Pain

- Types of pain
  - Merskey (1986) defines pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.'
  - According to Sarafino (2006), pain can be a sensory and/or emotional discomfort which tends to be associated with actual tissue damage or threatened tissue damage during irritation.
  - Acute pain-
    - When, after a relatively brief period of time (usually less than 6 months), the pain subsides, the damage heals and the individual returns to a pre-damage state.
    - Usually a response to a specific physiological trauma
    - Forms the basis for danger warnings and subsequent learning
  - Chronic organic pain-
    - Lasts more than six months
    - Exists beyond the time for normal organic healing
    - Can be constant or intermittent
    - Begins to impair other functions
    - Patients may begin to experience learned helplessness or hopelessness and this leads to classic signs of depression.
    - May quit work and adopt a self-imposed invalid existence.
  - Psychogenic pain-
    - Episodes of pain that occur as a result of some underlying psychological disorder, rather than in response to some immediate physical injury.
    - Example: Phantom limb pain is a condition whereby a patient who is an amputee still experiences pain in a limb that is no longer physically there or a limb that has no functioning nerves in it. It is often described as a burning, tingling or itching feeling that may or may not be painful.
- Theories of pain
  - A theory of pain is an analytic structure designed to explain an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

- Specificity theory of pain
  - Proposed by Descartes (1644) and developed by Von Frey (1895).
  - Proposes that there are 4 sensory receptors (warmth, cold, pressure and pain) in bodily tissue that connect to a pain centre in the brain i.e. we have a sensory system that is dedicated to pain.
  - A series of neurones form a pathway to a dedicated pain centre in the brain. The more this pathway is used, the more intense is the pain.
  - Therefore, according to this theory, pain is purely physiological and there are nerve centres in the brain that exclusively process this info.
  - It is biological and does not account for psychological factors in the pain experience.
  - Does not account for pain when there is no organic basis.
  - Does not account for injury without pain either.
- Gate control theory
  - Developed by Melzack and Wall in 1965
  - Attempt to explain types of pain that were recognised but could not be understood in terms of the previous pain models such as phantom limb pain and tension headaches.
  - Also explains the lack of pain under certain circumstances such as episodic analgesia after traumatic injury.
  - Adds a psychological component to an understanding of pain.
  - *They start off by describing specificity theory and pattern theory and by describing data that cannot be explained by these theories. E.g. the fact that causalgia pain can be triggered by light touch contradicts the theory that there are separate nerves for pain and for touch and suggests that intense pain can be experienced by the central nervous system without much input from receptor fibres. Pattern theory, which suggests that pain is caused by overstimulation of touch receptors, is contradicted by physiological evidence that reveals that different types of receptor fibres do seem to perform different functions. Gate control theory allows for*

physiological specialisation of nerve fibres and for input from the central nervous system.

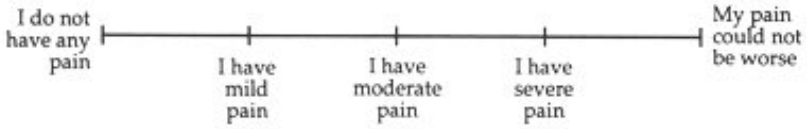
- It is the idea that physical pain is not a direct result of activation of pain receptors, but rather that the spinal cord contains a neurological 'gate' that either blocks pain signals or allows them to continue on to the brain.
- 3 factors that affect our experience of pain and opening and closing of the gate are:
    - Amount of activity in the small pain fibres
    - Amount of activity is the large peripheral fibres
    - Messages that descend from the brain
- Intense stimulus at skin surface → increased activity in pain fibres → gate opens → greater transmission experienced by CNS as pain.
- 2 therapeutic implications of GCT:
    - Decreasing small pain fibre stimulation- by removing the source of the pain or by the use of peripherally acting medication i.e. by preventing pain messages reaching the gate in the first place.
    - Counter stimulation – increasing the large peripheral fibre stimulation and thereby closing the gate.

