



Where does it hurt? Describing the body locations of chronic pain

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Chronic pain patients have complex problems. Due to this, much research effort has been expended on the classification of pain patients and the classification of pain problems. A mainstay of most pain classification systems is the use of the physical location of the pain. Yet describing the location of the patient's pain is not straightforward. Many patients have pain at multiple sites and thus simple statements such as 'patients with low back pain' have considerable ambiguity. Does the statement refer to patients with pain just in the lower back or those with low back pain who may also have pain elsewhere (e.g. pain down the leg)? If patients do have pain elsewhere, at what other body sites and what are the implications of this?

This paper presents data on the body location of pain for a large sample of 5279 patients seen with chronic pain in Scotland and the north of England. It shows that one-third of patients have pain in multiple locations, and that using a single body site to classify patients leads to groups with large overlaps. Thus, 38% of patients reported pain in the 'lower back/spine' and 34% reported pain in the 'buttock, leg, foot' – but there was considerable overlap between these groups. Nineteen percent of patients reported pain in *both* of these body areas, and one-third of *these* patients also had pain in at least one further body area. Furthermore, a systematic look at patients with diverse physical pain locations but a single site in common shows large demographic differences.

Common pain groupings help to reduce the confusion; 13 pain site descriptions were able to account for 82% of all patients. The remaining 18% of patients had pain in a combination of body sites which they shared with fewer than 1% of other patients. Thus, pain patients are widely heterogeneous and complex.

Patients report pain in more complex patterns than can easily be captured by a single body-site code. Further, large demographic differences between patients with different painful sites, even when they have at least one pain site in common, suggests that grouping patients based on a single site descriptor may be inappropriate. These findings have important implications for chronic pain description and classification.

INTRODUCTION

Pain is both a symptom and a disease. By its very nature, it cuts across traditional disease categories making it difficult to classify pain patients. This is a particular problem with chronic pain where understanding of the pathology is uncertain, and symptoms multiply and diversify

until they become the disease. Attempts to find robust and useful categorizations of chronic pain have proved difficult, precisely because pain patients have such diverse and complex problems (Twycross & Fairfield, 1982; Flor & Turk, 1984; Turk & Flor, 1984; Banning *et al.*, 1991). While various classification systems for chronic pain do exist, none are without problems; most having limited (or unproven) reliability, validity and utility (Bowsher, 1987; Turk & Rudy, 1987; Williams, 1988; Vervest *et al.*, 1993; Davies, 1995).

For many of the existing pain classification systems the body location of pain is an important

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component (Williams, 1988). A leading example is the International Association for the Study of Pain (IASP) *Classification of Chronic Pain*, first published in 1986 (IASP Subcommittee on Taxonomy, 1986) and published in revised form in 1994 (Merskey & Bogduk, 1994). This system describes the nature of a patient's pain using five axes: body region; aetiology; body systems; temporal characteristics; and severity and duration (combined into a single code). Yet many studies have found that patients with pain problems often have pains at several body sites (Twycross & Fairfield, 1982; James *et al.*, 1991), arising from different pathological processes (Flor & Turk, 1984; Turk & Flor, 1984; Boivie, 1994), and having varied supposed causes (Foley, 1987; Banning *et al.*, 1991). Pain classification schemes need to take account of this real-world diversity and complexity if they are to be useful in clinical settings.

Body location is a major descriptor variable, not just in classification schemes but also in most descriptions of study subjects. Studies of patients with facial pain or neck pain or low back pain (for example) are plentiful, with apparently little thought given to how each of these variables is defined or assessed. Yet describing the location of chronic pain is not as simple as might first be supposed.

This paper presents findings on the body location of pain gathered from a large number of chronic pain sufferers. It draws attention to the ambiguity of simple statements of pain location, and assesses the utility of differentiating patients based on the location of their pain. Its aims are to assess how the body location of chronic pain could be described more effectively, and to identify what lessons are to be learned from focusing on patients with pain at different body sites.

