

A study on back and shoulder pain in a random sample of the Auckland public

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ABSTRACT

Aim

The aim of this study was to examine the prevalence of shoulder and back pain and to explore the treatments given and the providers sought by those with back and shoulder pain.

Methods

A cross-sectional study was undertaken of a random selection of Auckland telephone subscribers in the summer of 2003–04.

Results

The response rate to the survey was 40%. Twenty-three per cent of participants reported pain in both their back and shoulders. Forty-four per cent of participants reported pain in their shoulder(s) and 56% in their backs. The most common forms of treatment for shoulder pain

were massage 36% (65/183), medication 19% (39/183), exercises 19% (34/183) and stretching 21% (35/183). A similar pattern was seen for back pain. Of these interventions only medication is based on research evidence. Ultrasound was almost exclusively used by physiotherapists. Nineteen per cent of those with shoulder pain saw a physiotherapist without a GP as did 11% of those with back pain.

Conclusions

Our findings are consistent with overseas studies showing that back and shoulder pain are common in the general population. Several treatments being used for these conditions lack scientific evidence and physiotherapists are still using ultrasound despite its lack of effectiveness. GPs still seem to be 'gatekeepers' for these two conditions.

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Introduction

Shoulder pain is a common source of reported musculoskeletal pain. Two cross-sectional surveys based on patients registered with general practices recorded a prevalence of 11.7% and 15% respectively.^{1,2} A community survey of back and shoulder pain in Holland found 26.9% of the group had back pain and 20.9% had shoulder pain.⁴ It is surprising that the community survey was higher than the general practice sample. A study in Switzerland found a 20.2% 12 month prevalence of back pain in young men.³ These figures will differ according to level of severity. Whatever the true figures there is potentially a considerable amount of morbidity.

Research questions

1. What is the prevalence of back and shoulder pain in a random sample of the public living in Auckland?
2. What proportion of the public who have back and shoulder pain are currently getting treatment for their back and shoulder pain?

Methods

The questionnaire was developed in the second semester of 2003. The inclusion criteria were any adult member of the public aged 16 years or over without inflammatory arthritis. This age was chosen as it is the age at which an individual can consent to participating in a survey. A random selection of pages from the

Auckland telephone directory 2003 was undertaken using the random function in the Excel software programme. The first name on each page was chosen unless it was a business address. The interviewers were instructed to call the number. If it were no longer in order they were advised to take the next name on the page. If there was no answer on the first call, three more calls were made to the number on different days of the week and at different times of the day. When the telephone was answered the interviewers asked if they could speak with the person whose birthday was next. A sample size of between 400 and 500 was chosen as this number was within the resources of the study.

Results

The interviews were conducted during the summer of 2003–04 by two students who contacted 1055 members of the public randomly selected from the Auckland telephone directory 2003. Of these, 419 agreed to an interview, representing 40% of the sample approached (Table 1). All the following comments relate to the 419 (or otherwise stated) respondents. Of the respondents, 23% reported pain in both their back and shoulders. Twenty-six per cent reported pain in one or both shoulders in the past month and 44% in the past 12 months (Table 2). Fifty-six per cent of participants reported pain in their back in the past 12 months.

The range of ages of the participants was 17–90 and the mean age was 50 years. Twenty-one per cent had a Community Services Card and 71% reported their ethnicity as New Zealand European, 11% as Maori and 3% Pacific. Twenty per cent of the group were current smokers and 53% had tertiary education. The percentage with shoulder pain due to an accident ($n=183$) was 43% (Table 2). Of those who had an accident, 55 (71%) made a claim to the Accident Compensation Corporation (ACC). Thus 30% (55/183) of those with shoulder pain made a claim to ACC. Of those with back pain due to an accident, 68% made a claim to ACC.

