



Fit For Work?

Musculoskeletal Disorders and the Italian Labour Market



Tatiana Quadrello
Stephen Bevan
Robin McGee



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1. Executive summary

The economic downturn is hitting the weak Italian economy hard. With the public debt ratio being the second highest among the OECD countries and the employment rate being one of the lowest in EU27, the Italian government has been left with little choice but to resume fiscal consolidation. Apart from increasing surveillance on tax evasion and fiscal pressure in the energy, banking and insurance sectors, the government is planning to reduce public expenditure mainly recurring to fiscal federalism, with cuts in public employment, health care and social security to a lesser extent.

However, the health of Italian workers is giving serious cause for concern. Recent figures show that a high percentage of Italians has one or more chronic diseases (osteoarthritis and arthritis are the most frequent), and that chronic conditions account for 70 per cent of the total public health expenditure. In addition work-related musculoskeletal disorders (MSDs) represented more than 41 per cent of all occupational diseases reported to INAIL (National Insurance for the Insurance of Accident at Work) in 2007, and musculoskeletal pain is the most frequent origin of pain among Italian population.

As musculoskeletal complaints are a major cause of sickness absence from work in developed countries, and aging is a risk factor for the development of chronic conditions as well as disabilities, there is serious concern that if the aging ratio continues to grow as expected by demographic projections, the social and economic impact of MSDs in Italy will increase dramatically in future years.

Improving the health and wellbeing of the workforce means to reduce health expenditure without compromising people's right of access to health care services and treatments; to reduce social expenditure for compensating occupational illness; to improve labour productivity; to enhance the competitiveness of private and public sector employing organisations; to avoid loss of employees' experience and to reduce costs in hiring and training new employees. If Italy wants to recover from the economic downturn that has been affecting it for the past few years and grow stronger enough to compete in an increasingly globalised, knowledge-based economy when the up-turn comes, it is of critical importance to invest more resources into the health and wellbeing of its workforce as soon as possible.

**The
'Fit for Work?'
project**

This project, part of a wider programme of work across 24 European and other countries, has looked in some detail at the impact that MSDs have on the working lives of thousands of Italian workers, the adequacy of the treatment and support they receive, their experiences at work, the effect of their condition on their family and colleagues, and the human and financial

costs involved. Specifically, we have looked at back pain, work-related upper limb disorders (WRULDs) – two groups of conditions which are usually characterised by non-specific and short episodes of pain and incapacity – and rheumatoid arthritis (RA) and spondyloarthropathies (SpAs), specific conditions that are often progressive and increasingly incapacitating. We conducted a review of the recent academic and practitioner research on the relationship between these MSDs and labour market participation, and conducted interviews with acknowledged experts in this field.

**The Impact of
MSDs on the
Italian
workforce**

MSDs have a significant impact on people's ability to work; not only on an individual but an aggregate basis. Together, they affect the productivity and labour market participation of thousands of Italian workers. Evidence suggests that:

- 24.3 per cent of Italian workers experience back pain each year and the most affected are those working in the construction and health care sectors. In Italy, 13.8 per cent of general practitioners (GPs)' consultations are caused by back pain, and in 42 per cent of cases consultation due to pain ends with an uncertain diagnosis.
- About 22 per cent of Italian workers experience muscular pain in their neck, shoulders, and/or upper/lower limbs. Workers aged between 30 and 49 years are the most affected, and as they get older, female workers report more work-related muscular pain than men.
- In Italy there are approximately 300,000 people with RA. RA has a strong impact on the working life of people, and estimates show that about 23 per cent of people diagnosed with RA have retired or modified their job due to their condition. The total cost of RA per patient per year has been estimated to vary between 3,718 and 23,000 euros according to the severity of the condition (the more severe the condition the higher the costs). The loss of productivity represents the major cost of the disease which is already at intermediate severity. Early diagnosis and intervention are fundamental to reduce the personal, social and economic cost of RA. However, in Italy, the time elapsed from onset to early diagnosis is still too long (over 1.5 year).
- Over 600,000 people in Italy have SpAs. Of those, over 144,000 are in paid employment; however, due to their condition they are on average absent from work for 70 days a year. Total costs for SpAs have been estimated to be equal to about 8,000 euros per patient per year.
- More than 23 million days of work are lost every year due to RA and SpAs.
- The burden of MSDs goes beyond the lives of people with these conditions. As 27 per cent of Italian workers are also providers of informal care for an elderly or a disabled person in their family, the costs of MSDs to Italian society should also include the possibility for carers to develop a MSD themselves and the loss of productivity caused by looking after a family member full or part-time.

The effects of incapacity and pain from these and other MSDs can impact on several aspects of an individual's performance at work, including:

- Stamina;
- Cognitive capacity or concentration;
- Rationality/mood;
- Mobility;
- Agility.

It is becoming clearer that MSD sufferers are also likely to have depression or anxiety problems related to their conditions. This can affect the severity of the condition, the ability of the individual to remain in work, the length of time they spend away from work and the ease with which they can be rehabilitated. Research suggests that a significant proportion of GPs, employers and even individual MSD sufferers do not fully appreciate the impact of 'stress' on the severity of physical incapacity. The **biopsychosocial model** of health emphasises the interplay between the **biological** (eg disease, strain, joint damage), the **psychological** (eg disposition, anxiety) and the **social** (eg work demands, family support) and represents a helpful way of assessing the causes of some MSDs, of planning treatment and management and of approaching rehabilitation into the workplace. It is not being adopted as widely as it should, however, because many GPs and employers find it difficult to look beyond the immediate physical symptoms.

Work can be both cause and cure. Whilst the physical conditions of work may cause or aggravate musculoskeletal symptoms, the impact or outcome on sufferers (absence from work and disability) is strongly associated with psychosocial factors. Evidence suggests that work can help ameliorate the deterioration of many conditions and help recovery from MSDs. However, many GPs and employers mistakenly believe that workers with MSDs must be 100 per cent well before any return to work can be contemplated, and GPs' knowledge of specific and non-specific MSDs has been found, in general, to be lacking.

What can be done?

There are seven main principles which the government, GPs, occupational health professionals, employers, and employees should focus on if we are to improve the working lives of workers with MSDs.

- **Collection of accurate data is fundamental.** Without accurate information regarding the prevalence of specific and non-specific MSDs it is difficult, if not impossible, to plan effective intervention to reduce the cost of MSDs to individuals, their families and society.

- **Assess the direct *and* indirect costs of MSDs.** We need some better measures to evaluate the social, economic and work impact of MSDs to allow the Italian government to assess and monitor both the clinical and labour market impact of MSDs in a more ‘joined-up’ way.
- **Early diagnosis and early intervention are essential.** The overwhelming evidence is that long periods away from work are usually bad for MSD patients – the longer they are away from work the more difficult it is for them to return. With early action, preferably in partnership between GPs, the patient and their employer can help those with MSDs to keep their jobs and to achieve a balance between the individual’s need for respite and their need to work. For some MSD patients early diagnosis and early access to physiotherapy or drug therapies can reduce the severity, impact or progression of the condition – a delay in diagnosis or treatment can make recovery, job retention or rehabilitation much more difficult and dramatically increase the direct, indirect and intangible costs to individuals, their family and society. Once the economic upturn arrives – which it assuredly will – the Italian economy cannot afford for its recovery to be inhibited by a shortage of skilled, motivated and healthy workers.
- **Guarantee equal access to care.** Inequalities between regions and even areas within the same region in health care services and quality of services provided are very common and well known. A balance between people’s right of care and federalism needs to be found in order to make the entire Italian workforce healthy and fit for work.
- **Focus on capacity not incapacity.** Employers and employees can ‘catastrophise’ MSDs, imagining their effects to be far more serious or insurmountable than is strictly the case. Most workers with MSDs can continue to make a great contribution at work if they are allowed to. They do not need to be 100 per cent fit to return to work – a little lateral thinking will allow managers to give them useful work to do that supports them on their journey back to full productive capacity.
- **Imaginative job design is the key to rehabilitation.** Managers can change the way work is organised (including simple changes to physical layout or to working time arrangements) to help prevent MSDs getting worse and to help people with MSD to stay in, or return to, work. They need to do this in a way which preserves job quality, avoids excessive or damaging job demands and takes heed of ergonomic good practice.
- **Think beyond the physical symptoms.** Clinicians should bring to bear their understanding of the biopsychosocial model and the limitations of the biomedical model in their diagnosis and treatment of the patient and – most importantly – their assessment of the role that a job might play in helping someone to stay active and

avoid isolation. GPs are ideally placed to identify the early presentation of many MSDs. Where appropriate, GPs should seek to refer patients to specialist teams as early as practicable, to enable management of the condition to begin.

The evidence presented in this report illustrates that a large proportion of working age people in Italy are, or will be, directly affected by MSDs in the coming years. This can have very significant social and economic consequences for these individuals and their families, it can impede the productive capacity of the total workforce and parts of Italian industry and it can draw heavily on the resources of both the health system and the benefits regime.

We have found important clinical, epidemiological, psychological and economic evidence and expert opinion on the nature, extent and consequences of the MSD problem in Italy. However, there still seems to be a lack of coherence or 'joined-up' thinking and action which focuses on the MSD patient as worker. While the number of advocates of the biopsychosocial model as it applies to all MSDs is growing, we noted that some of those who can have most impact on fulfilling the labour market participation of workers with MSDs have yet to embrace its principles as fully as they might.

2. Introduction

2.1 Italy has experienced a marked slowdown in productivity growth since the mid 1990s. Although there has been a substantial reduction in the budget deficit in 2007, the state of public finances is still very difficult with the public debt ratio being the second highest in the OECD (OECD, 2007). In the current global financial turmoil, the government's three year budget plan for 2009-2011¹ recognises that high public debt – 106.5 per cent of gross domestic product (GDP) in 2008 according to ISTAT (2008a) figures – and rising risk spreads leaves little choice but to resume fiscal consolidation. To do this the government has planned to increase surveillance on tax evasion and fiscal pressure in the energy, banking and insurance sectors and to reduce public expenditure by mainly recurring to fiscal federalism, with cuts in public employment and health care (both at national and regional level) and in social security to a lesser extent. As for health care expenditure, the government will be saving 357 million euros in 2009, and progressively more in 2010 and 2011 (2.3 and 3.3 billion euros respectively).

**Why is
workforce
health
in Italy
important?**

On the other hand, although employment creation has been a bright spot in the economy, Italy still has one of the lowest employment rates in EU27 (where the average is 64.5 per cent) only higher than Malta, Poland and Hungary (58.4 per cent versus 54.8 per cent, 54.5 per cent and 57.3 per cent respectively). According to ISTAT (2008a) figures, in 2007 Italy had approximately 1.5 million people unemployed, about 1 million less compared to 10 years ago. However, this reduction in unemployment has not corresponded to an increase in the number of employed people but to an increase in the level of inactivity of the population. In 2007, the level of activity in Italy reached 62.5 per cent compared to 70.5 per cent in EU27. Among the inactive population, which increased by 318,00 in 2007 compared to 2004, there are two different categories:

1. Those who are not available or interested in working such as students and retired people;
2. Those who are interested and willing to work (about 1.213 million people).

In addition, figures show that there are about 1.348 million people who are not looking for a job but would be happy to work, and 323,000 people who are looking for a job but are not immediately available. Differences according to geographical area, sex and level of education are evident, in particular among those who are looking for a job and immediately available the majority of whom are southern Italian women with low educational attainment.

Out of the 23.222 million people in paid employment the great majority are in full-time employment (just over 20 million), and there are differences in the percentage of employed people with respect to the area of residence. A larger percentage of people with a paid job live in the north (78.3 per cent) compared to the centre (76 per cent) and the south (68.4 per cent).

¹ Ministero dell'Economia e delle Finanze. La manovra di bilancio per il triennio 2009-2011. <http://www.tesoro.it/documenti/open.asp?idd=20833>

In this gloomy economic and social context, the health and wellbeing of the Italian workforce plays a key role in Italy's ability to recover. Improving the health and wellbeing of the workforce means reducing health expenditure without compromising people's right of access to health care services and treatments as formulated by the European Charter of Patients' Rights.² It also means reducing social expenditure for compensating occupational illness, improving labour productivity, enhancing the competitiveness of private and public sector employing organisations, avoiding loss of employees' experience, and reducing costs in hiring and training new employees. Of course facilitating access to work for people affected by ill-health or chronic disease is a necessary and further requirement to provide new dynamism to a stagnant economy.

