

# Pain, wound care and psychology: the missing link?

Dominic Upton

As evolutionary constructs go, pain is not one that often gets the recognition it deserves. Although pain is a useful experience in certain experiences, in others it can be demanding, excruciating, all-consuming, dulling and, in short, a real pain! Irrespective of the words used, the experience of pain is central for the patient with a wound (whether acute or chronic) and, as a consequence, should be for the healthcare professional. Pain itself is a complex phenomena and the multiplicity of adjectives used to describe it are only matched by the variables associated with the experience of pain.

The perception of pain is modulated at multiple levels of the central nervous system (CNS), a description supported in the Gate Control Theory of Pain (GTC, Melzack, 1996). As all good healthcare practitioners appreciate, this model (which is widely accepted) suggests that physical pain is not simply a direct result of activation of nociceptors, but rather a range of other factors, i.e. biological, social and psychological, all of which modulate its perception. The most important of these are, of course, the psychological factors associated with the individual patient, the individual healthcare professional, and the wound care dressing. And, I write as an unbiased health psychologist.

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What are these factors, and how should the healthcare practitioner consider them?

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#### The individual patient

Pain is a biopsychosocial phenomena — an oft used phrase — and there are a number of emotional factors that can influence the experience of pain: the extent of the injury and its management of course, but as importantly (if not more so), anxiety, worry and depression can all increase the experienced pain. In contrast, relaxation, happiness and optimism can all decrease pain. Similarly, cognitive factors such as focusing on the pain or boredom can increase the pain, whereas involvement in external activities or distractions can reduce pain.

One psychological factor that is often overlooked in pain management is control. From studies in the early 1950s, psychological research has supported the contention that the more control we have over a situation, the less likely we are to suffer from stress and pain. Hence, if we have total control over our job and the responsibilities associated with it, for example (unlikely in the health service), we are less likely to suffer from stress. In contrast, if we are over-pressured and experiencing pain but have no control,

we are likely to experience greater stress and pain.

A common solution would, of course, be to increase patients' control over their condition and their wound care. Hence, the healthcare practitioner needs to empower the patient to take control of their condition and their treatment. This is not a new statement and similar conclusions have been drawn by others (World Union of Wound Healing Societies [WUWHS], 2007).

Exactly what does empowering the patient mean? Empowerment is about facilitating patients to take control of their condition and its management to a level that is acceptable to them. There are numerous strategies suggested to improve empowerment in wound care (e.g. Bethell et al, 2006; Wilson, 2010). However, it takes more than mere policy documents and words of wisdom from above, there needs to be a recognition that empowering patients is not easy and takes time. Managers and practitioners alike (and, of course, they may be the same person) need to recognise that long-term patient welfare can be best served by sacrificing some short-term time commitment for long-term patient benefit. Whether this will be possible in the new NHS with the focus on metrics and the competing pressures on practitioners is difficult to say (Shorney, 2010). At times such as these, healthcare professionals need to continue to fight to recognise the importance of psychological variables in wound care, and ensure that they are always part of professional practice for both short and long-term gain.

### The individual healthcare professional

Although the value of psychological factors have been acknowledged for a number of years, in the author's opinion it is surprising that it is only recently that they have been appreciated and come to the fore in wound care management. For example, the WUWHS initiative on minimising pain at wound dressing-related procedures (2007), as previously highlighted, appears to focus on the physical and medico-nursing aspects of wound management, rather than any substantial psychological factors. Some of these factors are mentioned in passing, but their relevance and importance are neither stressed nor expanded. Thus, the psychological components of wounds, wound-related pain and wound management all need to be more clearly articulated and championed.

Similarly, more recent evidence (Solowiej et al, 2009) linking the psychological components of the treatment regimen is yet to be fully explored or exploited for patient benefit. As Sussman (2003) says: 'We have learned from the field of PNI [psychoneuroimmunology] that emotions strongly influence the body's responses to stress, infection and recovery. Only recently has the healthcare community begun to connect the dots between wound trauma, pain, emotions and delayed healing'. Despite being some seven years ago, what progress has there been in connecting the dots?

