Upper limb pain in primary care: health beliefs, somatic distress, consulting and patient satisfaction

KT Palmera, M Calnanb, D Wainwrightb, C O’Neillb, A Winterbottomb, C Watkinsb, J Poolea and D Coggona

Background. Beliefs and mental well-being could influence decisions to consult about upper limb pain and satisfaction with care.

Objectives. To describe beliefs about upper limb pain in the community and explore associations of beliefs and mental health with consulting and dissatisfaction.

Methods. Questionnaires were mailed to 4998 randomly chosen working-aged patients from general practices in Avon. We asked about upper limb pain, consulting, beliefs about symptoms, dissatisfaction with care, somatizing tendency (using elements of the Brief Symptom Inventory) and mental well-being (using the Short-Form 36). Associations were explored by logistic regression.

Results. Among 2632 responders, 1271 reported arm pain during the past 12 months, including 389 consulters. A third or more of responders felt that arm pain sufferers should avoid physical activity, that problems would persist beyond 3 months, that a doctor should be seen straightaway and that neglect could lead to permanent harm. Consulters were significantly more likely to agree with these statements than other upper limb pain sufferers. The proportion of consultations attributable to such beliefs was substantial. Dissatisfaction with care was commoner in those with poor mental health: the OR for being dissatisfied (worst versus best third of the distribution) was 3.2 (95% CI 1.2–8.5) for somatizing tendency and 2.4 (95% CI 1.3–4.7) for SF-36 score. Both factors were associated with dissatisfaction about doctors’ sympathy, communication and care in examining.

Conclusions. Negative beliefs about upper limb pain are common and associated with consulting. Somatizers and those in poorer mental health tend, subsequently, to feel dissatisfied with care.

Keywords. Consultation, satisfaction, mental health, beliefs, somatization.

Introduction

Non-specific upper limb pain is often considered to have a predominantly psychological or psychosocial basis.1,2 Outbreaks of upper limb pain in occupational groups have occurred and resolved at times when the physical demands of work have changed little, and with no increase in incidence in other workforces conducting similar tasks.3,4 Anecdotally, patients whose upper limb symptoms cannot be explained by clear-cut pathology seem anxious in disproportion to their functional limitations.1,2 Moreover, surveys of pain outside the arm [e.g. low-back pain (LBP)] indicate an association with poor mental health and negative (pessimistic) beliefs about prognosis—both in prospective studies where mental health symptoms precede new-onset pain and in longitudinal studies of clinical course where beliefs and mental illness predict delayed recovery.5

However, there have been few reports on the beliefs of upper limb pain sufferers about causation and prognosis or about the correct response to symptoms.

Received 28 March 2006; Revised 10 July 2006; Accepted 13 September 2006.

aMRC Environmental Epidemiology Resource Centre, University of Southampton, Southampton General Hospital, Southampton SO16 6YD, UK and bMRC Health Services Research Collaboration, Department of Social Medicine, Canynge Hall, Bristol BS8 2PR, UK. Correspondence to Dr Keith Palmer, MRC Epidemiology Resource Centre, Southampton General Hospital, Tremena Road, Southampton SO16 6YD, UK; Email: ktp@mrc.soton.ac.uk
Accounts that exist come from non-peer review sources, including websites and consumer lobbies that may not represent the views of patients as a whole.6,7

A better understanding of such beliefs could prove a useful lead in patient care. By analogy, care for LBP has improved following therapeutic approaches centred on the ‘bio-psychosocial’ model of chronic pain.5 This assumes that fear of pain, non-coping and avoidance of normal activity (fear-avoidance beliefs and behaviours) are risk factors that promote chronicity. Many systematic reviews suggest that the counter approach, of promoting normal activities in spite of pain, hastens recovery from LBP.8 But the role and frequency of potentially maladaptive beliefs in upper limb pain have not been described.

Beliefs about causation and prognosis could also influence decisions to consult and the workload of primary care services. Consultations with upper limb pain are common, so identification of avoidable risk factors could be important in a service already pressed to meet patient expectations.

Finally, beliefs about upper limb pain could affect the interaction suffers have with their carers, their faith in doctors’ skills and their satisfaction with care. In general, British GPs enjoy considerable support from their patients, as shown by two recent large NHS patient surveys: 90% of respondents felt positively about their doctors’ skills, knowledge and attitudes.9 However, patients with upper limb pain may feel less positive, especially if there is a widely shared belief that medical intervention is ineffective. Substantial adverse media publicity about ‘RSI’ could colour perceptions.

