

Psychology of Pain



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Although pain serves a biological function to signal the presence of damage or disease within the body, it is subjective and can seem unbearable to patients who have been suffering from chronic pain. This concept of pain explicitly assumes that pain perception always has an underlying physical cause. In the absence of such a cause, pain is usually attributed to psychological illness or malingering.

Previous research

Melzack and Wall (1965) proposed the gate control theory in understanding how pain functions – the theory gives emphasis on the dynamic role of the brain in pain processes and psychological factors, which might influence our experience of pain. Melzack and Wall (1965) also propose that we are so accustomed to considering pain as a sensory phenomenon that we have long ignored the fact that injury does more than produce pain; it also disrupts the brain's homeostasis. Therefore the stress system vastly expands the puzzle of pain and provides valuable clues in the quest to understand chronic pain. Additionally, Selye (1956) had observed that stress is produced by psychological threat and insult to the body-self relationship as well as by physical injury and disease.

One psychological model of chronic pain which is based on cognitive behavioural theory, suggests that patients with chronic pain such as angina suffer and are disabled particularly by a process of restricted awareness, overwhelming influences of distressing thoughts and emotions, and from habitual patterns of ineffective avoidance (McCracken 2005; McCracken et al. 2007). Some chronic pain sufferers become overly focused on their pain, think in negative terms about their situation and catastrophise. They may also suffer emotionally from both their thoughts and by expressing their thoughts (their 'vents') and can become fixed in recurrent patterns of unsuccessful struggling with pain in ways that limit their functioning (McCracken et al. 2007).

Relaxation training and biofeedback are methods frequently used in pain management clinics and their effects on pain relief have been thoroughly reported

(Melzack and Wall 2006). McCracken et al (2007) and Kabat-Zinn et al (1985) suggest that the use of mindfulness can achieve more realistic treatment outcomes. Although a systematic review of mindfulness interventions and chronic pain suggest that more research is needed to draw firm conclusions (Bawa, Mercer et al 2015). Other pain management techniques may also include problem-solving or goal-setting and pacing (Melzack and Wall 2006).

Furthermore, previous research has shown that sleep quality has a major effect on patients' well-being after cardiac surgery (Redeker and Hedges 2002). Research in chronic pain (Naughton et al. 2007) reveals that besides the already acknowledged relationship between depression and sleep problems, there also seems to be a highly significant relationship between sleep problems and pain-related disability. The authors did not find a similar relationship between depression levels and perception of pain.

Post-operative pain following Coronary Artery Bypass Grafting (CABG)

For most patients before surgery, the prospect of post operative pain is a concern, After coronary artery bypass graft surgery they do suffer acute pain. The type and degree of pain cannot be predicted, but is affected by a diversity of psychological factors. Roediger et al (2006), report that pain management in cardiac surgery is becoming much more important with the establishment of minimally invasive direct CABG and management of cardiac surgery patients in general.

In the past, Ferguson (1992) has presented a good case for the need for ICU nurses to consider alternative methods of pain relief in addition to drug therapy. Her review of the limited literature reveals that variations in the experience of post-operative pain occur as much as with other types of pain. Bailey and Clarke (1989) propose that how an individual responds to a threat depends not on the degree of that threat, but on the individual's capacity for coping.

The time before the actual surgery can be also very stressful for the patient who at the time is at major cardiovascular risk and whose pain can be complicated with stress and anxiety. Ferguson (1992) highlights pre-operative stressors to include future plans, the meaning of life itself and fear of pain. Factors that raise anxiety

levels may include expectations which are not accurate, the anticipation of pain itself, lack of perceived control over painful stimuli, aspects that also do influence people that undergo CABG (Ferguson 1992). In the same sense, surgery can also be viewed as a perceived threat and a stressor and tends to have both psychological and physical responses in the patient, including fear and anxiety which may in turn result in pain.

The Intensive Care Unit (ICU) might have an impact on the stress levels of the patient itself. From the patient's perspective, the typical ICU environment consists of: bizarre, unfamiliar machines; loud, strange noises; flashing lights; noxious smells; isolation from friends and family; lack of privacy; enforced inactivity and having to lie still which in turn may cause muscle tension and soreness. Sleeplessness, as mentioned earlier (which can itself be exacerbated by pain), from chest tubes and surgical incisions, are some of the few post-operative effects that patients have to suffer, which may not be expected by the patient once surgery is successful.

Following their CABG surgery, patients may not express and communicate their pain to their healthcare professionals, either because they already had high satisfaction with pain relief medication or they were afraid that the medication might be addictive or have other adverse effects on their health. Lie et al (2012) report that patients who confirmed pain symptoms verbally and non verbally were concerned about becoming addicted to pain medication.

Post-operative pain after Percutaneous Transluminal Coronary Angioplasty (PTCA)

Tooth et al (1999) report that after percutaneous transluminal coronary angioplasty (PTCA), chest pain was found to be significantly correlated with psychological status. Although their findings do establish a connection between post-operative PTCA, chest pain and psychological status, it is difficult to say if psychological status had influenced chest pain or vice versa.

