

A population study of factors associated with general practitioner consultation for non-inflammatory musculoskeletal pain

Kåre B Hagen, Arild Bjørndal, Till Uhlig, Tore K Kvien

Abstract

Objective—To investigate factors associated with visiting a general practitioner (GP) for non-inflammatory musculoskeletal pain, and to examine whether these factors were affected by duration (chronic *v* non-chronic) or location (widespread *v* regional) of pain.

Methods—From a cross sectional postal survey of 20 000 (response rate 59%) randomly selected adults in two counties of Norway, 6408 subjects who had experienced musculoskeletal pain during the past month were included. Patients who reported inflammatory rheumatic diagnoses made by a doctor were excluded.

Results—2909 (45%) had consulted a GP for their musculoskeletal pain during the past 12 months. The odds of consulting were significantly increased by being a woman, by having a higher age and lower education, and by being a pensioner or on sick leave. Patients with widespread pain were more likely to consult than those with regional pain, as were patients with chronic compared with non-chronic pain. Greater than median pain intensity was the factor most prominently associated with consultation for men (odds ratio (OR)=2.4; 95% confidence interval (95% CI) 2.0 to 2.9) and for women (OR=2.6; 95% CI 2.3 to 2.9). Overall, consultation was significantly associated with mental distress for women but not for men. Subgroup analyses showed that consultation for chronic pain was significantly associated with greater than median mental distress for both women (OR=1.3; 95% CI 1.1 to 1.6) and men (OR=1.2; 95% CI 1.0 to 1.4), whereas consultation for non-chronic pain was not.

Conclusion—The results show that about half of the patients with musculoskeletal pain consult a general practitioner (GP) each year, that demographic factors are associated with consulting, and that the role of mental distress for consulting a GP varies with duration of pain.

(*Ann Rheum Dis* 2000;59:788–793)

Pain from the musculoskeletal system is a common and expensive health problem in most of the Western world. In a population survey in two counties in Norway we found that as many as 60% of the respondents had had musculoskeletal pain during the past month.¹ After we excluded those with self reported inflammatory

rheumatic diagnoses, 54% were classified as having non-inflammatory musculoskeletal pain. In addition to reducing the quality of life for the person, non-inflammatory musculoskeletal pain is among the most common reasons for primary healthcare consultation,^{2 3} and an important cause of absence from work and early retirement with disability pension.^{4–6}

In most healthcare systems in the Western world, patients with musculoskeletal pain first consult primary care medicine, most often a general practitioner (GP). A problem in management of and research on non-inflammatory musculoskeletal pain is diagnostic classification. Symptoms are a core element in classification of musculoskeletal and other disorders seen in primary care.⁷ For musculoskeletal symptoms, specifically, classification systems are often based on anatomical location or duration of the symptoms, or both.^{8 9}

The years 2000–10 have been designated as the “Decade of the bone and joint” by a wide variety of international professionals, scientific, and patient organisations with the support of the World Health Organisation. One of the initial activities will be a health needs’ assessment for musculoskeletal disorders. Although some attention has been given to healthcare research for inflammatory rheumatic diseases, degenerative joint diseases, and low back pain, population-based studies on consultation behaviour for a broader range of non-inflammatory musculoskeletal pain are limited.

The objective of this study was to investigate factors associated with consulting a GP in adults with non-inflammatory musculoskeletal pain, and to examine whether such factors were affected by pain duration (chronic *v* non-chronic) or location (widespread *v* regional).

Materials and methods

SUBJECTS

A four page postal questionnaire was sent to 20 000 randomly selected subjects aged between 20 and 79 years in two counties in Norway (Oslo and Nordland). The survey was administered by Statistics Norway and approved by the regional ethical committee and by the data inspectorate. After one reminder, 11 780 (59%) subjects had answered the questionnaire. For this study only the 6408 subjects (54%) who answered that they had experienced non-inflammatory musculoskeletal pain during the past month were included. The 4718 respondents (40%) who did not report any musculoskeletal pain during the past month, and the 654 (6%) who reported an

Department of
Population Health
Sciences, National
Institute of Public
Health, Oslo, Norway
K B Hagen
A Bjørndal