Prognosis, response to treatment, health-seeking behaviour and satisfaction may also be influenced importantly by mental well-being, especially by tendency to somatize and depressive illness.10–12 Distressing preoccupation with somatic symptoms is common in primary care13 and over-represented in those with ‘RSI’.1,2,14 Such symptoms predict a poor recovery from LBP15, fibromyalgia16 and musculoskeletal illness referred to physiotherapy services,12 but nothing is known about their impact on attendance patterns, satisfaction with care and recovery in upper limb pain sufferers from primary care.

As part of a broader inquiry, we questioned a sample drawn from general practice about their beliefs on what to do in the event of upper limb pain; and, among those with recent symptoms about its suspected cause(s), whether they had consulted a GP, their faith in their doctor’s skills and satisfaction with aspects of the consultation in which their upper limb pain was discussed. Associations of beliefs and mental health with (a) consulting a GP with upper limb pain and (b) dissatisfaction with the care received over the previous 12 months were explored.

Methods

A total of 4998 subjects aged 24–64 years were selected from the age–sex registers of five general practices in north Somerset and mailed the questionnaire. The practices were chosen to include a mix of large and small partnerships, and to cover urban and rural, and affluent and deprived areas. Within each, a random selection was made within the target age band, with numbers chosen in proportion to list size. Subjects were sent reminder mailings as necessary after 3 and 6 weeks.

The questionnaire, which had been pre-tested for comprehensibility in a small pilot postal survey, asked about pain lasting >1 day during the past 12 months in the upper limb (an area demarcated on a line drawing, Fig. 1). Among those reporting pain, further questions were asked about its duration, its impact on activities of daily living17 and whether it had led to consultation with a GP.

Everyone was asked about the course of action someone should take if affected by upper limb pain (e.g. whether physical activity should be avoided, whether the doctor should be seen straight away at the first sign of trouble, whether neglecting such problems might cause permanent harm). Several items were based on the Fear-Avoidance Beliefs Questionnaire (FABQ), but paraphrased to ensure relevance to arm symptoms, and to enable completion by those with and without symptoms. (The FABQ, which has predictive validity for non-recovery from LBP,18 is designed for completion by patients with back pain.)

Subjects with upper limb pain were asked about its likely cause(s): whether symptoms like this ‘ran in families’; whether they were ‘born with a weakness’; whether such problems were a probable effect of ageing and ‘wear and tear’; and whether the pain had been caused or made worse by work, worsened by stress or caused by lack of exercise. These questions were developed following an exploratory qualitative

![Figure 1](https://academic.oup.com/fampra/article-abstract/23/6/609/556131/1)
study and a general sociological literature review of lay health beliefs. The questions on health beliefs are reproduced in Appendix 1.

Subjects who had seen a GP were asked if they were satisfied with the consultation, and whether the GP was understanding, good at explaining, gave enough information and time, examined thoroughly enough and had the skills and knowledge to treat such problems effectively. These items were adapted from recent national surveys of general practice. Details were collected for everyone on age and sex, social class and employment status. Mental well-being was assessed on two scales: the mental health, mood and vitality subsection of the Brief Symptom Inventory (BSI), and using items on somatizing tendency from the Brief Symptom Inventory (BSI). These scales have been validated and used extensively in other research.

Following an inspection of frequency distributions, age was categorized into 5 year bands, social class into three bands (manual and non-manual, and missing) and employment status into two (working versus not working). Responses to each question from the SF-36 and on somatizing tendency were scored and summed. Three bands were created for each variable, based on approximate thirds of the distribution for total score across all respondents. In addition, two new variables were defined: (i) ‘chronic pain’ (>6 months in the past 12 months) and (ii) ‘disabling pain’ (causing difficulty with sleeping and getting dressed and doing household chores). Beliefs and opinions were originally reported on a five-point Liekart scale; responses were recoded as binary, taking as the positive response any measure of agreement on beliefs (‘agree’ or ‘strongly agree’) and any measure of dissatisfaction with care (‘dissatisfied’ or ‘very dissatisfied’). One of the general practices (practice A) differed substantially from the others in prevalence of chronic and disabling upper limb pain, consulting with arm pain, social class and unemployment rates, so ‘practice’ was treated as a potential confounding variable in two bands (practice A versus others).

