

Painful leg ulcers: community nurses' knowledge and beliefs, a feasibility study

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Background: Leg ulceration presents a significant health-care problem for patients and it is likely to be associated with pain. Poorly managed persistent pain may lead to insomnia, depression and suicidal ideation. To manage leg ulcer pain effectively, it is necessary first to assess pain, but there is little evidence of this activity in the literature. This study aimed to explore community nurses' knowledge and beliefs about the management of painful leg ulceration. **Method:** A feasibility study surveyed the knowledge and views of a sample of community nurses in the North of England, United Kingdom. Data were collected using a postal questionnaire. **Results:** A total of 115 completed questionnaires were returned (response rate = 32%). The majority of the respondents were female ($n = 102$, 91.8%). The nurses in this clinical study claimed to be aware of the pain that patients with leg ulceration may experience. Over 90% of the patients were aware of the key consequences of this pain, including insomnia, depression, social isolation and others. However, over one-third of the nurses reported that they had not received pain management training. Approximately one half reported not assessing pain appropriately. Nurses reported using pain triggers and severity to diagnose aetiology and complications of leg ulceration. **Conclusion:** This study suggested inadequate pain management practices despite the fact that there were a significant number of the nurses who were aware of the associated pain and possible outcomes. Pain assessment was lacking, suggesting a lack of formal pain assessment procedures. They described not using effective pain management techniques and were aware of their need for education in this area.

Keywords: leg ulceration; nurses' knowledge; pain assessment; pain management

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Background

Leg ulceration presents a significant health-care problem for patients and health-care services (Briggs and Closs, 2003; Graham *et al.*, 2003). In studies investigating the prevalence of pain in this patient population, at least three quarters of the participants reported moderate to severe pain (Phillips *et al.*, 1994; Chase *et al.*, 2000; Wissing

and Unosson, 2002; Nemeth *et al.*, 2004; Hareendran *et al.*, 2005; Briggs *et al.*, 2007; Heinen *et al.*, 2007; Park *et al.*, 2008; Price *et al.*, 2008). Pain is associated with all types of leg ulcers: venous, arterial, as well as those with mixed aetiology (Ebbeskog *et al.*, 1996; Briggs and Flemming, 2007; Closs *et al.*, 2008). It is of no surprise that patients report pain associated with the tissue damage of their leg ulceration. Ulcers become chronic because they do not follow the normal healing trajectory associated with acute wounds (Snyder, 2005) and remain in the inflammatory stage.

To manage pain effectively, it is necessary first to assess pain accurately (Donaldson, 2009).

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There was little evidence in the literature of this activity being undertaken for patients with leg ulceration. In a study of district nursing practice in relation to leg ulcer management, Roe *et al.* (1993) observed that 55% ($n = 80$) of community nurses caring for patients with leg ulceration did not assess pain as part of their care. Hollinworth (1995) found similar results, observing that community nurses often failed either to assess pain verbally or to use pain assessment tools. Lorimer *et al.* (2003) reported that out of 66 nursing records taken from patients receiving home care only 15% contained any pain documentation. In another study investigating community nurses' views about pain and trauma at dressing changes, 3300 questionnaires were sent to nurses from three European countries (Kammerlander and Eberlein, 2002). Just 16% ($n = 79$) of these used a standardised pain scale, although there was only a 15% response rate overall.

These studies suggest that pain is a significant problem for many patients with leg ulcers and that pain assessment is not a routine activity among community nurses. As it is predominantly nurses who care for this patient group, a detailed investigation of their knowledge of pain and associated assessment and management techniques for patients with leg ulceration was proposed.

Aim of the study

This study was designed to build on a related qualitative study of patients' experiences of pain associated with leg ulceration. Findings suggested that both the assessment and the management of the pain were inadequate (Taverner, 2010). This study, therefore, aimed to increase our understanding of nursing practice, by exploring community nurses' knowledge and beliefs about the pain associated with chronic leg ulceration. The study objectives were as follows:

- i) To explore community nurses' perceptions of the nature of the pain from chronic leg ulceration.
- ii) To describe current strategies used by community nurses to manage pain in this patient group.
- iii) To survey nurses' attitudes in relation to providing pain management for this group.

