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Pain assessment

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- Principles of pain assessment in people with cognitive impairment
- The Bolton Pain Assessment Tool

Assessing pain in patients with cognitive impairment in acute care

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Key points

The intensity of pain can be gauged using a pain assessment scale in patients who are able to communicate verbally

Many patients in orthopaedic and trauma units are older and have cognitive impairment

Observational tools help assess pain in patients who have cognitive impairment or communication difficulties

A change from normal behaviour can indicate pain but is difficult to identify if normal behaviour is not known

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Abstract Pain is a subjective experience that is difficult to assess. The difficulty is compounded in patients who cannot communicate their experience verbally – for example due to cognitive impairment. In such patients, health professionals rely on the observation of behaviour to assess pain. In trauma and orthopaedic settings, an added difficulty is that staff are not familiar with patients and so find it difficult to identify behaviour indicative of pain. This article, the first in an occasional series on orthopaedic nursing, covers pain assessment in trauma and orthopaedic patients with a focus on pain assessment scales and observational tools, including the Bolton Pain Assessment Tool.

Many orthopaedic patients experience pain, which needs to be recognised, assessed and treated. The undertreatment of pain is distressing for the patient, and can result in immobility, reduced ability to undertake activities of daily living, delayed recovery and complications such as thrombosis and pressure ulcers. A major reason for undertreatment of pain is the lack of accurate assessment (Corbett et al, 2014). This article discusses pain assessment in trauma and orthopaedic settings, including in patients who find it difficult to communicate verbally, and describes the Bolton Pain Assessment Tool, a new observational tool that has been tested in trauma units.

A complex experience
Pain, sometimes described as the fifth vital sign, is not simply a response mechanism provoking an unpleasant sensation, but a complex and dynamic individual experience (Dowding et al, 2016). The complexity of pain is due to the fact that it is subjective and multidimensional. Pain is influenced by physical, psychological, social and cultural factors, such as site and nature of the injury, and patients' personality, age, gender and ability to understand their pain. Anxiety – potentially caused by fear of the unknown, lack of familial and social support, misconceptions and previous experience of pain – has been shown to increase the perception of pain.

Pain can be categorised as acute, long-term or malignant. Acute pain is associated with injury and surgery; long-term pain is defined as pain lasting more than three months, and is associated with long-term conditions such as arthritis; malignant pain occurs because of a primary or secondary tumour. Orthopaedic patients may experience one or a combination of pain types.

Assessing pain
Managing pain involves identification and assessment followed by pharmacological and/or non-pharmacological interventions that are evaluated with patients to ensure they are effective and appropriate (Macintyre et al, 2010). A fundamental aspect of the role of orthopaedic nurses is

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to identify and assess pain (Hall and Gregory, 2016). To ensure interventions are effective, pain assessment should be systematic (Lukas et al, 2013).

It is difficult to measure pain objectively. To some extent, we rely on patients describing what they experience, and can observe their behaviour to see whether it fits with the description. We can also ask patients to rate pain intensity using a pain assessment scale.

Pain assessment scales
There are three main types of pain assessment scales:
- Visual analogue scale (VAS);
- Numerical rating scale (NRS);
- Verbal descriptor scale (VDS).

A VAS consists of a 10cm line on paper or a slide ruler, featuring 0 at one end and 10 at the other. Patients are asked to mark on the paper (or move the slider to) the position matching the intensity of their pain. The VAS is sometimes confused with the NRS, which asks patients to rate the intensity of their pain by giving it a number between 0 and 10. The confusion may be due to the fact that both scales use 0 and 10. However, a VAS score requires more active input from patients and may be a decimal number – for example, 6.75 – and so more precise, whereas an NRS score is obtained verbally and is usually a whole number.

Zero always stands for 'no pain' and '10' is variously described as 'the worst pain imaginable' or the 'the worst pain experienced'.

Attributing a number to a subjective, emotional experience such as pain requires some reflection, which older people and people with cognitive impairment might find difficult. In these patient groups it may be better to use a VDS (Herr, 2011; Bird, 2005); this uses words, usually with three to five options; for example, 'no pain', 'mild pain', 'moderate pain', 'severe pain' and 'extreme pain'.