Oslo City Department
of Rheumatology,
Diakonhjemmet
Hospital, N-0319 Oslo,
Norway
T Uhlig
T K Kvien

Correspondence to:
Dr Kåre B Hagen, Health
Services Research Unit,
Department of Population
Health Sciences, National
Institute of Public Health,
PO Box 4404, Torshov,
N-0403 Oslo, Norway
Email kare.birger.hagen@
folkhelsa.no

Accepted for publication
7 March 2000

inflammatory rheumatic diagnosis made by a doctor were excluded from this study. The localisation of non-inflammatory musculoskeletal pain included three response categories: neck/shoulders (neck pain), back/legs (low back pain), and almost all over (widespread pain). For this study, neck and low back pain were categorised as “regional pain”. The respondents who answered that they had experienced “pain almost all over” or experienced both neck pain and low back pain were categorised as “widespread pain”. Thus “widespread pain” was defined as presence of pain in both upper and lower parts of the body.

VARIABLES

We classified respondents who answered yes to the question “Have you consulted a general practitioner for your musculoskeletal pain during the past 12 months?” as consulters.

Explanatory variables were grouped by prognostic factors (table 1), modified from Andersen’s behavioural model of health service use.¹⁰ Predisposing factors included demographic characteristics (area of residence, sex, age, level of formal education, and employment status), daily smoking, and amount of regular exercise.

Table 1 Explanatory variables grouped by prognostic factors, and numbers (%) in each response category

Factor	No* (%)
<i>Predisposing</i>	
County	
Oslo	3072 (49)
Nordland	3192 (51)
Sex	
Men	2752 (44)
Women	3501 (56)
Age	
20–34	1889 (30)
35–49	2037 (32)
50–64	1349 (22)
65–79	989 (16)
Education	
Elementary school	2112 (34)
College	2350 (37)
University	1802 (29)
Employment status	
Working/student	3818 (64)
Homemaker	440 (7)
Unemployed	327 (6)
Pensioner†/sick leave	1404 (23)
Daily smoking	
No	3925 (63)
Yes	2271 (37)
Regular exercise	
≥2 sessions a week	2740 (44)
≤1 sessions a week	3448 (56)
<i>Perceived need</i>	
Chronicity	
Non-chronic	1057 (17)
Chronic	5162 (83)
Location of pain	
Regional	4276 (68)
Widespread	1988 (32)
Pain intensity	
≤Median (1.0)	4507 (73)
>Median	1657 (27)
Disability (MHAQ‡)	
≤Median (1.0)	3335 (53)
>Median	2929 (47)
<i>Psychosocial</i>	
Mental distress (SCL-5‡)	
≤Median (1.2)	3418 (55)
>Median	2846 (45)

*No does not add up to 6408 because data were missing for some subjects.

†Includes both disability and age pensioners.

‡MHAQ = Modified Health Assessment Questionnaire; SCL-5 = symptom check list.

Among the “perceived need factors”, intensity and duration of musculoskeletal pain were assessed on ordinal rating scales. Duration of pain included six categories: <1 month, 1–3 months, 4–11 months, 1–2 years, 3–5 years, >5 years, and was classified as non-chronic (<1 month to 3 months) or chronic (4 months or more). Intensity of pain included five response categories: no, weak, moderate, severe, very severe. Disability was assessed using the Modified Health Assessment Questionnaire (MHAQ),^{11,12} which is a shortened version of the original 20 item Health Assessment Questionnaire.¹³ In eight questions the responses to “are you able to do...” were scored 1 (without any difficulty) to 4 (unable to do). The mean total difficulty score (MHAQ score, range 1–4) was calculated when at least six of the eight questions had been answered.

The levels of mental distress were obtained from a validated short version of a symptom checklist (SCL-5).¹⁴ The SCL-5 comprises five questions, and responses are scored from 1 (not bothered or distressed at all) to 4 (very much bothered). The questions are phrased as follows: “During the last month, have you been bothered with” ... 1 “Feeling fear?”, ...2 “Nervousness or shakiness?”, ...3 “Feeling hopeless about the future?”, ...4 “Feeling depressed?”, ...5 “Worrying too much about things?”

