

2b – The perception of physical symptoms

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Psychology Module Leader
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Learning objectives

- Discuss the lack of concordance of physiological parameters and symptom perception.
- Discuss the role of attention in symptom perception.
- Describe the role of anxiety and depression in symptom perception
- Explain Leventhal's self-regulatory model of illness behaviour.
- Define the five dimensions of illness representations.
- Describe the role of culture and social environment in symptom perception and illness behaviour.
- Describe how illness representations can influence recovery after illness or injury



■ PROFESSIONAL ISSUES



Symptoms and the perception of disease

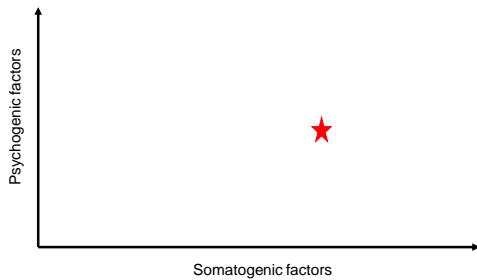
Michael Donaghy

Clin Med
2004;4:541–4

The art of diagnosis

What is the physician's art in analysing symptoms to decide whether they reflect biomedical disease, or whether they are psychologically manufactured, be it through malingering or through unconscious processes?

Psychogenic and somatogenic continuum



Perception and attribution of bodily symptoms

- A physical symptom or sensation is a perception, feeling, or belief about the state of our body. (It)....is often-but not always – based on physiological activity. Above all, a physical symptom represents information about our internal state.

Pennebaker 1983

Definition of pain

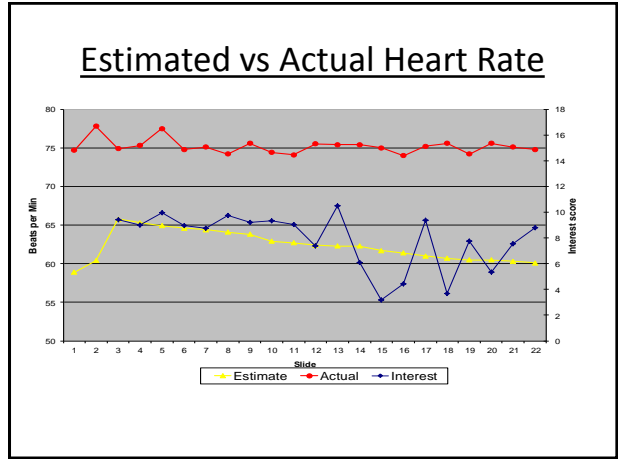
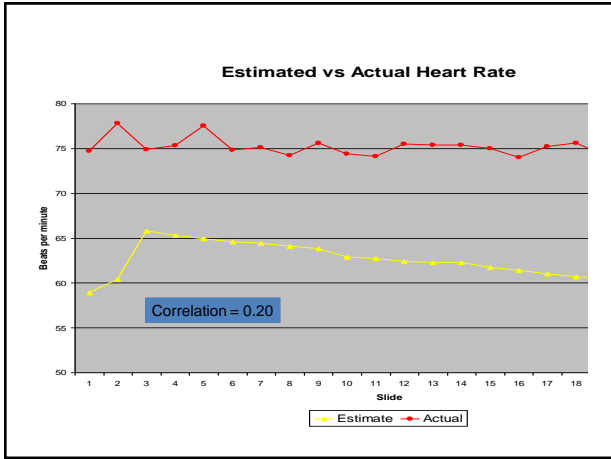


“Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”

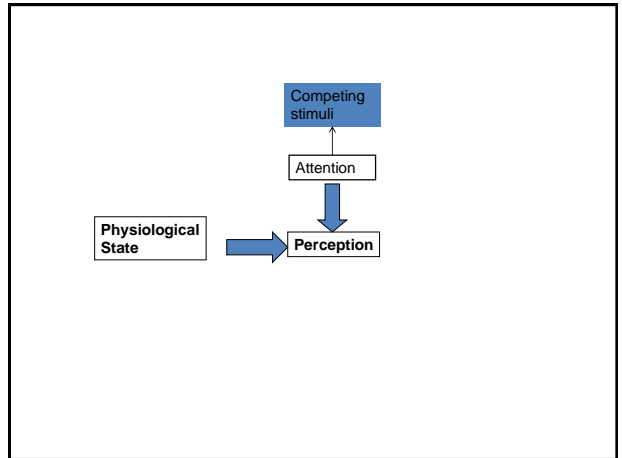
Mersky (1986)

Estimation of heart rate experiment (Pennebaker 1981)

- 31 psychology students were presented with a series of slides.
- During the presentation their heart rate was measured and they were also asked to press a button at the rate that they estimated their heart was beating.