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Methodology

Ethics committee approval was obtained from the local research ethics committee and research governance procedures were adhered to.

This was a feasibility study of a sample of community nurses in the North of England, United Kingdom. All community nurses (including health-care assistants) from one community organisation were invited to participate ($n = 354$). Nurses were sent postal questionnaires individually and asked to complete them independently. Consent was implied if the nurse completed and sent back the questionnaire. Covering letters and study information leaflets were sent with questionnaires. Confidentiality of data was assured.

To be eligible, respondents were required to meet the following criteria:

Inclusion criteria: The study included qualified nurses and health-care assistants employed by the community organisation and caring for patients with chronic leg ulceration within their caseload.

Exclusion criteria: The study excluded nurses working within the organisation but not employed by the organisation (ie, student nurses and agency nurses), as well as nurses whom the organisation employed but who did not look after patients with chronic leg ulceration.

Research tools

Although there were a limited number of studies relating to pain associated with leg ulceration, these only asked questions relating to pain assessment. They did not ask about the nature of the pain or the management of the pain associated with leg ulceration (Roe *et al.*, 1993; Kammerlander and Eberlein, 2002; Moffatt *et al.*, 2002; Lorimer *et al.*, 2003). Previous studies have used validated questionnaires to assess pain knowledge and attitudes (McCaffery and Ferrell, 1992). However, there were no validated questionnaires available that had questions specifically related to pain associated with leg ulceration. Therefore, it was necessary to develop a new questionnaire based on the findings of the qualitative study (Taverner, 2010; Taverner *et al.*, 2006) together with other relevant literature, following thorough review.

This questionnaire addressed nurses' pain knowledge, pain assessment, pain management

nursing and midwifery council in the United Kingdom at the time of data collection (NMC, 2006). Job title distribution among the respondents represented a typical community nurse team working in the organisation studied. This was determined by obtaining information regarding the distribution of job titles within each team included in the survey.

Nature and consequences of pain associated with leg ulceration

A significant majority, that is, 90.1% ($n = 100$), of respondents indicated that they thought pain with leg ulceration could be acute and chronic. A high percentage indicated that patients with leg ulceration might have both neuropathic pain and nociceptive pain (77.5%, $n = 86$). Nurses who had formal pain management training were significantly more likely to indicate that leg ulcer pain may have both nociceptive and neuropathic properties (Fisher's exact = 4.93, $df1$, $n = 109$, $P = 0.025$).

Table 2 Percentage (n) of nurses who were aware that pain may lead to the following negative consequences

Consequences	Percentage (n) nurses
Insomnia	96.4 (107)
Depression	96.4 (107)
Loss of mobility	95.5 (106)
Pain at night	97.3 (108)
Social isolation	91 (101)
Suicidal ideation	55.9 (62)
Desire for amputation	67.9 (75)

Chronic pain may lead to depression, pain at night, insomnia, loss of mobility, suicidal ideation, social isolation and desire for amputation. Table 2 represents the data that suggest that a significant number of nurses were aware of these issues.

The majority of respondents thought that compression bandages might cause or worsen pain in some patients (94.6%, $n = 105$). Participants were also asked what they thought the reason for this was. The reasons are displayed in Figure 1. The most common reasons given were if the compression was too tight or applied to an ulcer of mixed aetiology.

Nurses' responses to the pain

Respondents were asked whether pain was a good sign, indicating sensation, healing and infection. A significant number thought that pain was a good sign as it indicated sensation (38.7%, $n = 43$), a small number indicated that pain was a good sign as it indicated healing (6.3%, $n = 7$) and 46.8% ($n = 52$) of nurses thought that pain was a good sign as it indicated infection.