STATISTICS

The association between prognostic variables and consulting was analysed with logistic regression models using a computerised package of Statistical Analyses System (SAS version 6.12). Firstly, the association with consultation for each variable was examined separately by logistic regression analyses, and estimated with crude (unadjusted) odds ratios (OR) and 95% confidence intervals (95% CI). Variables with p values of >0.25 in these analyses were not included in the multiple logistic regression models. A check on two-way interactions was made. As the association between consultation and some of the explanatory variables was different in men and women—that is, significant interactions between sex and other variables, men and women were analysed separately. When the different subgroups of pain were compared (chronic v non-chronic and widespread v regional) the predisposing variables that were associated (p<0.25) with consulting were combined and entered in the multiple logistic regression model together with the perceived need and psychosocial factors.

Results

As previously reported, the one month prevalence of “regional pain” (neck/shoulder or low back pain) was 37% (n=4366), while 2042 patients (17%) reported “widespread pain”.¹ Among the 6408 respondents who had experienced non-inflammatory musculoskeletal pain, 2909 (45% (95% CI 44% to 47%)) had consulted a GP for their musculoskeletal pain during the past 12 months, 3357 (52%) reported that they had not consulted a GP, while 142 (2%) did not respond to this question. Consulting was more common

Table 2 Number (%), crude and adjusted odds ratios (OR) with corresponding 95% confidence intervals (95% CI) and p values, for consulting a general practitioner during the past 12 months in women with non-inflammatory musculoskeletal pain (n=3501)

Factor	No (%) consulting	Crude OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
<i>Predisposing</i>					
County			0.786		
Oslo	876 (49)	1.0			
Nordland	850 (50)	1.0 (0.9 to 1.2)			
Age			<0.001		0.007
20–34	435 (39)	1.0		1.0	
35–49	548 (50)	1.5 (1.3 to 1.8)		1.3 (1.1 to 1.6)	
50–64	411 (58)	2.1 (1.7 to 2.6)		1.4 (1.1 to 1.8)	
65–79	332 (58)	2.1 (1.7 to 2.6)		1.0 (0.7 to 1.4)	
Education			<0.001		0.091
Elementary school	704 (57)	1.0		1.0	
College	619 (48)	0.7 (0.6 to 0.9)		0.9 (0.7 to 1.3)	
University	403 (41)	0.5 (0.4 to 0.7)		1.0 (0.8 to 1.2)	
Employment status			<0.001		<0.001
Working/student	838 (43)	1.0		1.0	
Homemaker	209 (50)	1.3 (1.1 to 1.7)		1.3 (1.0 to 1.5)	
Unemployed	56 (41)	0.9 (0.6 to 1.3)		0.9 (0.7 to 1.4)	
Pensioner*/sick leave	523 (64)	2.4 (2.1 to 2.9)		2.2 (1.7 to 2.7)	
Daily smoking			0.501		
No	1069 (49)	1.0			
Yes	628 (50)	1.0 (0.8 to 1.1)			
Regular exercise			0.671		
≥2 sessions a week	763 (50)	1.0		1.0	
≤1 sessions a week	963 (49)	1.0 (0.9 to 1.2)		1.0 (0.9 to 1.2)	
<i>Perceived need</i>					
Chronicity			<0.001		0.102
Non-chronic	(39)	1.0		1.0	
Chronic	1507 (51)	1.7 (1.4 to 2.0)		1.2 (1.0 to 1.5)	
Location of pain			<0.001		<0.001
Regional	955 (42)	1.0		1.0	
Widespread	771 (61)	2.2 (1.9 to 2.5)		1.4 (1.2 to 1.7)	
Pain intensity			<0.001		<0.001
≤Median (1.0)	1044 (41)	1.0		1.0	
>Median	682 (72)	3.6 (3.1 to 4.2)		2.6 (2.3 to 2.9)	
Disability (MHAQ†)			<0.001		<0.001
≤Median (1.0)	749 (40)	1.0		1.0	
>Median	979 (60)	2.3 (2.0 to 2.6)		1.5 (1.3 to 1.7)	
<i>Psychosocial</i>					
Mental distress (SCL-5†)			<0.001		0.001
≤Median (1.2)	812 (45)	1.0		1.0	
>Median	914 (53)	1.4 (1.2 to 1.6)		1.3 (1.2 to 1.7)	

*Includes both disability and age pensioners.