METHODS

This paper describes data collected in 10 outpatient pain clinics in Scotland and the north of England between 1989 and 1992. The 10 clinics represent a good geographical mix and include five clinics based in teaching hospitals, the rest being based in district general hospitals. All the

clinics are led by anaesthetists, although they are predominantly interdisciplinary in outlook. All take referrals direct from general practitioners (family doctors) as well as from other hospital specialists.

Data were collected in each clinic by the consulting physician at the time of the consultation, but were processed and analysed at a single centre (Dundee). The data collection methods are described in greater detail elsewhere (Crombie & Davies, 1991; Davies *et al.*, 1991). The data presented are numbers and percentages, with means and interquartile ranges as appropriate. As there were no prior hypotheses, formal tests of significance have not been presented for any of the observed differences.

Patients included in the analysis of painful body sites

Brief referral and demographic details are provided to allow an assessment of the likely representativeness of this patient group (Crombie & Davies, 1998).

Data were available on a total of 5279 new referrals seen between September 1989 and June 1992 in the 10 pain clinics. Descriptive data on the bodily locations of pain are presented for all of these new referrals aggregated across all 10 clinics. For all the main data items used to describe the patients, the proportion of missing values was less than 5%, and for most it was less than 3%.

General practitioners were the largest source of patients, referring 49% of the new referrals seen in the pain clinics. Orthopaedic surgeons were the next largest source of referrals (16%), followed by general surgeons (8%), physicians (6%) and neurosurgeons (5%). A further 27 other hospital specialties accounted for the remaining patients (15%), but none individually accounted for more than 1.5%.

The median age of patients seen was 52 years, with upper and lower quartiles of 41 and 65 years, respectively. Three-quarters of the men (75%) were aged between 25 and 64 years, and about two-thirds of the women seen (68%) also fell into this age range. Overall, there were more women than men (the overall male:female sex

ratio was 1:1.51). The preponderance of women was true for every age group, but was most pronounced for patients aged under 25 years (sex ratio 1:1.94) and over 65 years (sex ratio 1:1.96).

RESULTS

Describing patients by body site

Nine body site descriptors were included on the data form: 'head, face, mouth'; 'neck'; 'shoulder, arm, hand'; 'thorax'; 'lower back/spine'; 'abdomen'; 'pelvis'; 'anal, perineal, genital'; and 'buttock, leg, foot'. These closely followed those used by the IASP *Classification of Chronic Pain* (IASP Subcommittee on Taxonomy, 1986). However, unusual in a survey of this type, consulting physicians could indicate more than one body site descriptor for each patient.

The body regions most frequently reported as the site of pain were 'lower back/spine' (38% of patients), 'buttock, leg, foot' (34%), 'shoulder, arm, hand' (20%) and 'thorax' (18%). As many patients had pain in several body locations, these proportions also include patients with pain in other parts of the body. Therefore, because of these overlaps between patient groups, these percentages sum to greater than 100%. Overall, less than two-thirds of patients (64%) had pain in a single body region only. One-quarter (25%) required two descriptors to describe the location of their pain; and one in nine (11%) reported pain in at least three body areas.

The fact that patients often have pain in several body sites makes describing pain patients difficult. For example, 'What proportion of patients have low back pain?' can be answered in two ways: by including *all* patients with low back pain (regardless of whether or not they also have pains in other parts of the body); or by counting just those patients who have pain in the lower back *and nowhere else*. The first approach (an *inclusive* definition) leads to a larger group of patients – all with back pain, but otherwise diverse. The second approach (an *exclusive* definition) gives a smaller but more homogeneous grouping (at least with respect to pain location). The same two ways of answering the question apply to all the body-site descriptions. Either

approach may be appropriate but they will give different profiles of case mix for any given patient group.

Describing pain locations inclusively

Tables 1 and 2 show the main combinations of body sites seen in pain clinics, and their relative frequencies, when these are defined *inclusively*. That is, patients may have pain at other body sites as well as at those sites indicated. Thus, there is some overlap between the patient groups. At least some patients in this study were seen with pain in every possible combination of two body site descriptions. However, only 27 of the possible 36 pairs of descriptors applied to more than 1% of all patients seen. These are listed in Table 1.