The questionnaire also explored nurses' opinions on using patients' report of pain severity and pain triggers (such as leg position) as an indicator of the type of leg ulcer. A significant number of respondents stated that they used pain severity as a tool to identify the type of leg ulcer, and 44.1% ($n = 49$) indicated that patients' report

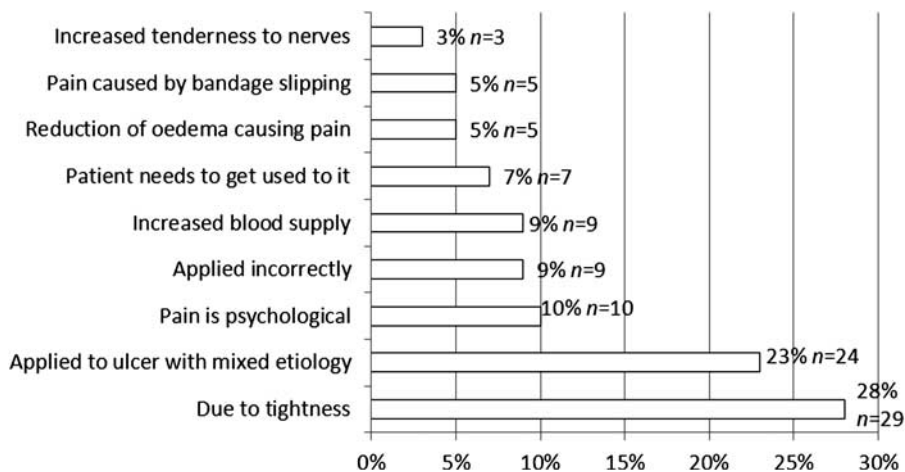


Figure 1 Percentage (n) of respondents who identified each cause of pain associated with compression

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Table 3 Association between nurse characteristics and whether they undertook pain scoring and verbal report (χ^2 test)

Nurses' characteristic	χ^2 statistics	Required alpha level with Bonferroni correction	P-value
Age	$\chi^2 = 4.57$ (df = 9; $n = 105$)	0.005	0.87
Job title	$\chi^2 = 28.37$ (df = 18; $n = 111$)	0.005	0.57
Level of training	$\chi^2 = 2.45$ (df = 6; $n = 101$)	0.004	0.874
Pain management training	$\chi^2 = 5.06$ (df = 3; $n = 111$)	0.004	0.167

Table 4 Percentage (n) of nurses who indicated that they recommended the following analgesics to their patients

Drug	Frequency of recommendation			
	% Always (n)	% Sometimes (n)	% Never (n)	% Left blank (n)
Paracetamol	46.8 (52)	35.1 (39)	1.8 (2)	16.2 (18)
Ibuprofen	3.6 (4)	45.0 (50)	15.3 (17)	36.0 (40)
Diclofenac	–	37.8 (42)	19.8 (22)	42.3 (47)
Codeine	7.2 (8)	55.0 (61)	8.1 (9)	29.7 (33)
Tramadol	–	52.3 (58)	15.3 (17)	32.4 (36)
Morphine	–	44.1 (49)	21.6 (24)	34.2 (38)
Oxycontin	–	15.3 (17)	36.9 (41)	47.7 (53)
Fentanyl	–	32.4 (36)	24.3 (27)	43.2 (48)
Pethidine	–	4.5 (5)	45.9 (51)	49.5 (55)
Amitriptyline	0.9 (1)	46.8 (52)	16.2 (18)	36.0 (40)
Gabapentin	–	45.0 (50)	21.6 (24)	33.3 (37)
Pregabalin	–	8.1 (9)	42.3 (47)	49.5 (55)

of pain intensity helped them in identifying the type of leg ulcer. Eighty-seven per cent ($n = 97$) indicated that patients' pain triggers helped them in identifying the type of leg ulcer. Respondents were significantly more likely to indicate that pain triggers such as elevating legs, standing and pain at night were an indication for the type of leg ulcer compared with respondents who indicated that they used pain intensity (Fisher's exact = 4.90, df1, $n = 96$, $P = 0.029$).

Assessment and management of pain associated with chronic leg ulceration

Just under half of the respondents stated that they assessed pain using both verbal report and a pain score (46.8%, $n = 51$), with 30.6% ($n = 34$) assessing pain using a pain score only. Nearly a quarter of the respondents (22.5%, $n = 24$) either left the question blank (7.2%, $n = 8$) or took a verbal report, but did not record a pain score (15.3%, $n = 17$). Participants were also asked

when and how frequently they measured and documented pain. Just over half the participants measured and documented pain on every visit (55.9%, $n = 62$), 9.9% ($n = 11$) measured and documented pain only if the patient reported pain. Just 15.3% ($n = 17$) stated that they never measured and documented pain. To explore the relationships between nurse characteristics and whether they assessed patients' pain using a pain score and verbal report χ^2 tests were undertaken; however, none were found to have statistical significance (see Table 3). A Bonferroni correction was applied to each variable because of multiple testing (Tabanick and Fidell, 1996).

