<sup>th</sup> Edition (ICD-10) was published in 1992. (The ICD-11 will be released in 2018.)

The ICD is used in the clinical setting in Great Britain. However, in many parts of the world (including Australia) it is predominantly used for administrative purposes (for example, as a tool for the counting of the number of cases of particular disorders presenting at clinics, etc.).

## **Basis of Classification**

Psychiatry is currently where internal medicine was in the 19<sup>th</sup> century – that is, psychiatry is classifying disorders according to the appearance and statements made by the patient (signs and symptoms), rather than etiology (McHugh, 2005). However, the current systems of classification do have good reliability, which is a good start.

The aetiology, anatomy, physiology and pathology underpinning psychiatric disorders is not clear; further work is needed. This is where you come in – I will tell you all I know, but it is your responsibility to extend our knowledge. Neuroimaging, immunology genetics and epigenetics will be among the useful stepping stones.

## **Symptoms and signs**

These terms are used in all branches of clinical medicine. If you wake up one morning with a severe pain in your big toe, that is a symptom – a symptom is something the patient notices and usually complains about. If your toe is swollen, red and tender to touch, these are signs – that is, observations which are made during an examination.

Symptoms and signs form patterns. Recognising a particular pattern (thereby identifying the disorder which the patient is suffering) is called making a diagnosis. The most likely disorder in the case of the painful, swollen, red, tender big toe, would be gout. For most medical disorders special tests, such as blood studies and imaging confirm the diagnosis. Unfortunately, at this time, there are no special tests which confirm the presence of particular mental disorders. However, special tests may be used to exclude certain conditions. For example, imaging excludes brain tumours, which may present with signs and symptoms suggesting major depression or schizophrenia.

No single symptom is found in only one disorder. A pain in the toe may be the result of a broken bone, an infection, a form of arthritis other than gout, pressure on a nerve in the back, leg or foot, or a brain disease. A pain in the toe may commence after the toe and the entire leg have been amputated.

A bent leg following a motorbike accident strongly suggests a fractured bone. But other possibilities include dislocation of the knee, or the individual may have escaped injury altogether and be carrying a congenital deformity of the lower limb.

To diagnose a disorder, even with relatively straightforward medical conditions, we collect all the available symptoms and signs and to match them with patterns which have been noted and named by individual experts, or panels of experts.

There is a wide range of psychiatric signs and symptoms. Examples of symptoms include disturbances of mood (sadness/depression, elation/mania, fear/anxiety), delusions (incorrect beliefs which are held in the absence of evidence, such as, that one is being watched by aliens) and hallucinations (perceptions in the absence of stimuli, such as hearing voices when no one else is present). Examples of psychiatric signs include disturbances in behaviour (slowed, rapid or bizarre movement, or inappropriate crying or laughing) and disturbances in thought processes (distractibility or inability to think in a logical manner).

Different mental disorders have different patterns of symptoms and signs. As no symptom or sign occurs exclusively in any single disorder, making a diagnosis in a particular case depends on balancing possibilities and probabilities. For example, schizophrenia, mania, drug induced psychosis, and major depressive disorder, may all present with delusions. The nature of the symptom may give some clue (but this should not be given too much weight): the person with schizophrenia is more likely to believe he is being followed by spies, the person with mania is more likely to believe he is the most talented person in the world, the person with drug induced psychosis is more likely to believe he is being watched by the police, and the person with major depressive disorder is more likely to believe he is guilty of neglecting his responsibilities. The combination of the signs and symptoms gives the answer. While the deluded person with schizophrenia is more likely to be also hearing voices, the deluded person with mania is more likely to be also unable to stop talking, and the deluded person with major depression is more likely to be moving slowly or attempting to hang himself.

### **Faking it**

The topic of faking mental disorder will be discussed in later chapters, but it is worth briefly mentioning the topic at this stage. Those of us who are well can be suspicious of those of us who are not well. Perhaps we are concerned that those who claim to be unwell are getting an unfair advantage by being excused from usual responsibilities, such as going to work, or are getting undeserved attention from their families and other people.

Some students and clinicians lack confidence and are afraid they might be “made fools of” by people “only pretending” to be unwell.

Concern that people may be faking being unwell seems to be greater in the case of mental disorders than with other medical disorders. This is probably because in mental disorders, there is less for the observer to observe. At some point, many people with a mental disorder will say they would prefer to have a broken leg or to have lost an arm, so that others could then “see” they have a genuine problem.

The most pressing desire of people who are incapacitated by mental disorders is to return to a “normal” life, and that means returning to active parenting, dressing in style, going to work and paying taxes. For the vast majority, any small advantages of the sick role are greatly outweighed by the disadvantages.