Available figures on the state of health of the Italian population show that:

- In 2007, there were more than 9 million disabled people. 80 per cent of families with a disabled person did not receive any home health care provided by the NHS (National Health System), and more than 70 per cent did not receive any form of help either public or private (Osservatorio Nazionale sulla Salute delle Regioni Italiane, 2007).
- In 2004-2005, out of approximately 2.8 million disabled in total, only 18 per cent of those of working age were in paid employment. Breaking down the percentage of employed disabled by type of disability, the majority were affected by sight, hearing and speech difficulties (6.4 per cent), followed by movement difficulties (2.7 per cent), and functional disability (1.3 per cent).³
- Chronic diseases constitute 70 per cent of the total public health expenditure (Ministero del Lavoro, della Salute e delle Politiche Sociali, 2008).
- 39.2 per cent of Italians have declared they are affected by a chronic disease, and 20.5 per cent are affected by two or more. Among chronic diseases, osteoarthritis and arthritis have the highest incidence with 19.4 per cent of the population being affected (ISTAT, 2008b).
- In 2006 the government spent 4.245 million euros on injury pensions⁴ (equal to 0.29 per cent of the GDP) and 201.765 million euros in OADS⁵ (equal to 13.68 per cent of the GDP) (ISTAT, 2008a).
- In 2007, social security contributions were 204.772 million euros. However, expenditure due to social benefits was equal to 265.284 million euros (ISTAT, 2008a).

² http://www.activecitizenship.net/images/stories/media/EuropeanCharter/carta_ing_def.pdf

³ <http://www.handicapincifre.it>

⁴ Injury pensions are defined as indemnities by reason of an impairment or death (to survivors in this case) caused by an event that occurred on the job

⁵ Disability, old age, seniority and survivors annuities pensions, paid respectively: in presence of impaired working abilities; as a consequence of the work carried out when certain age limits are reached or after payment of contributions for a given number of years; paid to survivors in case of death

- More than 23 million days of work are lost every year due to specific musculoskeletal disorders (MSDs) which are not caused by work but have an impact on the working life of people with these conditions (Osservatorio Sanita' e Salute, 2008).⁶
- Between 2001 and 2005, more than 2,500 cases of MSDs have been reported to INAIL (National Institute for the Insurance of Accident at Work).
- In 2007, MSDs represented 41.6 per cent of all occupational diseases reported to INAIL. This represents an increase of 100 per cent compared to 2003.⁷
- Sickness absence is the largest cause of absenteeism in Italy (79.6 per cent).

These data depict a worrying scenario that suggests that too little resources have been invested in Italy in early detection, prevention and early intervention of MSDs. Adoption of these strategies is highly recommended, not only to protect those with illness and allow them to enjoy a full and productive working life, but also to reduce the economic burden of illness and disability benefits.

2.2 In the European Union (EU) context, concern in the European Commission and among the social partners over the prevalence and impact of work-related MSDs has been growing for several years. Chronic musculoskeletal pain (CMP) is estimated to affect 100 million people in Europe (Veale, Woolf and Carr, 2008), MSDs affect more than 40 million workers in the EU and account for about half of all work-related disorders in EU countries (European Trade Union Institute (ETUI), 2007), representing an estimated cost to society of between 0.5 and 2.0 per cent of gross domestic product (GDP) (Cammarota, 2005). The fourth European Working Conditions Survey (EWCS) published by the European Foundation (Parent-Thirion et al., 2005) has shown that 24.7 per cent of workers across the EU report experiencing backache and 22.8 per cent muscular pain. Indeed, the European Commission estimates that MSDs account for 49.9 per cent of all absences from work lasting three days or longer and for 60 per cent of permanent work incapacity. If the European, knowledge-based economy is to recover and compete against the US and the growing economies of Asia the health and productivity of the EU workforce must be a policy priority. This report looks at Italy in this wider EU context and assesses where Italy is doing well and where it has challenges to confront.

⁶ The study conducted by the Osservatorio Sanita' e Salute (2008) focuses on rheumatoid arthritis and spondyloarthropathies

⁷ http://www.inail.it/Portale/appmanager/portale/desktop?_nfpb=true&_pageLabel=PAGE_SALASTAMPA&nextPage=News_prima_pagina/2009/INAIL/info-763452985.jsp

2.3 Objectives of the study

More specifically, this project has sought to address each of the following questions:

1. What is the impact of MSDs on employment and economic performance in Italy? How is this likely to change in the context of future demographic, workforce and lifestyle changes?
2. What is the relationship between work and MSDs? What impact do biological, psychological and social factors, including workplace factors have on MSDs?
3. How well do employers, governmental bodies, GPs and occupational health professionals understand and deal with MSDs as they relate to the workplace? How well equipped is the health sector to provide early intervention, rehabilitation and other support for people with these conditions?
4. What early interventions can policy-makers and employers deliver to ensure that those with MSDs a) retain their jobs b) maximise their quality of working life and their contribution to society and c) maintain access to (and routes back into) employment?

In addressing the objectives outlined above, we have used the following approaches:

1. Desk research: Here we have drawn on existing published research from the medical, occupational health and health economics literature. This has enabled us to draw together the evidence on the nature, extent, impact and costs of MSDs to the Italian economy, to employers and to individuals. We have examined a range of MSDs to assess the extent to which their impact varies and where policy and practice has been both strong and weak in preventing and intervening.
2. Secondary data analysis: We have used data from domestic and European studies and surveys to examine the prevalence and costs of MSDs in the working age population in Italy.
3. Expert interviews: We have conducted interviews with experts across a number of disciplines (including occupational health, labour economics and rheumatic disease), to identify the main areas of policy and practice which need to be addressed by policy-makers, health professionals and by employers.

In addition to the wider picture, to focus the research, we have chosen to concentrate on four categories or groups of MSDs. These are:

- Back pain;
- Work-related upper-limb disorders (WRULDs);
- Rheumatoid arthritis (RA);
- Spondyloarthropathy (SpA).

Back pain and the majority of WRULDs are categorised as non-specific and episodic conditions which may frequently be caused by, or be made worse by, work. They manifest themselves in disparate ways and may cause periods of intense discomfort and incapacity which may affect the ability of the individual worker to carry out their work. They may also abate for long periods. Many people with these conditions, such as back pain, never seek treatment and most recover on their own but the conditions can cause significant absence from work or lost productivity. Back pain and WRULDs are often included in the occupational health and safety guidelines and literature. Occupational health practitioners typically deal with these conditions.

On the other hand, RA and SpA are specific and progressive rheumatic diseases which are not caused by work, but may be made worse by work, and are often handled by GPs and specialists, not within the occupational health arena. They are clinically diagnosed conditions that progress in a broadly predictable way, if untreated. They can have a significant impact on functional capacity at work and, in the long-term, participation in the labour market. Most people with these conditions require clinical interventions over a prolonged period of time and the management of these conditions for those of working age should involve the frequent and active participation of clinicians, employers and occupational health professionals.

Improving our understanding of the effects of these conditions, how staying in work can be beneficial, and what might be done to alleviate their impact, can yield significant social and economic benefits.

2.4
A note
on definition

In the absence of a consensus on a clinical definition of many MSDs, navigating the literature on their prevalence, incidence, diagnoses, epidemiology, treatment and cost to Italian society is a difficult task. The lack of standardisation and validation of the terminology and classification of MSDs is one of the reasons for the contradictory findings in the literature regarding the diagnosis, epidemiology, treatment and rehabilitation of these conditions (WHO Scientific Group, 2003). Some clinicians differentiate between ‘musculoskeletal conditions’ and ‘musculoskeletal disorders’. The former refers to all clinical conditions affecting the musculoskeletal system and the latter, to borrow a definition from the ETUI (European Trade Union Institute, 2007), meaning ‘any affliction of the musculoskeletal system that appears at work and causes discomfort, difficulty or pain when performing work’. In addition, different sources are used to tackle MSDs at both national and international level. This obviously makes it even harder to compare data and the impact of MSDs on both welfare systems and working conditions (European Foundation for the Improvement of Living and Working Conditions (Eurofound), 2007).

In Italy, the available data concerning MSDs make reference to two different sources: the database of the INAIL (National Institute for the Insurance of the Accidents at work) and the systems of health surveillance for the occupational diseases registrations activated in some regions.

As for the benefits that workers may receive, there is a distinction between ‘tabled’ and ‘untabled’ occupational diseases. According to INAIL, the tabled occupational diseases are those contracted in the exercise and as a consequence of the working conditions as specified in appropriate tables defined by law. The untabled professional diseases are those for which the worker succeeds to demonstrate a causality nexus with his/her working conditions. Tabled pathologies enjoy higher benefits than the untabled ones. In July 2008 a new version of tabled diseases was approved; workers who have developed MSDs as a consequence of continuous biomechanical overload, repetitive movements and/or incongruous postures of the upper limb, of the knee and of the spine are now entitled to receive a disability benefit for a period up to four years according to the specific MSD.⁸ Table 2.1 below shows a list of tabled MSDs and maximum compensation periods.

Table 2.1: List of tabled MSDs and corresponding compensation period

Disease classification	Maximum compensation period
Diseases caused by mechanical vibrations transmitted to the hand-arm system: <ul style="list-style-type: none"> a. Raynaud syndrome b. Osteoarthropathies of the wrist, elbow and shoulder c. Peripheral neuropathies of the ulnar and median nerve 	<ul style="list-style-type: none"> 1 year 4 years 4 years
Lumbar discal hernia	1 year
Diseases caused by biomechanical overload of the upper limbs: <ul style="list-style-type: none"> a. Tendonitis of the shoulder, elbow, wrist and hand b. Carpal tunnel syndrome c. Other conditions caused by biomechanical overload of the upper limbs 	<ul style="list-style-type: none"> 1 year 2 years 1 year

Source: *Gazzetta Ufficiale della Repubblica Italiana n. 169 del 21-7-2008*

⁸ *Gazzetta Ufficiale della Repubblica Italiana n. 169 del 21-7-2008*
http://www.inail.it/cms/Medicina_Riabilitazione/tabelle_malattie/22.pdf

2.5 **Structure of the report**

This report is structured as follows:

- Section 3 examines the extent of MSDs in Italy and the impact they have on productivity and attendance at work, on labour market participation and on the wider Italian economy.
- Section 4 reviews the range of interventions, including vocational rehabilitation, which can improve job retention and labour market participation among those with MSDs.
- Section 5 sets out our recommendations for the Italian government, GPs, occupational health professionals, employers and employees.
- Appendix 2 provides a benchmarking grid in which a number of indicators covering the labour market, the welfare system and the healthcare system are presented for each of the country involved in the Fit for Work project.

3. Work and MSDs in Italy

This section sets out what we know about the impact of MSDs on people of working age in Italy. It uses data, research and interview evidence from Italian sources where this is available, and paints a picture of the challenges faced by both current and future Italian workers, their families, their employers and, ultimately, state agencies. It looks at four main issues:

1. The inadequacy of the data on MSDs in Italy and the consequences of this;
2. The impact that MSDs have on people's ability to work;
3. The impact that work can have on MSDs;
4. The wider economic and social impact of MSDs in Italy.

We begin by looking at data quality.