There are 84 different possible combinations of three body-site descriptors, and again at least some patients had each of these combinations of pains. Twenty-eight of the 84 possible three-site combinations applied to more than 1% of all patients, and these are listed in Table 2.

There were some four-site combinations which were seen in more than 1% of patients. These were various combinations of spine and limbs. The most common four-site combination was: lower back and neck, with both leg and shoulder/arm pain. One hundred and sixty-one patients (3.1%) reported that they had pain in all of these body areas simultaneously.

Describing pain locations exclusively

Table 3 shows the main combinations of body site descriptors, and their relative frequencies, when these are defined *exclusively*. That is, patients only have pain in the body areas indicated and nowhere else. Thus, there is no overlap between the patient groups. Moreover, just 13 descriptions accounted for 82% of all the patients seen in the pain clinics. Low back pain (i.e. pain *only* in the lower back/spine) was the most common body area (13.5%) followed by low back pain in combination with pain in the buttock, leg or foot (12.7%). Patients who had 'buttock, leg or foot' pain (and this only) made up a further 12% of the patients seen, and 10% of patients had (just) thoracic pain.

TABLE 1. Combinations of two body site descriptors – patient groups defined inclusively

Body regions	Percent of patients
Lower back/spine and buttock, leg, foot	19.2
Neck and shoulder, arm, hand	8.9
Neck and lower back/spine	7.0
Shoulder, arm, hand and lower back/spine	6.3
Shoulder, arm, hand and buttock, leg, foot	5.6
Neck and buttock, leg, foot	4.7
Shoulder, arm, hand and thorax	4.0
Thorax and lower back/spine	3.9
Head, face, mouth and neck	3.4
Neck and thorax	3.4
Head, face, mouth and shoulder, arm, hand	2.9
Thorax and buttock, leg, foot	2.7
Abdomen and lower back/spine	2.3
Pelvis and lower back/spine	2.2
Pelvis and buttock, leg, foot	2.2
Thorax and abdomen	2.1
Head, face, mouth and lower back/spine	2.0
Head, face, mouth and buttock, leg, foot	2.0
Abdomen and buttock, leg, foot	1.8
Head, face, mouth and thorax	1.4
Neck and pelvis	1.3
Shoulder, arm, hand and pelvis	1.3
Shoulder, arm, hand and abdomen	1.2
Thorax and pelvis	1.2
Abdomen and pelvis	1.2
Neck and abdomen	1.1
Lower back/spine and anal, perineal, genital	1.0

Pain locations are defined inclusively. That is, patients may also have pain in body areas other than those described. This means that there is some overlap between many of these patient groups (see text). Only those pain descriptions which apply to more than 1% of patients are included ($n=5277$).

Eighteen percent of all patients seen in the pain clinics had pain in a combination of body sites which they shared with no more than 1% of other patients. Almost all of these patients had pains in multiple body areas (96%), and 56% had pain in at least three separate body locations. Thus, the patients in this group were widely heterogeneous and complex.

Describing pain in each body site

Describing the bodily location of pain using a single label may be ambiguous (pain at just this

site? or pain at other sites also? and which other sites are these?). However, the question remains as to whether this matters or not. One way of assessing the importance of this ambiguity is to look in more detail at each of the body sites, comparing those individuals with pain at just that site with those who have pain at other sites also. If differences emerge then it is likely that different sorts of patients are being inappropriately aggregated when patients are grouped inclusively under a single pain site-label.

Tables 4–12 take patients with pain at each body site in turn and show the frequency of involvement of pain at other body sites. These tables also show the age–sex mix for each body-site combination, allowing a limited assessment as to whether including all patients with pain at a particular body site captures a demographically homogeneous group of patients.

Pain in the head, face or mouth

Overall, 13% of patients had pain in the head, about one-third of whom also had pain at other body sites. Table 4 shows that head pain was most often seen with neck pain or pains in the shoulder, arm or hand; about one-quarter of patients with head pain also had pain at these sites. Head pain was only rarely seen in combination with pelvic pain, abdominal pain or pain in the anal, perineal, genital region. Patients who reported pain confined to the head were older and more predominantly female than those patients who also reported pain elsewhere.