In many hospitals where a VDS is used, numbers are assigned to the descriptors to make documentation easier: mild pain may be documented as 1, moderate pain as 2 and severe pain as 3. The VDS has been described as less accurate than the NRS, and I have observed that staff sometimes ask patients to rate their pain between 0 and 3 instead of using descriptors.

Pros and cons of pain scales
Williamson and Hoggart (2005) described the three main pain assessment scales as easy-to-use, highly valid and reliable. They did not recommend one above the others, and pointed out that what matters is to

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Box 1. **PQRST mnemonic for pain assessment**

P = **provokes** – What causes the pain? What makes it better? What makes it worse?

Q = **quality** – What does it feel like? Is it dull, sharp, stabbing, burning, crushing?

R = **radiating** – Where is it? Is it in one place? Does it move around?

S = **severity** – How bad is it? This can also be assessed by using a VAS, NRS or VDS

T = **time** – When did the pain start? How long has it lasted? Is it constant?

Source: Adapted from Williams and Salerno (2012)

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look at a pain score against previous ones. Gregory and Richardson (2014) conducted a small pilot study of nurses in the North West of England to identify which of the three scales is more commonly used. None appeared to be used consistently, but the NRS and VDS were used more often than the VAS.

Layman Young et al (2006) described the need for a single pain assessment scale that is practical and known to everyone to be used consistently across a particular setting, as using more than one scale could cause confusion and inconsistencies. Some participants in the study by Gregory and Richardson (2014) used two or more scales, but none indicated that they would use more than one scale to assess pain in one individual patient. This suggests a patient-centred approach where a scale suitable for the individual patient is chosen, as advocated by Mohan et al (2013).

Pain scales only measure the intensity of pain, not other characteristics such as quality, duration and provoking or exacerbating factors; the PQRST mnemonic can be used for a more comprehensive assessment (Box 1).

Since measurement usually takes place along with physiological observations, pain is often assessed at rest; however, in many orthopaedic patients it is more severe on movement. The successful use of pain assessment scales depends on patients' ability to understand them and on the careful interpretation of the scores by health professionals.

Observing behaviour
Pain assessment often relies on patients describing a subjective experience. When patients are unable to describe their pain due to cognitive impairment – for example

delirium or dementia – staff are faced with a challenge. Increased cognitive impairment has been associated with a reduction in reports of pain (Corbett et al, 2014). Patients may not be able to remember, articulate and convey their experience of pain (Herr, 2011; Snow et al, 2004).

Pain is also communicated in nonverbal ways, such as through facial expression, muscle tension, hesitancy or timbre of speech (Sheu et al, 2011). When we ask patients about pain we often automatically observe these behaviours; we would not expect someone who appears relaxed and smiling to report severe pain. These nonverbal cues are more important when assessing pain in a patient who is struggling to describe it.

Lukas et al (2013) found that 90% of patients with dementia could rate their pain using a VDS and 60% using an NRS, so patients should always be asked about their pain. The less patients are able to describe their pain, the more pain assessment relies on observation of behaviour.

Many patients in orthopaedic and trauma units are older and have cognitive impairment. Orthopaedic and trauma nurses need to be able to recognise and systematically assess pain in this vulnerable group of patients. This can be done using observational pain assessment tools.

Observational tools
Several observational pain assessment tools have been produced, including:
- The Abbey Pain Scale (Abbey et al, 2004);
- The Pain Assessment IN Advanced Dementia (PAINAD) (Warden et al, 2003);
- The Checklist of Nonverbal Pain Indicators (CNPI) (Feldt, 2000).

The Abbey Pain Scale, devised in nursing homes in Australia, comprises six categories (vocalisation, facial expression, change in body language, behavioural change, physiological change, and physical changes) and has a score range of 0-24 (Abbey et al, 2004). It has been recommended by the Royal College of Physicians, British Geriatrics Society and British Pain Society (2007).

The PAINAD, developed in the US, consists of five categories: breathing, negative vocalisation, facial expression, body language, and consolability. It also features a descriptive guide to scoring and has a score range of 0-10. The tool was initially tested on 19 men with advanced dementia (Warden et al, 2003).