†MHAQ = Modified Health Assessment Questionnaire; SCL-5 = symptom check list.

among women (48%) than men (42%). As shown in tables 2 and 3, all included variables, except for area of residence, smoking status, and amount of regular exercise, were significantly associated with consulting for both sexes. Multivariate analyses disclosed that among the predisposing factors, the odds of consulting were significantly increased by having a higher age, by having a lower degree of formal education, and by being a pensioner or on sick leave. For both men and women pain intensity was the factor most prominently associated with consulting, adjusted OR=2.4 and 2.6, respectively. Also, patients with widespread pain were more likely to consult than those with regional pain, as were those with a greater than median MHAQ score. As shown in the right hand columns of tables 2 and 3, mental distress was not significantly associated with consulting in men, while chronicity was not significantly associated with consulting in women.

Subgroup analyses showed that for chronic pain, the level of mental distress was significantly associated with consulting in both sexes, while consulting for non-chronic pain was not (table 4). Level of mental distress was significantly associated with consulting for both regional and widespread pain in women, but not in men (table 5).

Discussion

This study showed that about half of those who reported non-inflammatory musculoskeletal pain had consulted a GP during the past year. Pain intensity was the factor most prominently associated with consultation. Mental distress was significantly associated with consultation for chronic pain, and more so for women than for men.

Even though this study provides information about consultation behaviour in a large general population, it has several limitations. As the time sequence in a cross sectional survey cannot be established, the significant associations found in this study may not be causal. The present results can therefore only be considered as generating a hypothesis, and should be tested by following up subjects prospectively. We also used shortened instruments to obtain data on levels of mental distress and disability (SCL-5 and MHAQ) because the original questionnaires (SCL and HAQ) were considered too extensive for a population survey. The scores of the SCL-5 and MHAQ had distributions skewed to the left, and are probably insensitive to lower levels of mental distress and disability. The association between consulting and disability and mental distress may therefore be underestimated in this study. Even if pain, disability, and mental distress

Table 3 Number (%), crude and adjusted odds ratios (OR) with corresponding 95% confidence intervals (95% CI) and p values, for consulting a general practitioner during the past 12 months in men with non-inflammatory musculoskeletal pain (n=2752)

Factor	No (%) consulting	Crude OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
<i>Predisposing</i>					
County			0.930		
Oslo	549 (43)	1.0			
Nordland	628 (43)	1.0 (0.9 to 1.2)			
Age			<0.001		0.002
20-34	275 (35)	1.0		1.0	
35-49	423 (46)	1.5 (1.3 to 1.9)		1.5 (1.2 to 1.9)	
50-64	280 (44)	1.4 (1.2 to 1.8)		1.2 (0.9 to 1.5)	
65-79	199 (48)	1.7 (1.3 to 2.2)		1.0 (0.7 to 1.5)	
Education			<0.001		0.016
Elementary school	412 (48)	1.0		1.0	
College	458 (43)	0.8 (0.7 to 1.0)		0.8 (0.6 to 0.9)	
University	307 (37)	0.7 (0.5 to 0.8)		1.0 (0.8 to 1.2)	
Employment status			<0.001		<0.001
Working/student	730 (39)	1.0		1.0	
Homemaker	7 (35)	0.8 (0.3 to 2.1)		0.7 (0.3 to 2.0)	
Unemployed	64 (34)	0.7 (0.5 to 1.0)		0.6 (0.4 to 0.8)	
Pensioner*/sick leave	332 (56)	2.2 (1.7 to 2.8)		1.8 (1.3 to 2.4)	
Daily smoking			0.431		
No	723 (42)	1.0			
Yes	438 (44)	1.1 (0.9 to 1.2)			
Regular exercise			0.296		
≥2 sessions a week	527 (44)	1.0			
≤1 sessions a week	650 (42)	0.9 (0.7 to 1.2)			
<i>Perceived need</i>					
Chronicity			<0.001		0.014
Non-chronic	(35)	1.0		1.0	
Chronic	991 (45)	1.5 (1.2 to 1.8)		1.3 (1.1 to 1.6)	
Location of pain			<0.001		<0.001
Regional	781 (39)	1.0		1.0	
Widespread	396 (54)	1.9 (1.6 to 2.2)		1.5 (1.3 to 1.9)	
Pain intensity			<0.001		<0.001
≤Median (1.0)	747 (36)	1.0		1.0	
>Median	430 (61)	2.8 (2.3 to 3.3)		2.4 (2.0 to 2.9)	
Disability (MHAQ†)			<0.001		0.002
≤Median (1.0)	522 (36)	1.0		1.0	
>Median	655 (50)	1.8 (1.6 to 2.1)		1.3 (1.1 to 1.5)	
<i>Psychosocial</i>					
Mental distress (SCL-5‡)			<0.001		0.098
≤Median (1.2)	652 (40)	1.0		1.0	
>Median	525 (47)	1.3 (1.1 to 1.5)		1.1 (0.9 to 1.4)	

