

Prevalence, diagnostics and management of musculoskeletal disorders in primary health care in Sweden – an investigation of 2000 randomly selected patient records

Birgitta Wiitavaara PhD,¹ Martin Fahlström MD PhD² and Mats Djupsjöbacka PhD³

¹Senior Lecturer, Centre for Musculoskeletal Research, Department of Occupational and Public Health Sciences, University of Gävle, Gävle, Sweden

²Senior Lecturer, Department of Clinical Sciences, Professional Development, Umeå University, Umeå, Sweden

³Senior Researcher, Associate Professor, Centre for Musculoskeletal Research, Department of Occupational and Public Health Sciences, University of Gävle, Umeå, Sweden

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Correspondence

Birgitta Wiitavaara
Centre for Musculoskeletal Research,
Department of Occupational and Public
Health Sciences
University of Gävle
SE-801 76 Gävle, Sweden
E-mail: biawia@hig.se

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Abstract

Rationale, aims and objectives The aims of this study is to investigate the prevalence of patients seeking care due to different musculoskeletal disorders (MSDs) at primary health care centres (PHCs), to chart different factors such as symptoms, diagnosis and actions prescribed for patients that visited the PHCs due to MSD and to make comparisons regarding differences due to gender, age and rural or urban PHC.

Methods Patient records (2000) for patients in working age were randomly selected equally distributed on one rural and one urban PHC. A 3-year period was reviewed retrospectively. For all patient records' background data, cause to the visit and diagnosis were registered. For visits due to MSD, type and location of symptoms and actions to resolve the patients problems were registered. Data was analysed using cross tabulation, multidimensional chi-squared.

Results The prevalence of MSD was high; almost 60% of all patients were seeking care due to MSD. Upper and lower limb problems were most common. Symptoms were most prevalent in the young and middle age groups. The patients got a variety of different diagnoses, and between 13 and 35% of the patients did not receive a MSD diagnose despite having MSD symptoms. There was a great variation in how the cases were handled.

Conclusions The present study points out some weaknesses regarding diagnostics and management of MSD in primary care.

Introduction/background

Musculoskeletal disorders (MSD) constitute a problem of great public health importance, which mostly is managed in primary care settings. The problem is substantial, as about half the adult population is reported to experience some sort of musculoskeletal symptoms (41–55% point prevalence) and 39–45% to have long-lasting problems [1,2]. Of those who experience musculoskeletal symptoms, about 30–45% can be expected to consult a general practitioner (GP) for their problems [1,3]. Accordingly, MSD imply significant individual suffering, individual and societal costs for sick leave as well as considerable costs for health care. To improve the care of patients suffering from MSD, further knowledge regarding the prevalence, diagnostics and management of different MSD in primary care is required.

The course of MSD is marked by periods of remission and exacerbation [4–6], and most individuals do not experience complete resolution of their symptoms and disabilities [4,6–8]. The current influence of medical care on the natural history of MSD has been questioned [9]. In a group of working aged patients seeking care

for non-specific back or neck pain, it can be expected that about half will report pain and disability after 5 years, and a significant proportion will report recurrent or continual pain and health care consumption [7]. A study on health care utilization among patients with neck–shoulder pain [10] showed that one half of the patients in the study had one or more additional visit, one quarter had additional episodes of care for pain in other locations, and 20% of the women and 7% of the men had 10 or more visits per year. It was concluded that the cause to the frequent visits might be that the local symptomatology is a part of multisite MSD symptoms. To be able to plan for effective measures in rehabilitation, further knowledge is needed about the prevalence of different MSD in primary care, which symptoms patients seek care for and if these are local or multisite symptoms.

Primary care physicians' different approaches in treatment of MSD have been described as low action, multimodal and psycho-social/non-opioid [11] and the most often used options as diagnostic tests (e.g. radiography), referral to medical specialist [12], physiotherapy, medication [12,13], no actions at all [12] and 'watchful waiting' [14]. Different factors can influence not

only the management decisions, patient-related factors as diagnostic category, long duration of pain and high functional limitations, but also GP characteristics such as less clinical experience, solo practice, working in a rural area [14] and the gender of the physician and the patient [14,15]. An interesting question worth looking further into is how different MSDs are managed in practice and which measures are taken in relation to which symptoms. There is a need to improve rehabilitation for this group and at the same time use available funding wisely. As no recent studies of the conditions in Sweden were found, we deemed this important to investigate.

