

## Health Models

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## Basic concepts

- Nosology – Name of the disease
- Aetiology – Cause
- Symptoms – Manifestation
- Disorder – a medical condition involving a disturbance to the normal functioning of the mind or body
- Syndrome – Group of identifying signs and symptoms
- Diagnosis – Nature, type of condition
- Acute disorder – Short duration
- Chronic disorder – Long duration
- Prognosis – Outcome
- Therapy – Treatment, intervention



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## What is a model?



- A model is a conceptual framework that unifies a topic and provides a way of thinking about it and investigating its usefulness
  - Therefore models are both useful and powerful.
- Once accepted, a model guides the research of scientists and directs the diagnosis and treatments of practitioners.

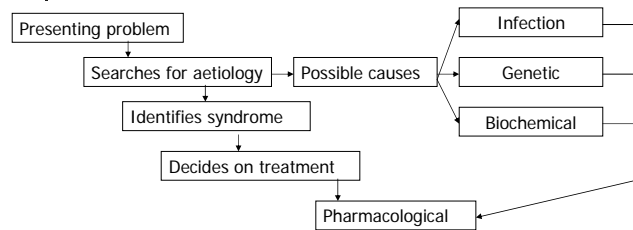
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## The (Bio)Medical Model

- Since the 19th century, the leading model of health and illness has been the **biomedical model**. It gained strength as research physiology and medicine led to the identification of infectious agents that cause disease.
- Evolved from **Galen's** (Greek physician, 200 AD) concept of pathogens (germ theory, disease causing agents).
  - Disease is produced when a pathogen enters the body.
    - historically extremely effective
    - focused on removing disease/disability ("germ")
    - no focus on prevention, well-being

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## The (Bio)Medical Model 2



The model is **reductionist**

- It looks for underlying organic factors.
- Belief that the cause of a disorder, including a psychological disorder, is a physical disorder.

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## Medical model crossing the barrier 1

- Example of Infections as Aetiology in Mental Disorder: **General Paresis**
  - History:
    - **Willis** (1621-1675) - Dullness and forgetfulness
    - **Esquirol** (1772-1840) - Mental deterioration + paralysis, which quickly resulted in death.
    - **Bayle** (1826) - First organisation of symptoms into a syndrome
      - Therefore allowed diagnosis of illness
  - At the same time, suspicion that syphilis was involved in the development of Paresis, but...problem with investigation :-
    - Shame - would patients admit to have had/having syphilis?
    - Syphilis precedes paresis by 30 years
    - Diagnosis of syphilis inaccurate at the time.

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## General Paresis Vs. Syphilis

- **Fourier** (1884)
  - Provided epidemiological evidence that 65% of Paresis had a history of syphilis.
  - It was known that once contracted syphilis, one would not contract again in the future.
- **Problem:** Epidemiological evidence suggests that the link between syphilis and paresis...**BUT**...some Paresis claim not to have had syphilis.
- **Hypothesis:** Patients claiming not to have had syphilis might have contracted it without knowing it / admitting it.
- **Experiment:** Inject known Syphilis patients - they should not develop symptoms as you can't contract Syphilis twice.
- **Von Kraft-Ebing** (1897) - Injected 9 paresis with syphilis, none developed symptoms.
  - → Ethical? No cure for syphilis at the time!
- **Von Wasserman** (1906) - Developed a blood test for syphilis - Proved that 90% of paresis were positive.
- **Eurlich** (1909) - Developed '606' (an arsenic compound) as the first effective cure for syphilis.
  - 606 different strains of arsenic tested on mice - mouse '606' survived!
  - In the 1940's, Penicillin became the preferred treatment for syphilis.

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## Medical model crossing the barrier 2

- Therefore, it was found that a wide spread of psychological disorder was the result of a physical disorder
  - The method of finding the cause and developing a treatment, is similar to the way one treats any physical disorder.
- This has therefore become a powerful model of illness.
  - Same model for biological as well as psychological.

Paresis then, illustrates one of the medical aetiologies in mental disorder : **infection**

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## The case of Schizophrenia 1

- Schizophrenia illustrates the use of other medical aetiology: genetics
  - Twin studies
    - Identical twins: Share the same genes
    - Fraternal: Half the genes are the same
  - If schizophrenia is genetic, and one twin becomes schizophrenic, what is the probability that the other twin will become schizophrenic?
    - If one identical twin develops schizophrenia, so will the other. However, if one fraternal twin is schizophrenic, the other will not become schizophrenic.