➢ Measuring pain
  - Self-report measures
    - Because pain is a subjective, internal experience, the assessment of pain is therefore best carried out by using patient self-reports, and this is by far the most frequently used technique.
    - People are often asked in clinical interviews to describe their pain. However, this method is often unreliable because people do not know where the liver, kidneys or stomach, for example, are located in their body.
    - They are usually questionnaire-based methods that allow the person experiencing the pain to rate how severe it is.
    - Common examples- box scale, verbal rating scale or a Likert-type scale.

        - Patients may also be asked to keep a pain diary so the practitioner can monitor when the pain is happening and how the patient feels.
    - McGill Pain Questionnaire (MPQ)
        - For people with chronic pain, Melzack (1975) developed the MPQ.
        - It is a psychometric measure including words and drawings and consisting of 4 parts:
            - 'Where is your pain?' Patients mark on a drawing where their pain is.
            - 'What does your pain feel like?' Patients use descriptor words in 20 categories.
            - 'How does your pain change with time?' Is the pain continuous, rhythmic or brief? The patient has to describe the pain from 3 sub-classes of words and then produce some qualitative data about what things relieve or increase the pain.
            - 'How strong is your pain?' Includes a visual analogue type scale using 6 questions with 5 descriptors such as "Which word describes your pain right now?"
        - Criticism of this questionnaire centres on the need to have extensive understanding of the English language eg discriminate between words such as "Smarting" and "Stinging"
        - Semantic differential scales, such as the McGill, are difficult and time consuming to complete and demand a sophisticated literacy level, a sufficient attention span, and a normal cognitive state. They therefore are less convenient to use in the clinical environment, but have value when a more detailed analysis of a patient's perception of pain is needed, as in a pain clinic or clinical research setting.
        - Although not very objective, the MPQ is considered to be one of the most valid ways of measuring pain. The fact that there is evidence with people with the same kind of medical condition (e.g. toothache or arthritis)

tend to be very consistent in their scores on the MPQ supports its validity.

- Visual Analogue Scale



CATEGORIES OF PAIN INTENSITY

☐ None ☐ Slight ☐ Moderate ☐ Severe

CATEGORIES OF PAIN RELIEF

☐ None ☐ Slight ☐ Some ☐ Lots ☐ Complete

1. Nil 2. Mild 3. Moderate 4. Severe 5. Very severe

  - Patients mark a continuum of severity from 'no pain' to 'very severe pain'.
  - Simple and quick to use
  - Can be filled out repeatedly
  - Can track the pain as it changes- could reveal patterns such as situations or times of the day when the pain is better or worse.
  - Has adequate reliability but limits pain to a single dimension.

- Behavioural/observational
  - People tend to behave in certain ways when they are in pain; observing such behaviour could provide a means of assessing pain.
  - According to Turk et al. (1985) these are:
    - Facial/audible expression of distress- grimace, teeth-clenching, moaning, sighing.
    - Distorted ambulation or posture- limping, stooping, moving slowly/carefully, supporting and rubbing.
    - Negative effect- feeling irritable, asking for help or to be excused from activities.
    - Avoidance of activity- lying down frequently, avoiding a physical activity, using a prosthetic device.

- UAB Pain scale
  - Designed by Richards et al. (1982) stands for University of Alabama at Birmingham.
  - Can be used by nurses to assess the degree of pain patients are in through observing their behaviour.
  - Consists of 10 target behaviours and observers have to rate how frequently each occurs.
  - Easy to use and quick to score
  - Scored well on inter-rater and test-retest reliability
  - However, correlation between scores on UAB and on MPQ is low, indicating that the relationship between observable pain behaviour and self-reports of the subjective experience of pain is not a close one. This is perhaps not surprising given the number of social and psychological factors that can affect what people say about their pain.
  - Behavioural assessment is less objective than taking physiological measurements, because it relies on the observer's interpretation of the patient's pain behaviours (although, in practice, this can be partly dealt with by using clearly defined checklists of behaviour and carrying out inter-rater reliability — that is, using two independent observers and comparing their findings).
  - Because pain behaviours are controllable by the individual and unlike the actual experience of pain itself, are observable by others, they may be susceptible to reinforcement. The fact that pain behaviour can be affected by social reinforcement weakens the objective link between observable behaviour and the experience of pain. For instance, a person may display a great deal of pain behaviour as they receive reinforcement in the form of attention and sympathy.
- Paediatric patient questionnaire
  - Designed by Varni and Thompson, 1976.
  - It includes visual analogue scales, colour-coded rating scales (in which children have to pick colours that represent 'no hurt', 'a little hurt', 'more hurt' and 'a lot of hurt', then colour in a body chart) and verbal descriptors to provide info about the sensory, affective and evaluative dimensions of pain.