A number of recent reports and studies suggest that there is a growing body of evidence that wound-related pain in patients with chronic wounds leads to stress and anxiety (Solowiej et al, 2009). Although this stress-wound healing link has been demonstrated in a number of PNI studies over the past 20–30 years (Engeland and Graham, 2011), the addition of the pain component to this relationship has only recently been added to this cycle. Although patients and healthcare professionals appreciate that pain is a feature of chronic wounds, both as a consequence of failure to heal and as an aspect of treatment, it also causes distress to the patient, which can delay healing (Soon and Acton, 2006). Interventions such as dressing removal,

wound cleansing, debridement and inappropriate dressing selection can all contribute to wound-related pain (Lloyd-Jones, 2004; Woo et al, 2009).

Stress and anxiety play a role in the perception of pain (Upton, 2011). For example, under conditions of increased stress, anticipation of pain at dressing removal can lead to an increase in pain intensity (Melzack, 1996), particularly if the patient has experienced this on a previous occasion. Results obtained from an international survey of dressing-related pain showed that more than 62% of patients reported that their pain took up to two hours to subside after a dressing change (Price et al, 2008). In which case, using appropriate dressings to facilitate a reduction in the level of pain experienced by patients could potentially minimise stress. For example, a multinational survey on pain at dressing change found that the use of dressings designed to avoid pain and peri-wound maceration was beneficial to patients (White, 2008).

Evidence to suggest that stress can delay wound healing is increasing (Solowiej et al, 2009). Furthermore, it has been demonstrated in studies that stress can impact wound healing in both physiological and psychological ways. Physiologically, stress can lead to raised levels of the hormone cortisol (Ice and James, 2007; Richardson and Davies, 2011), which can ultimately negatively impact on immunity and the inflammatory response in the body. In psychological terms, stress can increase the likelihood of patients making negative appraisals of situations or events and hence attempting to avoid treatment (Richardson and Upton, 2010). Several studies have also demonstrated that the use of stress management interventions, such as relaxation techniques and emotional disclosure interventions, show improved wound healing rates in comparison with control groups. Furthermore, the stress experienced during surgical wound healing can contribute to lower levels of proinflammatory cytokines in wound fluid following surgery (for a review see Engeland and Graham, 2011).

These stress-induced factors can be influenced by the healthcare professional. For example, selecting the right dressing or minimising stress and anticipatory pain at dressing change, or indeed enhancing the patient:healthcare professional relationship can help to reduce stress at the acute stage (Soon and Acton, 2006; Woo et al, 2008; Solowiej et al, 2009). Longer-term interventions can also help, for example, improving the availability of appropriate social support or enhancing the coping strategies used by the patient, either for the wound or the treatment (see Vermeiden et al, 2009 for preliminary discussions on coping). One particular intervention could be leg clubs or other community-based social events. Edwards et al (2005) investigated the impact of a community-based leg club environment on healing rates of venous leg ulcers compared to a control group of patients receiving treatment in their own homes, as measured by ulcer area size and pressure ulcer scale for healing. It was found that the community leg club environment provided support and encouraged information-sharing in addition to wound treatment and standard evidence-based care, which had a beneficial impact upon wound healing. Unfortunately, there is little evidence on the influence of coping strategies on dealing with the psychological impact of wounds. With more evidence derived from appropriate research, it would be another tool in the healthcare professionals' armoury to help patients.

### Pain and the dressing

Surely there is no psychology involved in the wound dressing? As indicated at the outset, however, psychology has an important and arguably, fundamental role in wound care. Hence, it can be argued that there are some issues in wound care dressings that would benefit from a psychological perspective.

Stress can be induced by, for example, waiting to have a dressing changed, or if the previous experience was negative or painful because of inappropriate dressing selection (Soon and Acton, 2006). A recent review of the literature has demonstrated support for the contention of a

relationship between stress and pain in wound healing (Solowiej et al, 2009, 2010). Pain, or anticipation of pain associated with the treatment itself, may, therefore, have detrimental effects on chronic wound healing.

Thus, as mentioned earlier, the stress of wound care can be influenced by the choice of dressing. Wound dressings that include alginate, film, foam, hydrocolloid and hydrogel have all been reported to cause pain and tissue trauma during dressing changes (Hollinworth and Collier, 2000). However, the introduction of dressings utilising soft silicone (e.g. Safetec® Technology, Mölnlycke Health Care), means that the dressing can readily adhere to intact dry skin and remain *in situ* without adhering to or damaging a moist wound with fragile damage (Davies and Rippon, 2008). As a result, the trauma related to removal of adhesive dressings can be reduced, or even prevented entirely if more appropriate dressings are used. If this is the case, it can be postulated that those individual patients with traditional dressings will experience more stress and anticipatory pain than those with silicone-based dressings. Hence, in the author's opinion, the pain of the dressing, psychological factors and wound care treatment are intimately linked.

