Frequency of musculoskeletal conditions among patients referred to Italian tertiary rheumatological centers

M.A. Cimmino1,2, D. Ugolini3,4, A. Cauli5, A. Mannoni6,2, P. Macchioni7,2, A. Ciocci8,2, M. Ceppi3, R. Scarpa2,9

1Clinica Reumatologica, Dipartimento di Medicina Interna e Specialità Mediche, Università di Genova, 2Gruppo di Studio S.I.R. sull’Epidemiologia, Istituto Nazionale per la Ricerca sul Cancro, Genova, 3Dipartimento di Oncologia, Biologia e Genetica, Università di Genova, 4Cattedra di Reumatologia II, Università di Cagliari, 5Sezione di Reumatologia, Azienda Sanitaria di Firenze, 6Divisione di Reumatologia, Ospedale S. Maria Nuova, Reggio Emilia, 7CDC “Villa Pia”, Roma, 8Clinica Reumatologica, Università di Napoli.

Abstract

Objective
To describe the occurrence of different rheumatic diseases and to examine the characteristics of patients referred to six Italian rheumatological units. To compare these data with those from other countries.

Methods
Six Italian rheumatological tertiary referral centers participated in the study. Diagnoses of in- and outpatients aged over 16 years were classified according to the International Classification of Diseases, ninth revision.

Results
Three thousand, five hundred and thirty-seven patients with mean age 56 ± 14.8 years, of which 2604 (73.6%) were women, were studied. Inflammatory joint and spine diseases were diagnosed in 40.4%, connective tissue diseases in 14.4%, degenerative joint and spine diseases in 21.4%, soft tissue rheumatisms in 18.5%, and metabolic bone diseases in 5.3%. There was a significant difference among centers in the frequency of most diagnoses: non-academic centers cared for more patients with arthritis and connective tissue diseases and for less patients with degenerative diseases, soft tissue rheumatisms and metabolic bone diseases. Connective tissue diseases were constantly seen more often in Italian centers, whereas soft tissue rheumatisms were seen more often abroad.

Conclusion
Our data emphasize the great variability of the diagnostic case-mix in different centers from the same country, an observation that raises some concerns of the results of descriptive multicenter studies. Studies on the breakdown of diagnoses made in rheumatological centers could be helpful to determine the burden of rheumatic diseases on the health system, and for the planning of health interventions by both the national rheumatological societies and health authorities.

Key words
Rheumatic diseases, Italy, frequency.

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Introduction
Information on the frequency and causes of in- and outpatient visits for rheumatic conditions is scanty in the Mediterranean area. Conversely, these data have been studied more precisely in other European countries (1-2) and in the US (3). More than 150 rheumatic diseases are estimated to affect approximately 40 million patients (15% of the whole population) in the US. By the year 2020, this figure is expected to reach 60 million (4). In Italy, 27% of the population over 16 years reports to have or have had musculoskeletal pain for at least one month (5). Rheumatic diseases are often underestimated because they are mistakenly considered an inescapable consequence of aging. This belief reflects the preponderance of osteoarthritis among elderly individuals. However, most other rheumatic diseases affect patients at any age (6-8). In a recently published report on the burden of musculoskeletal conditions, the World Health Organization concluded that “although the diseases that kill attract much of the public’s attention, musculoskeletal or rheumatic diseases are the major cause of morbidity throughout the world, having a substantial influence on health and quality of life, and inflicting an enormous burden of cost on health systems”(9). This is the reason why the international effort denominated Bone and Joint Decade 2000-2010 is aiming to rise awareness on rheumatic diseases in the general public and the political arena. The aim of our study was to describe the occurrence of different rheumatic diseases and to examine the characteristics of patients referred to six Italian rheumatological units. An additional aim was to compare the case mix observed in different centers and to test its homogeneity. If the patients’ composition varies between centers, doubts about the feasibility of multicenter studies on disease frequency could be raised. The data observed in Italy were also compared with those seen in similar studies from other Countries.