        - The questionnaire also asks parents and docs for info about the child and the family's pain history (including pain relief interventions) and about socio-environmental factors that might affect the pain.

- Managing and controlling pain
    - Medical techniques
        - Surgical-
            - Used, for example, in the treatment of neuralgia where the nerve transmitting the pain messages is actually destroyed by means of a heated needle inserted into the face. The problem with this type of treatment is that it can cause numbness in the face around the site of the nerve, and occasionally can cause paralysis.
            - A more successful method is synorectomy, where the surgeon removes inflamed membranes in arthritis joints.
            - These procedures are only used as a last resort if all other methods have failed.
        - Chemical-
            - The most common form of treatment for acute and chronic pain is medication.
            - <u>Peripherally active analgesics</u>- aspirin, paracetamol and ibuprofen- act at the site of the pain by inhibiting the production of certain neurochemicals that are produced as a result of tissue damage. Aspirin reduces the experience of pain as well as the inflammation that could be causing the pain.
            - <u>Centrally active analgesics</u>- morphine and codeine- act within the CNS and so are good at reducing acute pain in the short term.
            - <u>Local anaesthetics</u>- novocaine- act to block all nerves at the site of pain.
            - <u>Indirect drugs</u>- anti-depressants – work by improving mood and thus 'closing the gate'.
            - Problems with drug include addiction, tolerance and side-effects.

- Psychological techniques- cognitive strategies
  - Redefinition
    - A process that involves a person replacing fearful or distressing thoughts about pain with more positive or realistic thoughts (Fernandez, 1986).
    - Explaining clearly what causes a chronic pain or giving accurate info about a procedure that has not yet taken place can help patients redefine how they feel about the experience when it happens.
    - Reducing anxiety may reduce the expectation of pain and therefore the experience of it.
  - Attention diversion/distraction
    - A method where those in pain focus on a non-painful stimulus in their immediate environment.
    - Distracters have to be relevant to the patient and engrossing enough for that person. Hence, they have to be individually tailored.
    - Pictures on the walls, magazines and books in the doc's clinic.
    - Nurses talk to children to distract them when doc is stitching a wound.
    - Often children notice no pain until the doc comments on some aspect of the procedure.
  - Non-pain imagery
    - Patients can learn imagery by focusing on an image that is incompatible with or unrelated to the pain. Sometimes also referred to as guided imagery. (Sarafino, 1994)
    - Patients create a mental scene far removed from the current state of pain often talked through it by a therapist.
  - It is important that the distraction is realistic and credible.
  - A limitation of the use of imagery is how well a person is able to use his imagination, as some people are better at this technique than others.
  - Cognitive approaches, such as pain redefinition, require patients to be articulate and willing to think and talk about

their pain. This means that well-educated people are likely to find this therapy more useful than other people.

- Alternative techniques- used to describe any intervention that is not medical or psychological.
  - Stimulation therapy- based on the principle 'fight pain with pain', or using counter-irritation that directs attention away from the stronger pain to the milder pain.
    - TENS- transcutaneous electrical nerve stimulation. These machines have electrodes which are placed on the skin near the site of pain and mild electrical shocks are sent which cause a distraction and are thought to reduce pain.
    - Acupuncture- ancient Chinese practice in which very fine stainless steel needles are inserted to stimulate the body's 14 major meridians to increase the release of endorphins which block pain.