In terms of managing the pain, most nurses indicated that they recommended paracetamol (acetaminophen; see Table 4), with 46.8% ($n = 52$) of respondents indicating that they 'always' recommended paracetamol and 35.1% ($n = 39$) recommending it 'sometimes'. The next most frequently recommended analgesic was codeine. Fisher's exact determined that paracetamol was significantly more

likely to be recommended than codeine (Fisher's exact = 6.56, df_1 , $n = 69$, $P = 0.009$).

To manage neuropathic pain, the nurses indicated that they would recommend amitriptylene, with 46.8% ($n = 52$) of the community nurses stating that they recommended this drug 'sometimes'. Nearly half of the respondents, that is, 45% ($n = 50$), stated that they recommended gabapentin sometimes. A very small number of respondents stated that they would recommend pregabalin (8.1%, $n = 9$). Gabapentin was significantly more likely to be recommended 'sometimes' than pregabalin (Fisher's exact = 8.04, df_1 , $n = 56$, $P = 0.004$).

Nurse prescribing is a relatively new practice within the nursing profession and 34.2% ($n = 38$) of the respondents stated that they were nurse prescribers. Nurses were asked if they were nurse prescribers did they routinely prescribe analgesics always, sometimes or never. Only 12.6% ($n = 14$) prescribed analgesics to this group of patients 'sometimes'. The majority of nurses who could prescribe stated that they never prescribed analgesics (21%, $n = 24$). Comparisons between nurse prescribing and job title show that 92% ($n = 23$) of caseload holders were nurse prescribers, but only 28% ($n = 7$) of them prescribe analgesics sometimes. Five per cent ($n = 2$) of senior staff nurses could prescribe and only 3% ($n = 1$) of them prescribe analgesics sometimes. Only 6% ($n = 2$) of staff nurses were nurse prescribers and none of them stated that they prescribed analgesics.

Participants were asked what they used for pain at dressing changes. Most stated that they were using a gentle dressing technique (73.9%, $n = 82$). Provision of analgesics before and after dressing was frequently stated as being used to manage pain. In all, 39% ($n = 43$) reported that they always gave analgesics before dressing changes and 60.4% ($n = 67$) reported that they gave them sometimes. Extra analgesics after the dressing changes were stated as being given always by 2.7% ($n = 3$) of respondents and 61.3% ($n = 68$) reported giving them sometimes. Forty-three per cent ($n = 47$) of nurses who had received formal pain management training also recommended pre-emptive analgesia compared with 20% ($n = 22$) of nurses who had not had formal pain management training. Using χ^2 analysis, it was demonstrated that formal pain management training was

associated with pre-emptive analgesics being given ($\chi^2 = 6.85$, df_2 , $n = 111$, $P = 0.033$).

Professional attitudes

Half of the respondents indicated that healing was the primary goal (50.5%, $n = 56$). Participants were asked whether with repeated exposure some nurses might become desensitised to patients expressing pain during dressing changes. A significant number of the community nurses agreed with this statement (52.3%, $n = 58$). The majority of the community nurses agreed that patients with pain from leg ulcers have a right to expect pain relief (95.5%, $n = 106$). Only 35.1% ($n = 39$) indicated that they were confident about managing pain for this patient group and 82% ($n = 91$) stated that they would like more training with regard to managing pain associated with leg ulcer pain. χ^2 tests were used to determine whether there were significant relationships between nurses' characteristics and confidence in pain management. A Bonferroni correction was applied because of multiple testing. This showed no associations between nurses' characteristics and their confidence in managing pain for this patient group (see Table 5).

Discussion

This study was undertaken to explore community nurses' knowledge and beliefs about the nature and management of pain associated with leg ulceration. The aims of the research were as follows:

- i) To explore community nurses' perceptions of the nature of the pain from chronic leg ulceration.
- ii) To describe current strategies used by community nurses to manage pain in this patient group.
- iii) To survey nurses' attitudes in relation to providing pain management for this group.