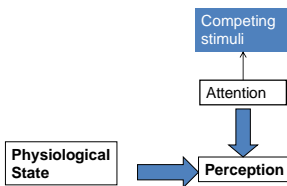
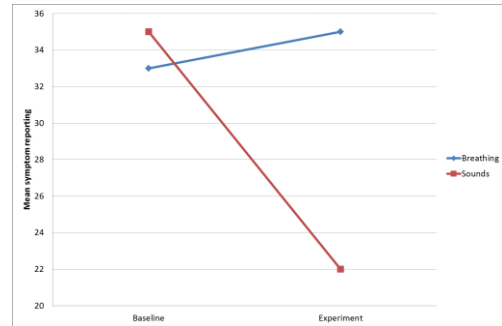
Factors affecting perception of physical symptoms



Perception of symptoms while jogging on a treadmill

- 56 male participants walked on a treadmill for 11 minutes on two separate occasions.
- On first occasion wore headphones but heard nothing
- On second occasion one group heard amplified sounds of their own breathing. The other group heard street sounds e.g. noise of cars, snippets of conversation

Symptom reporting while using treadmill (Pennebaker & Lightner 1980)

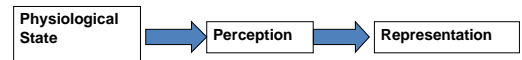
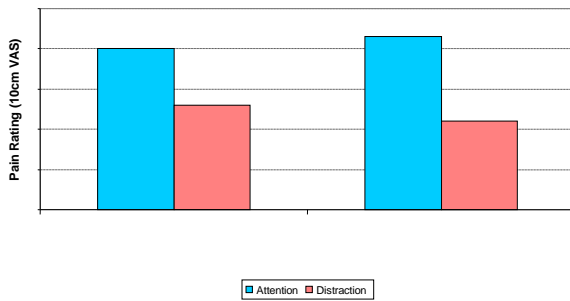


Does attention or anxiety increase pain? Arntz et al (1991)

- * Subjects – 55 Spider Phobics
- * Procedure – S's given mild electric shocks.
- * Measures – Subjective Pain (VAS)
Physiol. Response (GSR)
- * 4 Experimental Conditions:

Low Anxiety / Low Attention	High Anxiety / High Attention
Low Anxiety / High Attention	High Anxiety / Low Attention

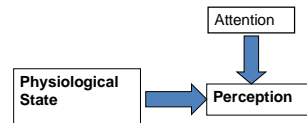
Arntz et al (1991) - results



Perception and attribution of bodily symptoms

- “Given an undefined state of bodily arousal, individuals will seek and labels, and given a label individuals will seek and find symptoms”

Meyer et al (1985)



Factors affecting attention

- 1. Distraction
- 2. Environmental cues

Environmental cues

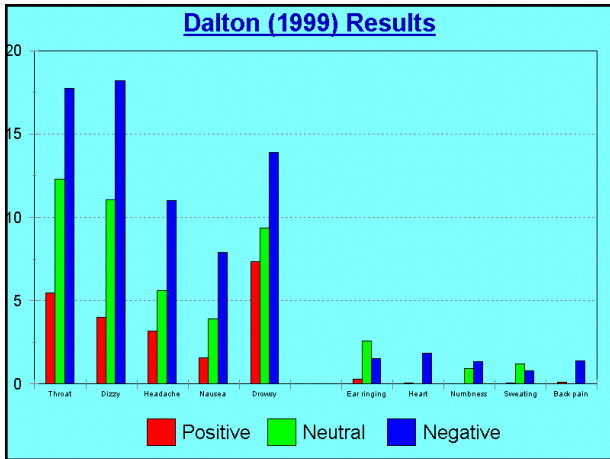
- Cues – e.g. Coughing in lectures (Pennebaker 1980)