There is a multitude of diagnoses used in the area of MSD, and many of those are symptom-based. In a study of patients seeking care (2001–2002) for neck pain (traumatic and non-traumatic), a symptom-based diagnosis was used in 64% of the visits, and the single most common diagnosis was neck sprain or strain [16]. Many patients in this group do not even get a diagnosis assigned to their problems [16]. In a Swedish study of patients seeking care (1994–1997) for neck or shoulder disorders did as few as 58% of the male cases, and 71% of the female cases receive a confirmed diagnosis [17]. A study of treatment in eight European countries (2001–2002) showed similar results, as 48–75% of those who sought care for musculoskeletal pain got a diagnosis [18]. Deficiencies regarding diagnose registration related to the social insurance system have also been found. The Swedish National Board of Health and Welfare has investigated the documentation of diagnostic codes regarding sick leaves (in general) that ended during 2005 [19]. They found a deficient documentation, as only about 500 000 of 624 000 cases had been assigned diagnose codes.

The aims of this study were-To investigate the prevalence of patients seeking care due to different MSDs at primary health care centers (PHCs); and-To chart different factors as symptoms, diagnosis and actions prescribed for patients that visited the PHCs due to MSD; and finally-To make comparisons regarding differences due to gender, age and rural or urban PHC.

Methods

Design

The study was a cross-sectional study comprising content analysis of patient records from two PHCs in Sweden and descriptive statistics of the content.

Sample

Considering aspects of societal structure, as well as differences between PHCs regarding the organization of care, one urban and one rural PHC were chosen. The urban PHC was located in a university city, while the rural PHC was located in the countryside, both in northern Sweden. The population that was allocated to the different PHCs were 10000 and 7000 persons respectively. The number of visits per year to the different PHCs were approximately 9000 and 7000 respectively.

The population in the present study constituted of people seeking care from a physician at either the rural or urban PHC. The intent was to collect 2000 patient records, disregarding diagnosis, equally distributed on the PHCs. The sample was delimited to

records for patients in working age (18–65). Patient records were sampled for visits to a physician between 1 January and 31 December 2007. Sampling of records was made by using randomly selected work week dates to collect records from. Every time a specific date occurred, a record was selected from that date, starting with the last visit of the day, followed by the one before, etc. As the dates were selected randomly did the number of selected records differ between dates. As many records were extensive, a time limit of 3 years of notes was chosen. First, a random sample of 100 records to a pilot study were attained, and a test of the workability of the database was made. Then, the remaining 1900 dates were sampled.

Data extraction

Obtained data was registered in a database. For all patient records, age, gender, date of visit, if it was a new visit or re-visit, cause of the visit and diagnosis related to the visit were registered. A visit was considered to be due to MSD if the patient was given a MSD diagnose, a musculoskeletal condition was named or described in a field for cause of visit or in the anamnesic data in the patient record at the day of visit or the analysed period (3 years). For visits due to MSD, the location of the patient symptoms, which symptoms were described in the patient record, the type of those symptoms, which actions were prescribed to resolve the patients problems and also sickleave prior to and after the visit were registered.

Definition of variables

Regarding diagnosis, the analysis specifically focused non-specific, non-traumatic musculoskeletal conditions that means ICD-10 codes M00–M99, with the exclusion of trauma, infection, systemic diseases (as systemic lupus erythematosus, psoriasis, gout, rheumatoid arthritis), peripheral osteoarthritis, congenital or acquired deformities (as cox plana, Morbus Bechterew, hallux valgus). Included, besides M00–99, were ICD-10 codes R29 (Other symptoms and signs of disease from the nervous and musculoskeletal system) and R52 (Pain and ache which is not classified elsewhere).

Symptoms for MSD cases were classified into six anatomical pain locations, *head*, *neck-shoulder*, *upper limb*, *thoracic spine*, *lower back* and *lower limb*, based on descriptions in the records at the day of visit.