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## The case of Schizophrenia 2

- Dopamine Hypothesis
  - At post-mortem brocus (brain) of schizophrenics, found to have a high concentration of dopamine in the temporal lobes.
  - When given drugs to block the action of dopamine, schizophrenic symptoms are reduced.
    - By altering the biochemical activity in the brain the condition can be controlled, or altered, thus suggesting that the disorder is an illness



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## Summarising the medical model

- The medical model views abnormal behaviour as the product of disease or illness.
- It is reductionist:
  - A mental disorder is characterised by certain symptoms which are grouped into syndromes that have organic aetiology - and it is this, which plays a crucial role in understanding illness.
    - Therefore the medical model is a powerful and successful model.

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## Changing view of Medical Model

- Psychosomatic medicine
    - Encompasses the view that physical illnesses, have emotional and physical components
    - These psychological and somatic (or physical) factors interact to produce disease.
    - Implies that treatment orientated exclusively toward the somatic component will not be totally successful, and that the underlying psychological bases of disease must be included in treatment.
- Development of Psychosomatic disorders comes from **Freud**.

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## Psychosomatic Medicine

- Dunbar (1943), Ruesch (1948), and Alexander (1950)
  - Attempted to relate distinct personality types to particular disease, with an implicit causation hypothesis.
  - e.g. Type A behaviour linked to heart disease. Risk factors include:
    - lack of exercise
    - smoking
    - poor diet
    - high blood pressure
- However, **Engel (1977)** proposed that an entirely biological explanation of disease was never adequate and that that the (bio)medical model is too simplistic to conceptualise either disease or health.
  - ⇒ *The Biopsychosocial Model*

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## Biopsychosocial Model 1

- The biopsychosocial model of illness incorporates not only physical factors, but also psychological and social factors:
  - “To provide a basis for understanding the determinants of disease and arriving at rational treatments and patterns of health care, a medical model must also take into account the patient, the social context in which he lives and the complementary system devised by society to deal with the disruptive effects of illness, that is, the physician role and the health care system. This requires a biopsychosocial model.”
 

*Engel, 1977*

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## Biopsychosocial Model 2

- Research in Health Psychology has taken the position that:
  - Biological
  - Psychological
  - Social
- factors are implicated in all stages of health and illness, ranging from those behaviours that kept people healthy, to those that produce severe, long-term, and debilitating diseases.
- The position is termed the Biopsychosocial model, and is guided by a framework for both research and practice (Engel, 1977; Schwartz, 1982)
  - “Health and illness can best be understood by considering the interactions of variables that cut across multiple levels...the whole emerges out of dynamic interactions of its parts”
 

Schwartz (1982)

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## The Biopsychosocial Model

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## Biopsychosocial Model 3

- The role of Biological factors:
    - Genetic material and processes inherited as characteristics from parents
    - Aspects of individual's psychological functioning e.g. Structural defects, immune responses to infections
  - The role of Psychological factors:
    - Cognition - Mental activity that encompasses perceiving, learning, thinking, interpreting, believing, and problem solving.
    - Emotion - Subjective feelings that affect, are effected by thoughts, behaviour, and physiology. Can relate to health in many ways e.g. fear can prevent someone seeking medical advice.
    - Motivation - Why people behave the way they do? e.g. activity choice, direction, and persistence.
  - The role of Social factors:
    - This includes relationships with other individuals, groups, and the wider social world e.g. the media.
- ⇒ Health is affected by an interplay of these three components

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## Biopsychosocial Model 4

- Recent investigations have gone beyond the demonstration of such simple relationships, to an attempt to specify the models and pathways whereby psychological and social factors can be integrated into the biology of health and illness, to multi-factorial casual chains:
  - Health promotion
  - Stress and illness
  - Personality and disease
  - Coping
  - Social support
  - Factors affecting recovery
    - Macro level processing
    - Micro level processing

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## Summary

- Medical Model (based on pathogen/germ theory)
  - historically extremely effective
  - focused on removing disease/disability ("germ")
  - no focus on prevention, well-being
- Biopsychosocial Model of Health
  - physical factors (germs, genetics, reactivity, environ toxins)
  - psychological factors (stress/coping, personality, health habits)
  - social factors (social support, health education, medical care, sanitation/pollution)

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## Background reading for next week

- Critique of the Medical Model
  - Szaz
- Psychoanalytical Model
  - Freud
- Cross-Cultural Model
- The Humanistic Approach
  - *R.D. Laing*
  - Carl Rogers
- Experimental design in Health Psychology

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