The patient who is suffering major depression is not being self-indulgent or mischievously seeking attention. Here, the primary symptom is sadness/distress and recovery is beyond the control of the individual. He/she is incapable of responding to the advice to “pull yourself together” or “snap out of it”. Distress may be so severe that the patient completes suicide. This can happen to an individual who, when well, is strongly opposed to suicide.

The patient suffering delusions is not pretending to believe things which others find laughable. The patient with obsessive-compulsive disorder who has washed his/her hands ninety nine times will usually agree that logically, his/her hands must be clean, but he/she may be unable to resist the compulsion to wash them one or many more times. More common examples include patients who are suffering anxiety (butterflies in the stomach, tremor of the hands, headache, worrying and irritability), who know they have nothing to fear, but cannot shake off the symptoms which are only appropriate in dangerous situations.

Mental disorders interfere with the individual’s ability to interpret the world accurately, to feel appropriate emotions, to think, to plan and to respond appropriately to external and internal circumstances. To lose a leg is a terrible loss, but to suffer a mental disorder is to lose the sense of control, the sense of autonomy, of being a human being. It is no wonder that mental disorders are greatly feared.

It is uncommon, but not impossible, for people to fake this state.

### **Mental versus physical disorders**

People develop disorders, not minds or bodies. The division of disorders into mental and physical categories was a mistake. It rose to prominence in the 18<sup>th</sup> century from the ideas of philosopher Rene Descartes, who proposed the concept of “dualism”: that the individual can be separated into a body and a mind. Dualism appears to fit the experience

of most humans most of the time, and it has therefore been difficult to get the public (as well as many doctors) to move beyond this unhelpful idea.

The mind is a function of the brain. Dualism seems to fit the experience of most humans because the brain does not “see”, or is unaware of, itself. Thus, the mind is encountered as something separate from the body, rather than a function of (part of) the body.

The interrelationship of mind and body can be demonstrated in many ways. If the brain is damaged, the mind may be damaged. A brain (part of the body) tumour may present with symptoms of hallucinations or delusions (which are said to be problems of the “mind”). Many mental disorders have a strong genetic basis. Genes exert their effects by influencing the physical structure of parts of the body: in the case of mental disorders, genes influence the structure of the brain (one function of which is the mind).

**It is also important to recognize that our mind changes the structure of our brain.**

When we learn something, there is a change in the way our brain functions. As children, we learn that soap doesn’t taste so good, and later in life, we don’t order it when we go to restaurants. In the same way, if a laboratory animal learns to push a lever for food, and the brain of that animal is then examined, the connections between particular brain cells are changed (compared to the cells of an animal which has not had this training).

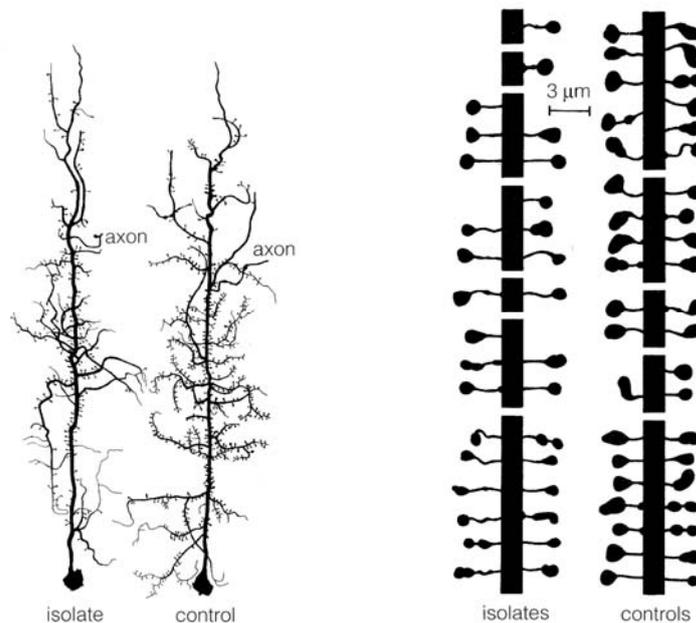


Illustration. In this study, fish were placed in two different environments, 1) a normal social environment (with opportunities for social learning), and 2) in isolation (with no opportunities for social learning). The animals with learning opportunities demonstrated more dendritic branching, more dendritic spines and larger spine heads (indicating greater synaptic activity): thus the “mind activity” modified the brain structure. (Adapted from Graham, 1990).

The electron microscope (magnification 2 000 000 X) reveals that synapses which have been active are darker (termed “strengthened”) than those which have not been active, indicating local structural change in response to use.

It is chilling to realize that when we were taught at school that two plus two equals four, we were having our brains changed. And, the only reason we still know the answer is that those brain changes have remained.