Interest has recently been expanded to explore how new dressings may impact on pain during both wear and at dressing change. In a review of the influence of dressings on pain, Richardson and Upton (2010) suggest ways in which dressings may have an analgesic effect, building on the numerous reports that wound dressings are analgesic (Eaglestein, 2001; Charles et al, 2002; Richardson and Upton, 2010). That is to say, when a dressing has been applied, the level of pain in the wound reduces. While numerous potential mechanisms were suggested in the review, it was notable that an over-arching theme was psychological factors. Many of these factors have already been discussed above, but pain is not only influenced by emotional and cognitive factors, but also by learned and social behaviours. For example, patients may make comparisons with

other patients to evaluate their own condition. These social events, as well as previous experience, can influence patient anticipation which has a significant impact on pain (Solowiej et al, 2009). Similarly, Richardson and Upton (2010) suggest that merely seeing the dressing rather than the wound can have a positive psychological effect, resulting in better physiological responses. Price (2000) has suggested that sensory processes contribute to the overall experience of pain, and it has been demonstrated that sights and sounds of invasive procedures such as intravenous (IV) insertions, aspirations and wound cleansing can induce high levels of pain and anxiety (Hoffman et al, 2000). Consequently, one explanation might be that pain can be exacerbated if the individual is anxious or stressed by the sight of the wound. The addition of a dressing over the wound may, therefore, act as a modifier of pain by removing the visual stimulus and enhancing the inhibition pathways.

### Conclusion

Psychological variables can play a key role in wound care and wound healing. However, there needs to be an appreciation of these within daily clinical practice to ensure that the pressures of modern day health care do not hinder their active involvement. Hopefully, this comment paper has highlighted that these variables need to be considered in wound care. It has not though focused on the other side of the coin, which is equally important: the psychological consequences of wounds. Chronic wound pain has been related to poor adaptation to living with a wound, for example, depression and low self-esteem. Patients who suffer from wound pain can experience worries and frustrations about the wound and reduced self-esteem, which can have a negative impact on psychological functioning (Persoon et al, 2004). Patients and healthcare professionals need to appreciate fully the fundamental importance of psychology in wound care, pain experience, pain management and healing. In this way, wound care will be enhanced and developed and the patient experience improved. **WUK**

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## Tom Defloor 1958–2011

The pressure ulcer community recently lost a major figure, Professor Tom Defloor who sadly died in March after a long illness.

Tom's influence on nursing research and the great respect in which he was held by all can be seen within the notices placed upon the European Pressure Ulcer Advisory Panel (EPUAP) and the European Academy of Nursing Science websites. Colleagues from all over the world have left their own short messages on the EPUAP website and it is clear that nursing research has lost a strong voice and leader with Tom's passing.

Tom made a great difference to pressure ulcer research, both in his own work and through the fostering of new researchers who together made the University of Ghent a key centre

for pressure ulcer activity over the past fifteen years. A strong testament to Tom will be the growing body of research, firmly grounded in the needs of clinical practice, that his students and colleagues produce in the coming years.

As a fellow Trustee of the EPUAP, I had the great pleasure of working with Tom on several initiatives from the collection of pressure ulcer prevention data through to the joint pressure ulcer guidelines developed by the EPUAP with the US NPUAP. In all of these projects Tom's passion for intellectual discussion, clear-thinking and good sense of humour were always so strong and his support for the EPUAP greatly helped the development of that organisation.

While Tom may be best known for his pressure ulcer studies, his interests in nursing research were not limited to this

single topic, areas such as malnutrition and therapy adherence also benefited from Tom's thoughts and energy.

Tom leaves behind a wealth of research that will help shape our views on pressure ulcer prevention for many years to come. We will see his hand in future studies from Belgium, the Netherlands indeed from wherever Tom's students, friends and past colleagues continue to build upon his work.

I will very much miss Tom as a colleague and a friend, and extend my condolences to his wife Myriam and their children who have lost so much more.

Michael Clark  
President-Elect  
European Pressure Ulcer Advisory Panel