Factors affecting attention

- 1. Distraction
- 2. Environmental cues
- 3. Expectation

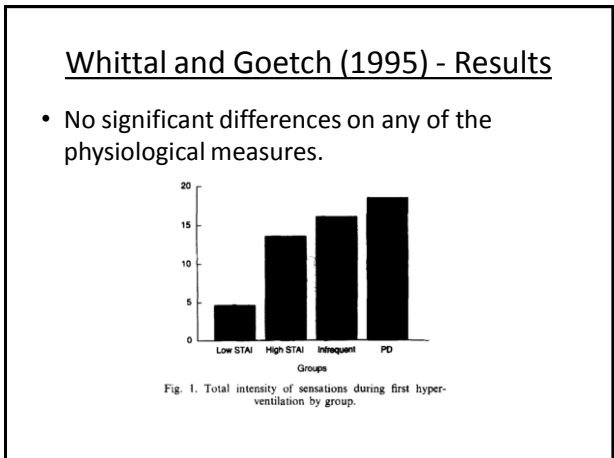
Effect of expectations on perception of symptoms (Dalton 1999)

- 180 healthy subjects exposed to chemical odour (Butanol).
- Told either they would be exposed to “natural extracts that were claimed to have relaxing effects” (positive bias) or “industrial solvents” (negative bias) or no information (neutral).
- Rated experience of physical symptoms



- ### Factors affecting attention
- 1. Distracton
 - 2. Environment cues
 - 3. Expectations
 - 4. Emotional factors

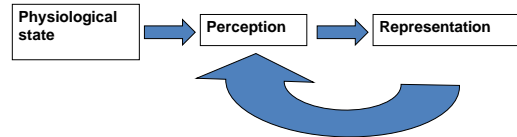
- ### Physiological and subjective responses to hyperventilation (Whittal & Goetch 1995)
- 4 Groups of participants – 1) Pts with panic disorder, 2) Infrequent panic attacks, 3) No panic attacks but high trait anxiety (Spielberger Trait Anxiety Inventory - High STAI) and 4) No panic and low trait anxiety (Low STAI).
 - All participants underwent a 2 min hyperventilation task.
 - Heart rate and skin conductance measured.



Perception and attribution of bodily symptoms

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Meyer et al (1985)



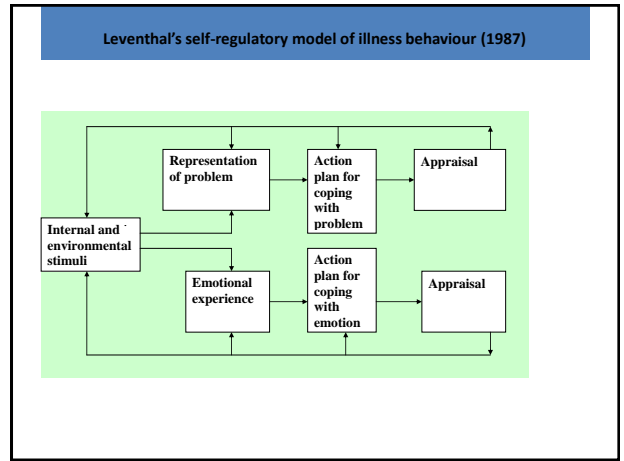
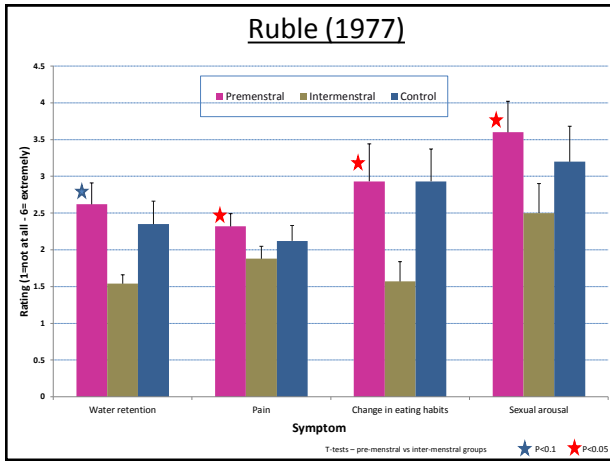
Ruble (1977)

- 44 female undergraduates aged 18-24.
- Participants had temperature and BP measured and underwent a simulated EEG assessment. They were told that the procedure had been developed to accurately predict date of menstration.