Although head pain on its own was almost twice as common amongst women as amongst men, head pain in combination with other sites did not always show a preponderance of women. For head pain plus thoracic pain, and head pain plus pain in the anal, perineal, genital region, men outnumbered women. The age mix also varied between the site combinations; patients with head and thoracic pain or head and low back pain were, on average, younger than patients with other combinations of head pain.

Pain in the neck

Overall 15% of patients seen had pain in the neck, of whom almost 90% also had pain in

TABLE 2. Combinations of three body site descriptors – patient groups defined inclusively

Body regions	Percent of patients
Neck <i>and</i> shoulder, arm, hand <i>and</i> lower back/spine	4.5
Shoulder, arm, hand <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	4.2
Neck <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	4.1
Neck <i>and</i> shoulder, arm, hand <i>and</i> buttock, leg, foot	3.6
Thorax <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	2.3
Head, face, mouth <i>and</i> neck <i>and</i> shoulder, arm, hand	2.2
Neck <i>and</i> shoulder, arm, hand <i>and</i> thorax	2.2
Neck <i>and</i> thorax <i>and</i> lower back/spine	2.2
Shoulder, arm, hand <i>and</i> thorax <i>and</i> lower back/spine	2.1
Shoulder, arm, hand <i>and</i> thorax <i>and</i> buttock, leg, foot	1.9
Neck <i>and</i> thorax <i>and</i> buttock, leg, foot	1.7
Pelvis <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	1.6
Head, face, mouth <i>and</i> neck <i>and</i> lower back/spine	1.5
Head, face, mouth <i>and</i> shoulder, arm, hand <i>and</i> lower back/spine	1.5
Head, face, mouth <i>and</i> shoulder, arm, hand <i>and</i> buttock, leg, foot	1.5
Head, face, mouth <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	1.5
Head, face, mouth <i>and</i> neck <i>and</i> buttock, leg, foot	1.4
Abdomen <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	1.3
Head, face, mouth <i>and</i> shoulder, arm, hand <i>and</i> thorax	1.2
Neck <i>and</i> pelvis <i>and</i> lower back/spine	1.2
Shoulder, arm, hand <i>and</i> pelvis <i>and</i> lower back/spine	1.2
Shoulder, arm, hand <i>and</i> pelvis <i>and</i> buttock, leg, foot	1.2
Head, face, mouth <i>and</i> neck <i>and</i> thorax	1.1
Neck <i>and</i> shoulder, arm, hand <i>and</i> pelvis	1.1
Neck <i>and</i> pelvis <i>and</i> buttock, leg, foot	1.1
Thorax <i>and</i> pelvis <i>and</i> lower back/spine	1.1
Thorax <i>and</i> abdomen <i>and</i> lower back/spine	1.0
Thorax <i>and</i> pelvis <i>and</i> buttock, leg, foot	1.0

Pain locations are defined inclusively. That is, patients may also have pain in body areas other than those described. This means that there is some overlap between many of these patient groups (see text). Only those pain descriptions which apply to more than 1% of patients are included ($n=5277$).

another body region (Table 5). Neck pain was commonly seen in combination with all the other body regions except the pelvis, abdomen or anal, perineal, genital region. All combinations of neck pain were more commonly seen in women than men, with little differences between the combinations in either the sex ratio or the age mix.

Pain in the shoulder, arm or hand

One patient in five (19.7%) seen in the pain clinics had pain in the shoulder, arm or hand. About half of these also had pain in the neck; many also had pain in the lower back and/or lower limb (Table 6). There was a greater preponderance of women than men for all pain combinations

involving the shoulder, arm or hand, and this was most pronounced for the patient group with pain at this site alone. The age mix did not vary greatly between the different pain combinations.