Analyses were carried out in STATA (version 7). The whole dataset was used for the descriptive analysis; analysis of associations with consulting focused on those with upper limb pain and analyses of dissatisfaction with care on those who had seen a GP about symptoms during the past 12 months. Finally, analyses concerning perceived work causation were restricted to those who held a job. Frequency tables were prepared to summarize the prevalence of different beliefs and groups of interest compared using a chi-square test, with a two-tailed P-value < 0.05 counted as statistically significant. Associations of interest were explored using logistic regression and summarized as odds ratios (OR) with 95% confidence intervals (95% CI). Potential confounders were assessed by exploring their bivariate associations with exposures (beliefs, somatization and SF-36 scores) and outcomes. Factors that were associated with each (P < 0.10) were included in multivariate logistic regression models.

For consulting behaviour, attributable proportions were estimated, representing the proportion of upper limb pain consultations that potentially might be avoided by changing a negative belief about upper limb pain (or a poor mental health score) into a neutral or positive one, assuming causal relations. The formula of Miettinen, based on adjusted relative risks and proportion of cases (consulters) with exposure, was used.

**Results**

Usable responses were received from 2632 (53%) of those mailed. The non-responders included 73 who had died or moved away; 149 returns with multiple missing values were also excluded. The response rate was similar across practices. In comparison with the age-sex distribution of those mailed and the local health authority area, women were somewhat over-represented among respondents (55 versus 50% and 51%) as were older subjects (47% aged ≥50 years versus 37–38%). Altogether, 1271 respondents reported upper limb pain in the past 12 months, including 389 subjects who had consulted their GP about it.

Table 1 summarizes beliefs about upper limb pain. Overall, a third of respondents agreed that physical activity should be avoided in someone with upper limb pain. A similar proportion felt that such problems were likely to persist beyond 3 months or that it was important to see a doctor at the first sign of trouble. The view that neglecting such problems could lead to permanent harm was expressed even more commonly.

Such views had a similar relative frequency in those with upper limb pain as in those without. However, those who consulted their GP about symptoms were significantly more likely to agree with these statements than those who had pain but did not consult. Of those with upper limb pain who were in work, 53% said that their symptoms had been caused or made worse by their job. Other causes were less often cited, but a quarter agreed that the problem ran in their family and a fifth agreed that it was made worse by stress.

Differences between consulters and non-consulters were less clear-cut regarding causation of symptoms. However, consulters were significantly more likely to invoke stress (P < 0.01) and significantly less likely to invoke lack of exercise or ageing as contributory factors (P < 0.05). Consulters were also more likely than non-consulters to have a high score for somatizing tendency (58.6 versus 43.3% in top band, P < 0.001)
and for SF-36 mental ill-health (48.8 versus 37.8%, \(P < 0.002\)) (Table 2).

The proportion consulting with upper limb pain did not vary significantly by age, sex or social class. However, the odds of consulting were significantly higher among the unemployed (OR 1.9, 95% CI 1.5–2.5), patients from practice A (OR versus others, 2.0, 95% CI 1.3–3.1), those who had pain lasting >6 months (OR 2.3, 95% CI 1.8–3.0) and those who reported upper limb pain as disabling (OR 5.5, 95% CI 4.1–7.4). Employment status, duration of pain, disability from pain and practice were thus used as factors of adjustment.

Table 3 shows univariate and finally adjusted associations of consulting with beliefs and mental health profiles. The latter allow for severity and duration of symptoms, which may be confounding. However, as these could also lie on the causal pathway, such that part of the effect of somatization and SF-36 is mediated through chronicity of symptoms or disability, the unadjusted risk estimates are also provided. The odds of consulting a GP with upper limb pain were significantly higher, even after adjustment, in those who believed that neglect could lead to harm (OR 2.6) and those who felt it important to see a doctor at the first sign of trouble. If associations are causal, and taking the adjusted ORs as a more conservative set of effect estimates, then 36% of consultations with upper limb pain may be attributable to the belief that neglect could lead to harm and 26% to the belief that a doctor should be consulted at the first sign of trouble.
Table 4 records the prevalence of various items of dissatisfaction among patients who consulted their GP for upper limb pain. One-third felt that GPs did not have the skills and knowledge to treat such problems and 12% were dissatisfied overall with the consultation; one-fifth felt that in their last consultation the GP failed to give enough information and a similar proportion felt their examination was not thorough enough; one in seven were dissatisfied with the amount of time, or the explanation received, while 8% felt the GP was not very understanding. About two-thirds expressed no items of dissatisfaction, but 22.3% (95% CI 18.2–26.5%) were dissatisfied with 2 or more items from Table 4 (roughly the top quarter of the distribution), and 3.9% were dissatisfied with all five.