Science 1977 Jul 15;197(4300):291-2

Participants randomly assigned to one of 3 groups

- 1) “Pre-menstrual” i.e. Due to in 1-2 days
 - 2) “Inter-menstrual” i.e. Not expected for at least 10 days”
 - 3) “Control” - Not given any information about expected menstrual date
- Then another experimenter administered a checklist of pre-menstrual symptoms in the last 2 days.



Illness representations

(Leventhal et al 1980)

- **Definition:** "A patients own implicit, commonsense beliefs about their illness"

- 1) Identity
- 2) Cause
- 3) Consequences
- 4) Time line
- 5) Curability/controllability (Lau & Hartman 1983)

Identity

- Identity can be considered the label of the illness and the symptoms the patients view as being part of the illness

Cause

- Cause is the patients' views about what may have caused their problem, such as genetic factors, family circumstances, trauma, etc.

Time-Line

- Time-line is the clients' view about how long their problem will last and whether it is seen as acute, chronic or episodic

Consequences

- Consequences include the effects the clients are expecting from their illness and their views on the outcome

Cure/Control

- Cure/control is about the patients' expectations as they recover from or control the illness

Illness Perceptions Questionnaire

- **Component Item examples**
- **Cause** – “A germ or virus caused my illness” “Pollution of the environment caused my illness” “Stress was a major factor in causing my illness.”
- **Timeline** - “My illness is likely to be permanent rather than temporary”
“My illness will last for a long time.”
- **Consequences** - “My illness has major consequences on my life”
“My illness is a serious condition”
- **Cure-Control** - “There is little that can be done to improve my illness.”
“My treatment will be effective in curing my illness”
 - <http://www.uib.no/jpg/>

Factors influencing illness representations

- 1) Previous personal experience e.g. previous illness
- 2) Social learning e.g. Parental modelling
- 3) Transmission of information (e.g. Medical student’s disease (Mechanic 1962))
- 4) Culture – e.g. Imbalance between Hot & Cold, Evil eye
- 5) Individual differences i.e. Personality, health beliefs (see sessions 1&3)

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 19 1957

AN OUTBREAK OF ENCEPHALOMYELITIS IN THE ROYAL FREE HOSPITAL GROUP, LONDON, IN 1955

THE MEDICAL STAFF OF THE ROYAL FREE HOSPITAL

On July 13, 1955, a resident doctor and a ward sister on the staff of the Royal Free Hospital were admitted to hospital with an encephalomyelitis. By July 25 more than 30 members of the staff were similarly affected, and it was plain that there was in the hospital an outbreak of a highly infectious character, producing amongst other things manifestations in the central nervous system. Because of the threat to the health of patients, and because of the large number of nurses involved, the hospital was closed on that date and remained closed until October 5. In this case the epidemic was almost certainly a point source epidemic as opposed to a continuous one.

Between July 13 and November 24 292 members of the medical, nursing, auxiliary medical, auxiliary and administrative staff were affected by the illness, and of these 275 were admitted to hospital; 17 were nursed at home or admitted to other hospitals from their homes. It is remarkable that, although the hospital was full at the onset of the epidemic, only 12 of the patients who were admitted were described as ill.

The course of the outbreak is summarised in diagram in Fig. 1, and the location of the different establishments is indicated in diagram in the Map (Fig. 2). When the epidemic began there was free intercommunication between various establishments in the group, and in particular between the Royal Free parent hospital in Gray's Inn Road and its branch hospitals at Levens Road and Liverpool Road. There were numerous opportunities for cross-communication. Both buildings and staff were the same in the group, the medical staff had a number of similar cases occurring sporadically in North-west London. Eight such cases have been described (Blaxter and O'Sullivan, 1956).

Establishments shown in the accompanying Map are: Royal Free Hospital, Gray's Inn Road, North-western Branch, Levens Road, Hampstead; Liverpool Road Annex; Royal Free Hospital Medical School; Nurses' Postgraduate Training School; Hampstead General Home.

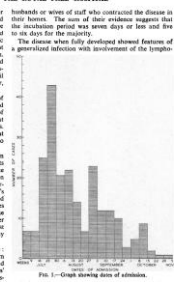


FIG. 1.—Graph showing daily admissions.