There are no distinct mental or physical disorders. For example, the early stages of infections, from influenza to plague, include loss of emotional spark and a feeling of malaise (which are called mind symptoms). Conversely, with most of the so-called mental disorders there are physical signs and symptoms, such as loss of appetite, loss of weight, insomnia and diarrhoea or constipation.

It is interesting that, many cultures to which the West formerly considered itself superior, have not fallen for dualism (and have a monist view of the person).

### **Mental health, mental health problems, and well-being**

Mental health is a confusing concept. It is a theoretical construction popularized by governments and interest groups.

Impaired mental health is said to have two forms: 1) a mental disorder, or 2) a mental health problem. These categories are frequently (unwisely, but understandably) rolled together and made the responsibility of government funded mental health services.

DOP deals only with mental disorders.

Take a moment to explore the second category: mental health problems. The term ‘health’ is used to put a positive spin on the facts. It is claimed the use of the term ‘health’ emphasizes wellness rather than sickness.

Health is supposed to mean “much more than the mere absence of disease”. And, **mental health** is defined as “the capacity of individuals within groups and the environment to interact with one another in ways that promote subjective well being, optimal development and use of mental abilities and the achievement of individual and collective goals.” This stuff is nauseating. Anyway, the central notion is that mental health is similar to, or the same as, “subjective well-being”.

**Mental health problems** have been described as “a disruption in the interactions between the individual, the group and the environment producing a diminished state of mental health”. A mental health problem has occurred when something has disturbed the individual’s subjective well being. A loss at the races, a disagreement with the spouse, being mugged – by definition, all of these are mental health problems.

As mentioned, for administrative neatness mental health problems and mental disorders have been rolled together and made the responsibility of government funded mental health services. While psychiatrists and other mental health professional have a good understanding of personal distress, they generally have little to offer in the case of mental health problems, which are better considered as social or theological rather than medical problems.

The current author cannot grasp some modern ideas. The areas of “public mental health” and “well-being” have recently received some attention in a reputable psychiatry journal (Mehta and Davies, 2015).

### **Causes of mental disorders**

The causes of the mental disorders are not fully understood. Nor are the causes of many other medical disorders. Pneumonia is understood. But apart from the infections, we have much to learn about most diseases and disorders. Even with a genetic disease, in which the exact location of the gene on the chromosome can be identified, and the exact abnormality of the gene have been discovered, we still have much to learn. Huntington’s disease, a serious genetic brain disease, is a good example - we have known the location and the abnormality of the gene for two decades - we still do not know the mechanism by which the corrupted gene results in damage to brain cells.

Mental disorders, in general, are multifactorial (many factors contributing to genesis). These include biological, psychological and social factors, which are pulled together in the term ‘biopsychosocial’, which can be applied to both cause and treatment. To this can be added cultural factors - the circumstances, expectations and belief systems of Ethiopian and Australian farmers are different. Cultural factors can even differ across a single city: the slum areas compared to the ‘high end’ of town.

Many mental disorders have a biological basis in the form of an inherited genetic vulnerability/disposition. Schizophrenia, for example - if one monozygotic twin develops schizophrenia, there is at least a 60% chance the co-twin will also develop that disorder. When we consider that the prevalence of schizophrenia in the population is about 1%, it is clear that genetic factors are important in this disorder. However, looked at the other way, when one twin develops schizophrenia, 40% of co-twins do *not* develop the disorder – thus, in addition to the genetic factors, other factors (presumably environmental) also play a part.

Stress (psychological) can contribute to mental disorders. Stress during childhood can contribute to anxiety and insecurity in adulthood. There is now strong evidence that severe childhood stress, particularly the psychological stress associated with physical and sexual abuse, contributes to the severe adult disorder called borderline personality disorder (Beach et al, 2011).

Epigenetics – the dynamic process by which gene expression can be altered without alteration of the DNA sequence – provides the mechanism by which the environment has a lasting impact on the individual - will have a profound effect on our understanding and treatment of mental disorders (Yehuda et al., 2014).

The more immediate, and therefore more obvious, damaging effect of stress occurs in post-traumatic stress disorder. In this disorder, healthy adults subjected to horrific trauma, such as warfare or rape, may develop disabling anxiety, difficulty with thinking and personality change. When released in excessive amounts, hormones which help the individual deal with stress, actually damage the brain – again, epigenetic factors play a central role (Maddox et al, 2013).

Social factors may be conceptualized as a particular set of stressful events. It is recognised that the loss of status associated with loss of employment may trigger mental disorder. In anorexia nervosa (excessive purposeful weight loss) the impact of social factors is also recognized. The fashion industry, the media and peer groups all promote thinness, encouraging undue attention body image and eating.

With respect to the “causes” of mental disorder – a developmental perspective is recommended (Hall and Owen, 2015). The same experience may have different outcomes depending on developmental stage at which impact occurs.

