

## Update 61

### DOES THE BIOMEDICAL MODEL OF ILLNESS MAKE FOR A GOOD HEALTHCARE SYSTEM?

Below are excerpts from a newly published paper from the BMJ. The authors, Derick T Wade, *professor of neurological rehabilitation*, Oxford Centre for Enablement, and Peter W Halligan, *professor of psychology* Cardiff University, make a strong case toward the need for a revised model of health care.

---

Cultural and professional models of illness influence decisions on individual patients and delivery of health care. **The biomedical model of illness, which has dominated health care for the past century, cannot fully explain many forms of illness.** This failure stems partly from three assumptions: all illness has a single underlying cause, disease (pathology) is always the single cause, and removal or attenuation of the disease will result in a return to health. Evidence exists that all three assumptions are wrong. We describe the problems with current models and describe a new model, derived from the World Health Organization's international classification of functioning framework, which provides a more comprehensive, less biologically dependent account of illness.

The model of illness adopted by society can have important consequences. In the first world war, for example, soldiers complaining of symptoms after experiencing severe stresses were sometimes shot as malingerers, but today they are considered victims and eligible for financial settlements. Social acceptance that a behaviour or reported symptom constitutes an illness bestows privileges on an individual and formal duties on society.

Currently, **most models of illness assume a causal relation between disease and illness**—the perceived condition of poor health felt by an individual. Cultural health beliefs and models of illness help determine the perceived importance of symptoms and the subsequent use of medical resources. The assumption that a specific disease underlies all illness has led to medicalisation of commonly experienced anomalous sensations and often disbelief of patients who present with illness without any demonstrable disease process.

#### Current Model

Despite their importance, models of illness are rarely explicitly discussed or defined. The often criticised but nevertheless dominant 20th century biomedical models originate from Virchow's conclusion that all disease results from cellular abnormalities. The biomedical model is clearly relevant for many disease based illnesses, has intuitive appeal, and is supported by a wealth of supporting biological findings.

By embracing reductionism, however, biomedical models of illness combine several closely related sets of beliefs. These can be summarised as follows:

- All illness and all symptoms and signs arise from an underlying abnormality within the body (usually in the functioning or structure of specific organs), referred to as a disease
- All diseases give rise to symptoms, eventually if not initially, and although other factors may influence the consequences of the disease, they are not related to its development or manifestations
- Health is the absence of disease
- Mental phenomena, such as emotional disturbance or delusions, are separate from and unrelated to other disturbances of bodily function
- The patient is a victim of circumstance with little or no responsibility for the presence or cause of the illness<sup>3</sup>
- The patient is a passive recipient of treatment, although cooperation with treatment is expected.

People often experience anomalous sensations. The model of illness adopted will influence whether a person or their health adviser interprets a change in their state as indicating disease, when someone should enter and leave the sick role, and often the health care given. Only a small minority of potential symptoms lead to involvement with health care, but a small change in the rate of interpreting anomalous sensations as symptoms by any party will have a major influence on the use of healthcare systems.

Already **many patients present with symptoms that are not attributable to any underlying pathology or disease**. Nevertheless, such patients are often given a medical diagnosis, implying an underlying structural cause and reflecting cultural expectations.

Unfortunately, the use of diagnostic labels has implications for the patient, society, and ultimately for the credibility of medicine. Any illness provided with a (medically validated) diagnostic label is widely assumed to be secondary to defined pathology, to be capable of confirmation independently of the symptoms, and to have a specific treatment that health services should supply.

**The problems arising from illnesses without a definable cause have been well documented.** They are most appropriately termed functional somatic syndromes, recognising that psychological and social factors strongly influence the presentation of somatic symptoms. However, suggesting that patients do not have a disease (pathology) to explain their illness may understandably upset them and creates difficulty for healthcare bureaucracy which relies on the patient's specific disease label.