Both the Abbey Pain Scale and the PAINAD were developed in long-term care settings where staff have experience of

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Table 1. **Scoring system of the Bolton Pain Assessment Tool**				
	No pain (0 point)	**Mild pain (1 point)**	**Moderate pain (2 points)**	**Severe pain (3 points)**
Vocalisation	None	For example, occasional groan	For example, low-level speech with a negative or disapproving quality, whimpering	For example, repeatedly crying out loud, groaning, crying
Facial expression	Smiling, relaxed	For example, looking tense	For example, grimacing, frowning, looking tense	For example, grimacing, looking frightened
Changed body language	None	For example, tense, fidgeting	For example, guarding part of the body	For example, withdrawn, rigid, fists clenched, knees pulled up
Behavioural change	None	For example, increased confusion	For example, lack of appetite, alterations in usual pattern of behaviour	For example, pulling or pushing away, striking out
Physiological change	Normal	For example, sighing, increased heart rate	For example, hyperventilation, increased heart rate, increased blood pressure, increased respiratory rate	For example, increased heart rate, increased blood pressure, increased respiratory rate, perspiration, flushing or pallor
Physical changes	None	For example, tears, bruising, grazes	For example, surgical wound, arthritis	For example, acute trauma post-surgery

Source: Adapted with permission from Royal Bolton Hospital Foundation Trust

caring for people with cognitive impairment and know their patients' normal behaviours; in acute settings, nursing staff do not necessarily have this knowledge and experience.

The CNPI was developed in an orthopaedic setting. It consists of six items: non-verbal vocal complaints, facial grimacing or wincing, bracing, rubbing, restlessness, and verbal vocal complaints. Each item is scored on a two-point scale (0 = not present; 1 =present), at rest and on movement, with separate scores for each situation; points are added, producing a maximum score of 12. However, there is no guidance on how to interpret scores. To test the CNPI, researchers compared pain as scored on the tool and self-reported pain in cognitively intact patients with a hip fracture (Feldt, 2000).

Why a new tool is needed
There is evidence that the established pain assessment tools are not used in practice. An observational study of pain assessment in people with dementia in acute care (Dowding et al, 2016) found that nurses distrusted the scores obtained by pain assessment tools and preferred to use their own experience. As a consequence, they tend not to be used in everyday practice (Corbett et al, 2014).

In 2012, the Abbey Pain Scale, PAINAD and CNPI were tested in acute care wards, including trauma wards, as part of a practice development project in the north west of England (Gregory, 2012). The aim was to identify a pain assessment tool for people with communication problems (including people with dementia) in acute settings. The three tools were evaluated by staff

after a six-week trial on their wards. All were helpful in identifying pain, but staff concluded that they all had specific issues:
- The Abbey Pain Scale was subjective and required previous knowledge of the individual;
- There were issues with some PAINAD items, mainly 'consolability' and Cheyne Stokes respiration (within the 'breathing' item) indicating severe pain;
- The CNPI did not provide clear guidance on how to interpret the scores.

Relatives and carers were involved in the project and identified behaviours that did not feature in the three tools.

The Bolton Pain Assessment Tool
A new tool for patients with communication difficulties (for example, due to dementia, stroke, learning disability or acute confusion), the Bolton Pain Assessment Tool (BPAT) was produced. It combines aspects of the Abbey Pain Scale and the PAINAD. As a result of feedback from patients, relatives and carers (Gregory, 2012), it includes a section for comments by usual carers and family members.

Scores between 0 (no pain) and 3 (severe pain) are attributed in six categories (Table 1) and pain is rated as follows:
- 0-2 = no pain;
- 3-8 = mild pain;
- 9-14 = moderate pain;
- >14 = severe pain.

Testing the BPAT in trauma units
The BPAT was initially tested in four trauma units to assess whether it is practical, useful and feasible (Gregory, 2017). It was evaluated by 46 clinical staff, mainly

nurses; 98% indicated that it was easy to use and helped identify pain. It took between one and 10 minutes to administer (two minutes in the majority of cases). Again, 98% indicated that use of the BPAT led to pain interventions, including the administration of analgesia, adjustments in medication and/or comfort measures. Overall, respondents rated the tool as 7.9 out of 10. When asked whether family members and/or carers had been involved, 32.6% indicated they had been (Gregory, 2017).