### **Treatment of mental disorders**

Few branches of medicine provide cures. Most bacterial infections, such as bacterial pneumonia, can be cured with antibiotics. Broken limbs can be set and some joints can be replaced. But most chronic disease such as arthritis, diabetes and heart disease, is managed rather than cured.

The treatment of most mental disorders is aimed at providing relief. There are four main types: psychotherapy, medication, other physical treatments, and rehabilitation.

Psychotherapy is a form of treatment which depends on verbal interchanges between the patient and therapist. It is “talking therapy”. There are many brands. Psychoanalysis was described by Sigmund Freud (1856-1939) and seeks to deal with mild to moderate anxiety, depression and personality disorders, by investigating and modifying feelings and beliefs which have their origin in the early years of life (and about which the patient is not fully aware). More recently cognitive behaviour therapy (CBT) has been described. Again, this treatment is best suited to mild and moderate mood and personality disorders. In CBT the therapist is more actively involved in therapy sessions (says more than the psychoanalyst) and the focus is often on getting rid of the self-defeating beliefs which patients have come to accept. For certain disorders, psychotherapy may be the sole treatment. However, all psychiatric treatment, indeed all medical treatment, involves educational and supportive elements, which can be viewed as a form of psychotherapy.

There is evidence that psychotherapy can alter the epigenetics of a mental disorder (Perroud et al, 2013; See also, Chapter 37).

Medication is widely used in the treatment of mental disorders. Nerve cells are like long wires and messages pass along them as electric impulses. The connections between nerves are called synapses. At these connections the message travels from one nerve cell to the next along (one direction only) by the release of a chemical (neurotransmitter) from the first nerve cell. The neurotransmitter passes across a tiny gap, and plugs into a specially designed receiver (receptor) on the second nerve cell. There are at least two hundred different neurotransmitters. Most psychiatric medication acts by influencing the production, destruction, release or reuptake of neurotransmitters by neurons. Medications of the future are likely to have a more direct action on the nerve cells themselves, or to influence the environment in which the cells operate (perhaps by modifying local hormone levels).

Other physical treatments include electroconvulsive therapy (ECT; Chapter 28), light therapy and transcranial magnetic stimulation (TMS; Chapter 29). ECT is the strongest antidepressant available. The patient is given an anaesthetic and while unconscious, a small electric current is applied to the head. TMS appears to be an effective treatment of mood disorder (Pridmore et al 2000; O'Reardon et al, 2007) and was approved as a treatment of depression in the USA by the FDA in 2008. The patient is not given anaesthetic and tiny electrical currents are produced in localized areas of the brain using electromagnetic apparatus.

Rehabilitation means a return to normal activities and independent living. When provided to workers with injured backs, it involves various treatments and a graduated return-to-work program. The rehabilitation of people with mental disorders may also feature a return-to-work program. Rehabilitation from chronic mental disorders (such as schizophrenia), however, may be protracted, extending over years. Such disorders impair a wide range of functions and there may be a need for help with daily living activities, such as personal hygiene and budgeting, re-training in social skills, support with housing, and assistance to increase the quality of life. Teaching and encouragement are important tools.

### **Psychiatrists and mental health teams**

A psychiatrist is a qualified medical doctor who has obtained additional qualifications in the diagnosis and treatment of mental disorders. Psychiatric training provides a broad understanding of the psychological, social and biological contributions to these disorders, and all aspects of treatment.

The psychiatrist is able to contribute in many situations of distress. However, when the distress is not a feature of a mental disorder, the psychiatrist is no better placed to help than other helpers. In fact, the psychiatrist may be less well placed to help than social workers or religious officers, who have their own skills, experience and support systems.

Other members of the mental health team include clinical psychologists, psychiatric nurses, occupational therapists and social workers. Some teams have a member who has special knowledge and skill in placing people in employment.

Clinical psychologists do not have medical training and do not order medical investigations or prescribe medical treatments. They are skilled in psychological testing and usually have training in talking therapies such as counselling, psychotherapy and behaviour therapy.

Psychiatric nurses are the most numerous group and form the backbone of psychiatric services. Their training is broad and they may develop specialized interests. Occupational therapists help in the rehabilitation of people who have been damaged by severe mental disorder.

Mental health teams provide comprehensive care, but they are expensive and are usually provided only by governments.

### **The medical model**

The term “medical model” is often used to denigrate psychiatry. The term has been used to suggest that doctors are paternalistic, ideological and use medications excessively. This is nonsense. To counter the damaging effects of this label, Shah & Mountain (2007) suggest a definition: the medical model is “the process whereby, informed by the best available evidence, doctors advise on, coordinate or deliver interventions for health improvement”. They summarise the medical model as, “does it work?”

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