The key areas of importance in the results were concerned with nurses' knowledge about the nature and consequences of pain associated with leg ulceration; their response to this pain; their assessment and management of this pain; and their professional attitudes towards it. These are discussed below.

Table 5 Association between nurses' characteristics and confidence in managing pain (χ^2 test)

Nurses' characteristics	χ^2 statistics	Required alpha level with Bonferroni correction	P-value
Age	$\chi^2 = 2.59$ (df = 3; $n = 105$)	0.005	0.45
Job title	$\chi^2 = 9.18$ (df = 1; $n = 111$)	0.005	0.13
Level of training	$\chi^2 = 3.71$ (df = 2; $n = 101$)	0.004	0.15
Pain management training	$\chi^2 = 0.72$ (df = 1; $n = 111$)	0.004	0.26

Nature of pain associated with leg ulceration

Neuropathic pain can be a possible component of chronic leg ulceration (Briggs *et al.*, 2007) and the majority of respondents rightly identified that pain associated with chronic leg ulceration may have a neuropathic component. Insufficient knowledge and training in pain management have been reported as causing a barrier to providing effective pain management (Elliott and Elliot, 1992; Fife *et al.*, 1993; Elliott *et al.*, 1995; Oneschuk, *et al.*, 1997; Jastrab *et al.*, 2003). Therefore, it was to be expected that the nurses in this sample, who had received formal pain management training, were significantly more likely to indicate that leg ulcer pain may involve both nociceptive and neuropathic pain mechanisms. The majority of nurses (91–97%) were aware that chronic pain may lead to insomnia, depression, loss of mobility, pain at night and social isolation. The literature supports this and it is reassuring that the results from the survey demonstrated that these comorbidities were acknowledged by the nurses caring for this group of patients (Krasner, 1998; Hyde *et al.*, 1999; Ebbeskog and Ekman, 2001; Douglas, 2001; Husband, 2001a; Rich and McLachlan, 2003; Hopkins, 2004; Harendran *et al.*, 2005; Mudge *et al.*, 2006; Turk *et al.*, 2008). The interrelationship of depression and insomnia and pain is complex; many chronic pain patients are depressed and anxious; sleep deprivation can lead to anxiety; depression can be both the cause and the result of sleep disturbance (Nicholson and Verma, 2004). Patients with leg ulceration require assessment of pain, as well as depression and sleep problems. Patients may benefit from a more holistic management model that would include focus and attention on sleep hygiene, depression and social circumstances. The leg ulcer management guidelines need to address the management of these patients using a more holistic approach, and currently the focus of these guidelines

is predominantly concerned with healing the ulcer (Scottish Intercollegiate Guideline Network (SIGN), 1998; Registered Nurses of Ontario (RNAO), 2004; Royal College of Nursing (RCN), 2006).

This survey identified that the majority of the community nurses thought that compression bandaging caused or exacerbated pain. Reasons for the compression causing further pain were identified as predominantly being caused by compression being applied to an ulcer of mixed aetiology. Again the leg ulcer guidelines and literature recommend that an increase in pain may be a sign of arterial involvement (RCN, 1998; 2006; Scottish Intercollegiate Guideline Network, 1998; Phillips, 2004; RNAO, 2004; Dowsett, 2005). It is understandable that the nurses cited that the pain caused by compression could be caused by the bandage being applied incorrectly and by the bandage slipping. There is a strong emphasis within the leg ulcer literature that suitably trained nurses must undertake application of compression to ensure that it is applied correctly (Moffatt, 2004; RCN, 2006). Heinen *et al.* (2007) found that patients could not tolerate compression because it was too tight, as did Briggs and Closs (2006). It is not possible to ascertain whether these patients could not tolerate the compression because it felt too tight (but needed to be), or because the bandaging had in fact been applied incorrectly.