Less than half of those with shoulder pain saw a general practitioner (GP) (47%) or physiotherapist (42%). GPs and physiotherapists were the providers seen most often (Table 3). Of the 86 who saw a GP, 43 saw this provider only and 43 also saw a physiotherapist. Thirty-four persons (19% of those with shoulder pain) saw a physiotherapist without seeing a GP. Of the participants who had physiotherapy, 38 of 77 (49%) had lodged an ACC claim compared with five of 11 for chiropractic treatment (i.e. five saw a chiropractor with an ACC claim and 11 without). Figures for osteopaths were three of seven and acupuncturists three of three. Six participants (3% of those with shoulder pain) saw a chiropractor without

Table 1. Descriptors of respondents. [Results n =numerator and N = denominator and % = n/N unless for mean and standard deviation (sd)]

Descriptors of study group $N=419$	n	%
Responded yes ($N=1055$)	419	40%
Declined	636	60%
Unable to be contacted	220	
Male	180	43.8%
Mean age and standard deviation	50	18
Range of age	17	90
Community Services Card	90	21%
Ethnicity New Zealand European	297	71%
Ethnicity Maori	47	11%
Ethnicity Pacific	11	3%
Ethnicity other	64	15%
Smoking		
Smoker	80	20%
Ex-smoker	47	11%
Non-smoker	276	66%
Diabetes	25	6%

Table 2. Shoulder and back pain in past 12 months.

Issue	n	%
Pain in one or both shoulders in past 12 months ($N=419$)	183	44%
Shoulder pain 0 = none 10 = worst ($n=156$ mean/sd)	5.9	2.3
Limitation of shoulder movement as above ($n=57$ mean/sd)	2.7	2.8
Was shoulder movement limited >30 days in past year?	88	48%
Was the pain or limitation of movement due to an accident?	78	43%
Did you make a claim for this accident to your shoulder?	55	71%
Pain in back for past 12 months ($N=419$)	234	56%
Pain in back for more than 30 days in total in the last year	126	54%
Back pain is the result of an accident	53	23%
Claim to ACC for back pain ($N=53$)	36	68%

seeing a GP. Of the 114 who saw a GP, 66 saw the GP alone for back pain and 48 were seen by a GP and physiotherapist (Table 4). Twenty-seven participants (11% of those with back pain) saw a physiotherapist alone. Of the 75

who saw a physiotherapist, 26 of 75 (35%) had made an ACC claim. Of the 42 who saw a chiropractor, six (14%) had made an ACC claim.

Table 3 reports treatments for shoulder and back pain and activities.

In terms of treatments the commonest forms of treatment for shoulder pain were massage 36% (65/183), medication 19% (39/183), exercises 19% (34/183) and stretching 21% (35/183). Five individuals received shoulder injections. Three of these had an ACC claim. Of the 18 participants who had ultrasound as a treatment, all had seen a physiotherapist. Massage, manipulation and medication were the most common forms of treatment for back pain. Of the 43 participants who had manipulation, 26 had seen a GP, 24 a physiotherapist and 28 a chiropractor. The questionnaire did not ask who had performed the manipulation. Of the 22 who had had ultrasound treatment for their back pain, 20 had seen a physiotherapist. Thirteen participants (7% of those with back pain) saw a chiropractor without seeing a GP.

More people with shoulder pain had difficulty with their sleep (45%) than they did with driving (22%) (Table 5). A similar situation occurred for back pain with 47% reporting difficulty with sleep and 29% with driving.

Prevention for shoulder and back pain is the subject of Tables 6 and 7. The majority of the sample was in paid work. Most participants (81%) did not take time off work for their shoulder pain. Of those who took time off work, 44% (15/34) made an ACC claim, while of those who did not take time off work only 20% (31/149) made an ACC claim ($p = 0.004$). Fifty-five per cent of those who had shoulder pain had received instruction on how to prevent shoulder injury. For twenty-two per cent of those with shoulder pain this was done through their work, while 30% got this through other sources. Of the 183 with shoulder pain, 30 participants received this information through their physiotherapist and seven through their GP. Twenty-six per cent had this instruction after they had their shoulder problem and 22% before. A majority of participants (70%) did not take time off work for their back pain. Of the 34 who took time off work, nine (26%) had made an ACC claim. Of those who did not take time off work, 27 of 234 (11%) made an ACC claim. When ana-

Table 3. Treatment for shoulder pain in past 12 months.