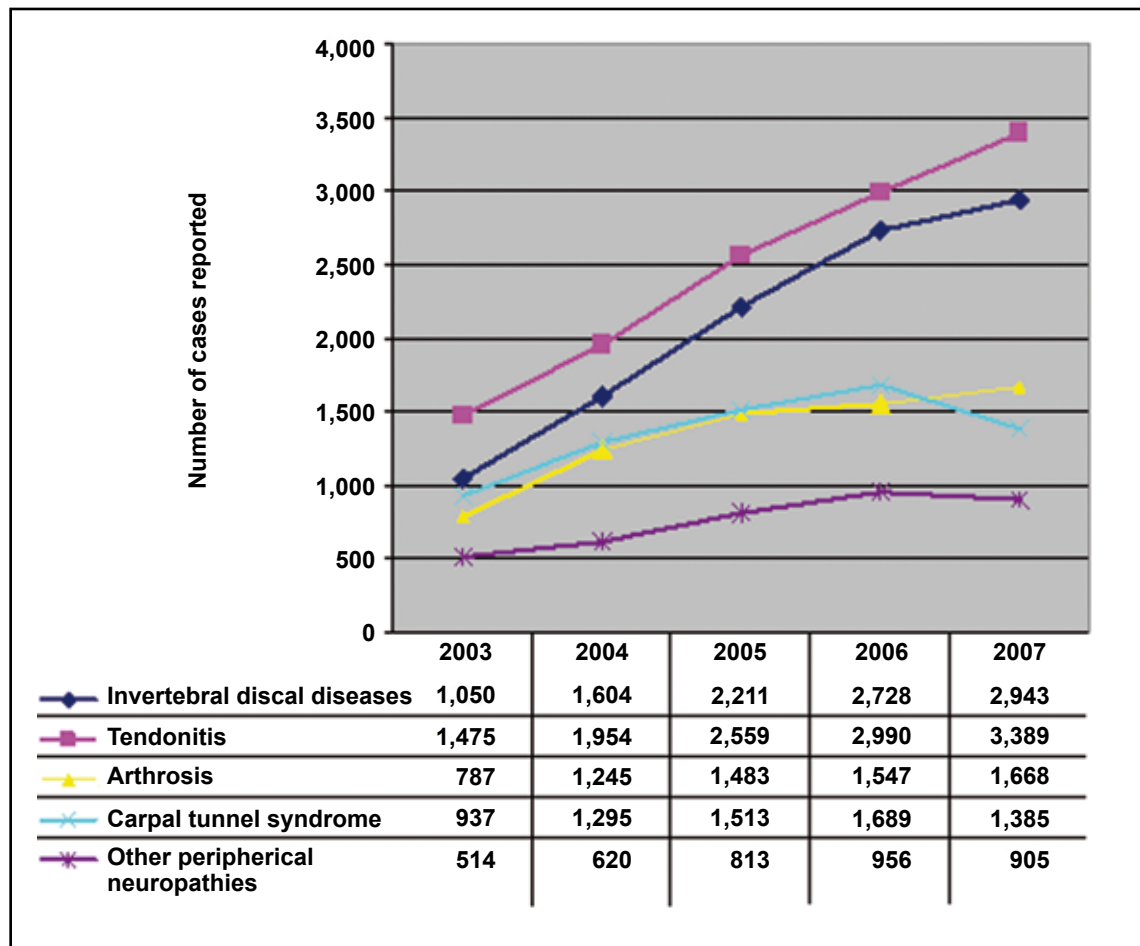
3.1
An unclear
picture

Following the ministerial decree of 27 April 2004, the INAIL has published more precise statistics on the prevalence of some MSDs among the Italian working population. Figure 3.1 on the next page shows that while the number of cases reported for some MSDs (other peripheral neuropathies and carpal tunnel syndrome in particular) have decreased between 2006 and 2007, the number of cases for the majority of MSDs under consideration have increased in the period 2003-2007. Tendonitis in particular and intervertebral discal diseases have registered the highest increase between 2004 and 2005, and are the most reported MSDs among workers in the agriculture, manufacturing and services sectors.

If we break down these figures by sector (Figure 3.2), in 2007 MSDs under consideration (intervertebral discal diseases, tendonitis, arthrosis, carpal tunnel syndrome and other peripheral neuropathies) represent 54.1 per cent of total occupational diseases in agriculture, and 35.5 per cent in manufacturing and services. However, the highest increase of MSDs as a proportion of all occupational diseases was registered in the manufacturing and services sector, where between 2003 and 2006 this proportion nearly doubled (18.5 versus 36.8 per cent respectively).

Statistics provided by INAIL, however, do not list the days of absence due to MSDs that may be caused by work. Similarly, there are no estimates available on their costs to society (Eurofound, 2007). However, we do know that musculoskeletal complaints are a major cause of absence because of sickness in developed countries; they are second only to respiratory disorders as a cause of short-term sickness absence (less than two weeks), and the most common medical causes of long term absence, accounting for more than half of all sickness absences lasting longer than two weeks in Norway (Woolf and Pfleger, 2003).

Figure 3.1: Number of reported work-related MSDs cases in agriculture and manufacturing and services sectors by condition

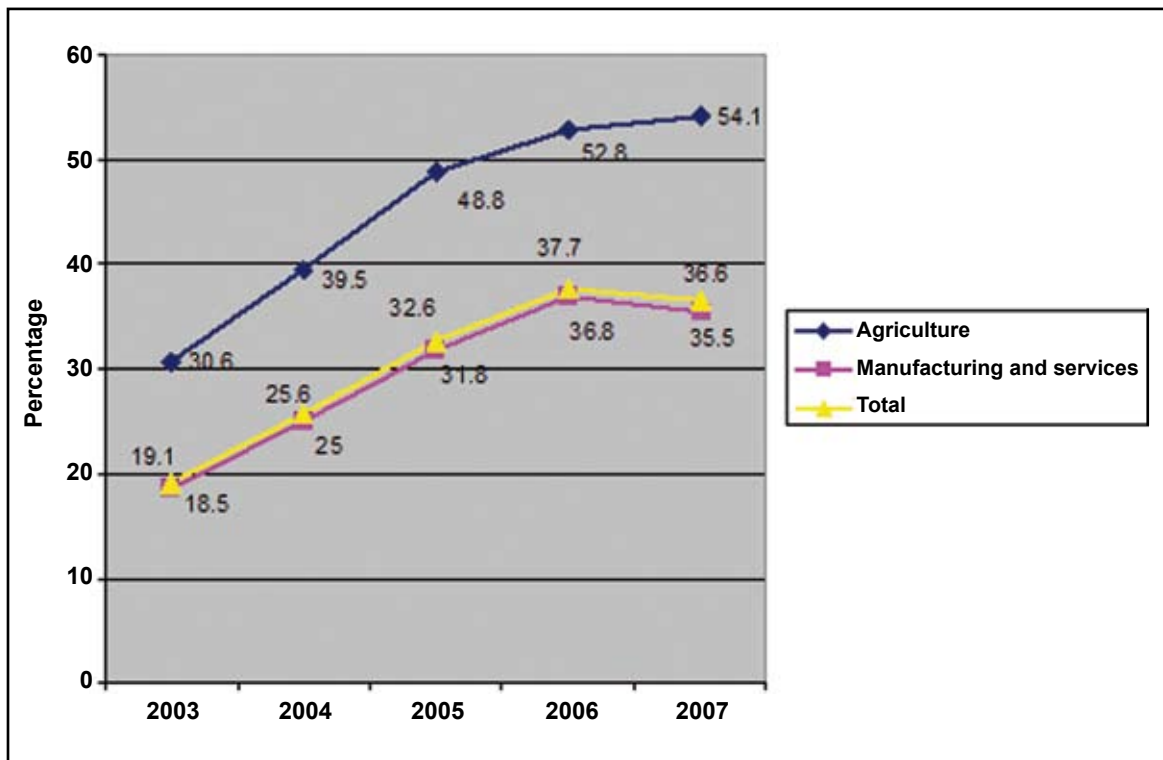


Data source: Banca Dati INAIL 2003-2007

As for MSDs that are not caused by work but may be made worse by work are concerned, the situation is similarly unclear. In the last 40 years only four epidemiological studies on RA have been carried out in Italy;⁹ none of these at national level and none of these have looked at the impact of rheumatic diseases on the working life of people who are affected by these conditions. As the awareness about the social and economic impact of MSDs increases, however, public debate develops. In a recent parliamentary debate the impact of rheumatic diseases on the Italian population and economy was discussed. The need for reliable and national

⁹ Azigos. Artride reumatoide in Italia.

Figure 3.2: MSDs as a proportion of all cases of occupational diseases by sector



Data source: Banca Dati INAIL 2003-2007

epidemiological data, for a better provision of health care by the NHS in terms of access to services and treatments at regional level as well as the possibility of acknowledging a specific status for people with rheumatic diseases (as this already happens for people affected by diabetes and cardiopathies) has been put forward.¹⁰

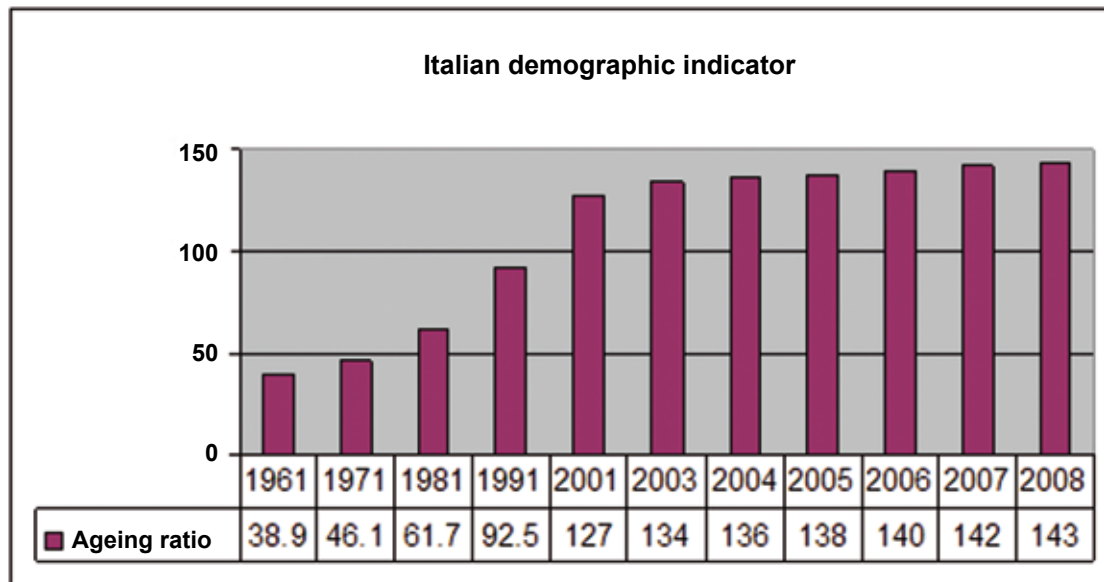
As the aging ratio¹¹ continues to grow (see Figure 3.3) together with the number of people overweight and obese (35 per cent and 10.2 per cent respectively in 2006), the number of MSDs in Italy will increase dramatically. International evidence, however, has showed that return-to-work policies can be effective in facilitating declining trends in occupational MSDs (Eurofound, 2007). As for chronic conditions, guaranteeing early intervention and access to treatment remains the most adequate strategy to enhance people' lives and reduce the social and economic burden of these conditions.

¹⁰ Camera dei deputati Seduta n.120 del 26/1/2009

http://www.camera.it/resoconti/resoconto_allegato.asp?idSeduta=120&resoconto=bt01¶m=bt01#bt01

¹¹ The aging ratio is the ratio of the population aged 65 and over to the population aged 0-14, per 100

Figure 3.3: Aging ratio in Italy between 1961 and 2008



Data source: ISTAT (2008b)

3.2 The impact of MSDs on ability to work

The impact of MSDs on the individual and their ability to work varies significantly from person to person. Attempts to measure relative work disability differ according to methods of data collection, respondent selection and definitions of work disability. Work disability usually refers to cessation of employment, reduced working hours or claiming of disability benefits. These estimates rarely include estimations of lost productivity whilst at work.

According to a recent study on a sample of 646 people affected by RA (Fondazione Censis, 2008), 22.7 per cent of participants declared to have seriously modified their working life as a consequence of the disease. In addition, the longer people have been affected by the disease, the higher the probability that they have modified or left work. A description of how the 22.7 per cent of participants has modified their working life is showed in Table 3.1 below.

MSDs can cause work-limiting pain and fatigue. According to an Italian study on pain management in general practice (Koleva, Krulichova, Bertolini, Caimi and Garattini, 2005), the most frequent origin of pain is musculoskeletal (62.6 per cent of all somatic pain), and it is most frequently found in the limbs (28.2 per cent), abdomen (16.4 per cent), back (13.8 per cent), neck (12.9 per cent) and in multiple sites for 11.9 per cent of cases. As pain and particularly

chronic pain is the leading cause of disability in western countries, the finding that 65 per cent of people who see their GP for pain management are of working age is striking.