*Includes disability and age pensioners.

†MHAQ = Modified Health Assessment Questionnaire; SCL-5 = symptom check list.

Table 4 Relation between consulting a general practitioner during the past 12 months and predisposing, perceived need, and psychosocial factors in men and women with non-inflammatory chronic and non-chronic musculoskeletal pain estimated with odds ratios (OR) and 95% confidence intervals (95% CI) in multiple logistic regression analyses

Factor	Chronic pain*(n=4967)				Non-chronic pain*(n=1014)			
	Men (n=2150)		Women (n=2817)		Men (n=497)		Women (n=517)	
	OR (95% CI)	p Value	OR (95% CI)	p Value	OR (95% CI)	p Value	OR (95% CI)	p Value
<i>Predisposing</i>								
Age		0.003		<0.001		0.008		0.005
20-34	1.0		1.0		1.0		1.0	
35-49	1.4 (1.1 to 1.7)		1.4 (1.2 to 1.8)		2.1 (1.3 to 3.4)		1.4 (0.9 to 2.2)	
50-64	1.1 (0.9 to 1.5)		1.6 (1.2 to 2.0)		1.2 (0.6 to 2.2)		1.9 (1.0 to 3.5)	
65-79	0.8 (0.6 to 1.2)		1.2 (0.8 to 1.6)		1.0 (0.4 to 2.7)		0.4 (0.2 to 0.9)	
Education		0.019		0.001		0.125		0.583
Elementary school	1.0		1.0		1.0		1.0	
College	0.7 (0.6 to 0.9)		0.8 (0.6 to 0.9)		0.7 (0.4 to 1.2)		0.8 (0.6 to 0.9)	
University	0.9 (0.7 to 1.2)		1.0 (0.8 to 1.2)		1.0 (0.6 to 1.8)		1.0 (0.8 to 1.2)	
Employment status		<0.001		<0.001		0.012		0.005
Working/student	1.0		1.0		1.0		1.0	
Homemaker	0.6 (0.2 to 1.8)		1.3 (1.0 to 1.7)		2.2 (0.3 to 16.5)		1.2 (0.7 to 2.0)	
Unemployed	0.7 (0.5 to 1.0)		1.1 (0.7 to 1.6)		0.7 (0.3 to 1.7)		0.4 (0.2 to 1.2)	
Pensioner‡/sick leave	2.2 (1.6 to 2.8)		2.2 (1.7 to 2.8)		3.0 (1.4 to 6.2)		3.3 (1.5 to 7.0)	
<i>Perceived need</i>								
Pain intensity		<0.001		<0.001		0.001		<0.001
>Median	2.5 (2.1 to 3.1)		2.6 (2.1 to 3.1)		2.2 (1.4 to 3.4)		3.4 (2.0 to 5.7)	
Disability (MHAQ‡)		0.002		<0.001		0.109		0.001
>Median	1.3 (1.1 to 1.6)		1.5 (1.3 to 1.8)		1.4 (0.9 to 2.0)		1.9 (1.3 to 2.9)	
<i>Psychosocial</i>								
Mental distress (SCL-5‡)		0.041		<0.001		0.834		0.257
>Median	1.2 (1.0 to 1.4)		1.3 (1.1 to 1.6)		1.0 (0.7 to 1.5)		1.3 (0.9 to 1.8)	

*n does not add up to 6408 because data are missing for some subjects.