Ten per cent ($n = 10$) of the nurses indicated that the pain was psychological. This is a concern, but perhaps reflects the current leg ulceration literature, which suggests that compression is associated with a reduction of pain (Franks *et al.*, 1994; RCN, 2006; Fogh *et al.*, 2008). Fogh *et al.* (2008) developed a wound pain management model, within which it was suggested that compression should be used to reduce pain. This may create confusion in the nurses applying the compression. Furthermore, some patients do not experience a reduction in pain with compression,

regardless of correct and appropriate application (Phillips *et al.*, 1994; Chase *et al.*, 2000; Wissing and Unosson, 2002; Nemeth *et al.*, 2004; Hareendran *et al.*, 2005; Briggs *et al.*, 2007; Heinen *et al.*, 2007; Park *et al.*, 2008; Price *et al.*, 2008). Allodynia is a likely characteristic of neuropathic pain (Wall, 1991); therefore, applying a tight heavily layered bandage can be expected to cause further pain. Moreover, hyperalgesia is also a common feature of neuropathic pain (Wall, 1991). Both hyperalgesia and allodynia, if present, would cause a significant amount of pain if a bandage were being applied to the area, regardless of correct or appropriate application. Most of the nurses in this survey indicated that leg ulceration can have both nociceptive and neuropathic pain components. However, the majority did not demonstrate an understanding of neuropathic pain because they did not suggest that neuropathic pain may be a cause of pain associated with compression. If the nurses had knowledge of neuropathic pain, they would understand hyperalgesia and allodynia, and therefore would understand the impact that compression may have on the pain.

In a systematic review carried out by Van Hecke *et al.* (2008), pain and discomfort were reported as being a main cause for non-adherence to compression. Others have also reported that patients take off their bandages to reduce discomfort (Edwards, 2003; Herber *et al.*, 2007). By managing the neuropathic pain, patients may not only have a reduction in pain but their ability to adhere to treatment may also be enhanced.

Nurses response to the pain

A significant number of the respondents indicated that they thought pain could be a good sign as it may indicate infection or sensation. This may not be conducive to effective pain management. Previous studies have identified professionals preserving the pain when using it as a clinical indicator and have shown that this impacts negatively on the pain management ability of the clinician (Lebovits *et al.*, 1997; Levin *et al.*, 1998; Ponte and Johnson-Tribino, 2005). It has been shown that pain intensity and pain triggers such as elevating legs are unreliable indicators of leg ulcer aetiology and infection (Ebbeskog *et al.*, 1996; Gardner *et al.*, 2001; Cutting and White, 2005; Briggs *et al.*, 2007; Closs *et al.*, 2008).

However, the leg ulcer literature encourages the use of pain as an indicator of infection, sensation or arterial involvement. The clinical guidelines (RCN, 1998; 2006; SIGN, 1998; RNAO, 2004) suggest that infection can be detected by an increase in pain severity. The Scottish guidelines (SIGN, 1998) correctly comment that leg ulcers are painful. However, they go on to say, 'particularly if they have an arterial component'. Reichenberg and Davis (2005), in a review of management of venous leg ulceration, state that venous ulcers are associated with a minimum of pain. This study has shown that a significant number of the community nurses did use pain severity to aid diagnosis of the type of leg ulcer. Furthermore, the majority of the community nurses indicated that they used a report of pain triggers in aiding diagnosis of type of leg ulcer. The report of trigger of pain as an aid to diagnosis is again endorsed by the guidelines and within the literature on leg ulcer. It is reported that patients with arterial ulcers are more likely to have an increase in pain when their leg ulcers are elevated or after exertion (RCN, 1998b; 2006; SIGN, 1998; Phillips, 2004; RNAO, 2004). Moreover, it is suggested that only severe arterial disease will cause pain at rest (Phillips, 2004). The literature and current practice guidelines suggest that patients with venous ulcers are more likely to have pain with exercise and relief of pain can be gained by elevating their legs (SIGN, 1998; Phillips, 2004; RCN, 2006). This perhaps offers an explanation as to why the nurses use severity of pain and pain triggers as an indicator of the aetiology of a leg ulcer.

Assessment and management of pain associated with chronic leg ulceration

The key to effective pain management is thorough and appropriate assessment (Donaldson, 2009). The nurses' accurate assessment, prompt intervention and evaluation of pain relief measures are necessary for positive patient outcomes (Ersek *et al.*, 2003). Just under half of the respondents stated that they were assessing pain using verbal report and a pain score (46.8%). Therefore, over half of the respondents stated that they were not measuring and assessing pain appropriately. It is not possible to state why this was the case. However, inadequate pain management can be related to a number of factors,

one of which is an absence of any formal pain management procedures (Pargeon and Hailey, 1999). The literature supports the recommendation that pain can only be assessed on an individual basis using self-report, careful pain histories and external indicators (McCaffery and Pasero, 1999; Brown, 2004). Others have reported similar findings to suggest that pain assessment and documentation are not routinely carried out by community nurses (Walker *et al.*, 1990; Roe *et al.*, 1993; Hollinworth, 1995; Kammerlander and Eberlein, 2002; Lorimer *et al.*, 2003; Breivik *et al.*, 2006).