Table 3.1: Impact of RA on working life

He/she has changed job	8.0%
He/she has been forced to retire	32.2%
He/she has partially reduced the amount of working hours	39.1%
He/she has put forward a request to retire	10.3%
He/she has been forced to leave work	10.4%

Source: Fondazione Censis (2008)

MSD, as outlined in Section 2, can be non-specific or specific. The effects of specific MSDs are discussed below with particular reference to RA and SpAs. Other, largely non-specific MSDs are described in relation to two main categories, back pain and WRULDs. The effects of pain from MSDs can thus impact on the following aspects of one’s performance at work:

- Stamina and resilience;
- Cognitive capacity or concentration;
- Rationality/mood;
- Fatigue;
- Mobility;
- Agility.

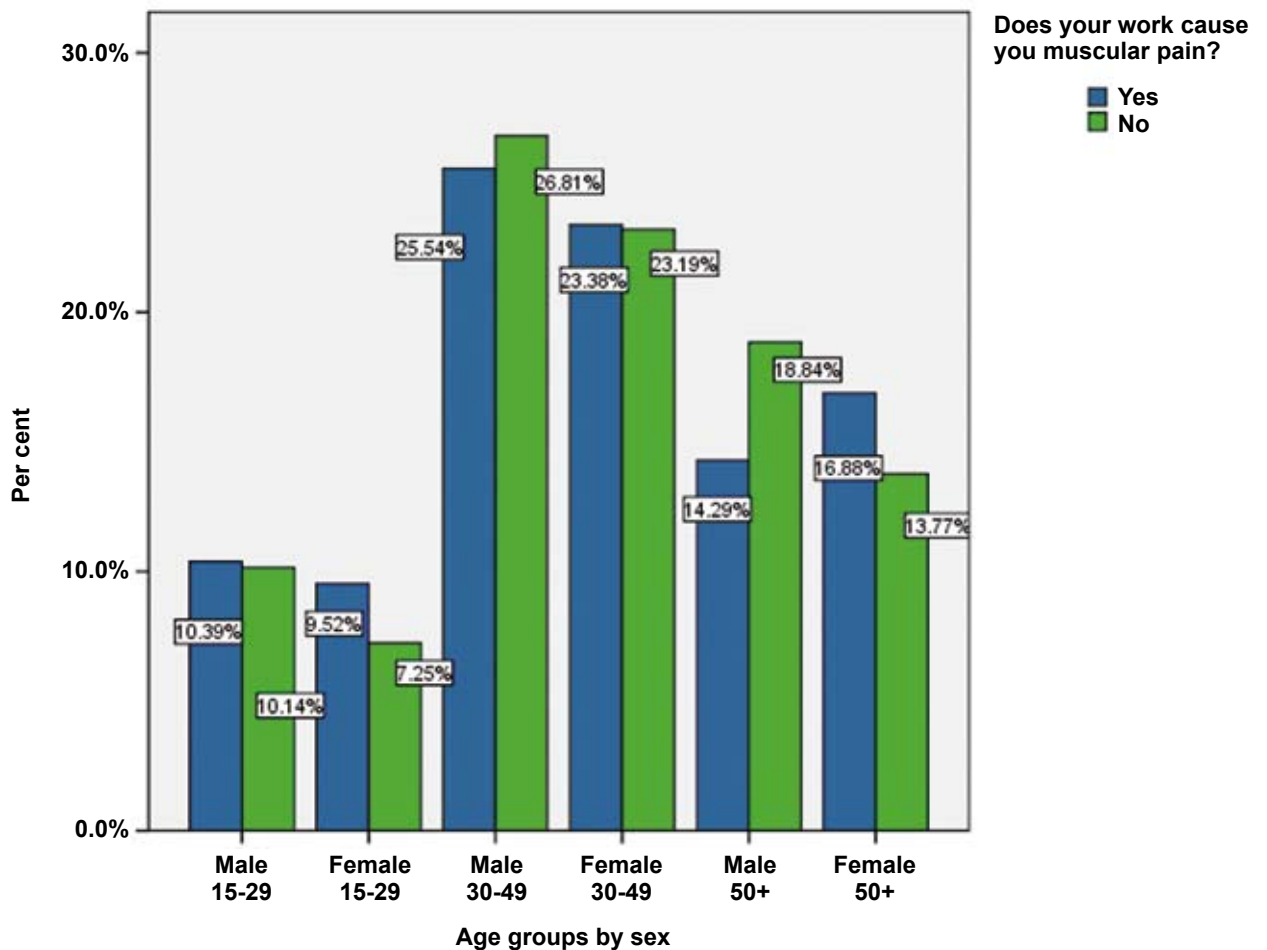
An MSD can also have effects on safety aspects of work. If concentration or movement is affected by the condition or associated pain then some aspects of work may become unsafe. It must also be noted that, following diagnosis, some treatments can have significant side effects which affect an individual’s ability to perform. Where particular hazards such as heavy machinery or driving are involved then safety aspects of job performance will also be of concern.

3.2.1 Work-related upper limb disorders

About 22 per cent of Italian workers surveyed in the fourth EWCS (Parent-Thirion et al., 2005) mentioned that their work caused them muscular pain in their neck, shoulders, and/or upper/lower limbs. Breaking down this percentage by age and sex of respondent as shown in Figure

3.4, workers aged between 30 and 49 years are the ones experiencing the most muscular pain. As they get older, female workers report more work-related muscular pains than men.

Figure 3.4: Percentage of Italian workers suffering from muscular pain in their neck, shoulders, and/or upper/lower limbs



Source: Calculations based on the fourth EWCS (Parent-Thirion et al., 2005)

Work-related neck and upper limb disorders (WRULDs) are MSDs affecting the upper part of the body caused or aggravated by work and the working environment. However, there is considerable debate about the definition and diagnostic criteria for WRULDs, which are also commonly referred to as ‘sprains or strains’, ‘repetitive strain injuries or disorders’, or ‘cumulative trauma disorders’. Both specific and non-specific disorders and symptoms can be

covered by this category. Van Eerd et al. (2003) identified 27 different classification systems for work related MSDs, of which no two were found to be alike. The fact that a single disorder is often described in different ways only amplifies the problem. Critically, Van Eerd et al. found that the different classification systems did not agree on which disorders should be included. This definitional problem makes it difficult to calculate the number of people with WRULDs and to develop a common understanding of the associated risk factors.

Whilst no agreed classification exists there is a common consensus that symptoms of WRULDs can present in the tendons, muscles, joints, blood vessels and/or the nerves and may include pain, discomfort, numbness, and tingling sensations in the affected area. WRULDs can be specific and non-specific conditions (Aptel, Aublet-Cuvelier and Cnockaert, 2002) and attempts at classification tend to focus either on the affected body area or on the cause. Examples of WRULDs by body part include the following:

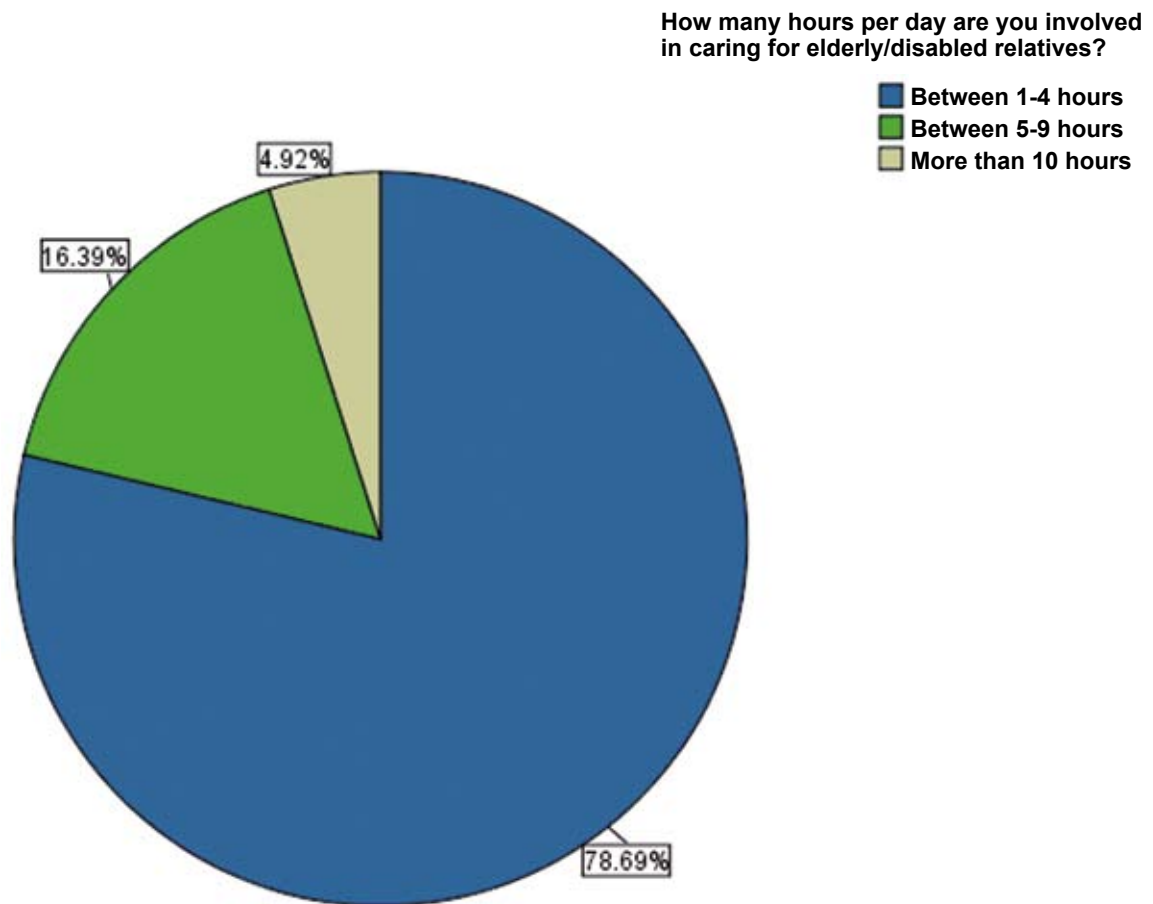
- Elbow: Epicondylitis (tennis or golfer's elbow);
- Hand, wrist and forearm: Carpal tunnel syndrome; repetitive Strain Injury (RSI), de Quervain's syndrome;
- Shoulder: Tendinitis of the shoulder;
- Neck: Neck pain.

Classification by occupational causes refers to actions such as vibration of the hand and arm, which can result in Raynaud's syndrome. The breadth of the category of WRULDs means that almost all symptoms and impacts on work associated with MSDs are associated with WRULDs. Specific symptoms and impacts of MSDs are therefore discussed in more detail below with reference to back pain, RA and SpA conditions.

3.2.2 Back pain

Back pain is a very common complaint in Italy. The fourth EWCS (Parent-Thirion et al., 2005) shows that 24.3 per cent of Italian workers reported work-related back pain. Workers in the construction and health care sectors are the most affected (Lorusso, Bruno and L'Abbate, 2007). Evidence also shows that looking after a person in need is a significant risk factor for developing low back pain (Rosano et al. 2004). In Italy, according to the EWCS, 27 per cent of workers are also providers of informal care for an elderly or disabled person in their family. Among those who provide daily care, the majority do it for up to four hours a day (see Figure 3.5). Given the demographic projections discussed above, we can assume that with the increased ageing of the population, low back pain among Italians will increase proportionally.

Figure 3.5: Percentage of workers who provide daily informal care by hours of care provided



Source: Calculations based on the fourth EWCS (Parent-Thirion et al., 2005)

In the vast majority of patients with back pain, no specific diagnosis is given. According to Koleva et al. (2005), diagnostic uncertainty seems to be a critical feature in Italian general practice: in their study, 89 per cent of consultation due to pain ended with a diagnosis, but GPs reported only 58 per cent of them as 'certain'.

Back pain is common, episodic, often recurrent and generally self-limiting. It is defined as recurrent if several episodes occur in one year for a duration of less than six months, acute if an episode lasts for less than six weeks, sub-acute (7-12 weeks) and chronic if it endures for over 12 weeks. Back pain is a recurrent problem for many people, although this does not necessitate

that symptoms will worsen. For the majority of people pain will disappear of its own accord within four to six weeks. In a European study of people visiting their family doctors because of back pain, 65 per cent were free of symptoms within 12 weeks (van der Hoogen et al., 1998 in Bekkering et al., 2003). Recorded absence is greatest amongst the minority of individuals whose condition is chronic or recurrent. Most people who are affected by back pain either remain in work or return to work promptly. About 85 per cent of people with back pain take less than seven days off, yet this accounts for only half of the number of working days lost. The rest is accounted for by the 15 per cent who are absent for over one month (Bekkering et al., 2003).