Patients and methods
Six Italian rheumatological centers located in Northern (Genoa and Reggio Emilia), Central (Florence and Rome), and Southern (Cagliari and Naples) Italy participated in the study. These units are all tertiary referral centers, of which four are university based. All in- and outpatients aged more than 16 years seen between May 1 and December 31, 1996 were considered. In Italy, access to rheumatology consultation is granted through the National Health System and necessarily requested by the patients’ general practitioner (GP). All Italian citizens are registered with a GP. Accordingly, all patients were sent for rheumatological consultation by their GPs. However, the number of patient-to-patient referrals, where patients directly asked to their GP to be sent to a rheumatologist, is not known. Clinical diagnoses were made according to currently used criteria, which included the ACR criteria for rheumatoid arthritis (RA) (10), the ESSG criteria for seronegative spondyloarthropathies, psoriatic arthritis (PsA) and reactive arthritis (11), the ACR criteria for gouty arthritis (12), systemic sclerosis (13), systemic lupus erythematosus (SLE) (14), and fibromyalgia (15), the EU community criteria for Sjögren’s syndrome (16), the criteria for polymyalgia rheumatica by Chuang et al. (17), the ACR criteria for osteoarthritis of the hand (18), hip (19), knee (20), the radiological criteria for diffuse idiopathic skeletal hyperostosis (DISH) (21) and those for osteoporosis (22). In addition, arthralgia was defined as pain in or around the joint in absence of objective signs of inflammation; undifferentiated polyarthritis was defined as a paliarticular arthritis not fulfilling one of the previously cited criteria set; undifferentiated connective tissue disease was diagnosed when signs of a connective tissue disease were present in association with positive antinuclear antibodies, but without the fulfillment of criteria for a specific condition; spine OA was defined as axial pain associated with radiological osteophytes of the column; generalized OA was diagnosed when 2 or more OA localizations were present; Paget’s disease of bone when the typical radiological features were seen on a radiograph; low back pain was defined...
as pain of the back extending between
the gluteal folds and the lower limits of
the chest; carpal tunnel syndrome was
defined as numbness and pain in the
median nerve territory associated with
positive response to the Tinel’s or
Phalen’s signs; periarthritis scapulo-
humeralis was defined as shoulder pain
with limitation of its abduction. Only
the main diagnosis was recorded. All
patients were classified according to
the International Classification of Dis-
eases, ninth revision (ICD9) (23). A
standard registration form was used,
which included identification of the
patient, sex, date of birth, nationality,
ICD9 disease code, date of the visit,
and type of referral (in- or outpatient).
The patient’s privacy was ensured by
coding all data. Identifying information
was kept only in the rheumatological
center responsible for the patient’s fol-
low-up. Four centers provided data of
patients admitted to the ward, day-care
and outpatient clinic, whereas two cen-
ters contributed only outpatients.
Data were expressed as means ± stan-
dard deviation. The student’s t-test or
the chi square test were used for com-
parisons. Logistic regression modeling
was applied to the proportion of the
study diseases on the whole patients
population to assess the joint predic-
tive role of the study variables (24). In
particular, odds ratio point estimates
(ORs) were calculated in order to
assess the magnitude of multivariate
associations among disease outcome and
study variables. For each OR,
asymptotic 95% confidence interval
(95% CI) were computed to highlight
the sampling variability of each OR.
Model adequacy was checked by per-
foming a graphical approach based on
plotting residual, leverage and influ-
ence measures as diagnostic quantities.

Results
A total of 3,695 patients were seen.
Eighty-nine patients were excluded
because they were not affected by a
musculoskeletal condition and 69
because their data were incomplete. Of
the remaining 3,537 patients, 2,239
(63.3%) were outpatients, 859 (24.3%)
were seen in day care, and 439 (12.4%)
were inpatients. All but four (one each
from US, Sweden, Greece, and Peru)
were Italian citizens. The age range
was comprised between 16 and 100
years with mean age 56 ± 14.8 years.
Figure 1 shows the age and sex distrib-
ution of the patients. There were 2,604
(73.6%) women and 933 (26.4%) men
with a sex ratio of 2.8:1. Sex distribu-
tion was similar in the six centers with
a percentage of women ranging from a
minimum of 71.7% in Cagliari to a
maximum of 76.4% in Naples. The
mean age varied between 54.9 ± 15.6
years in Genoa and 63.2 ± 13 years in
Reggio Emilia.