Dissatisfaction, when defined as agreeing or strongly agreeing with 2 or more items from Table 4, showed a significant univariate association with social class (OR 2.0, 95% CI 1.1–3.4 for manual versus non-manual), but it was not associated significantly (P > 0.10) with other potential confounders (age, sex, unemployment, practice or duration and disability from pain).

Table 5 presents, after adjustment for social class, the associations of beliefs and mental health with dissatisfaction, overall and by specific items of dissatisfaction. Those with poor scores on the mental health scales were significantly more likely to be dissatisfied overall and with almost all of the items queried.
particular, a poor mental health score was associated with a perception that the GP was not understanding. There were several other significant associations: workers who blamed work for their symptoms were more likely to be dissatisfied with the thoroughness of their examination (OR 3.5), patients who believed their problem had a familial basis tended to be dissatisfied with the information received (OR 1.9) and those who believed the problem was made worse by stress were dissatisfied with several aspects of care.

Among the small group dissatisfied with all five items queried, associations with poor mental health, although imprecise, were even more striking. The OR for being in the high versus low category for SF36 score was 5.5 (95% CI 0.7–43.2); and that for being in the high versus low category of somatizing tendency (analysed in two bands to preserve sufficient numbers, top third versus the rest) was 6.1 (95% CI 0.8–48.3). Patients with such high levels of dissatisfaction were also far more likely to anticipate a problem in 3 months time (OR 10.8, 95% CI 1.4–83.3).

### Discussion

Negative beliefs of the fear-avoidance kind, and particularly about the consequences of neglect and urgency of consulting, were common in this community sample and showed strong associations with consulting a doctor about upper limb pain independently of the severity and duration of symptoms. Somatizing tendency and SF36-assessed mental health showed little association with consulting but were strongly associated with dissatisfaction, especially dissatisfaction with multiple aspects of care and with the doctor’s sympathy.

In weighing these findings several limitations need to be considered, of which the most important are the incomplete response rate and the cross-sectional design. These raise questions about response and reporting bias, and the causal direction of associations. As almost everyone in Britain is registered with a GP, practice age-sex registers provide a comprehensive sampling frame for community surveys. However, incomplete response could have lead to response bias if those analysed were unrepresentative of those mailed in their beliefs about upper limb pain, or in the associations investigated. To explore this concern, we checked the findings on beliefs and risk factors for consulting and feeling dissatisfied separately for those who responded to the survey at the first invitation and those who needed a reminder (reluctant responders). No important differences were found (data not presented). Moreover, respondents were similar in their age, sex and other demographic characteristics to the sampled population (although no comparison was possible by socio-economic status), and their prevalence of reported symptoms was similar to that in other