This study included a question about nurse prescribing activity among community nurses caring for patients with chronic leg ulceration. The data showed that 34.2% ($n = 38$) of the nurses indicated that they were nurse prescribers. However, only 12.6% ($n = 14$) stated that they were prescribing analgesics 'sometimes' and the majority (21%, $n = 24$) stated that they never prescribed analgesics. There could be various reasons for this. The literature identified certain issues preventing nurses from using their prescribing rights, which included not having confidence in prescribing analgesics (Luker *et al.*, 1998; Baird, 2001) One reason for this may be that they do not get the opportunity to consolidate their training (Ryan-Woolley *et al.*, 2007). Another reason may be insufficient infrastructures and mentoring mechanisms available to support nurse prescribing (Luker *et al.*, 1997; Humphries and Green, 2000; Sodha *et al.*, 2002). A significant number of respondents reported using pre-emptive analgesia always (39%) or sometimes (60.4%). The use of pre-emptive analgesics would be appropriate and if used could be beneficial to this patient group (Ong *et al.*, 2005). Pre-emptive analgesia, given before a painful intervention, is thought to decrease the post-intervention incidence of hyperalgesia and allodynia by decreasing the altered central sensory processing (Kissin, 2000).

The analgesic that the nurses were most likely to recommend for chronic leg ulceration was paracetamol, confirming findings from earlier studies (Ebbeskog *et al.*, 1996; Husband, 2001b; Guarnera *et al.*, 2007). The same literature suggests that the use of paracetamol alone does not offer adequate pain management for this group of patients. Fifty-five per cent of the respondents stated that they were recommending codeine sometimes. The literature reflects this finding and

the use of codeine for management of pain associated with leg ulceration is apparent (Husband, 2001b; Guarnera *et al.*, 2007). Forty-six per cent of nurses in this survey recommended amitriptylene 'sometimes' and 45% recommended gabapentin 'sometimes' for neuropathic pain. Nurses indicated that they would preferentially recommend amitriptylene for neuropathic pain, despite it not being licensed for this specific use (BNF, 2008). This practice is common throughout the medical profession (Maxwell, 2000). However, amitriptylene is not suitable for use in older adults (Dworkin *et al.*, 2007), and therefore may not be appropriate for the majority of patients with leg ulceration. Neuropathic pain management guidelines recommend gabapentin and pregabalin as first-line agents for managing neuropathic pain (Dworkin *et al.*, 2007). Several pharmacokinetic properties of gabapentin and pregabalin are particularly suited for use in older adults (Dworkin *et al.*, 2007) and these drugs also have a beneficial effect on sleep (Rice and Maton, 2001). This may be particularly relevant for this patient group because of the associated pain at night and insomnia. Gabapentin was stated as being frequently recommended; the literature demonstrates the successful use of gabapentin with older adults who have neuropathic pain (McQuay, 2002). The fact that pregabalin was a relatively newly available drug at the time of data collection (Dworkin *et al.*, 2007) may explain why the nurses were not recommending this drug.

Professional attitudes

A significant majority of nurses in this survey thought healing was the primary goal for all patients regardless of recurrence rates and history. This is in line with the leg ulceration literature where the emphasis is on the healing and not on symptom management. Such a focus on healing may distract attention from necessary symptom management. Healing outcomes are not realistic for some patients, particularly older adults (Phillips, 1999; Barwell *et al.*, 2001; Laible *et al.*, 2002; Briggs and Closs, 2003; Graham *et al.*, 2003; Gohel *et al.*, 2005; Głowiczki and Głowiczki, 2009), and therefore the focus on healing may not always be appropriate for this group of patients.