MSD cases were grouped based on pain location, and the most common diagnoses were counted.

Measures taken for MSD cases were categorized separately for neck-shoulder and low back pain. Neck-shoulder and low back pain were selected as problems in these regions and often are characterized as 'non-specific' and thereby constitute a challenge to treat. Categories were created based on a content analyses of measures described in the records. This resulted in nine categories.

Data analysis

Data for MSD at the day of visit was analysed using cross tabulation, multidimensional chi-squared (Pearson), logistic regression and a probability level of $P < 0.05$. All statistical analyses were performed using PASW statistics for Windows 18.0 (SPSS).

Ethical considerations

This project has been reviewed and approved by the ethics committee in Uppsala, Sweden (no. 2007/333). Measures to assure confidentiality and to comply with current Swedish laws and regulations have been taken.

Results

Of the selected and reviewed 2000 patient records, 49 were excluded (due to, e.g. wrong age of the patient or that the patient had not met the doctor at the visit as, a result of human error in sampling) that left 1951 records for further analysis. Mean age of the sample was 44 years. As evident from Table 1, the number of patient rose by age, which was true for both for the whole sample and the rural PHC. The urban PHC differed a bit regarding age distribution of patients as the amount of patients in the younger patient groups was almost twice as high compared with the rural PHC and the lowest count of patients was in the age group 55–65 years. The representation of women in the sample was slightly higher than of men totally, at the rural PHC and at the urban PHC.

Table 1 Base data and prevalence of musculoskeletal disorders (MSDs) in the sample (%)

	Primary Health Care Centre			χ^2	P
	Rural	Urban	Total		
Age					
18–25	11.4	18.9	15.1	82.07	0.000***
26–35	11.9	18.4	15.1		
36–45	17.7	21.6	19.6		
46–55	25.8	23.2	24.5		
56–65	33.2	17.9	25.6		
Gender				7.88	0.005**
♀	52.9	59.3	56.1		
♂	47.1	40.7	43.9		
MSD symptoms					
-At visit	32.8	24.4	28.7	19.13	0.000***
-In record	26.1	32.4	29.2		
MSD diagnose	18.6	13.2	15.9	10.46	0.001***

Table 2 Symptoms people seek care for

Pain location	Primary Health Care Centre						χ^2	P
	Rural		Urban		Total			
	n	%	n	%	n	%		
Head	17	0.9	6	0.3	23	1.2	5.132	0.023*
Neck–shoulder	55	2.8	34	1.7	89	4.6	4.816	0.028*
Upper limb	131	6.7	74	3.8	205	10.5	16.618	0.000***
Thoracic spine	38	1.9	26	1.3	64	3.3	2.115	0.146ns
Lower limb	154	7.9	96	4.9	250	12.8	14.297	0.000***
Low back	66	3.4	48	2.5	114	5.8	2.695	0.101ns
Total	461	23.6	284	14.5	745	38.2		

n = 1951.

Prevalence of different musculoskeletal disorders among patients seeking care

The prevalence of MSD in the sample (Table 1) was high; almost 60% of the patients had some sort of MSD described in the record either at the day of the visit or in the rest of the reviewed 3-year time period. The distribution of MSD between the PHCs showed a slight overweight of patient with MSDs at visit in the rural PHC sample compared with the urban, while the opposite was present for MSD during the preceding 3-year period.

The sample was reviewed for registered ICD-10 diagnose codes at the selected visit and for the reviewed 3-year period (Table 1). Some patients had several diagnoses registered at the day of the visit. Among those, there were patients where the MSD symptoms were not the main cause of the visit but still a part of the patient's problems and registered as a diagnose. In the rural PHC, 19% of patients visiting the PHC had an ICD-10 code related to MSD registered as diagnose. For the urban PHC, the corresponding number was 13% and for the total sample 16%.

The prevalence of MSD symptoms was higher among women than men both regarding patients seeking care for MSD at the actual visit and MSD in the record for the 3-year period. Of the whole sample, 29% had MSDs at visit; of those were 15% women and 14% men. Within gender, this constituted 27% of the women and 31% of the men. There were no significant differences between the genders regarding getting a MSD ICD-10 diagnose assigned to their problems. When controlling for covariates in a logistic regression model with PHC rural/urban as independent variable, the significant results for age and MSD in record were confirmed. However, for the differences regarding gender, MSD diagnose and MSD at the visit, the significance did not remain. In the logistic regression, all dependent variables were entered as covariates (age, gender, MSD diagnose, MSD status at visit/in record).