Table I reports the age- and sex-related
prevalence of rheumatic diseases
grouped in inflammatory joint and
spine diseases, connective tissue dis-
eses, degenerative joint and spine dis-
eses, soft tissue rheumatisms, and
metabolic bone diseases. Inflammatory
joint and spine diseases were diag-
nosed in 40.4% of patients (women to
men ratio 2:1; mean age 56.2 ± 15
years), connective tissue diseases in
14.4% (women to men ratio 6.8:1;
mean age 56.4 ± 16.8 years), degenera-
tive joint and spine diseases in 21.4% (wom
en to men ratio 3.5:1; mean age
60.7 ± 11.1 years), soft tissue rheuma-
tisms in 18.5% (women to men ratio
3.1:1; mean age 48 ± 13.9 years), and
metabolic bone disease in 5.3%
(women to men ratio 4.6:1; mean age
63.1 ± 11.3 years). As expected, mean
age was significantly higher in patients
with degenerative joint and spine dis-
ease and metabolic bone disease in
comparison with the other groups (p <
0.0001). In addition, patients with
metabolic bone disease had a higher
mean age than those with degenerative
joint and spine disease (p = 0.009). In
our group of patients, the odds ratio of
being affected by connective tissue dis-
ease (OR = 2.58, 95% CI 2.18 to 3.04)
and degenerative bone and spine dis-
ease (OR = 1.32, 95% CI 1.19 to 1.48)
was higher for women, whereas it was
higher for men for inflammatory joint
and spine disease (OR = 2.17, 95% CI
1.98-2.37). The probability of being
affected by soft tissue rheumatism (OR
= 1.15, 95% CI 0.80 to 1.65) or meta-
bolic bone disease (OR = 1.53, 95% CI
0.86 to 2.72) was not associated with
gender. As expected, patients with
inflammatory joint and spine disease
and connective tissue disease were sig-
ificantly more common in the ward
and day care than in the outpatient clin-
ic, whereas the opposite was true for
those with degenerative disease. No
significant difference was seen for
patients with soft tissue rheumatism
and metabolic bone disease as far as the
setting of the visit was concerned. The

Fig.1. Age distribution of the patients divided according to gender (squares = men; diamonds = women; triangles = total).
odds ratio of being seen in the ward in comparison with the outpatient clinic was 1.4 (95% CI 0.6-3.1) for inflammatory joint and spine disease, 2.4 (95% CI 1.3-4.7) for connective tissue disease, 0.3 (95% CI 0.2-0.4) for degenerative joint and spine disease, 0.4 (95% CI 0.2-0.9) for soft tissue rheumatism, and 1 (95% CI 0.8-1.3) for metabolic bone disease.

In the subclass of inflammatory joint and spine disease, RA was more frequent, with 57.2% of diagnoses followed by PsA (11.1%). Among connective tissue diseases, SLE was the most frequent diagnosis (23.8%) followed by polymyalgia rheumatica (17.7%). In the subclass of degenerative joint and spine disease, generalized osteoarthritis was the most common diagnosis (34.3%) followed by hand osteoarthritis (14.4%). Unspecified arthralgia and fibromyalgia were the most frequently recorded diagnoses (31.9% and 29.4% respectively) among soft tissue rheumatisms. Finally, osteoporosis and Paget's disease accounted for the majority of the diagnoses in the category of metabolic bone disease (77.4% and 15.6% respectively).

The top ten diagnoses were RA, generalized osteoarthritis, unspecified arthralgia, fibromyalgia, PsA, osteoporosis, SLE, hand osteoarthritis, unspecified polyarthritis, and knee osteoarthritis.

There was a significant difference among centers in the frequency of several diagnoses as shown in Table II, where the odds ratio of having specific rheumatic diseases (compared to that of the Genoa group, arbitrarily assumed to be 1) was corrected for sex, age, and the type of setting (outpatient clinic, inpatient clinic, day care). The two non-academic centers cared for more patients with inflammatory joint and spine disease (OR 2.7, 95% CI 2.3 to 3.2) and connective tissue disease (OR 1.8, 95% CI 1.6 to 2.1), but fewer patients with degenerative joint and spine disease (OR 0.3, 95% CI 0.2 to 0.4), soft tissue rheumatisms (OR 0.5, 95% CI 0.4 to 0.5), and metabolic bone disease (OR 0.5, 95% CI 0.4 to 0.6).

Our results have been compared with those obtained abroad in other studies (2,3,12-14) in Table III, where only outpatients were considered because comparison studies were performed on the same population type.

Table I. Distribution of patients and their diagnoses. (UCTD: undifferentiated connective tissue disease; DISH: diffuse idiopathic skeletal hyperostosis; SD: standard deviation).