Issue (not mutually exclusive) N = 183	n	%
Who did you see for your shoulder pain?		
GP	86	47%
Surgeon	7	4%
Physio	77	42%
Chiropractor	16	9%
Osteopath	10	5%
Acupuncturist	6	3%
Sports physician	9	5%
Other	4	2%
What sort of treatment did you get for your shoulder pain?		
Massage	65	36%
Stretching	35	19%
Ultrasound	18	10%
Heat	13	7%
Manipulation	20	11%
Medication	39	21%
Shoulder injection	5	3%
Acupuncture	9	5%
Relaxation	2	1%
Exercises	34	19%

Table 4. Treatment for back pain in past 12 months.

Issue (not mutually exclusive) N= 234	n	%
Who did you see for your back pain?		
GP	114	49%
Surgeon	10	4%
Physio	75	32%
Chiropractor	42	18%
Osteopath	12	5%
Acupuncturist	7	3%
Sports physician	3	1%
Other	14	6%
What sort of treatment did you get for your back pain?		
Massage	64	27%
Stretching	35	15%
Ultrasound	22	9%
Heat	13	6%
Manipulation	43	18%
Medication	68	29%
Acupuncture	13	6%
Relaxation	3	1%
Exercises	32	14%
Other	18	7%

lysed using chi-squared analysis the p value was 0.017. Seventy per cent of those with back pain had received instruction on how to prevent back pain. Forty-seven obtained this instruction through their work and 108 from other sources. The largest other source was physiotherapists for 39 participants, 22 from their GP, four through ACC pamphlets and 13 through television advertisements. Nineteen individuals cited general knowledge as their source.

Discussion

The response rate of 40% for this study was lower than expected and may reflect the requirement from the ethics committee to state that the questionnaire was about shoulder and back pain. The interviewers reported that participants seemed more likely to agree if they had either shoulder or back pain. This may invalidate the absolute numbers. However, there is still valuable information in the subgroup analyses. The low proportion of participants describing themselves as Pacific ethnicity may be a function of this being a telephone survey, as it is known that Pacific families are less likely to have a telephone or are cautious about answering 'official questionnaires' [personal communication C Tukuitonga]. The fact that 43% of those with shoulder pain had had an injury is consistent with the known history of shoulder pain. That is, it is increasingly common in older persons due to 'wear and tear' rather than from an injury.⁵ The prevalence of shoulder pain in the past month in a study from Finland⁶ was 28%, slightly higher than our figure of 26%. In the Finnish study this figure varied by age from about 12 % in women aged 30–34 to 45% in males aged 60–64. In a Dutch study the 12-month prevalence was 30.3% compared with our 56%.⁴

The prevalence of back pain (lasting 30 days or more) obtained from interviews for a cardiovascular project in Switzerland was highest among those aged 65–70 years and was 17% and 27% in men and women respectively.

Table 5. General issues regarding shoulder & back pain in past 12 months.

Issue N = 183	n	%
Shoulder pain interfered with ability to sleep	83	45%
Shoulder pain interfered with ability to drive	41	22%
Issue N = 234	n	%
Back pain interfered with ability to sleep	109	47%
Back pain interfered with ability to drive	69	29%

Table 6. Prevention for shoulder pain in past 12 months.

Issue N = 183	n	%
Have you ever had instruction on how to prevent shoulder injury	100	55%
When was this instruction		
0–1 month	14	8%
1–11 months	36	20%
1–5 years ago	24	13%
>5 years	13	7%
Was this instruction through		
work	40	22%
other	55	30%
Was this instruction before or after you shoulder problem?		
before	40	22%
after	47	26%

Table 7. Prevention for back pain in past 12 months.