<table>
<thead>
<tr>
<th>Belief:</th>
<th>Dissatisfied with (OR, 95% CI)</th>
<th>Dissatisfied with (OR, 95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any items</td>
<td>≥ 2 items</td>
</tr>
<tr>
<td>Activity might harm the arm</td>
<td>0.7 (0.5–1.2)</td>
<td>0.6 (0.3–1.0)</td>
</tr>
<tr>
<td>Still a problem in 3 months</td>
<td>1.2 (0.8–1.9)</td>
<td>1.4 (0.9–2.3)</td>
</tr>
<tr>
<td>Neglect may cause harm</td>
<td>1.1 (0.7–1.7)</td>
<td>1.6 (1.0–2.7)</td>
</tr>
<tr>
<td>Need to see doctor straightway</td>
<td>0.6 (0.4–0.9)</td>
<td>0.7 (0.4–1.2)</td>
</tr>
<tr>
<td>Runs in my family</td>
<td>1.6 (1.0–2.6)</td>
<td>1.5 (0.9–2.6)</td>
</tr>
<tr>
<td>Caused/made worse by work</td>
<td>1.5 (0.9–2.6)</td>
<td>1.9 (1.0–3.6)</td>
</tr>
<tr>
<td>Caused by stress</td>
<td>2.2 (1.3–3.5)</td>
<td>2.0 (1.2–3.3)</td>
</tr>
<tr>
<td>Caused by lack of exercise</td>
<td>1.1 (0.6–2.0)</td>
<td>1.2 (0.6–2.5)</td>
</tr>
<tr>
<td>Effect of ageing</td>
<td>1.2 (0.8–1.8)</td>
<td>1.5 (0.9–2.4)</td>
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<tr>
<td>Somatization score:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Medium</td>
<td>1.8 (0.7–4.2)</td>
<td>1.6 (0.5–4.9)</td>
</tr>
<tr>
<td>High</td>
<td>2.5 (1.2–5.5)</td>
<td>3.2 (1.2–8.5)</td>
</tr>
<tr>
<td>SF36 score:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Medium</td>
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<td>1.6 (0.7–3.4)</td>
</tr>
<tr>
<td>High</td>
<td>2.4 (1.4–4.2)</td>
<td>2.4 (1.3–4.7)</td>
</tr>
</tbody>
</table>

Analysis restricted to those the 389 subjects who consulted a GP about arm pain in the past 12 months. Odds ratios (OR) were adjusted for social class (in three bands).

a Analysis restricted to those in work; excludes 31 subjects with missing employment status.
bExcludes 25 subjects with a missing somatization score.
cExcludes four subjects with a missing SF36 score.
UK-based population surveys,\(^{25,26}\) providing some evidence against important response bias.

An attempt was made to minimize reporting bias in the study’s design. The hypotheses being tested were not advertised and the questions analysed formed only a small part of a broader enquiry. Questions on low back and knee pain were included, both to disguise the primary focus on upper limb pain and to provide comparative information (for analyses not presented here). To this extent, participants were blinded from the questions being addressed.

The cross-sectional design poses difficulty in unambiguous interpretation. As questions about beliefs and mental health were asked after the occurrence of pain and the decision to consult, people’s reporting of these characteristics could have been modified by their experience. Only prospective inquiry can address this concern; but the associations found were independent of the duration of pain or disability and causal associations are plausible a priori. It is not surprising, for example, that those who believe neglect of upper limb pain leads to harm or that early medical intervention is beneficial are more likely to visit a doctor; or that those distressed by non-specific somatic symptoms perceive their doctor to be less interested in their upper limb pain.

Other practice-specific factors may potentially influence dissatisfaction—including facilities, services, consulting arrangements, appointment waiting times and the helpfulness of staff. We did not measure these other aspects directly but tried to allow for them by using the patient’s practice as a factor of adjustment in analysis. The impact was slight, however.

Finally, although care was taken where possible to draw our question panels from suitable models with face and content validity and at least some prior empirical evaluation,\(^{18,19,22,23}\) a degree of caution in interpretation is also warranted. Epidemiological inquiries about beliefs in arm pain sufferers are at an early stage of development and, inevitably, some of our questions were custom-specified. Moreover, assessing the validity of a belief in the absence of a gold standard of truth is challenging. The fact that we found dose-response relations in Tables 3 and 5 provides some reassurance of concurrent validity within the data at hand. But the estimated prevalence of negative beliefs about upper limb pain in the community could be sensitive to the choice of wording in questions, and experience on this is lacking at present.

For similar reasons the consistency of our findings relative to other studies is hard to assess. A search of the Medline and Embase electronic bibliographic databases using key words and medical subject headings for arm/upper limb pain allied with satisfaction, somatization, depression and mental health failed to identify any comparable investigations. More generally, two recent papers by Frosthom et al.\(^{10,11}\) have shown that consulting (for a range of conditions) and satisfaction with care are associated with ‘emotional representations’—a complaint that makes the patient feel worried, depressed, helpless, afraid or hopeless; while somatization is a recognized source of non-specific symptoms that lead to disability and consumption of health care services.\(^{13,27,28}\) Satisfaction with primary care has also been considered for a few selected diseases and several aspects of practice organization (e.g. GP availability, out of hours cover, length of consultations) but not for upper limb pain, or in relation to health beliefs or tendency to somatize. A search on consulting identified only two marginally relevant studies. Badcock et al.\(^{29}\) reported that consulting rates in primary care were higher for neck-shoulder pain if symptoms were disabling or prolonged and, thereafter, were associated with psychological distress; while a Canadian study\(^{30}\) found that consulting frequency was higher when upper limb pain was severe or prolonged. Essentially, therefore, this study breaks new ground.