It is important to recognise that there is a difference between having symptoms, care seeking, lost productivity and disability, and the factors that contribute to them (Burton, 2005). This means that whilst an individual may experience musculoskeletal pain (in their back, for example), it is not possible to predict their strategies for dealing with illness or injury (seeking medical attention for example), how it will affect their work performance, whether they will take time off work and whether, ultimately, they will become one of the very small minority who become permanently disabled by their condition. The important question is therefore why, when so many people experience back pain, does it have such an adverse effect on some and not others? There is a growing consensus that psychological factors are the differentiating element as they are strongly associated with the progression of back pain from an acute to a chronic condition that affects two to seven per cent of people (Burton, 2005), and to disability (Burton, 2005; Bekkering et al., 2003).

3.2.3 Rheumatoid arthritis

RA is an example of a specific MSD. It is a form of inflammatory arthritis with a prevalence of between 0.3 per cent and one per cent in most industrialised countries (WHO Scientific Group, 2003). The disease affects people of any age, although peak incidence is in the mid age range of the working age population, between the ages of 25 and 55 years. Epidemiological studies have shown that RA shortens life expectancy by around 6-10 years.

The exact cause of RA is unknown. Evidence suggests that it is an immune reaction, presenting as an inflammation affecting joints and other tissues. Risk factors include gender, family history of RA and specific leukocyte antigen (HLA) (WHO Scientific Group, 2003). Whilst at an individual level the clinical course of RA is extremely variable, its features include pain, stiffness in the joints and tiredness, particularly in the morning or after periods of inactivity, weight loss and fever or flu-like symptoms. It affects the synovial joints, producing pain and eventual deformity and disability. The disease can progress very rapidly, causing swelling and damaging

cartilage and bone around the joints. It can affect any joint in the body, but it is often the hands, feet and wrists that are affected. RA can also affect the heart, eyes, lungs, blood and skin.

In Italy, very little data has been published on the prevalence of RA. The few studies available report prevalence rates in the general population of 0.33 per cent (Cimmino, Parisi, Moggiana, Mela and Accardo, 1998), 0.46 per cent (Marotto, Nieddu, Cossu, and Carcassi, 2005; Salaffi, De Angelis and Grassi, 2005), and 0.7 per cent (Leardini, Salaffi, Montanelli, Gerzelli and Canesi, 2002;¹² Osservatorio Sanita' e Salute, 2008). Following from this data, out of a total resident population of 59,131, 287 (ISTAT, 2008a), the number of estimated people with RA in Italy is between 195.133 and 413.919 thousands. If out of these numbers we arbitrarily take the mean value, in Italy we talk of about 300,000 people in total affected by RA. According to international sources (Cassell and Rose, 2003; Harrison, 2008) women are affected by RA three times more often than men. However, Marotto et al. (2005) found that among Sardinian women the ratio was 4:1.

Regional differences in prevalence rate show that people from the south of Italy are more likely to develop RA than people from other areas. According to the data reported by the Osservatorio Sanita' e Salute (2008), in the majority of cases (58 per cent) the disease has been diagnosed by a rheumatologist and in 32 per cent of cases by a GP. If we consider the time elapsed from onset to early diagnosis, Leardini et al. (2002) show that it changes according to the functional class of RA;¹³ precisely, participants in Leardini et al.'s study reported that the time elapsed from onset to early diagnosis was 1.5 year when they had been classified in functional class I, 1.7 year when they had been classified in functional class II, 2.2 years when they had been classified in functional class III, and 2.6 years when they had been classified in functional class IV.

The course of RA varies, meaning that it can go from a mild and even self-limiting form of the disease, to being severe and destructive within a short time (Young et al., 2000). RA is usually chronic (persistent) and people with the condition often have 'flares' of intense pain usually associated with fatigue, although the reason for these is not known. In effect, 'flares' mean that one day someone will be able to perform their duties and the next they cannot. This can be

¹² Precisely, in Leardini et al. (2002) the prevalence rate ranges between 0.3 per cent and 0.7 per cent

¹³ The American College of Rheumatology has developed a global functional status index consisting of four classes: I= completely capable of performing the usual activities of daily life (self-care, vocational and avocational); II= capable of performing the usual self-care and vocational activities, but limited in avocational activities; III= capable of performing the usual self-care activities, but limited in vocational and avocational activities; IV= limited in ability to perform the usual self-care, vocational, and avocational activities

difficult for colleagues and managers to comprehend, and can make planning workloads challenging especially when the condition results in a high level of sickness absence (more than 13 million days among the 142,168 workers affected by RA according to the Osservatorio Sanita' e Salute, 2008). Managing these 'flares' in employment requires close communication and understanding between employees and employers.

The effects of the disease can therefore make it difficult to complete every day tasks, often forcing many people to give up work. Work capacity is affected in most individuals within five years (WHO Scientific Group, 2003). One review of work productivity loss due to RA estimated that work loss was experienced by 36-85 per cent of people with RA in the previous year, for an average (median) of 39 days (Burton, Morrison, Maclean and Ruderman, 2006). Young et al. (2002) reported that 22 per cent of those diagnosed with RA stopped work at five years because of their RA. However, in some cases the condition itself is not the main or only cause of having to leave work. Indeed Young et al. (2002) found a further group of respondents who stopped work due to a combination of RA and other personal factors, giving an estimate of 40 per cent of those with RA withdrawing from the workforce because of their condition. From the study published by Fondazione Censis (2008) it appears that while the majority of patients affected by RA remain in employment (77.3 per cent of the sample), the number of workers who leave work increases with the number of years that they have been affected by the disease.

3.2.4 Spondyloarthropathies

Spondyloarthropathies (SpA) represent a family of chronic inflammatory conditions which include:

- Ankylosing spondylitis (AS);
- Reactive arthritis (ReA)/ Reiter syndrome (RS);
- Psoriatic arthritis (PsA);
- Spondyloarthropathy associated with inflammatory bowel disease (IBD);
- Undifferentiated spondyloarthropathy (USpA).

Recent research on the prevalence of SpAs across the European population concludes that the frequency has long been underestimated and may have a similar occurrence rate to RA (Akkoc, 2008).

Like RA, it is also difficult to find a clear estimate of the frequency of SpAs amongst the Italian population. The Osservatorio Sanita' e Salute (2008) reports a prevalence rate of 0.55 per cent (322,801 people). However, an international study (Akkoc, 2008) identifies Italy as the

country with the highest incidence of SpAs (1.06 per cent) among a few more (Greece, France, Lithuania, Turkey and Scottish Highlands). The Italian Spondyloarthropathies Association (AISpA) confirms that there is no accurate epidemiological data about SpAs. However, the disease affects 1.5 per cent of the total population (886.969 people), mainly men. If, as for RA, out of these numbers we arbitrarily take the mean value, in Italy we talk of about 606.095 people affected by SpAs.

The impact of SpAs on people's working life is dramatic. According to the data of the Osservatorio Sanita' e Salute (2008), based on a prevalence rate of 0.55 per cent, in Italy there are 144,466 workers affected by SpAs, who, on average are absent from work due to their condition for 70 days a year, giving a total of 10,112,620 days per year.

Ankylosing spondylitis (AS) is a specific progressive and chronic rheumatic disorder that mainly affects the spine, but can also affect other joints, tendons and ligaments. Its prevalence in the general population is most commonly reported to be 0.1-0.2 per cent, with a 3:1 to 2:1 male: female ratio (Dagfinrud, Mengshoel, Hagen, Loge and Kvien, 2004). The AiSpA estimates that 25-30 thousands people suffer from AS in Italy with a prevalence rate of 0.05-0.06 per cent. The disease mainly affects men between 25 and 30 years with a ratio 7:3 compared to women.

Research suggests that there is a strong genetic component to the cause of AS. Although anyone can get AS, it affects men, women and children in slightly different ways (Dagfinrud et al., 2004). In men, the pelvis and spine are more commonly affected, as well as the chest wall, hips, shoulders and feet. Women are supposed to have a later age of onset, milder disease course, longer asymptomatic periods but more extraspinal involvement. Accurate diagnosis can often be delayed since the early symptoms are frequently mistaken for sports injuries; Sieper, Braun, Rudwaleit, Boonen and Zink (2002) suggest an average of seven years between disease onset and diagnosis. Typical AS symptoms include pain (particularly in the early morning); weight loss, particularly in the early stages; fatigue; fever and night sweats and improvement after exercise. Again, as with RA, the temporal aspects of the disease require good management to ensure that someone can perform their job but do not make work impossible.

Approximately half are severely affected whilst others report very few symptoms. AS is generally considered to be a disease in which many individuals can maintain relatively good functional capacity (Chorus, Boonen, Miedema and van der Linden, 2002), yet reported unemployment rates are three times higher among people with ankylosing spondylitis than in the general population (Boonen et al, 2001).

Recent research has provided evidence that physical health related quality of life of people with RA (Chorus, Miedema, Boonen and van der Linden, 2003) and AS (Gordeev et al., 2009) was positively influenced by work. Chorus et al.'s conclusion was that work '*might be an important factor in positively influencing patients' perception of their physical performance*'. This finding concurs with Waddell and Burton (2006a) that, overall, good quality work has health and recuperative benefits for workers. The extent to which the workplace can have a positive or negative effect on development of MSDs is discussed below.

Psoriatic arthritis (PsA) is a form of joint inflammation affecting between 0.2 and 1 per cent of the general population (Wallenius et al., 2008) and between 10 and 20 per cent of individuals with psoriasis. In Italy, Salaffi et al. (2005) found a prevalence of 0.42 per cent among the population in the Marche region and Gisondi, Girolomoni, Sampogna, Tabolli and Abeni (as reported in Cimmino, 2007) report that among Italian patients hospitalised for psoriasis, the frequency of those with PsA amounted to 7.7 per cent. However, Cimmino (2007) points out how the prevalence of arthritis among patients with psoriasis depends heavily on the criteria used for the definition of PsA, and how different criteria can modify the results of epidemiological studies.

When joints are inflamed they become tender, swollen and painful on movement. The joints are typically stiff after resting, early in the morning or while resting in the evening. Tissues such as ligaments, tendons around the joints may also be involved. Inflammation of tendons or muscles (such as tennis elbow and pain around the heel) is also a feature in those with psoriatic arthropathy. In approximately 80 per cent of cases the arthritis develops after the appearance of psoriasis. Men and women are considered to be equally affected, and comparative studies have showed that patients with PsA have a burden of illness which is comparable to that of patients with RA or AS (Wallenius et al., 2008).

There are several features that distinguish PsA from other forms of arthritis. One pattern of inflammation is usually in the end of finger joints and another involves the joints of the spine and the sacroiliac joints which is called spondylitis (similar to ankylosing spondylitis). Neck pain and stiffness can occur or an entire toe or finger can become swollen or inflamed (dactylitis). There can also be a tendency for joints to stiffen up and sometimes to fuse together. Importantly the absence of a rheumatoid factor in the blood helps distinguish PsA from RA. Usually the condition develops in the teenage years. In women there may be an increased incidence following pregnancy or the menopause. As PsA affects both the skin and the joints it has a negative impact on the quality of life of people with PsA. In fact, due to emotional problems,

they may experience more pain and role limitations than patients with RA (Husted, Gladman, Farewell and Cook, 2001). A higher level of mortality compared to the general population has also been reported among people with PsA (Wallenius et al., 2008).

3.3
The impact
of the
workplace
on MSDs

The risk factors for MSDs are wide ranging. Whilst there is broad consensus among experts that work is a risk factor for MSDs, non-work activities such as sport and housework can contribute to musculoskeletal strain. Some studies, for example, have noted that a higher prevalence of musculoskeletal pain among working women may be linked to the fact that women are responsible for doing the majority of housework (Punnett and Wegman, 2004). Intrinsic risk factors also have a part to play in the onset and deterioration of MSDs. Some intrinsic factors can be altered, others, such as genetic predisposition, cannot.