†Includes disability and age pensioners.

‡MHAQ = Modified Health Assessment Questionnaire; SCL-5 = symptom check list.

Table 5 Relation between consulting a general practitioner during the past 12 months and predisposing, perceived need, and psychosocial factors in men and women with non-inflammatory regional and widespread musculoskeletal pain estimated with odds ratios (OR) and 95% confidence intervals (95% CI) in multiple logistic regression analyses

Factor	Regional pain*(n=4105)				Widespread pain*(n=1876)			
	Men (n=1948)		Women (n=2157)		Men (n=699)		Women (n=1177)	
	OR (95% CI)	p Value	OR (95% CI)	p Value	OR (95% CI)	p Value	OR (95% CI)	p Value
<i>Predisposing</i>								
Age		<0.001		0.022		0.076		0.009
20–34	1.0		1.0		1.0		1.0	
35–49	1.4 (1.1 to 1.8)		1.3 (1.0 to 1.6)		1.8 (1.1 to 2.7)		1.7 (1.1 to 2.3)	
50–64	1.0 (0.8 to 1.4)		1.4 (1.1 to 1.9)		1.4 (0.9 to 2.3)		1.6 (1.1 to 2.2)	
65–79	0.7 (0.5 to 1.1)		1.0 (0.7 to 1.5)		1.2 (0.6 to 2.3)		1.1 (0.7 to 1.8)	
Education		<0.001		0.189		0.576		0.020
Elementary school	1.0		1.0		1.0		1.0	
College	0.6 (0.5 to 0.8)		0.8 (0.6 to 1.0)		1.2 (0.8 to 1.8)		0.9 (0.6 to 1.2)	
University	0.9 (0.7 to 1.1)		0.9 (0.7 to 1.1)		1.2 (0.8 to 1.7)		1.3 (1.0 to 1.8)	
Employment status		<0.001		<0.001		0.002		<0.001
Working/student	1.0		1.0		1.0		1.0	
Homemaker	0.9 (0.3 to 2.7)		1.2 (0.9 to 1.5)		0.7 (0.1 to 4.2)		1.5 (1.0 to 2.2)	
Unemployed	0.8 (0.5 to 1.2)		0.9 (0.6 to 1.3)		0.6 (0.3 to 1.1)		1.2 (0.6 to 2.5)	
Pensioner†/sick leave	2.3 (1.7 to 3.2)		1.9 (1.4 to 2.6)		2.1 (1.3 to 3.2)		2.7 (1.9 to 3.8)	
<i>Perceived need</i>								
Pain intensity								
>Median	2.6 (2.1 to 3.3)	<0.001	2.3 (1.8 to 2.9)	<0.001	2.0 (1.4 to 2.9)	<0.001	3.1 (2.3 to 4.1)	<0.001
Disability (MHAQ‡)								
>Median	1.4 (1.2 to 1.7)	<0.001	1.5 (1.3 to 1.9)	<0.001	1.1 (0.8 to 1.5)	0.710	1.5 (1.1 to 1.9)	0.004
<i>Psychosocial</i>								
Mental distress (SCL-5‡)								
>Median	1.1 (0.9 to 1.4)	0.280	1.2 (1.0 to 1.5)	0.019	1.2 (0.9 to 1.6)	0.246	1.4 (1.1 to 1.8)	0.016

*n does not add up to 6408 because data are missing for some subjects.

†Includes disability and age pensioners.

‡MHAQ = Modified Health Assessment Questionnaire; SCL-5 = symptom check list.

were independent predictors for consulting, one might expect that these variables are strongly correlated. A correlation analysis showed that pain and disability was moderately correlated ($r=0.42$), whereas mental distress was weakly correlated with the two other variables ($r=0.16$ – 0.18), indicating that mental distress, on the one hand, and pain and disability, on the other, represent different dimensions.