Symptoms patients with musculoskeletal disorder seek care for

The total amount of patients seeking care for musculoskeletal symptoms was larger at the rural PHC than the urban (Table 2). Visits for all sorts of symptoms, except for pain in the thoracic spine, were significantly more common at the rural PHC than the urban. Most common were lower and upperlimb symptoms, followed by symptoms from the low back and neck–shoulder.

There were some differences regarding the age distribution for different pain locations (Fig. 1). Neck–shoulder symptoms were most prevalent in the younger age groups. Among those 89 patients with symptoms from this location, 33% were 26–35 years old, while only 6% were 46–55 years old. Upper limb pain was also most prevalent in the youngest age groups. Pain in the thoracic spine was most prevalent among patients 36–45 years old and least prevalent in the oldest age group 56–65 years old.

The occurrence of multiple pain locations was also investigated (Table 3). The highest number of patients with only one pain location was among those with lower or upper limb symptoms, while the lowest was for head symptoms. On the opposite, patients with head symptoms or thoracic spine symptoms had the highest numbers for multiple pain locations [4–6]. However, the co-morbidity regarding symptoms is high among most of these patients. As an example did 35% of those with head symptoms have symptoms from three different locations, as well as 21% of those with neck–shoulder symptoms, 20% of those with pain in thoracic spine and 9% of those with upper limb symptoms.

Diagnoses patients get assigned to their symptoms

As expected, the majority of the patients (between 35 and 70%) were assigned M diagnoses (Diseases of the musculoskeletal system and connective tissue) to their musculoskeletal symptoms, but there were also other diagnose codes registered (Table 4). The larger amount of M diagnoses among low back patients may

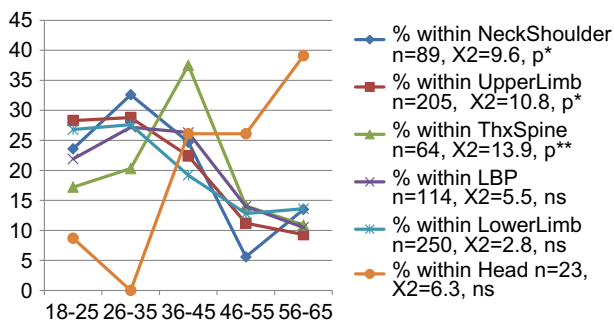


Figure 1 Age distribution among people seeking care for different symptoms.

Table 3 Engagement of different symptom locations

Reported symptoms	Number of symptom locations								Total n
	1		2		3		4-6		
	n	%	n	%	n	%	n	%	
Head	1	4	9	39	8	35	5	22	23
Neck–shoulder	14	16	46	52	19	21	10	11	89
Upper limb	131	64	43	21	19	9	13	6	205
Thoracic spine	25	39	17	27	13	20	9	14	64
Low back	51	45	43	38	9	8	11	9	114
Lower limb	175	70	52	21	13	5	10	4	250

n = 745.

Table 4 Proportion of different ICD-10 diagnoses at the day of visit at the PHC

ICD-10 diagnoses	Symptoms %					
	Head	Neck–shoulder	Upper limb	Thoracic spine	Low back	Lower limb
M diagnoses	35	57	58	45	70	58
R diagnoses	9	6	1	11	9	3
G diagnoses	13	4	3	3	0	1
Z diagnoses	22	11	12	8	7	10
Other diagnoses	17	14	22	27	9	24
No diagnose	4	8	4	6	5	4
	100	100	100	100	100	100

Diagnose groups: M = musculoskeletal system and connective tissue, R = symptoms, signs and clinical findings not classified elsewhere, G = nervous system, Z = encounter for examination.

indicate that it is easier to assign a M diagnose to such symptoms. Besides M diagnoses, the patients received R diagnoses, as R29 (Other symptoms and signs involving the nervous and musculoskeletal systems), R51 (Headache) and R52 (Pain, not elsewhere classified). G diagnoses also were quite common, as for example G 44 (Tension-type head ache), as well as Z diagnoses that cover ‘Factors influencing health status and contact with health services’.