Issue N=234	n	%
Have you ever had instruction on how to prevent back pain?	164	70%
When was this instruction?		
0–1 month	21	9%
1–11 months	38	16%
1–5 years ago	43	18%
>5 years	48	21%
Was this instruction through?		
work	47	20%
other	108	46%
Was this instruction before or after your back problem?		
before	41	18%
after	43	18%

This was considerably lower than our value of 54% and reflects the comments on response rates above. However a Dutch study reported a 12-month prevalence of back pain as 43.9%.⁴

The range of providers was expected, with GPs and physiotherapists being the main providers. Of interest was the fact that half of the participants who had seen a physiotherapist did so without also seeing a GP. We had not expected such a high rate of self-referral. Of those who saw a physiotherapist, about 50% had made a claim for accident compensation and this proportion was similar to those who saw other providers. Only seven participants saw a surgeon and it was thought that this group was too small for detailed analysis. The range of treatments was of concern. Medication, exercises and massage were the most common forms of therapy and of these only medication in the form of non-steroidal anti-inflammatory drugs and corticosteroid injections have been shown to be effective for shoulder pain. Ten per cent of the group had ultrasound on their shoulders and this treatment has not been shown to be effective in other parts of the body. The number of individuals who found that the pain interfered with their sleep was high at 45% of those with shoulder pain and 47% of those with back pain. Providers need to take this into consideration when treating people with shoulder and back pain. The two most common activities limiting those with shoulder pain were heavy housework (7%) and carrying a bag (7%). The presumption here is that participants seem to adapt to their pain in terms of their daily activities. Of those with shoulder pain,

only five had taken more than one week off work.

We were surprised at the number of individuals who had been given instruction on how to prevent shoulder injury, which was 55% of those with shoulder pain. This was, however, lower than the 70% of those with back pain who had received instruction. The interesting feature was that there was more instruction outside of the workplace than in the workplace, suggesting some community awareness of this issue. That individuals were more likely to get this instruction after their shoulder problem is less promising.

Our finding of 54% of participants reporting more than 30 days of back pain in the past year was similar to that in one region of Switzerland (men 44.5% and women 49.6%)³ and in a Dutch study (43.9%).⁴ The Swiss comparison is important as their values for back pain were obtained from a cardiovascular disease survey and hence unlikely to attract those with musculoskeletal pain. The Dutch study on the other hand appears to focus on musculoskeletal pain. The proportion of those with back pain who claimed for an accident (68%) was very similar to that for shoulder injury (71%). Participants were more likely to see a chiropractor (18%) for their back pain than for shoulder pain (9%). This is understandable as manipulation for back pain is considered more mainstream than manipulation for shoulder pain. The proportion of other providers was very similar except for physiotherapy (physiotherapy 32% for back versus 42% for shoulders). The assumption here would be that the 10% difference is due to those wanting 'manipulation' and hence seeking out a

chiropractor. The fact that only 19% of those with shoulder pain and 11% of those with back pain saw a physiotherapist without a GP suggests that GPs are still providing a gatekeeping role in terms of referring patients on.

In terms of treatments for back pain, the concerns are similar to those for treatments of shoulder pain. Sources of scientific evidence suggest that the effectiveness of ultrasound, heat, massage and acupuncture (which may have been given to 48% of those with back pain, noting that participants could state multiple treatments) is unknown.^{7,8}

Recommendations for future work

A larger study under the guise of a general health questionnaire would have the advantage of greater statistical power and create less concern about preferentially enrolling individuals with musculoskeletal pain. A larger sample size would enable comparisons of those with long-term time off work and information about surgery. The number of participants in this study who saw a surgeon was too small to enable any meaningful analysis. It may also be of interest to include information on what treatments individuals had received from multiple providers. This could clarify the gatekeeping role of GPs. Information on the multiple treatments given by individual providers, including a section on radiological investigations, would also be of interest.

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