Many nurses indicated that with repeated exposure to patients in pain they became desensitised to

it, supporting earlier findings (Grootenhuis *et al.*, 1996). This may be a coping mechanism as others have found that exposure to people in pain is likely to arouse emotional distress that may interfere with their ability to manage pain effectively (Brough, 1991; Nagy, 1999). This survey found that only 35.1% ($n = 39$) of the nurses felt confident about managing pain for this patient group and a large majority wanted more training (82%, $n = 91$). Interestingly, nurses who had undergone some form of pain management training were not statistically more likely to be confident. This is in conflict with the literature that suggested that nurses who had undergone some form of pain management training demonstrated improvement and increased confidence (Ferrell *et al.*, 1993; Francke *et al.*, 1996; Lasch *et al.*, 2000; Arber, 2001). This may have been because those nurses who had attended pain management training did not have management of leg ulceration included. As the nurses surveyed appeared to have a limited understanding of neuropathic pain, the training they had received may have been less than adequate.

Study limitations

This was a small local study, piloting a questionnaire designed to explore nurses' knowledge and beliefs towards the pain associated with leg ulceration. Findings cannot therefore be generalised; rather, they present areas of concern that require larger studies to explore further, and the questionnaire further refining.

Other limitations of the findings presented are principally due to the potential biases from nurses' self-report and the low response rate.

The main limitation is that nurses provided a report of their own activity. It did not measure their activity objectively using observational methods to collect data. There may well have been a difference between what the respondents stated they were doing and what they actually did.

The study sample was self-selected, with a response rate of 32%. It is possible that the low response rate created some kind of response bias. It is possible that nurses who were more interested in the topic of research or wound care and who were better educated were most likely to complete the questionnaire (Dillman and Frey, 1974; Cartwright, 1978; Clarke and Rees, 1989).

The low response rate is common with postal questionnaires, especially when they are aimed at health-care professionals (Cartwright, 1978; Bowling *et al.*, 1991; Myerson, 1993). Other studies of community nurses have had similar response rates (Hollinworth and Collier, 2000; Kammerlander and Eberlein, 2002).

Summary

In summary, the nurses in this study acknowledged the pain that patients with leg ulceration may have. They were aware of the possibility that compression may cause pain, but did not acknowledge that this could be related to the neuropathic component. Rather, they suggested that pain caused by compression could be caused by incorrect or inappropriate bandage application. The data suggest that the nurses were using severity of pain and pain triggers as tools for diagnosis of complications or deterioration, as well as an aid to the diagnosis of the aetiology of leg ulceration. Unfortunately, the current practice guidelines support this. The community nurses are in a difficult situation as their reported practices adhere to current UK (SIGN, 1998; RCN, 2006) leg ulcer management guidelines, which appear to promote the use of pain as a clinical indicator. The leg ulceration guidelines need to acknowledge that the aetiology of an individual's leg ulcer may not determine their pain intensity. Guidelines need to have a greater emphasis on symptom management, which includes pain assessment and management. The guidelines need to acknowledge and give permission for nurses to use a palliative care model for those patients who warrant it, informed by good-quality evidence. Current pain management practices identified by this study suggest inadequate pain management practices, particularly with regard to pain assessment. The reported pain assessment practice was not homogenous, which may suggest that there were no formal pain assessment procedures in place within the primary care trust surveyed. Nurses did not report that they were assessing for neuropathic pain. Clinical guidelines need to include guidance that enables a more holistic approach; the guidance should consider depression, sleep hygiene and social isolation.

The nurses appear to have an insight into their coping mechanisms, in that they acknowledged

that they might become desensitised to patients' pain over time. The respondents indicated that they were aware that they required more education in pain management and also appeared to have insight with regard to lacking in confidence when managing pain for this patient group. This study further demonstrated that community nurses view healing, rather than symptom management, as a primary aim. It also supports the suggestion that these nurses may not be using effective pain management techniques. Furthermore, aspects of the nurses' reported practices are not conducive to effective pain management. In conclusion, the successful treatment of leg ulceration requires careful, individualised assessment of pain, both its type and related symptoms together with appropriate interventions to manage not only healing, but also the pain and its consequences. Community nurses may require educational programs to be able to achieve this, and guidelines for the management of leg ulceration should be expanded to emphasise the importance of effective pain management.

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