Table 5 Common diagnoses in the symptom groups

Symptom	n	Most prevalent diagnoses	
		diagnoses	n %
Head	23	M53.0 Cervicocranial syndrome	3 14
		G44.2 Tension-type headache	3 14
		M53.1 Cervicobrachial syndrome	2 9
		R51 Headache	2 9
Neck–shoulder	89	M53.1 Cervicobrachial syndrome	11 12
		M54.9 Dorsalgia, unspecified	8 9
		M79.1 Myalgia	6 7
		M54.2 Cervicalgia	5 6
Upper limb	205	M77.9 Enthesopathy, unspecified	17 8
		M25.5 Pain in joint	13 6
		M53.1 Cervicobrachial syndrome	10 5
		M54.9 Dorsalgia, unspecified	10 5
		M79.9 Soft tissue disorder, unspecified	9 4
Thoracic spine	64	M54.9 Dorsalgia, unspecified	9 14
		M54.6 Pain in thoracic spine	7 11
		R07.0 Pain in throat	4 6
Low back	114	M54.9 Dorsalgia, unspecified	25 22
		M54.5 Low back pain	23 20
		M54.4 Lumbago with sciatica	14 12
Lower limb	250	R10.3 Pain localized to other parts of lower abdomen or pelvis	5 4
		M25.5 Pain in joint	30 12
		M79.9 Soft tissue disorder, unspecified	13 5
		M54.4 Lumbago with sciatica	12 5
		M54.9 Dorsalgia, unspecified	11 4
		M77.9 Enthesopathy, unspecified	11 4

Between 4 and 8% of the patients did not receive any diagnose at all, and between 9 and 27% had another diagnose registered, which was not related to their musculoskeletal symptoms.

The most common diagnoses (Table 5) for head symptoms were M53.0 cervicocranial syndrome and G44.2 Tension-type headache. For those with neck–shoulder symptoms, M53.1 Cervicobrachial syndrome was the most common. For patients with upper limb symptoms, M77.9 Enthesopathy unspecified was the most prevalent. Symptoms in the thoracic spine most often got the diagnose M54.9 Dorsalgia unspecified assigned. The patients with low back pain most often got the diagnoses M54.9 Dorsalgia, unspecified or M54.5 Low back pain. Those with lower limb symptoms most often not only obtained the diagnosis M25.5 Pain in joint but also diagnoses related to back pain and unspecified disorders in soft or connective tissue.

Measures taken at the visit to resolve the patients' problems

There was a great variation in how the cases were handled (Tables 6 and 7). Many different measures were taken for the patients, varying between individuals. Each individual often received several different measures. Most common measure for those with low back pain was medication (mostly analgesics, sick leave certificates, followed by medical rehabilitation as physiotherapy, group rehabilitation, e.g.), and further referral to other clinic for continued examination or treatment. Work-related rehabilitation, such as workplace adjustment, work training or similar, was less commonly registered.

For patients seeking care for neck pain, the most common measures taken were the same: medication (mostly analgesics) and

sick leave. Further referral to other clinic for continued examination or treatment was also quite common, as was medical rehabilitation. Work-related rehabilitation, such as workplace adjustment, work training or similar, was more often registered for neck pain than for low back pain. About a tenth of the group had an ordination of sample taking or advice. Await future development of the disorder was the measure for 4%.

Discussion

The prevalence of MSD in the studied group shows high figures: 29% of the patients that sought care at the PHCs had musculoskeletal symptoms at the day of visit. Other studies indicate that there is a high prevalence of different musculoskeletal problems in general, which is compared with our result among PHC visitors. A review of prevalence studies [20] shows that one third of the adult population report shoulder pain, up to one half low back pain and one fifth wide spread pain during a 1-month period. According to the Eumusc.net report no. 5 [21], MSD constitutes 38% of the total of work-related disorders. This is in accordance with the numbers that apply for Sweden. Looking at the incidence of new cases for long-term sick leave (>90 days), 30% for municipal and county council employees and 40% for Swedish trade and industry/private sector employees were caused by MSD (M00–M99) [22]. Worth noting is that all visits included in this study was to see a doctor, so those who sought directly to a physical therapist adds to the total number of patients who seek care for MSD. So, the results are not applicable for all patient seeking all sorts of care for MSD, only those seeking care from a physician.