<table>
<thead>
<tr>
<th>Diagnostic groups</th>
<th>Number of patients (n = 3537)</th>
<th>% of patients (n = 3537)</th>
<th>% within groups</th>
<th>Sex distribution F/M</th>
<th>Mean age (years)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory joint and spine disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>817</td>
<td>23.1%</td>
<td>57.2%</td>
<td>2/1</td>
<td>60.5</td>
<td>13.2</td>
</tr>
<tr>
<td>Psoriatic arthritis</td>
<td>159</td>
<td>4.5%</td>
<td>11.1%</td>
<td>2/1</td>
<td>67.1</td>
<td>10.6</td>
</tr>
<tr>
<td>Undifferentiated polyarthritis</td>
<td>93</td>
<td>2.7%</td>
<td>6.7%</td>
<td>2.4/1</td>
<td>48.3</td>
<td>14.2</td>
</tr>
<tr>
<td>Gouty arthritis</td>
<td>68</td>
<td>1.9%</td>
<td>4.8%</td>
<td>0.9/1</td>
<td>71.5</td>
<td>10.7</td>
</tr>
<tr>
<td>Spondyloarthropathies</td>
<td>41</td>
<td>1.2%</td>
<td>2.9%</td>
<td>1.3/1</td>
<td>45.1</td>
<td>13</td>
</tr>
<tr>
<td>Reactive arthritis</td>
<td>40</td>
<td>1.1%</td>
<td>2.8%</td>
<td>1.1/1</td>
<td>43.7</td>
<td>16</td>
</tr>
<tr>
<td>Connective tissue disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic lupus erythematosus</td>
<td>121</td>
<td>3.4%</td>
<td>23.8%</td>
<td>19.2/1</td>
<td>49.8</td>
<td>15</td>
</tr>
<tr>
<td>Polymyalgia rheumatica</td>
<td>90</td>
<td>2.5%</td>
<td>17.7%</td>
<td>4/1</td>
<td>71.1</td>
<td>10.6</td>
</tr>
<tr>
<td>Sjogren's syndrome</td>
<td>62</td>
<td>1.8%</td>
<td>12.2%</td>
<td>5.6/1</td>
<td>62.2</td>
<td>14.9</td>
</tr>
<tr>
<td>UCTD</td>
<td>64</td>
<td>1.7%</td>
<td>12.0%</td>
<td>5.6/1</td>
<td>50.0</td>
<td>15</td>
</tr>
<tr>
<td>Systemic sclerosis</td>
<td>40</td>
<td>1.1%</td>
<td>7.9%</td>
<td>4/1</td>
<td>55.0</td>
<td>14.7</td>
</tr>
<tr>
<td>Degenerative joint and spine disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized osteoarthritis</td>
<td>260</td>
<td>7.4%</td>
<td>34.3%</td>
<td>5/1</td>
<td>65.1</td>
<td>9.8</td>
</tr>
<tr>
<td>Hand osteoarthritis</td>
<td>109</td>
<td>3.1%</td>
<td>14.4%</td>
<td>5.4/1</td>
<td>56.1</td>
<td>10.4</td>
</tr>
<tr>
<td>Knee osteoarthritis</td>
<td>83</td>
<td>2.3%</td>
<td>10.9%</td>
<td>2.2/1</td>
<td>60.2</td>
<td>8</td>
</tr>
<tr>
<td>DISH</td>
<td>63</td>
<td>1.8%</td>
<td>8.3%</td>
<td>2/1</td>
<td>63.4</td>
<td>7.7</td>
</tr>
<tr>
<td>Hip osteoarthritis</td>
<td>48</td>
<td>1.4%</td>
<td>6.3%</td>
<td>3.8/1</td>
<td>63.6</td>
<td>9.4</td>
</tr>
<tr>
<td>Cervical spine osteoarthritis</td>
<td>44</td>
<td>1.2%</td>
<td>5.8%</td>
<td>2.1/1</td>
<td>56.7</td>
<td>9.5</td>
</tr>
<tr>
<td>Soft tissue rheumatism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unspecified arthralgia</td>
<td>209</td>
<td>5.9%</td>
<td>31.9%</td>
<td>2.3/1</td>
<td>43.6</td>
<td>13.8</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td>193</td>
<td>5.5%</td>
<td>29.4%</td>
<td>15.1/1</td>
<td>47.8</td>
<td>14.9</td>
</tr>
<tr>
<td>Periarthritis scapulohumeralis</td>
<td>70</td>
<td>2.0%</td>
<td>10.7%</td>
<td>2.3/1</td>
<td>57.2</td>
<td>9.4</td>
</tr>
<tr>
<td>Low back pain</td>
<td>52</td>
<td>1.5%</td>
<td>7.9%</td>
<td>2.5/1</td>
<td>47.2</td>
<td>12.1</td>
</tr>
<tr>
<td>Carpal tunnel syndrome</td>
<td>40</td>
<td>1.1%</td>
<td>6.1%</td>
<td>5.7/1</td>
<td>49.4</td>
<td>13.9</td>
</tr>
<tr>
<td>Metabolic bone disease</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>144</td>
<td>4.1%</td>
<td>77.4%</td>
<td>10.1/1</td>
<td>63.3</td>
<td>9.7</td>
</tr>
<tr>
<td>Paget's disease</td>
<td>29</td>
<td>0.8%</td>
<td>15.6%</td>
<td>1.1/1</td>
<td>65.8</td>
<td>11.6</td>
</tr>
</tbody>
</table>
**Table II.** Relative frequency of diagnostic classes among centers, expressed as odds ratio compared to that of the center of Genova, arbitrarily assumed to be 1, corrected for sex, age, and type of setting (outpatient clinic, inpatient clinic, day-care).