One area of concern in Italy is the ageing of the population – a risk factor for the development of chronic conditions as well as disabilities. The latest data suggests that in 2008 Italy had a larger percentage of people aged over 65 (20.1 per cent) compared to EU27 (17.1 per cent), and that this trend will not change in future years (projections estimate that in 2035 and 2060 people 65 and over in Italy will be 28.6 per cent and 32.7 per cent respectively compared to EU27 25.4 per cent and 30 per cent).¹⁴ Furthermore, according to the WHO figures published in 2007, Italy has the highest number of new invalidity/disability cases compared to Austria, Croatia, Czech Republic, Finland, Israel, Lithuania, Norway, Slovakia, and Slovenia. Other intrinsic risk factors for non-specific MSDs are summarised in Table 3.2 on the next page.

In terms of evidence and risk factors for the impact of work on MSDs a distinction needs to be made between ‘work-related’ disorders and ‘occupational’ disorders (Punnett and Wegman, 2004). Certain MSDs are recognised as occupational diseases by some European governments, such as wrist tenosynovitis, epicondylitis of the elbow, Raynaud’s syndrome or vibration white finger and carpal tunnel syndrome (Eurostat, 2004). As such, the fact that work can cause and contribute to these conditions is widely recognised and the use of assessments of workplace risk to reduce the incidence of these conditions is well established.

It is clear that work is not the cause of rheumatic diseases such as RA and SpAs, though there is evidence that physical work demands, lack of support, self-stigma and lack of flexibility over working time can each make job retention or return to work more difficult (der Tempel and van der Linden, 2001; Gignac et al., 2004).

¹⁴ Eurostat Newsrelease (2008).

http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP_PRD_CAT_PREREL/PGE_CAT_PREREL_YEAR_2008/PGE_CAT_PREREL_YEAR_2008_MONTH_08/3-26082008-EN-AP.PDF

Table 3.2: Summary of intrinsic risk factors for non-specific MSDs

Intrinsic factors
<ul style="list-style-type: none"> • Obesity, height • Spinal abnormalities • Genetic predisposition • Pregnancy • Psychosocial stress: self-perception • Health beliefs: locus of control, self-efficacy, perception of disability and expectation • Family stress • Psychological stress: somatisation, anxiety and depression • Ageing

Source: Adapted from WHO Scientific Group (2003)

The evidence linking other non-occupational MSDs and work is not conclusive and attributing cause and effect between specific aspects of work and particular parts of the body is difficult. However, many of the established risk factors that may contribute to the development of non-specific MSDs can be encountered at work; even if work does not cause a condition it may have an impact on it. Moreover, if we consider risk factors beyond the physical, then the impact of the workplace on MSDs is likely to be much greater.

The most frequently cited risk factors for MSDs encountered in the work place include the following:

- Rapid work pace and repetitive motion patterns;
- Heavy lifting and forceful manual exertions;
- Non-neutral body postures (dynamic or static), frequent bending and twisting;
- Mechanical pressure concentrations;
- Segmental or whole body vibrations;
- Local or whole-body exposure to cold;
- Insufficient recovery time (Punnett and Wegman, 2004).

MSDs affect employees in all kinds of industries and occupations, although some are more high risk than others, and certain occupations are associated with strain on specific parts of the musculoskeletal system.

Many jobs involve activities that can constitute a risk factor for MSDs. According to the fourth EWCS (Parent-Thirion et al., 2005), 17 per cent of European workers report being exposed to vibrations from hand tools or machinery for at least half of their working time, 33 per cent are exposed to painful or tiring positions for the same period, 23 per cent to carrying or moving heavy loads, 46 per cent to repeated hand or arm movements and 31 per cent work with a computer.

Much of the attention that employers pay to the issue of MSDs and the impact of the workplace on their onset or deterioration is driven by a concern to avoid or limit litigation and ensure that they are fulfilling their duty of care, by performing workstation assessments and giving guidance on manual handling, for example. However, this neglects a wider issue that other work associated factors can also contribute to MSDs. These aspects are often missed out in the literature and advice on dealing with health and safety. Even where 'stress' is mentioned, the connection between psychosocial factors and physical conditions is omitted, reinforcing the primary focus on safety.

Generally there is an increased risk of injury when any of the physical risk factors mentioned above are combined, or adverse psychosocial factors, personal or occupational are present (Devereux, Rydstedt, Kelly, Weston and Buckle, 2004). Psychological and organisational factors can also combine with physical factors to influence the probability of an individual leaving work prematurely. Research on low back pain shows that employees' belief that work itself produces pain, precedes sickness behaviour, and is a risk factor for chronic work disability (Werner, Lærum, Wormgoor, Lindh and Indhal, 2007). Sokka and Pincus (2001) reviewed 15 studies and showed that physically demanding work, a lack of autonomy, higher levels of pain, lower functional status and lower educational levels were predictors of someone with RA leaving work early. The evidence from Sokka and Pincus (2001) highlights that it is not only the physical elements of work that can influence someone's functional work capacity and likelihood of staying in the labour market. We must also consider the psychosocial and organisational factors of work.

Psychosocial and organisational factors associated with MSDs include:

- Rapid work pace or intensified workload;
- Perceived monotonous work;
- Low job satisfaction;
- Low decision latitude/ low job control;
- Low social support;
- Job stress.

Job stress is a broad term and can result from a variety of sources such as high job demands or a mismatch between skills and job requirements. In addition stress can result from abuse or violence at work.

Again, it is important to recognize the connection between the psychological and the physical. While job stress, including violence and discrimination at work, might lead to lost productivity due to stress or common mental health problems, it may also lead to MSDs caused by tension or strain. An increased probability of experiencing a high level of pain has also been associated with low social support, low social anchorage or low social participation (Katz, 2002). 'Good work' and the provision of high quality jobs is therefore crucial (Coats and Max, 2005, Coats and Lehki, 2008).

3.4 The wider economic and social impact of MSDs

The effect that MSDs can have on an individual's ability to work and the time they may require to be absent from work means that MSDs have significant associated costs to the individual, their family, the employer and the wider economy. Calculating the exact costs is not straightforward (Lundkvist, Kastäng and Kobelt, 2008). Several factors need to be considered and obtaining accurate, reliable and consistent figures is almost impossible. However, while for non-specific MSDs there are no estimates of their economic impact on Italian society, for specific MSDs such as RA and SpAs existing figures show that these conditions cause a significant economic and social burden, and that early diagnosis and early intervention are a necessity to reduce it.

To calculate the cost of MSDs (or any illness) the following factors must be estimated:

- **Direct costs** including medical expenditure, such as the cost of prevention, detection, treatment, rehabilitation, long-term care and ongoing medical and private expenditure. They are often further separated into medical costs occurring in the health care sector and non-medical costs occurring in other sectors (Lundkvist et al., 2008).
- **Indirect costs** including lost work output attributable to a reduced capacity for activity, such as lost productivity, lost earnings, lost opportunities for family members, lost earnings of family members and lost tax revenue.
- **Intangible costs** including psychosocial burden resulting in reduced quality of life, such as job stress, economic stress, family stress and suffering (WHO Scientific Group, 2003).

These costs vary considerably depending on the condition, on the severity of the symptoms, and whether these cause short or long term absence or disability. Moreover, they vary depending on the particular methods used to calculate the costs. Some factors which affect the calculations include the following:

- Severity of patient's conditions;
- Mix of patient demographics in a study;
- Calculation method for productivity;
- Definitions of work disability;
- The treatment costs or outcomes due to treatments (the year costs were calculated is also a factor not least because treatment processes can change);
- Change in health care financing systems;
- Incidence or prevalence based estimates of costs.

Intangible costs are rarely included in cost calculations as it is almost impossible to properly express the intangible costs in monetary terms (Sieper et al., 2002). However, the evaluation of intangible costs gives useful information regarding the price paid by people with MSDs in terms of quality of life (QoL), and QoL measures could be further indicators to measure the effectiveness of interventions (Leardini, Salaffi, Montanelli, Gerzeli & Canesi, 2002).

Two measures now in more common use are:

1. **Disability adjusted life years (DALYs)**. This is a measure of the overall disease burden which attempts to tally the complete burden that a particular disease exacts. Key elements include the age at which disease or disability occurs, how long its effects linger, and its impact on quality of life. One DALY, therefore, is equal to one year of healthy life lost. For example, RA accounted for 0.91 per cent of all DALYs lost in Italy (Lundkvist et al., 2008).
2. **Quality adjusted life years (QALYs)**. The QALY is also a measure of disease burden, including both the quality and the quantity of life lived. It is used in assessing the value for money of medical interventions and is based on the number of years of life that would be added by these interventions. A QALY gives a measure of how many extra months or years of life of a reasonable quality a person might gain as a result of treatment and helps in the assessment of the cost-utility of this treatment.

Both measures are the subject of debate, but have become accepted as helpful in making comparative judgements across medical conditions and internationally.

3.4.1 Direct costs

As mentioned above, cost-of-illness estimates require input from a number of different factors, and great variation is found across different studies. For low back pain (LBP), the most significant direct costs are related to physical therapy, inpatient services, drugs and primary care (Dagenais, Caro and Haldeman, 2008). Nachemson, Waddell and Norlund (2000) calculated that some 80 per cent of health care costs for back pain are generated by the 10 per cent of those with chronic pain and disability. For RA, although direct health care costs have been relatively small in the past (Lundkvist et al., 2008), a number of studies indicate that direct costs increase as functional capacity decreases – making functional capacity a major cost driver (Huscher, Merkesdal, Thiele, Schneider and Zink, 2006; Kobelt, 2007; Leardini et al., 2002).

Direct costs, compared to indirect costs, usually represent a minority of the total costs (Dagenais et al, 2008; Kavanaugh, 2005; Kobelt, 2007; Lundkvist et al., 2008). However, for RA, large cross-countries variations of estimates of direct costs are found in the literature due to the different uptake of particular treatments in different countries (Lundkvist et al., 2008).

Table 3.3 on the next page shows some of the specific direct costs associated with musculoskeletal conditions (MSCs) in general, and RA and low back pain (LBP) in particular as found in the literature (Woolf, 2004 as cited in *The Bone and Joint Decade 2005*; Kavanaugh, 2005; Dagenais et al., 2008).

In Italy, the only data available on direct costs of MSDs refer to RA (Leardini et al., 2002; Lundkvist et al., 2008) and SpAs (Osservatorio Sanita' e Salute, 2008). By adding sanitary costs (diagnostics, therapy and hospitalisation) to other costs (eg transportation, home help and auxiliary devices) Leardini et al. (2002) have estimated a total direct cost for RA that varies according to the severity of the condition. In particular, the more severe the condition, the higher the costs (from 1,643.4 euros per person in ACR functional class I to 5,696.8 euros per person in class IV ¹⁵): the amounts almost double from class I to II, triple in class III and are four times as high in the last stage of the disease. By looking at the figures reported, the highest costs for people with RA in class I and II are due to drugs while for those in class III and IV hospitalisation is the first cost and accounts for about 40 per cent of the total costs. Lundkvist et al. (2008) estimate medical cost (including drugs) to be equal to 3,127 euros per person per year, and

¹⁵ See footnote 13 for a definition of ACR functional classes

non-medical cost to be equal to 1,160 euros per person per year. According to Lundkvist et al.' figures, the total direct cost of RA per person per year in Italy is equal to 4,287 euros. As for SpAs, the data published by the Osservatorio Sanita' e Salute (2008) estimate total direct costs equal to 2,945 euros per person.

Table 3.3: Direct costs associated with MSCs, RA, and low back pain

	MSCs	RA	Low back pain
Health care costs	Physician visits	Physician visits Other health professional visits	Physician visits Chiropractic visits
	Outpatient surgery	Outpatient surgery	Outpatient surgery
	Emergency room	Emergency room	Emergency room
	Rehabilitation service utilisation (physiotherapist, occupational therapist, social worker)		Physical therapy and rehabilitation service utilisation Complimentary and alternative medicine
	Medications	Medications (including administration costs)	Medications
	Diagnostic / therapeutic procedures and tests	Imaging Laboratory monitoring Toxicity (diagnosis, treatment)	Imaging
	Devices and aids	Medical assist devices	
	Acute hospital facilities (with and without surgery)	Hospitalisations (related to RA or its treatment): orthopaedic surgery, extended care / rehabilitation facilities	
	Non acute hospital facilities		
Personal costs	Transportation		
	Patient time		
	Carer time		
Other disease related costs	Home health care services		Mental health services
	Environmental adaptations		
	Medical equipment		
	Non-medical practitioner, alternative therapy		

Source: Woolf (2004) as cited in *The Bone and Joint Decade, 2005*; *Kavanaugh, 2005*; *Dagenais et al., 2008*

Calculations of the costs of treatment tend to evaluate the clinical costs and benefits of treatments. The wider impact of people with MSDs remaining in work or returning to work early extends to the biopsychosocial and economic effects to the individual of being in work and to the reduced costs to the National Institute for Social Security (INPS) and other government departments. Taking a wider joined-up approach to an analysis of costs of treatments for illness in general and MSDs in particular may provide a different and perhaps more realistic assessment of the costs and benefits of treatments.