An adapted version of the BPAT has been introduced at a trauma unit at Altnagelvin Hospital in Northern Ireland, where an initial audit had identified issues with the care provided to patients with dementia. As part of a practice development project, the team produced a dementia toolkit containing information, charts, documentation and advice to help staff look after patients with dementia (McCorkell et al, 2017). The toolkit also included a letter to family members, designed to start a conversation about patients' individual needs.

To enable patient-centred care, the team assessed patients' communication patterns and difficulties, and gained as much information as possible from family and carers, including how patients may express pain. Measures taken after the BPAT was introduced alongside the other developments showed that:
- The use of a pain assessment tool had increased from 0% to 95%;
- The regular prescription of pain medication had increased from 25% to 95%;
- The administration of analgesia had increased from 30% to 90%.

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These results suggest the BPAT is helpful and practical to use in trauma units. It needs to be tested further in terms of reliability and validity, as well as to identify any barriers and facilitators to involving relatives and carers in the assessment process. Guidance on using the BPAT is outlined in Box 2.

Detecting behavioural changes

Orthopaedic settings and acute trauma wards are busy environments where the focus is on patients' physical care. It has been suggested that a diagnosis of dementia can be overlooked in these settings, and improving pain management has been identified as a priority (Alzheimer's Society, 2009). The consistent use of a behavioural pain assessment tool such as the BPAT may help achieve these improvements.

However, there is also a need to ensure pain is assessed holistically, taking into account factors such as previous pain history and current diagnosis. In patients with cognitive impairment, it is important that staff are aware of the importance of detecting changes from normal behaviour that may indicate pain (McCorkell et al, 2017; Lu and Herr, 2012).

Detecting changes in behaviour is difficult when usual behaviour is not known; involving someone close to the patient who has knowledge of their usual behaviour is recommended. Patient booklets with key information that will help staff understand patients better are also recommended – Box 3 lists examples of these.

Conclusion

Pain assessment is an important aspect of orthopaedic nursing. Pain assessment scales ask patients to rate their pain intensity, but people with communication difficulties may not be able to communicate verbally about their pain, so health professionals rely on observing their behaviour and rate their pain using an observational pain assessment tool. Various observational tools exist but they do not seem to be commonly used in practice. The BPAT, a recently created tool that has been tested in trauma units, may help to recognise and assess pain in that setting, particularly in cognitively impaired patients. **NT**

Box 2. Guidance on using the Bolton Pain Assessment Tool

- How to use the tool:
  - Observe your patient for approximately one minute
  - Rate their vocalisation and facial expression
  - Identify any changes in body language and behaviour, taking into consideration usual behaviour
  - Establish changes in physiological measures
  - Does the patient have any obvious physical changes or injuries?
  - Add up the score
  - Ask a member of the family or someone close to the patient if they are aware of any behaviour displayed by the patient that may indicate pain
  - Ask whether they agree with the pain score obtained
  - Once a pain score has been obtained, refer to relevant pain management guidelines for intervention, 'start low and go slow', then evaluate effectiveness of intervention by repeating the assessment
- The descriptors and ratings are for guidance only and the tool should be used alongside information on the patient's diagnosis and using clinical judgement
- The tool must be used in compliance with the 2005 Mental Capacity Act

Source: Adapted with permission from Royal Bolton Hospital Foundation Trust

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Box 3. Booklets to improve staff understanding of patients

- 'Getting to know me' booklet for people with dementia (**Bit.ly/AScotGettingToKnowMe**)
- 'This is me' form for people with dementia or communication difficulties (**Bit.ly/ASThisIsMe**)
- 'Forget-me-not' card or passport for people with dementia (**for example, Bit.ly/ForgetMeNotPassport**)
- 'Hospital passports' for people with a learning disability, autism, and so on (**Bit.ly/PassportRoyalFree, Bit.ly/PassportAutism**)

For more on this topic go online…

- How to ensure acute pain in older people is appropriately assessed and managed **Bit.ly/NTAcutePain**

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