In doing so it provides several findings with potential relevance to practice and future research. For example, negative beliefs about upper limb pain are common in the community (even under the extreme assumption that all non-responders do not harbour them). Assuming causal associations, the fraction of consultations attributable to such beliefs (and potentially avoidable) is considerable. And if, as seems possible by analogy with LBP, they represent a target for intervention, then a large sea change in beliefs will need to be achieved to benefit this problem. Similar remarks can be made about the tendency to somatize. The stability of such beliefs and tendencies remains to be firmly established, as does their capacity to be altered with therapeutic benefit; but, a small literature suggests that somatizing tendency in primary care patients can fluctuate over time,\(^{31}\) that doctors can be trained to recognize it,\(^{32}\) and that some approaches to intervention offer therapeutic promise.\(^{33-35}\) Moreover, the example of back pain\(^{8}\) encourages the development of randomized controlled trials to assess whether activity within the limits of pain (a strategy to counter fear-avoidance beliefs) improves the prognosis of non-specific arm pain.

The findings on dissatisfaction also carry implications for practice. Levels of dissatisfaction were higher for consultations with upper limb pain than normally found in such GP inquiries\(^{9}\) and most evident for those with a tendency to somatize or poor mental health. ‘Somatizers’ include the ‘worried well’ and ‘heartsink’ patients of general practice,\(^ {36}\) who may be reluctant to accept reassurance over minor illness. One aspect of good communication that GPs need to appreciate in managing patients with such characteristics is their negative views about the doctor’s empathy. Perhaps special effort is required to convey concern, understanding and an interested outward appearance. It is
generally assumed that better satisfaction leads to better compliance and a better outcome, and if so such special effort could well be beneficial.

Acknowledgements

We are grateful to the five general practices from Avon that allowed us to approach their patients and assisted with sampling; also to the patients who participated in the study.

Declaration

**Ethical approval:** NHS South West Local Research Ethics Committee, Reference number E5343.

**Funding:** This project was supported by the MRC Health Services Research Collaboration, Department of Social Medicine, University of Bristol.

**Competing interests:** None.

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Appendix 1: Questionnaire items on beliefs about upper limb pain

 Asked of everyone (whether or not upper limb pain was reported in the past 12 months)

 Q1: Based on your own views and what the doctor or others may have told you about pain in the arm, shoulder, wrists or hands, how strongly do you agree with the following statements? (Please tick the box that most closely reflects how you feel)

  For someone with this problem...

  (a) physical activity might harm the arm
  (b) physical activity should be avoided as it will make the pain worse
  (c) there will be no difficulty in 3 months
  (d) it is important to see the doctor straight away at the first sign of trouble
  (e) neglecting problems of this kind can cause permanent health problems

  Response categories: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree.
  Answers to a) and b) overlapped markedly and were combined; the scoring for item c) was inverted. See text for the subsequent recoding of variables.

 Asked about the current/most recent upper limb pain episode (among those who reported symptoms in the past 12 months)

 Q2: The following statements describe people’s beliefs about their health problems. Please indicate whether you agree or disagree with them in relation to the problems you have had with your shoulder, arm, wrist or hand. (Please tick the box which most closely reflects how you feel)

  (a) Problems like this run in my family
  (b) I think I was born with a weakness or underlying problem in this part of my body
  (c) My problem was caused by work
  (d) Work probably didn’t cause my problem, but it made it worse
  (e) I have a lot of stress in my life and that has made my problem a lot worse
  (f) I think a lack of exercise probably contributed to my problem
  (g) As you get older, parts of the body start to wear out and problems like mine are likely to occur

  Response categories: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree.
  Answers to a) and b) overlapped markedly and were combined; those to c) and d) were combined to conform with the UK Health and Safety Executive’s usual survey definition of problems ‘caused or made worse by work’. [See text for the subsequent recoding of variables]