The prevalence of MSD at the visit was higher in the rural PHC sample than in the urban, while the prevalence of MSD in the

Table 6 Measures taken at the visit to resolve the low back pain patients' problems

Diagnose	<i>n</i> / Diagnose	Measure								
		None/ await	Sick leave	Advice	Medical rehab	Work rel. rehab	Medication	Sample taking	Further referral	Aids
M51.9 Intervertebral disc disorder, unspecified	3		3			1	1			
M54.3 Sciatica	1		1							
M54.4 Lumbago with sciatica	14		13	1	11	1	9	1	2	
M54.5 Low back pain	20	1	10	2	4	1	8	1	6	1
M54.9 Dorsalgia, unspecified	23		4		10	2	10		7	1
R10.3P Pain localized to other parts of lower abdomen	5		1	2	2		2			
R52 Pain, not elsewhere classified	3		1				3	1		
Observation for suspected disease or condition, unspecified	1		1			1				1
Z03.9 Counselling, unspecified	3	1			1				2	1
2. Diagnose missing, continued investigation	1						1	1	1	
4. Diagnose missing symptoms investigated	4						4		3	
Individuals that received different measure <i>n</i>	78	2	34	5	19	5	38	4	22	3
%		3	44	6	24	6	49	5	28	4

Note that each individual often received a combination of several different measures.

Table 7 Measures taken at the visit to resolve the neck shoulder pain patients' problems

Diagnose	n/ Diagnose	Measure									
		None/ await	Sick leave	Advice	Medical rehab	Work rel. rehab	Medication	Sample taking	Further referral	Aids	
G44.2	Tension-type headache	2	1				1	1			
M15.9	Polyarthrosis, unspecified	2		2							
M25.5	Pain in joint	3		1			3		1		
M43.6	Torticollis	2					2		1		
M50.9	Cervical disc disorder, unspecified	1				1					
M53.0	Cervicocranial syndrome	1		1							
M53.1	Cervicobrachial syndrome	8	1	5	1	3	1	3		1	
M54.2	Cervicalgia	5		1	2	1		3	1	2	
M54.6	Pain in thoracic spine	3		2			1	1	1	2	
M54.9	Dorsalgia, unspecified	6		2	1	3	1	2			
M75.1	Rotator cuff syndrome	1						1			
M77.9	Enthesopathy, unspecified	1		1							
M79.1	Myalgia	5		2	1	1	2	3	2	1	
R51	Headache	1				1		1			
R52	Pain, not elsewhere classified	2		1				1	1	2	
Z00.0	General medical examination	2		1		1		1			
Z02	Examination and encounter for administrative purposes	1									
Z03.9	Observation for suspected disease or condition, unspecified	2		1			1			2	
Z54.P	Convalescence	1				1				1	
Z71.9	Counselling, unspecified	1								1	
2. Diagnose missing, continued investigation		3					1	1		1	
4. Diagnose missing symptoms investigated		1						1			
Individuals that received different measures: <i>n</i>		54	2	20	5	12	9	24	6	15	0
%			4%	37%	9%	22%	17%	44%	11%	28%	0%

Note that each individual often received a combination of several different measures.

record during the examined 3-year period was higher in the urban PHC. It is difficult to draw any conclusions regarding this, but we know that there are differences regarding the population in the different areas. The urban PHC had a larger amount of young patients, as well as of a higher educational level, as a university is situated there. The rural PHC had an older population consisting of a large amount of blue collar worker with a lower educational level, which can explain the higher prevalence of MSDs at visit. However, further analysis is required to be able to draw conclusions regarding differences between the rural and urban areas.