Pain in the thorax

People with pain in the thorax made up about 18% of patients seen. Most of these (58%) had pain in the thorax alone (Table 7). Of those who also had pain elsewhere, the most common additional sites were: the shoulder, arm or hand, the lower back or the neck. The sex mix of patients with thoracic pain varied between the site combinations; thoracic pain with abdominal or pelvic pain was about twice as common in

TABLE 3. Combinations of body site descriptions when patient groups are defined exclusively

Body regions	Percent of patients
Lower back/spine	13.5
Lower back/spine <i>and</i> buttock, leg, foot	12.7
Buttock, leg, foot	12.2
Thorax	10.4
Head, face, mouth	8.0
Abdomen	7.9
Shoulder, arm, hand	6.7
Anal, perineal, genital	3.0
Neck <i>and</i> shoulder, arm, hand	2.8
Neck	1.6
Shoulder, arm, hand <i>and</i> thorax	1.1
Neck <i>and</i> shoulder, arm, hand <i>and</i> lower back/spine <i>and</i> buttock, leg, foot	1.1
Neck <i>and</i> lower back/spine	1.0
Total	82.0%

Therefore, 18% of patients have body site descriptions which are shared by less than 1% of other pain patients.

Pain locations are defined exclusively. That is, patients *only* have pain at the locations described and nowhere else (see text). This means that there is *no overlap* between these patient groups. Only those pain descriptions which apply to more than 1% of patients are included ($n=5241$).

women as men, whereas thoracic pain with head pain was equally common in both sexes. Variations in age mix were also seen; patients with thoracic pain on its own were, on average, 10 years older than patients with many of the other combinations of thoracic pain.

Pain in the abdomen

One patient in eight seen in the clinics had abdominal pain (12.4%). The majority of these (63%) had abdominal pain alone, with no other body site being involved (Table 8). When patients did report pain in other body sites, these were usually the lower back, thorax or lower limb (Table 7). About twice as many women as men reported every combination of abdominal pain except abdominal pain in combination with anal, perineal, genital pain. However, few patients were seen with this combination (6% of patients with abdominal pain, less than 1% of all patients seen, just 40 cases).

Pain in the pelvis

Few patients reported pain in the pelvis (just 3.7% of all patients seen). Most of those who did, also had pain in at least one other body site (83%, Table 9). Any other body site was likely to be involved, but most commonly the buttock, leg or foot region or the lower back. Again, more women than men reported each pain combination, and this was most pronounced for pelvic pain on its own, and pelvic pain in combination with abdominal pain. There was little difference between the pain combinations in the age mix seen (Table 9).

Pain in the lower back or lower spine

Pain was most commonly reported in the lower back or lower spine (38% of all patients seen).

TABLE 4. Pain in the head, face or mouth ($n=658$)

Head pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Head pain only	68.8	1:1.95	59 (44–70)
+ other body site(s)	36.2	1:1.53	51 (42–64)
+ neck	27.2	1:1.52	51 (43–62)
+ shoulder, arm, hand	22.9	1:1.52	51 (43–63)
+ buttock, leg, foot	16.0	1:1.23	51 (43–63)
+ lower back/spine	15.8	1:1.21	49 (42–61)
+ thorax	11.4	1:0.97	49 (39–61)
+ pelvis	6.1	1:1.67	53 (45–66)
+ abdomen	5.5	1:1.25	54 (44–67)
+ anal, perineal, genital	2.3	1:0.88	61 (36–69)
All head pain	100.0	1:1.78	57 (43–69)

^a Percent of patients with head, face or mouth pain. IQR, interquartile range.

TABLE 5. Pain in the neck ($n=765$)

Neck pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Neck pain only	10.7	1:1.53	52 (41–63)
+ other body site(s)	89.3	1:1.41	51 (42–61)
+ shoulder, arm, hand	61.3	1:1.29	50 (43–61)
+ lower back/spine	48.0	1:1.46	50 (42–60)
+ buttock, leg, foot	32.2	1:1.34	50 (43–59)
+ head, face, mouth	23.4	1:1.52	51 (43–62)
+ thorax	23.3	1:1.54	50 (41–61)
+ pelvis	9.0	1:1.65	52 (45–65)
+ abdomen	7.5	1:2.00	51 (45–64)
+ anal, perineal, genital	3.1	1:1.18	50 (39–67)
All neck pain	100.0	1:1.42	51 (42–61)

^a Percent of patients with neck pain. IQR, interquartile range.