3.4.2 Indirect costs

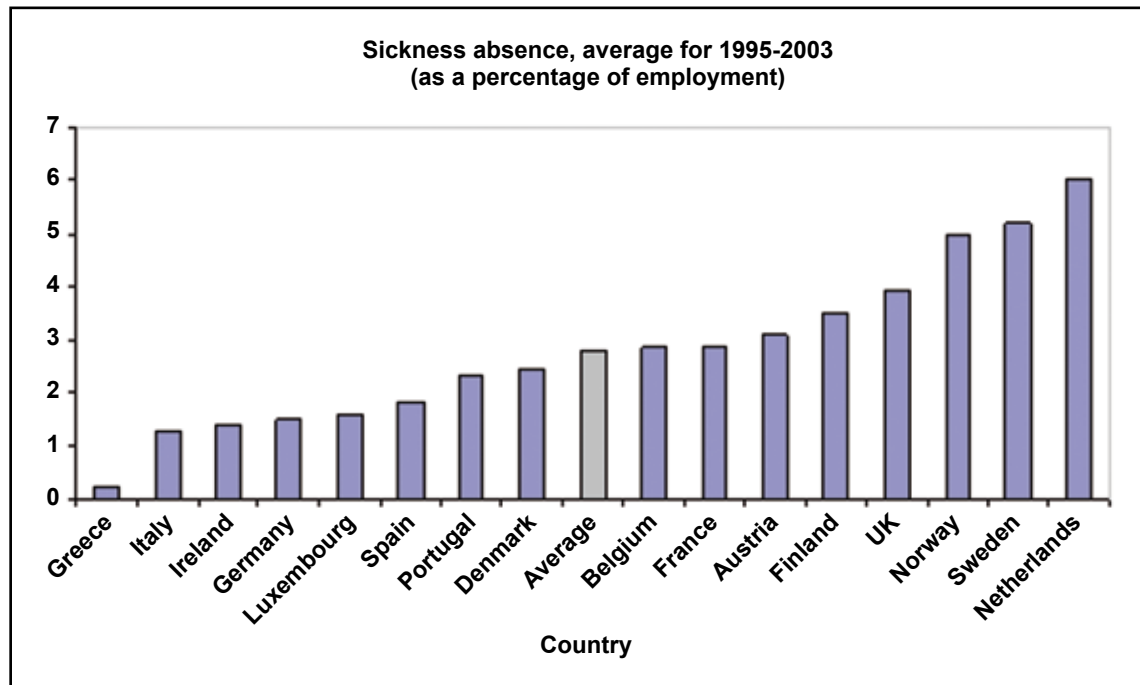
There are two main types of indirect cost most commonly measured in association with ill health in employees. These are absence from work and what is termed 'presenteeism', or loss of productivity in an employee while they are at work with an illness or incapacity. Presenteeism is extremely difficult to measure and there are no Italian data on presenteeism. As a result, most estimates of indirect costs are based on absence data. In Italy, the INPS keeps a record of sickness absence and provides workers with sickness cash benefits. The sickness cash benefit is paid to the worker for a maximum period of 180 days. The first three days are paid by the employer, while the remaining days are paid by the INPS. The amount paid to the worker is equal to 50 per cent of the average daily rate for the first 20 days, and to 66.7 per cent of the average daily rate for the remaining days.¹⁶

According to an international study looking at sickness absence across a few countries (Bonato and Lusinyan, 2004) in the period 1995-2003 Italy showed a much lower level of absence compared to the average in Europe (see Figure 3.6). However, we don't know how much of this sickness absence is caused by MSDs in general, and by MSDs under consideration in particular.

In terms of indirect costs caused by MSDs, the only data available refer once again to RA (Leardini et al, 2002; Lundkvist et al., 2008) and SpAs (Osservatorio Sanita' e Salute, 2008). Similarly to direct costs, Leardini et al. (2002) point out that indirect costs increase as RA worsens: they have been estimated to be equal to 2,074.9, 9,566.4, 12,183.1, and 17,249 euros per person in ACR functional class I, II, III, and IV respectively. The loss of productivity represents the major cost of the disease already at functional class II. Similarly, Lundkvist et al. (2008) found that indirect costs are much higher than direct costs and estimate them to be equal to 6,041 euros per person per year. The need for a caregiver, especially for RA patients with more severe conditions, adds further costs to the total, especially if the caregiver is a family

¹⁶ http://servizi.inps.it/bussola/VisualizzaDoc.aspx?bLight=true&sVirtualURL=/Doc/TuttoInps/Prestazioni/Le_prestazioni_a_sostegno_del_reddito/L_indennita_di_malattia/index.htm&iDDalPortale=4750

Figure 3.6: Percentage of sickness absence across European countries



Source: Bonato and Lusinyan (2004)

member who has to give up partially or entirely his/her job to look after the relative with a chronic illness. Although informal care is difficult to identify, quantify and value (what is considered 'informal care' by some people may be considered 'normal' by others), Lundkvist et al. (2008), estimated that for RA the annual cost of informal care in Europe is equal to 2,562 euros per patient. This figure varies greatly according to the services provided by the health care or social systems and the characteristics of the labour market in each country. In Italy, as the provision of care is mainly informal, the cost of informal care for people with RA has been estimated to be the highest among European countries, Australia and the USA (equal to 6,114 euros according to Lundkvist et al., 2008).

As for SpAs, the Osservatorio Sanita' e Salute estimates indirect costs only, determined by the loss of productivity, equal to 5,250 euros per person.

Not only are indirect costs associated with sickness absence and presenteeism, but indirect costs are also associated with early retirement among people with MSDs (Dagenais et al., 2008; Alavinia and Burdorf, 2008). In the literature, high variation is found about early retirement rates

depending on the country, the year of the study and the sample included. However, in most studies it varies between 30 and 50 per cent (Lundkvist et al., 2008).

However, these figures still underestimate the true cost of conditions such as MSDs. Most people with MSDs do not become disabled. In fact, whilst there is a relatively high background prevalence of MSDs, most people (even those with diagnosed conditions) continue to work (Waddell and Burton, 2006a). Nevertheless, there are still potentially significant costs associated with lost productivity where people remain at work but in pain or distress while awaiting intervention or workplace adjustments.

3.4.3 Total costs

The cost calculations for MSDs in general provide relatively good estimations of the costs of non-specific MSDs given that non-specific MSDs constitute the vast majority of cases. Calculating the costs for specific MSDs is fraught with the same difficulties as for MSDs as a whole. The majority of studies estimating the economic burden of RA have provided cost estimates specific to the US population and health care system (Cooper, 2000). The cost of AS to society is less well established (Chorus et al., 2002). More research has been done on cost in the US, Canada and other European countries, particularly the Netherlands, France and Belgium, than in Italy. However, findings across countries with respect to work disability rates are generally not directly comparable given the differences in working terms and conditions, such as the length and conditions of statutory sick pay (Sieper et al., 2002).

Lundkvist et al. (2008) estimated that the total cost of treating RA patients in Italy was 16,441 euros per patient per year. These costs included medical costs, drug costs, non-medical costs, the costs of informal care and other indirect costs. This figure is slightly lower than the figure reported for western Europe (17,153 euros), but does not differentiate between those of working age and those above retirement age.

The data from the Osservatorio Sanita' e Salute (2008) report an estimate of total costs of RA in Italy which varies between 3,718.3 and 22,946 euros per person according to the severity of the condition.

For SpAs, the total cost, considering direct costs and productivity loss only, has been estimated to be equal to 8,195 euros per person.

No estimates of costs for non-specific MSDs have been found in the literature. In addition, as mentioned before, total costs reported above do not take into account the quality of life of people with MSDs, which nevertheless, is deeply affected by chronic conditions.¹⁷

3.5 Summary

In this section we have considered the impact that MSDs have on a person's ability to work, physically, as a result of the condition itself, and from the associated effects, such as loss of concentration from pain. We have also discussed the impact that the workplace can have on MSDs, both at onset and during the development of the conditions. Whilst there are many intrinsic risk factors for MSDs it is clear that the workplace has the potential to expose employees to other risk factors, both physical and psychosocial. Some of the well-established workplace risk factors are already recognised by many employers and assessed in order to minimise their impact, such as vibrations and workstation ergonomics. However, the impact of other workplace risk factors such as job quality is not as widely understood.

We have also highlighted that it is important to distinguish between risk factors for the onset of MSDs and risk factors for chronic illness and disability. Whilst the physical conditions of work may cause or aggravate musculoskeletal symptoms, the impact or outcome on people with these conditions (absence from work and disability) is strongly associated with psychosocial factors (Waddell and Burton, 2006a).

Finally, we have looked at the economic and social impact of MSDs and have discussed the direct, indirect and total costs of MSDs for RA and SpAs. Unfortunately, total costs estimates as found in the literature do not take into account the enormous intangible costs born by people with MSDs. This is due to the difficulty of expressing intangible costs in monetary terms. However, data for RA in particular, point out how direct and indirect costs increase with the progression of the disease. As a consequence, the development of strategies and interventions to stop this progression and ensure that those with MSDs are enabled to enjoy full and productive working lives appears necessary.

Building on this, the next section will discuss the role that early interventions can play to help people with MSDs remain in work and return to work quickly. It will also look at the challenges faced by the Italian NHS to address the right of care for people with MSDs, and will discuss the impact of the biopsychosocial model on intervention.

¹⁷ Expert interview

4. Interventions

The impact of MSDs, as we have seen, can be significant; to the people living with them, to employers and to society as a whole. Their impact on the workforce has recently started to receive greater recognition. From the analysis of indirect costs in the previous chapter, it looks clear that the earlier the diagnosis and the intervention, the smaller the impact on working life of people with MSDs (particularly with specific MSDs). However, in Italy long waiting times for care and territorial differences in health care services dramatically reduce the possibility of receiving an early diagnosis (Cittadinanza Attiva, 2008). Furthermore, territorial differences in access to treatment, lack of flexibility at work, certain employer's lack of capacity to deal with sickness, lack of employee awareness about conditions and their management, and mixed messages on the effectiveness of various methods of workplace interventions or return to work programmes are all barriers to making good and healthy work a reality for those suffering from MSDs. In addition, Appendix 2 provides a wide number of indicators that may help to identify both enablers and barriers to early intervention in Italy, and to compare Italy to countries with similar or different labour market, welfare and healthcare systems.

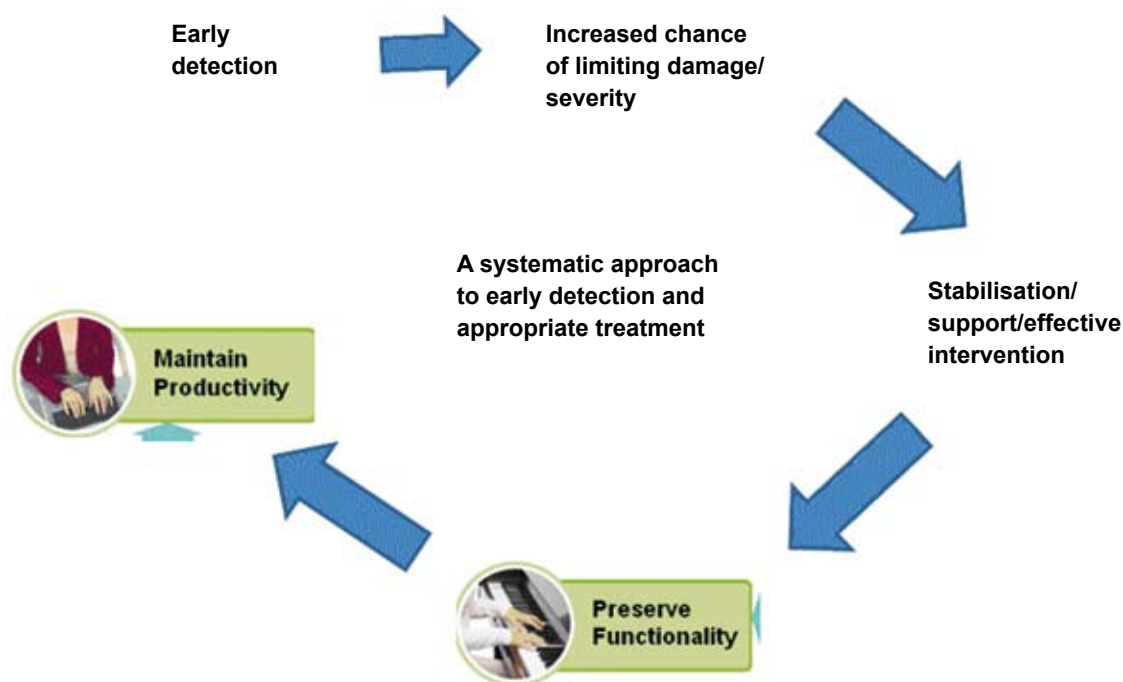
This section looks at the kinds of interventions which are most likely to help workers with MSDs to stay in work, to return to work, to remain productive, to derive health benefits from work and to continue to make a contribution to society.