**Funding is determined by diagnosis** (in health related groups or similar) and ignores the initial cost associated with diagnosis (patients present with problems, not diagnoses). It also fails to recognise that a major part of healthcare cost relates to disability. Resources are primarily allocated for the diagnosis and specific treatment of disease. Little attention is paid to other interventions despite good evidence of their effectiveness. Most healthcare systems also assume that treatment after diagnosis is brief and acts quickly. *Indeed, the medical model might more accurately be termed the surgical model, given the pre-eminence of surgery in popular culture and health organisation.*

Finally, most biomedical models also seem strongly linked to primitive forms of intuitive mind-body dualism. Health commissioners, budgetary systems, healthcare professionals, and the public all act as if there is some clear, inescapable separation between physical and mental health problems, ignoring evidence that a person's emotional state always affects their function and presentation of physical symptoms. For example, separate services exist for people with physical disability and for those with mental health problems.

## **New Model**

The authors contend that two main factors fostered our new model. Firstly, WHO's international classification of impairment, disability and handicap and its later development, the international classification of functioning, disability and health, both recognise that disease has consequences at different levels, often influenced by contextual factors. Secondly, the power of a systems analytical approach to illness has been recognised. An earlier version of this model formed the basis of the UK national guidelines on stroke and multiple sclerosis.

The main modifications to the international classification of functioning model are:

- A division of each main domain into a **subjective** (patient experienced) and **objective** (externally observed) component
- The addition of a further human factor that is essential in any analytical model—namely, the potential contribution of **free will and personal choice**
- A clarification of context, with **separation of personal and social contexts**.

Our model suggests that illness is a dysfunction of the person in his (or her) physical and social environment. It is centred on the (ill) person, who does not necessarily have to consider himself ill (for example, if someone is deluded). The model suggests that people with illness should be considered as follows:

- People have two major systems—**their whole self**, with dysfunction termed impairment, and **their organs**, with dysfunction called pathology
- Two influencing factors affect each person—**personal context** (that is, beliefs, attitudes, expectations, values etc, which derive partly from past experience) and **free will**
- Each person interacts with two contexts—**physical and social or cultural**
- The interactions are considered in term of **activities** (which are usually goal directed actions) and **(social) participation** (which reflects the meanings attributed to their behaviours by themselves and others).

This model has many implications. One characteristic of a systems model is that abnormalities in one system can occur without any of its components being faulty, and so the model explicitly predicts that illness will occur without discernable pathology. The mystery of non-organic or functional illness is no longer medically unexplained. This analysis does not deny the reality of the illness but rather provides the rationale and support for explanations and treatments that direct their focus to the non-medical reasons why people may feel ill.

**This model also predicts that the effects of an abnormality may depend crucially on the characteristics of other parts of the system.** For example, hip arthritis may become apparent only after a stroke affects the other leg. Consequently, reduction of illness may require intervention at several points, and indeed may not necessarily include removal of the main abnormality; this may explain the success of specialised stroke rehabilitation.

**The model suggests that some resources should be focused on altering contextual factors.** Evidence already supports this approach: teaching carers of stroke patients benefits both the patient and healthcare systems; changing social context may be effective—for example, reducing time off work with back pain; altering personal context may help in some illnesses – for example, using cognitive behaviour therapy; and improving the physical context reduces expenditure on health care.

The role of personal choice, absent in many biomedical models of illness, is central to any progressive explanation of human behaviour: "People are rational, aware self creating agents of their own health... influenced by consciously chosen goals."

Systems focused on pathology (that is, hospitals) work in short time scales and ignore all patient context. However, they have to manage patients with activity limitations, in whom the time scale is longer and context is important.

The authors conclude,

“Healthcare systems are social organisations, and their continuing health depends on members of society using a congruent model of illness and system of values to decide the rights and responsibilities associated with illness and the sick role, and how these are to be policed where individuals choose to take advantage of the role. We suggest that the use of our model might improve the delivery of better health more than any other change in healthcare organisation. It is time that the medical models underpinning health delivery were debated openly.”

#### Reference:

Wade DT, Halligan PW. Do biomedical models of illness make for good healthcare systems? *BMJ* 2004;329:1398-1401.