TABLE 6. Pain in the shoulder, arm or hand ($n=1035$)

Shoulder, arm, hand pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Shoulder, arm, hand pain only	33.8	1:1.82	52 (39–64)
+ other body site(s)	66.2	1:1.40	51 (43–62)
+ neck	45.3	1:1.29	50 (43–61)
+ lower back/spine	32.0	1:1.51	50 (43–62)
+ buttock, leg, foot	28.2	1:1.43	51 (44–63)
+ thorax	20.1	1:1.48	51 (43–63)
+ head, face, mouth	14.6	1:1.52	51 (43–63)
+ pelvis	6.7	1:1.88	57 (46–67)
+ abdomen	6.0	1:1.95	54 (45–66)
+ anal, perineal, genital	2.5	1:1.17	55 (42–68)
All shoulder, arm, hand pain	100.0	1:1.52	51 (42–63)

^a Percent of patients with shoulder, arm or hand pain. IQR, interquartile range.

TABLE 7. Pain in the thorax ($n=936$)

Thoracic pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Thoracic pain only	58.2	1:1.49	60 (47–72)
+ other body site(s)	41.8	1:1.52	52 (42–64)
+ shoulder, arm, hand	22.9	1:1.48	51 (43–63)
+ lower back/spine	21.6	1:1.40	51 (41–63)
+ neck	19.0	1:1.54	50 (41–61)
+ buttock, leg, foot	14.9	1:1.24	49 (41–62)
+ abdomen	11.8	1:1.82	58 (46–69)
+ head, face, mouth	8.0	1:0.97	49 (39–61)
+ pelvis	6.5	1:2.05	57 (45–68)
+ anal, perineal, genital	2.5	1:0.92	61 (44–69)
All thoracic pain	100.0	1:1.51	57 (44–69)

^a Percent of patients with thoracic pain. IQR, interquartile range.

TABLE 8. Pain in the abdomen ($n=651$)

Abdominal pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Abdominal pain only	63.3	1:1.76	49 (38–62)
+ other body site(s)	36.7	1:2.01	56 (43–68)
+ lower back/spine	18.4	1:1.86	54 (45–67)
+ thorax	16.9	1:1.82	58 (46–69)
+ buttock, leg, foot	14.8	1:2.06	56 (45–67)
+ pelvis	10.0	1:2.25	55 (41–68)
+ shoulder, arm, hand	9.5	1:1.95	54 (45–66)
+ neck	8.8	1:2.00	51 (45–64)
+ anal, perineal, genital	6.1	1:0.60	61 (40–70)
+ head, face, mouth	5.5	1:1.25	54 (44–67)
All abdominal pain	100.0	1:1.85	52 (40–65)

^a Percent of patients with abdominal pain. IQR, interquartile range.

TABLE 9. Pain in the pelvis ($n=194$)

Pelvic pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Pelvic pain only	17.5	1:2.09	52 (39–64)
+ other body site(s)	82.5	1:1.84	54 (41–68)
+ buttock, leg, foot	58.8	1:1.65	57 (44–68)
+ lower back/spine	58.3	1:1.76	55 (43–68)
+ neck	35.6	1:1.65	52 (45–65)
+ shoulder, arm, hand	35.6	1:1.88	57 (46–67)
+ abdomen	33.5	1:2.25	55 (41–68)
+ thorax	31.4	1:2.05	57 (45–68)
+ head, face, mouth	20.6	1:1.67	53 (45–66)
+ anal, perineal, genital	14.4	1:1.45	60 (37–70)
All pelvic pain	100.0	1:1.88	54 (41–67)

^a Percent of patients with pelvic pain. IQR, interquartile range.

TABLE 10. Pain in the lower back/spine ($n=2007$)

Back pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Back pain only	35.3	1:1.49	46 (36–57)
+ other body site(s)	64.7	1:1.50	49 (40–60)
+ buttock, leg, foot	50.1	1:1.45	48 (40–59)
+ neck	18.3	1:1.46	50 (42–60)
+ shoulder, arm, hand	16.5	1:1.51	50 (43–62)
+ thorax	10.1	1:1.40	51 (41–63)
+ abdomen	6.0	1:1.86	54 (45–67)
+ pelvis	5.6	1:1.76	55 (43–68)
+ head, face, mouth	5.2	1:1.21	49 (42–61)
+ anal, perineal, genital	2.7	1:1.16	54 (44–67)
All back pain	100.0	1:1.50	48 (39–59)

^a Percent of patients with back pain. IQR, interquartile range.