Pre-operatively, patients expect more pain of greater duration than they actually experience, although the authors did not examine the importance of stress and pre-

operative anxiety (Nay et al. 1996). Parthum et al (2006) investigated the influence of pain behaviour training pre-operatively in patients who were to undergo PTCA. They did not find a significant influence of pain training between the trained patients and the control group, but the authors suggest that pre-operative information on pain cannot be ruled out as it may form a significant element of pre-operative pain management.

Individual differences in pain perception

As pain is experienced and survived individually, its perception is wholly subjective and can differ according to age and gender. Keogh et al (2004) report significant gender differences in chest pain. More specifically, anxiety sensitivity is associated with pain in women, but not in men. White and Johnston (2000) researched men's perceptions of pain before their myocardial infarction and discovered that most of them tried to normalise their pain before the acute MI episode and reduce it down to occurrence, needing to justify their discomfort and debilitation. Research has also shown that women's facial pain expressions are more predictive of their pain than men's expressions of their pain (Kunz et al. 2006).

Implications of pain management for services

In order to improve pain management services in cardiac rehabilitation, there are a few significant issues which need to be addressed, such as patient motivation, knowledge or psychological treatment resources (Huang et al. 2001). Also analgesic medication which is usually provided post-operatively could be more effective if it were used alongside psychological treatment to address coping strategies when dealing with post-operative pain.

Since pain is subjective and patients can diagnose their own pain, then the collaborative response of a healthcare team working within a patient-driven system is to understand and respect the patient's concerns and expectations (Kuperberg and Grubbs 1997). When implementing self-help, facilitators also need to consider individual differences in suitability for using a self-management treatment and

evaluate the outcome in the context of a stepped care approach (Buenaver et al. 2006). Facilitators are required to individualise the patient's care plan and adapt treatment to the patient's unique perception of pain.

If patients are given unrealistically high estimates of the quality of the post-operative pain relief, dissatisfaction may increase if these goals are not met, even if the actual amount of post-operative pain experienced is reduced.

Research has shown that angina before CABG is an independent predictor of quality of life and pain improvement six months after CABG (Peric et al. 2006). It is important to make patients well aware that post-operative pain both after CABG and PTCA is expected. Equally important is making clear to the patients, the boundaries between anticipated and non-typical pain.

Research has also highlighted that women have particular difficulties with breast discomfort (breast problems, breast oedema, tingling and shooting pain) after CABG. Thus the pacing of household activities such as vacuuming, hanging out washing and carrying young children should be emphasised and supported (Gallacher et al. 2004; Routledge et al. 2009).

Coping with pain

People cope with pain in different ways but a considerable amount of the variability in post-operative pain can be explained by factors such as patient's anxiety, extroversion, depression, educational level and attitudes towards the use of medication. Patients' expectations about pain have also been found to be important - the greater the discrepancy between patients' expectations and their subsequent experience, the more their post-operative distress. This suggests that it is better to provide accurate preparatory information to shape appropriate expectations, than to try to control the pain and distress afterwards.

Is it better to pay attention to pain or try to distract from it? In the short term (within 3 days) it is generally better to cope by avoidance but if pain lasts longer or becomes chronic it is generally accepted that paying attention to it is better, especially in terms of anxiety. Cognitive interpretation is of course a crucial factor in this.

Imagery is another approach often used by people in pain and may be important in triggering or maintaining pain. Likewise it can be used as a distraction technique whereby people imaginatively transform pain, re-interpreting pain sensations with the aim of minimising or trivialising it. One must bear in mind though that some people are much less capable of generating imagery than others.

Talking it through is a simple cognitive technique which may, for some people, have therapeutic effects. Writing stressful situations down can also be helpful. Self-efficacy is about how well a person thinks they will do in a stressful situation. Strong self-efficacy beliefs seem to have a direct impact in painful situations. Patients who expect to have strong self-efficacy beliefs seem to have greater tolerance for pain and show a reduced need for pain medication. Can we change people's beliefs about self-efficacy? Previous experience is very important here; if people have been successful before they are more likely to be successful again. Modelling and comparison with others is also important in this, observing how others cope in similar situations; this can be done through books, television or other media sources as well as simply observing others directly.

Patient education is vital as in other areas, providing patients with education about their condition so that they can cope better, for example through talks on pain and how emotions affect pain (anxiety, depression, anger) and practical advice such as how to pick up heavy objects etc. Support in the goal-setting and pacing of household activities in the post-surgery recovery period is important as people may underestimate the strenuousness and impact of such activities during this time. There are others who may be fearful of resuming normal activities; here the paced approach can also be used to help to reduce anxiety and avoidance, supporting people to build up physical activity in a steady and realistic way.

Communication has an important role to play in pain management. Family and friends need to be aware of the patient's condition so they can work with them. It is important that the person who is experiencing pain communicates clearly and explains what they are trying to achieve and the nature of their goals for managing pain, which can prevent family and friends from becoming overprotective. Equally, when others' expectations are unrealistic, the patient needs to learn when to say 'no' and explain why they are saying 'no'. Pain sufferers also need to learn to ask for help when they need it to prevent them from overdoing things.

Learning stress management is an important component in managing pain and any of the techniques described in the MI and Revascularisation Manuals can be applied here. Among others, these include relaxation, controlled breathing and distraction thoughts. Goal-setting and pacing, where the person learns to prioritise and plan are also very good pain management techniques.

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