The fact that 40% did not respond to the survey may be a possible source of bias. The non-responding rate was generally higher among men than women, and also somewhat higher among unmarried and divorced than married. In our previously published study¹ the prevalence rates were therefore computed by weighting the subjects in the survey to the total population in each of the 16 age-sex-county strata. The corrected prevalence estimates deviated only 0.3% from the crude rates. One may also expect that those who did not respond to the survey were less likely to have musculoskeletal pain than those who did. In this study the prevalence of pain among those responding before the reminder was about 2% higher than among the respondents after the reminder. Based on the assumption that the prevalence among the non-respondents was 3% lower than those who responded after the reminder, Statistics Norway estimated the present prevalence rates to be 1.7% too high at the most (unpublished data). On the other hand, a Norwegian study has shown that the prevalence of musculoskeletal pain tended to be underestimated in questionnaires.¹⁵ We therefore think that the effect of any selection bias on the reported prevalence rates is unlikely to be large. However, as neither the pain duration (chronic *v* non-chronic) nor location (widespread *v* regional) is validated, these differentiations and

the corresponding subgroup analyses may be hampered by information bias. The fact that the consultation rates are self reported may also be a potential source of information bias. Previous research has shown a disparity between patient self reports and documented records of consultation for low back pain.¹⁶ On the other hand Hillman *et al* reported similar consultation rates for low back pain as this study, and found that false positive and false negative results seemed to cancel each other out, alleviating the necessity to adjust the self reported consultation estimates.¹⁷

Our results suggest that consultation for chronic non-inflammatory musculoskeletal pain was associated with greater mental distress. This compares well with the study by Waxman *et al*, who found that psychosocial factors play a more important part in consultation for chronic than for acute low back pain.¹⁸ Our finding that the association between mental distress and consulting was stronger for women than men is also supported by the study of Macfarlane *et al*, who found that consultation for chronic widespread pain was associated with a significant increase in psychological disturbance in women but not in men.¹⁹

The present findings may have implications both from a public health perspective and in a clinical setting. Firstly, the odds of consulting increased significantly with lower levels of formal education. The level of formal education is a useful and widely applied marker of socioeconomic status, and our findings compare well with those of Walsh *et al*,¹⁶ Szpalski *et al*,²⁰ and Dexter and Brandt.²¹ A low level of education is also associated with an increased prevalence of musculoskeletal disorders.^{1–22} Thus it seems that not only are subjects with lower levels of formal education at higher risk of developing musculoskeletal pain but they are also less able

to cope with the complaints on their own. From a public health perspective this fact represents a great challenge.

Secondly, the association between mental distress and consulting for chronic pain may be important in a clinical perspective. The role of primary care traditionally has been management of pain and disability, but our results suggest that patients with chronic musculoskeletal pain also need psychological support. There is now increasing evidence that "chronic pain is not the same as acute pain lasting longer",²³ and the role of psychosocial factors in chronic back pain is also emphasised in newer clinical guidelines.²⁴

About half of those who had experienced non-inflammatory musculoskeletal pain had consulted a GP in the past year, and this study confirms that such symptoms cause many visits in primary care. Although the cross sectional nature of this study did not allow us to investigate the temporal relation between symptom onset, mental distress, and consultation, our results support the suggestion that psychosocial factors should be considered in the management of chronic musculoskeletal pain.

This study was funded in part by grants from the Norwegian Board of Health, the Norwegian Medical Association's Fund for Quality Improvement, the Norwegian Rheumatism Association, Else and Marie Mustad's Legacy, and the National Insurance Administration. We thank Arne Faye, Statistics Norway, for valuable assistance with the population survey and Anne Glen-nås, Diakonhjemmet Hospital, for her contribution during the planning of the study.

- 1 Hagen KB, Kvien TK, Bjorndal A. Musculoskeletal pain and quality of life in patients with noninflammatory joint pain compared to rheumatoid arthritis: a population survey. *J Rheumatol* 1997;24:1703-9.
- 2 Rekola KE, Keinanen KS, Takala J. Use of primary health services in sparsely populated country districts by patients with musculoskeletal symptoms: consultations with a physician. *J Epidemiol Community Health* 1993;47:153-7.
- 3 Tellnes G, Brage S, Haland EM, Brodtholt A. What symptoms and complaints result in sick-listing? ICPC-coding of patients' own opinion in general practice [in Norwegian]. *Tidsskr Nor Laegeforen* 1992;112:1985-8.
- 4 Hagen KB, Thune O. Work-incapacity from low back pain in the general population. *Spine* 1998;38:2091-5.
- 5 van Tulder MW, Koes BW, Bouter LM. A cost-of-illness study of back pain in The Netherlands. *Pain* 1995;62:233-40.