<table>
<thead>
<tr>
<th>Diagnostic group</th>
<th>Genoa</th>
<th>Naples</th>
<th>Rome</th>
<th>Cagliari</th>
<th>Florence</th>
<th>Reggio Emilia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory joint and spine disease</td>
<td>1.42</td>
<td>0.29</td>
<td>2.20</td>
<td>1.84</td>
<td>1.50</td>
<td>1.69-3.09</td>
</tr>
<tr>
<td>Connective tissue disease</td>
<td>1.42</td>
<td>0.29</td>
<td>2.20</td>
<td>1.84</td>
<td>1.50</td>
<td>1.69-3.09</td>
</tr>
<tr>
<td>Degenerative joint and spine disease</td>
<td>0.97</td>
<td>3.37</td>
<td>0.88</td>
<td>0.66</td>
<td>0.47</td>
<td>0.33-0.65</td>
</tr>
<tr>
<td>Soft tissue rheumatism</td>
<td>1.50</td>
<td>1.06</td>
<td>0.64</td>
<td>0.69</td>
<td>0.47</td>
<td>0.39-0.76</td>
</tr>
<tr>
<td>Metabolic bone disease</td>
<td>1.50</td>
<td>1.06</td>
<td>0.64</td>
<td>0.69</td>
<td>0.47</td>
<td>0.39-0.76</td>
</tr>
</tbody>
</table>

**Table III.** International comparison of the diagnoses’ frequency. (NL: The Netherlands; B: Belgium; CDN: Canada).

<table>
<thead>
<tr>
<th>Diagnostic group</th>
<th>Country</th>
<th>%</th>
<th>Difference compared to Italy</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammatory joint and spine disease</td>
<td>NL</td>
<td>50.50</td>
<td>19.79</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>36.76</td>
<td>-2.95</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>CDN</td>
<td>50.93</td>
<td>11.22</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Connective tissue disease</td>
<td>NL</td>
<td>8.19</td>
<td>0.02</td>
<td>0.973</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>4.99</td>
<td>-3.19</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>3.99</td>
<td>-4.09</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Degenerative joint and spine disease</td>
<td>NZ</td>
<td>33.40</td>
<td>5.98</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>NL</td>
<td>18.00</td>
<td>-9.42</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>36.31</td>
<td>8.39</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>19.46</td>
<td>-7.96</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>CDN</td>
<td>18.64</td>
<td>8.81</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Soft tissue rheumatism</td>
<td>NL</td>
<td>27.60</td>
<td>8.26</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>37.00</td>
<td>17.66</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>CDN</td>
<td>21.32</td>
<td>1.98</td>
<td>0.282</td>
</tr>
<tr>
<td>Metabolic bone disease</td>
<td>B</td>
<td>16.98</td>
<td>11.53</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

**Discussion**

This paper describes the pattern of rheumatic diseases seen in Italian tertiary referral centers. The distribution of diagnoses according to age and sex shown in Table I is in keeping with what is known of the epidemiology of rheumatic diseases. In multivariate analysis, the only difference was the increased OR of inflammatory joint and spine disease seen in men after correction for age and type of setting. This finding is due to the fact that 53% of men seen in Italian centers were affected by this class of diseases in comparison with only 36% of women. Another surprising finding was the low number of patients with low back pain seen in Italian centers, which contrasts with the high incidence of this condition in the general population. Possible explanations are that low back pain patients are commonly managed by GPs or that they are referred by GPs to other specialists of the musculoskeletal system. This last possibility is confirmed by the observation that fewer patients with soft tissue rheumatism are seen by Italian than by Belgian and Dutch rheumatologists (Table III).