TABLE 11. Pain in the buttock, leg or foot ($n=1791$)

Buttock, leg, foot pain combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Buttock, leg, foot pain only	35.8	1:1.21	57 (44–69)
+ other body site(s)	64.2	1:1.44	49 (41–61)
+ lower back/spine	56.2	1:1.45	48 (40–59)
+ shoulder, arm, hand	16.3	1:1.43	51 (44–63)
+ neck	13.7	1:1.34	50 (43–59)
+ thorax	7.8	1:1.24	49 (41–62)
+ pelvis	6.4	1:1.65	57 (44–68)
+ head, face, mouth	5.9	1:1.23	51 (43–63)
+ abdomen	5.4	1:2.06	56 (45–67)
+ anal, perineal, genital	2.9	1:1.00	63 (47–70)
All buttock, leg, foot pain	100.0	1:1.35	51 (41–65)

^a Percent of patients with pain in the buttock, leg or foot. IQR, interquartile range.

TABLE 12. Pain in the anal, perineal or genital region ($n=251$)

Anal, perineal, genital combinations	Percent of patients ^a	Sex ratio (M:F)	Age median (IQR)
Anal, perineal, genital pain only	62.9	1:1.21	59 (45–69)
+ other body site(s)	37.1	1:1.14	60 (45–70)
+ lower back/spine	21.5	1:1.16	54 (44–67)
+ buttock, leg, foot	20.7	1:1.00	63 (47–70)
+ abdomen	15.9	1:0.60	61 (40–70)
+ pelvis	11.2	1:1.45	60 (37–70)
+ shoulder, arm, hand	10.4	1:1.17	55 (42–68)
+ neck	9.6	1:1.18	50 (39–67)
+ thorax	9.2	1:0.92	61 (44–69)
+ head, face, mouth	6.0	1:0.88	61 (36–69)
All anal, perineal, genital pain	100.0	1:1.18	60 (45–69)

^a Percent of patients with pain in the anal, perineal or genital region. IQR, interquartile range.

Half of these patients also had pain in the buttock, leg or foot (Table 10) and many also had pain in other body sites. About 50% more women than men reported each of the common back pain combinations. Patients with pain in their lower back alone tended to be younger than those patients who also had pain in other body sites – about one-quarter of them were aged less than 36 years (Table 10).

Pain in the buttock, leg or foot

Lower limb pain accounted for over one-third of the patients in the pain clinics (34%), and it was commonly seen with pain at other sites. Over half of those with pain in the buttock, leg or foot also had pain in the lower back (Table 11). Lower

limb pain was also often seen in combination with upper limb pain. The sex mix of patients varied between the different site combinations involving leg pain, but more women than men reported pain in all of the combinations (Table 11). The age mix also varied between the different combinations, with patients who had pain in the lower limb alone being, on average, 9 years older than patients whose lower limb pain also involved pain in the back.

Pain in the anal, perineal or genital region

Less than 5% of patients reported any pain in the anal, perineal or genital region, and most of those that did had pain in this body region alone (Table 12). Thus, although there were some

differences between the pain combinations reported in terms of age–sex mix, these only applied to small numbers of patients (less than 1% of all patients seen, about 50 cases or less).

DISCUSSION

The development of a comprehensive taxonomy has been seen as a key to advancing the understanding of pain (Bonica, 1979). Since the 1970s, there has been a great deal of effort directed towards devising universal pain classification schemes (Loeser & Black, 1975; Williams, 1988). Most of these efforts have included some representation of the body site(s) where the patients report pain. This paper looks more closely at patients' reporting of pain sites, and highlights two features. First, patients frequently report more complex patterns of location than can readily be captured by single body-site codes. Further, some combinations are commonly reported whilst others are rare. The third major finding is that there are some large demographic differences between patients with different combinations of painful body sites – even they have a painful site in common. This suggests that grouping patients together simply because they do have a single painful site in common may lead to heterogeneous groupings.