- 6 Yelin EH, Felts WR. A summary of the impact of musculoskeletal conditions in the United States. *Arthritis Rheum* 1990;33:750-5.
- 7 Hofmans Okkes IM, Lamberts H. The International Classification of Primary Care (ICPC): new applications in research and computer-based patient records in family practice. *Fam Pract* 1996;13:294-302.
- 8 Wolfe F. Development of criteria for the diagnosis of fibrositis. *Am J Med* 1986;81:99-104.
- 9 Spitzer WO, LeBlanc FE, Dupuis M, Abenheim L, Belanger AY, Bloch R, *et al*. Scientific approach to the assessment and management of activity-related spinal disorders. A monograph for clinicians. Report of the Quebec Task Force on Spinal Disorders. *Spine* 1987;12:S1-59.
- 10 Andersen RM. Revisiting the behavioral model and access to medical care: Does it matter? *J Health Soc Behav* 1995;36:1-10.
- 11 Pincus T, Callahan LF, Brooks RH, Fuchs HA, Olsen NJ, Kaye JJ. Self-report questionnaire scores in rheumatoid arthritis compared with traditional physical, radiographic, and laboratory measures. *Ann Intern Med* 1989;110:259-66.
- 12 Pincus T, Summey JA, Soraci SA Jr, Wallston KA, Hummon NP. Assessment of patient satisfaction in activities of daily living using a modified Stanford Health Assessment Questionnaire. *Arthritis Rheum* 1983;26:1346-53.
- 13 Fries JF, Spitz P, Kraines RG, Holman HR. Measurement of patient outcome in arthritis. *Arthritis Rheum* 1980;23:137-45.
- 14 Tambs K, Moum T. How well can a few questionnaire items indicate anxiety and depression? *Acta Psychiatr Scand* 1993;87:364-7.
- 15 Bjerkedal T, Bakkeiteig L. Reliability of interview data about health [in Norwegian]. *Tidsskr Nor Laegeforen* 1975;95:927-31.
- 16 Walsh K, Cruddas M, Coggon D. Low back pain in eight areas of Britain. *J Epidemiol Community Health* 1992;46:227-30.
- 17 Hillman M, Wright A, Rajaratnam G, Tennant A, Chamberlain MA. Prevalence of low back pain in the community: implications for service provision in Bradford, UK. *J Epidemiol Community Health* 1996;50:347-52.
- 18 Waxman R, Tennant A, Helliwell P. Community survey of factors associated with consultation for low back pain. *BMJ* 1998;317:1564-7.
- 19 Macfarlane GJ, Morris S, Hunt IM, Benjamin S, McBeth J, Papageorgiou AC, *et al*. Chronic widespread pain in the community: the influence of psychological symptoms and mental disorder on healthcare seeking behavior. *J Rheumatol* 1999;26:413-19.
- 20 Szpalski M, Nordin M, Skovron ML, Melot C, Cukier D. Health care utilization for low back pain in Belgium. Influence of sociocultural factors and health beliefs. *Spine* 1995;20:431-42.
- 21 Dexter P, Brandt K. Relationships between social background and medical care in osteoarthritis. *J Rheumatol* 1993;20:698-703.
- 22 Pincus T, Callahan LF, Burkhauser RV. Most chronic diseases are reported more frequently by individuals with fewer than 12 years of formal education in the age 18-64 United States population. *Journal of Chronic Diseases* 1987;40:865-74.
- 23 Jayson MI. Why does acute back pain become chronic? *BMJ* 1997;314:1639-40.
- 24 Clinical Standards Advisory Group. *Back pain: Report of a CSAG Committee on Back Pain*. London, HMSO, 1994.