Our study shows that there was a large variation between centers as far as the percentage of patients per diagnostic group is concerned. This fact seems to be only partially explained by the type of center, i.e. academic versus non academic, or outpatient versus inpatient care. The largest proportion of patients with degenerative diseases was seen in Rome, a center with outpatients facilities only. However, this was not the case for Reggio Emilia, the other center with the same characteristic. Alternative explanations include the extent to which rheumatic patients are referred to other specialists, such as orthopedic clinicians, the specific research interests and reputation of the clinicians concerned, and the different referral area of the involved units. It is unlikely, although not known, that they reflect real geographical differences in the prevalence of rheumatic conditions. This finding has been reported also by Grahame and Woolfe (1) in their auditing work on clinical activities of rheumatology practice in 30 European centers, and by Miedema et al. (2) in the Dutch Standard Diagnosis Register of rheumatic diseases. According to these data, the spectrum of patients seen in different centers can be remarkably different not only between countries, but also in the same country or even in the same town.

Although all participating centers were tertiary referral units, two of them were not academic and two evaluated only outpatients. Results were analyzed after grouping for these variables. Non academic centers cared for more patients with arthritis and connective tissue diseases and for less patients with degenerative diseases, soft tissue rheumatisms and metabolic bone diseases. This may be due to the bias of academic centers to select a wider range of rheumatic patients for teaching purposes. Moreover, the two non academic centers were the only rheumatological centers in a large area, whereas the academic ones coexisted with other rheumatological units in the same town. This fact could have modified the diagnostic case mix.

Another possible limitation is the variable accuracy of recording. The participants agreed to apply the standard classification for diagnosis, but no attempt was made to validate individual diagnoses. We feel that the quality of the recorded data was sufficiently high because all the involved clinicians were expert rheumatologists who were greatly interested in participating in this study.
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Our data have been compared with those obtained in other countries (2, 3, 25-27). Again, there was much variation in the frequency of the different diagnoses (Table III), in an apparently random fashion. Only connective tissue diseases were constantly seen more often in Italian centers, whereas soft tissue rheumatisms were seen more often abroad. This may be due differences in the health organization model. For instance, in Italy, connective tissue diseases are probably seen more frequently by rheumatologists than by internists, and soft tissue rheumatisms are more often seen by orthopedic surgeons than by rheumatologists.

The international comparison of the diagnoses’ frequency is also affected by many limitations. Patients were seen in different settings such as private rheumatology practices (28), academic rheumatology outpatient clinics (27), non-hospital based outpatient practices (25) and university hospitals. In addition, only the main diagnosis or all rheumatological comorbidities could be recorded and new referrals or review visits could be considered. The published papers lack clear indications on how clinical criteria for rheumatic diseases were applied. The observed differences are therefore more probably due to different referral patterns rather than to real differences in rheumatic diseases occurrence among Countries. In spite of all these restraints, there are a few findings that are remarkably constant in all published papers. The mean age of the patients varied only slightly between 50 and 55 years, 60% to 70% of the patients were women, and RA represented more than 50% of the inflammatory conditions in all series. Our data could be used to evaluate the relative frequency of diseases the epidemiology of which is largely unknown, such as PsA. The rate between the number of patients with PsA and the number of patients with RA was calculated at 0.2. This figure is much higher than those of 0.04 and 0.02 observed in outpatients seen in private practices in the US (28) and in Mexico (29). The same rate was 0.09 for ambulatory care visits in the US (3). The hypothetical prevalence of PsA was calculated by considering the rate between patients with RA, whose prevalence figures are known for many countries, and those with PsA, after adaptation for the specific prevalence of RA. By this method, the “inferred prevalence” of PsA was 0.08% in Italy, in comparison with 0.18% in Germany (30), 0.16% in the Netherlands (2) and 0.11% in Belgium (25). The first study on PsA prevalence comes from Olmsted County, Min., US and shows a value of 0.1% (31). These calculations as well as the clinical impression of several European rheumatologists support the view that the prevalence of PsA in Europe is higher than in the US and probably similar to that of RA. During the preparation of this article, the first European paper on the prevalence of PsA was published (32). Schaffi et al. showed that it is 0.42% in the Marche region of Italy, confirming the figures suggested by our study.

In conclusion, studies on the breakdown of diagnoses made in rheumatological centers could be helpful to determine the burden of rheumatic diseases on the health system, and for the planning of health interventions by both the national rheumatological societies and health authorities. These data cannot be used to answer formal epidemiological questions, but could be important to formulate hypotheses for future epidemiological studies.

References
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