These data were gathered from patients referred to secondary care specialist pain centres in the UK; therefore there may be concerns about their representativeness (Crombie & Davies, 1998). However, the demographic characteristics of the patients seen in the 10 pain clinics mirror those found elsewhere (McQuay *et al.*, 1985; Bowsher *et al.*, 1987; Ker, 1991; Sheehan *et al.*, 1994); 50% more women than men, of predominantly middle and older age groups. This excess of women is a common finding in pain (Wall, 1994), although it is by no means universal (Crombie, 1993). Further, the nature of the pain problems seen were also broadly in line with those reported elsewhere (McQuay *et al.*, 1985; Bowsher *et al.*, 1987; Blackwell & O'Connor, 1990; Sheehan *et al.*, 1994). Finally, answering the key questions addressed by this paper, *how well are patients described by single body-site pain descriptors?* and *does it matter?*, is not reliant on

especially representative groups of patients. If problems are found in UK pain clinic patients, these problems are also likely to arise elsewhere and therefore need to be addressed.

These data highlight the difficulties of describing the nature of chronic pain. Chronic pain patients often have complex or multiple problems. Over one-third of patients in this study had pain at more than one body region, similar to the findings from a survey of patients seen in a Dutch pain clinic (Vervest *et al.*, 1993). For example, the most common regions reported in these UK clinics were 'lower back/spine' (38% of patients) and 'buttock, leg, foot' (34%), but there was considerable overlap between these groups as 19% of patients reported pain in both 'lower back/spine' and 'buttock, leg, foot'. Furthermore, one-third of *these* patients (6.5% of all patients) also had pain in at least one further body area other than lower back and leg. However, these complexities of recording the location of pain are largely ignored in studies which report the bodily distribution of pain – patients are mostly assigned to a single body-site category (Crombie *et al.*, 1994).

There is a further difficulty in interpreting pain at multiple sites; in this study, it was not possible to determine whether the patient had a single pain problem (e.g. low back pain with associated sciatica) or two distinct problems (e.g. low back pain and peripheral vascular disease). The difficulties of classification by location are further complicated because some patients have separate pain problems in the same body region (e.g. low back pain and postsurgical nerve-damage pain; post-thoracotomy pain and post-herpetic neuralgia). Any pain classification scheme which seeks to use body site as one of the dimensions of measurement will need to address all of these considerations.

The implication of all the difficulties outlined is that a universal pain classification scheme, able to name and describe the huge variety of chronic pain problems, and then group them in a meaningful manner, is probably a 'Holy Grail'. Much sought but unlikely to be achieved.

An alternative approach is to develop specific classification schemes for defined patient groups tailored to the purpose in mind. The beginnings of

this approach have been taken up. For example, there are now clear definitions of patients with migraine (Andrasik, 1992) and classifications of low back pain have been suggested based on aetiology (Loeser *et al.*, 1990). Empirical approaches have been widely applied, even to relatively well-circumscribed patients such as those with temporomandibular joint disorders (Rudy *et al.*, 1989). However, many of the schemes proposed lack a clear stated purpose which would surely influence their design. For example, quite different approaches might be taken if the primary interest was in unravelling the aetiology, compared to understanding pain pathology. Similarly, different considerations will apply if the purpose of a classification scheme is to identify the patient's need for services, compared to predicting the patient's response to treatment. Classification schemes which are both purposeful and focused may greatly assist pain research and management.

Pain location is likely to remain a major variable in pain patient descriptions and pain classification schemes. However, much greater thought will need to be given to how the painful body sites are described and aggregated. Pain research aims to tease out knowledge from data. Disaggregated data do not allow clear patterns to emerge, but inappropriate aggregation of diverse subjects is likely only to obscure potentially important findings. Deciding whether the aggregation is appropriate or inappropriate needs to be purpose-driven. Therefore, different studies will need different approaches to classifying the answers to 'where does it hurt?'

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