Symptoms

TABLE I.—Initial Manifestations in 200 Cases

Symptoms	No.	%	Symptoms	No.	%
Headache	154	77	Stiff neck	65	32.5
Sore throat	127	63.5	Pain in back	64	32
Malaise	124	62	Depression	38	19
Lassitude	102	51	Abdominal pain	29	14.5
Vertigo	94	47	Vomiting	24	12
Pain in limbs	93	46.5	Diplopia	18	9
Nausea	81	40.5	Tinnitus	8	4
Dizziness	67	33.5	Diarrhoea	8	4

Papers and Originals

Royal Free Epidemic of 1955: A Reconsideration

COLIN F. McEVEDY,* B.M., B.Ch., ACAD.D.P.M.; A. W. BEARD,† B.M., M.R.C.P., D.P.M.

British Medical Journal, 1970, 1, 7-11

Summary: From a re-analysis of the case notes of patients with Royal Free disease it is concluded that there is little evidence of an organic disease affecting the central nervous system and that epidemic hysteria is a much more likely explanation. The data which support this hypothesis are the high attack rate in females compared with males; the intensity of the malaise compared with the slight pyrexia; the presence of subjective features similar to those seen in a previous epidemic of hysterical overbreathing; the glove-and-stocking distribution of the anaesthesia; and the normal findings in special investigations. Finally, a deliberate attempt by one of the authors to produce an electromyographic record similar to that reported in Royal Free disease was successful.

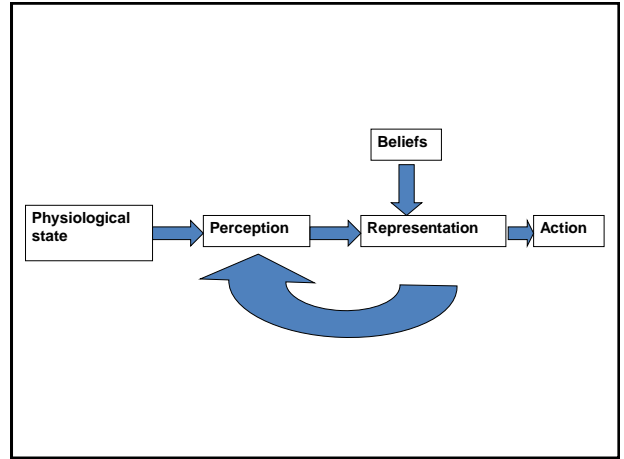
opinion the case is a good one, and the purpose of this paper is to obtain a fair hearing for it. Firstly, we present the findings reported from the epidemic and then our interpretation of them.

Analysis of Outbreaks

Epidemiology

The epidemiological study by Crowley et al. (1957), of the bacteriology department of the Royal Free Hospital School of Medicine, gives the attack rates as follows:

Males	27 out of 950 (2.8%)
Females	265 out of 2,550 (10.4%)



Why patients consult when they cough

Cornford (1998)

Representations of illness differed between consulters and non-consulters (i.e. both groups had cough)



- 1) Identity – “bronchitis”
- 2) Cause – “virus”
- 3) Consequences – “strain on the heart”
- 4) Time-line – “it’s not going away” “it recurred”
- 5) Curability – “need antibiotics”

Br. J. Gen. Prac.

Prevention

Post concussion syndrome

Post-concussion syndrome

- Each year over 1 million people in the UK suffer a head injury of some kind, 90% are classified as “mild”.
- Most patients with mild head injuries recover back to normal within a matter of weeks.
- However a minority have significant symptoms that persist long term and are related to significant disability. These patients are often diagnosed with Post-Concussion Syndrome.

Post-concussion syndrome - contd

- Whittaker et al (2007) found carried out a study in which they followed up 73 patients who had attended an A&E Dept with a mild head injury. Pts were seen immediately and 3 mths later.
- 25% met criteria for PCS at 3 mths, perceived negative consequences (IPQ-R) post-injury independently predicted PCS at 3 mths **not** severity of initial symptoms.
- Suggests patients who suffer mild injury should be given information to normalize symptoms and emphasise expectation of positive outcome.

Perception of physical symptoms - Summary

- Traditional “Medical” model vs multi-dimensional model of symptom perception.
- Factors affecting perception; attention, mood & anxiety, expectation.
- Effect of representation on perception
- Illness representations model
- Illness representations and help-seeking
- Applications – Preventing post-concussion syndrome.