The analysis of age distribution of patients seeking care for different symptoms showed that neck-shoulder and upper limb pain were most prevalent in the youngest age groups, while thoracic pain was most prevalent among those 36–45 years old. These results differ from studies of prevalence in the general population. For example, the prevalence of neck pain have shown either no association with age or a peak prevalence at 30–50 years of age [23], and the 1-year prevalence of thoracic spine pain was shown to increase up to 50 years of age and then level out [24]. Thus, the prominent decline in the prevalence of MSDs for patients older than 45 years in our study cannot likely be explained by the prevalence in the general population but must be sought in other causes. Our results also contrasts to previous studies on

the prevalence of MSD in primary care that suggest symptoms to become more prevalent with increasing age up to 50 years and then level out [25,26]. As often in research on MSD, differing definitions of MSD can make comparisons difficult. In the present study, we used both symptoms registered in the medical chart and ICD-10 diagnose when available. Previous studies on consultation in primary care did, for example, either focus one condition as low back pain [27,28] or shoulder pain [26,29] or included specific diseases as osteoarthritis, osteoporosis or psoriatic arthritis [25,30] and did not present data separately for non-specific, non-traumatic MSD in relation to age, as the present study.

The co-morbidity was high regarding symptom engagement. A great portion of the patients had multiple pain locations engaged. Patients with head or thoracic spine symptoms had the highest numbers for multiple pain locations [4–6] (22 and 14% respectively). The high co-morbidity found for patients with pain in the head may reflect that chronic tension-type headache, the most common type of headache, is associated with generalized pain hypersensitivity in skin and muscles [31].

Regarding diagnoses, M diagnoses were most common, as expected. However, there was a quite wide spectre to be found among the diagnoses. Beside the M diagnoses, the patients also received R, G, Z or other diagnoses. The R, G and Z diagnoses were

somewhat logically related to the patients' musculoskeletal symptoms. However, some patient had no diagnose registered at the visit, while others had a diagnose that was not related to their musculoskeletal symptoms. Combining those two latter groups gives a number between 13 and 35% of the patients that did not receive a specific MSD diagnose related to the symptoms they sought care for. Being believed and getting a diagnosis has previously been acknowledged as an important part of patients possibility to build self-esteem and coping strategies in rehabilitation [32], why we see this as a possible problem both for the individual patient as well as for the health care system. So, based on our findings, there seems to be some room for improvement regarding uniformity in documentation of diagnoses in the patient charts, which previously has been confirmed [19]. The major reform regarding sick leave and rehabilitation that has been set in practice in Sweden from 2008 and forth [19,33] has hopefully led to improvement. The aim of this reform was to lower the high numbers of sick leave, by several changes of the process. One of the measures that have been taken is the introduction of a web-based tool for the diagnostics of different diagnoses, with recommendations regarding treatment and normal length of sick leave [34].

This lead to the next point worth noticing: measures taken to resolve the patients' problems. For both low back pain and neck-shoulder pain, the most common measures taken were sick leave certificates, medication (mostly non-steroid analgesics, non-steroidal anti-inflammatory drugs [NSAIDs]), medical rehabilitation (as physiotherapy or group therapy) or further referral to other clinic for continued examination or treatment. The dominant prescription of NSAIDs for musculoskeletal pain, 79% compared with under 10% for alternative drugs, is found by others [35]. There were low numbers for work-related rehabilitation. The previously mentioned reform [33,34] was aimed at improving return to work, including increased responsibility and engagement of the workplace in the rehabilitation process and governmental economical support for multimodal rehabilitation of patients with MSD [36]. The results from the present study are based on patient records assessed just before this reform was implemented and can thus provide a valuable baseline for evaluation of the effect of this reform on diagnosis of patients with MSDs as well as on the measures taken for rehabilitation.

Conclusion

The present study points out some weaknesses regarding diagnostics and management of MSD in primary care. Further studies to compare the results regarding diagnoses for musculoskeletal symptoms and measures taken to solve the patients' problems and to make a comparison before and after the reform would be of interest.

Author contributions

BW, MF and MD all made substantial contributions to conception, design and acquisition of data. BW and MD made the analysis and interpretation of data. BW, MF and MD all were involved in drafting the manuscript or revising it critically for important intellectual content.

Conflict of interest

The authors declare that they have no competing interests.

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