4.1 The case for early intervention

Ensuring that workers who have MSDs get access to the appropriate treatment and support quickly must be a top priority for employers and health care professionals. Epidemiological studies of employees whose absence is caused by low back pain have shown that the longer the sick leave, the more difficult it is to get the employee to return to work and the higher the economic cost (Frank et al., 1998; Meijer, Sluiter, Heyma, Sadiraj and Frings-Dresen, 2006). Sick leave has also been shown to have a negative psychological impact on employees (Meijer, Sluiter and Frings-Dresden, 2005). However, according to the European Agency for Safety and Health at Work (2007), most of the member states' policies (including the Italian ones) focus on integrating into the workforce people with disabilities who are not currently employed rather than preventing, retaining, reintegrating and rehabilitating workers with non-specific MSDs, and early diagnosing and treating workers with specific MSDs.

As mentioned before in this report and summarised in Figure 4.1, early detection can limit physical damage and preserve functionality and is critical to maintain productivity and keep people who are affected by these conditions at work. Unfortunately, for specific MSDs, the time

Figure 4.1: Effects of early detection on productivity



elapsed from onset to early diagnosis is still too long (over 1.5 year in Italy for RA according to Leardini et al., 2002 and 7 years for AS according to Sieper et al., 2002).

In the next section we will be looking at the Italian NHS and will be discussing its impact on people with MSDs' ability to stay or return to work.

4.2 The Italian NHS and its regionalisation

The National Health Service is characterised by a system of health programming, governed by article one of Legislative Decree 502/1992 and is made up of the national health plan and the regional health plans.

The national health plan has a duration of three years (even though it can be modified during the course of this period) and its aim is to highlight:

- The intervention priorities, to achieve a progressive reduction in the social and territorial inequalities in terms of health;

- The essential levels of assistance (LEA) ensured in health for the period of validity of the three year plan;
- The financing quota guaranteed for the regions for each year of validity of the plan and its breakdown in terms of each level of assistance;
- The guidelines which aim to direct the National Health Service towards a continual improvement in the quality of the assistance, also through the realisation of projects with an extra-regional significance;
- The project/aims to be realised through the functional and operative integration of the health services and the socio-assistance services of the local bodies;
- The general aims and the main sectors of biomedical and health research, and the development of the relevant research programmes;
- The requirements relating to the basic training, and the aims relating to ongoing training, of staff as well as the needs and enhancement of human resources;
- The guidelines and the relative diagnostic-therapeutic steps for promoting, within each health organisation, the development of systematic techniques for reviewing and evaluating clinical assistance and ensuring the application of essential levels of assistance;
- The criteria and the indicators for verifying that levels of assistance achieved are those deemed essential.

The Regional Health Plan represents the strategic plan of the interventions for the health objectives and the functioning of the services to satisfy the specific requirements of the regional population with reference to the objectives of the National Health Plan. Within 150 days from the introduction of the National Health Plan, the regions must adopt or adapt the Regional Health Plans. However, as reported by Cittadinanza Attiva (2008), given the ever increasing autonomy of the 21 regional systems, there has been a growing fragmentation of the health service. This has caused, for example, varying degrees of access to services, including those listed in the essential levels of assistance (LEA) over which the state formally had exclusive control.

According to Cittadinanza Attiva's report, out of the 14 European Charter of Patients' Rights,¹⁸ rights most often denied in Italian health care system are:

- Right to access;
- Right of information;
- Right to have quality standards respected; and
- Right of time.

¹⁸ See footnote 2

In 60 per cent of the cases, patients' organisations report long waiting times for access to services that are useful in terms of preventing pathologies, its complications and the consequences of late diagnoses.

Bureaucracy, costs and a worsening of the quality of life are unfortunately the most common complaints expressed by those who report the failure to safeguard the right of access to services. Often being a chronic patient signifies risking exclusion from the system: in 56.3 per cent of cases patients' associations report the high costs of non self-sufficiency, confirming the great difficulties for patients wanting to access the more personalised services such as integrated home assistance.

Absence of a network of connection and information between the different health care professionals is reported by 83.9 per cent of patients' organisations, and the fragmentation of the system and a missing connection between GP's and specialist centres is highly reported too (74.1 per cent).

As public expenditure on health care keeps reducing (the 2009-2011 financial plan has planned cuts on health care equal to 2.3 and 3.3 billions in 2010 and 2011 respectively), early intervention becomes critical to reduce costs deriving from a deterioration of people's health condition without reducing the quality of health care services and access to treatment.

4.3 Following from the above, interventions for specific conditions need to be prompt and aimed at
Condition- reducing the progression of the condition in order to reduce costs to both people and society,
specific and to improve the quality of life of people who are affected by them.
interventions

Box 1 below shows how the early intervention approach in Italy has been turned into practice by 15 rheumatology units grouped under the name of GISEA (Gruppo Italiano per lo Studio delle Early Arthritis).

4.3.1 Rheumatoid arthritis

The importance of effective and early treatment of RA in reducing joint damage and disability is now widely acknowledged (Pugner, Scott, Holmes and Hieke, 2000). Since there is currently no 'cure' for RA, the focus of treatment is on controlling signs and symptoms, enabling the patient to manage their condition and improving quality of life. Medical treatments for rheumatoid arthritis are directed at suppressing one or other part of the joint damaging processes, the effectiveness of which have improved in recent years. Since it is well documented that the

functional capabilities of RA patients will decline over time, it is critical that patients should be treated as quickly as possible with disease-modifying anti-rheumatic drugs (DMARDs) to control symptoms and disease progression (Scottish Intercollegiate Guidelines Network (SIGN), 2000). One study found that there is a 73 per cent risk of erosive damage in patients who wait over a year between symptom onset and referral to rheumatology clinics (Irvine, 1999 in Luqmani et al., 2006).

Box 1: Early arthritis clinics in Italy

Early arthritis clinics in Italy provide people with early arthritis symptoms a facilitated access to healthcare services in order to receive an early diagnosis (within 15-20 days maximum) and start the appropriate treatment in the shortest time possible. Early arthritis clinics have proved to be effective not only in successfully reducing the time between onset of the conditions and diagnosis, but also in greatly improving clinical remission. Among the 15 rheumatology units that constitute the GISEA, the rheumatology unit at the Università Cattolica del Sacro Cuore in Rome, was the first centre to adopt the early arthritis clinic methodology in January 2006. It guarantees that patients see a rheumatologist within a maximum 72 hours and in any case within 15 days from the first symptoms. After the visit, patients receive blood tests, x-rays of the joints affected, and further tests when necessary in order to ensure that the best therapy is provided in the shortest time possible.

Similarly, the Fondazione Policlinico IRCCS San Matteo in Pavia bases its intervention for people with RA, PsA and AS on early diagnosis and evaluation of the gravity of the condition, immediate treatment with DMARDs (for people with RA and PsA), accurate evaluation of disease progression, and change of treatment in case of absence of clinical remission of the condition.

Clinical evidence is also growing which demonstrates that anti-TNF drug therapies can have a more powerful effect on RA than DMARDs, especially in improving job retention and work participation (Halpern, Cifaldi and Kvien 2008). However, Italy shows the lowest uptake of anti-TNF treatments compared to France, Germany, Spain and the UK (Jönsson, Kobelt and Smolen, 2008), and within the country there are regional as well as local differences¹⁹ in accessing these treatments. This, of course, is a source of great distress for people with RA.²⁰

¹⁹ While access to anti-TNF drugs is easier in Lombardia, Veneto, Basilicata and Emilia Romagna, major difficulties in accessing these drugs are found in Sicilia, Lazio e Abruzzo (Cittadinanza Attiva, 2008)

²⁰ Expert interview

Nevertheless, medical interventions in the form of drug therapy to control inflammation and disease progression, and surgery to redress structural damage are only part of managing the care of RA patients. Other important elements include patient education and empowerment, practical self-management to help deal with symptoms and specialist support to help live with the disease and its consequences. The effective management of RA has to involve not only the clinical team (including GPs, consultant rheumatologists, physiotherapists, occupational therapists, chiropodists, podiatrists, pharmacists, primary care nurses and orthopaedic surgeons), but the participation of the patient and, ideally, their employers. Social workers also have their role to play.

4.3.2 Spondyloarthropathies

Prompt referral to specialists for confirmation of diagnosis and the start of treatment is also essential for those with AS and other rheumatic conditions. Since (similarly to RA) there is no cure for AS, the aim of therapeutic intervention is to reduce inflammation, control pain and stiffness, alleviate systemic symptoms such as fatigue, and to slow or stop the long-term progression of the disease. The prescription of non-steroidal anti-inflammatory (NSAIDs) or anti-TNF drugs coupled with regular physiotherapy forms the current basis for the treatment of AS.

As AS typically affects relatively young people, its potential to disrupt or even curtail an individual's labour market participation may be significant. As we have discussed, there are important clinical, social and economic benefits to keeping these patients in work as long and consistently as possible. Depending on the severity of their condition, AS patients can benefit from workplace adjustments, flexible working arrangements, exercise regimes and physiotherapy (Boonen et al., 2001).

4.4 Interventions for non-specific MSDs The primary focus of this report has been to examine the interventions and other factors which affect job retention, labour market participation and job quality among those with MSDs. As we have seen, there is evidence that physical impairment can represent a barrier to each of these aspects, but that many people – even those with serious and chronic incapacity – can and do lead full and fulfilling working lives. Since back pain and the majority of work-related upper limb disorders are not diseases to be cured, and there is very limited evidence that prevention is possible, it has been argued that the focus of treatment should be on returning to the highest or desired level of activity and participation, and the prevention of chronic complaints and recurrences (Burton, 2005; Bekkering et al., 2003) rather than eradicating the cause of the problem or returning to normal function.

Whilst treatment to ease or relieve the symptoms of non-specific MSDs will always be a priority, medical intervention is not necessarily the only, or the best route to recovery or helping those with non-specific MSDs to manage their condition. In fact, for non-specific conditions, an individual's recovery and chances of returning to work can be adversely affected by 'over-medicalising' their condition. Based on evidence that psychosocial factors are a determinant of chronicity and disability in those with back pain, there is a strong argument for re-conceptualising this condition and its treatment, which has important lessons for other types of non-specific musculoskeletal pain (Burton, 2005).

Waddell and Burton (2006b) summarise the challenge neatly in their work on vocational rehabilitation. They point out that, whilst many non-specific MSDs do not have clearly defined clinical features and have a high prevalence among the working age population, most episodes resolve themselves and most people with these conditions remain at work or return to work very quickly. In their view, a focus on incapacity alone can be unhelpful:

*'..the question is not what makes some people develop long-term incapacity, but **why do some people with common health problems not recover as expected?** It is now widely accepted that biopsychosocial factors contribute to the development and maintenance of chronic pain and disability. Crucially, they may also act as obstacles to recovery and return to work. The logic of rehabilitation then shifts from dealing with residual impairment to **addressing the biopsychosocial obstacles that delay or prevent expected recovery.**' (Waddell and Burton, 2006b, p.7) [bold in original text]*

The biopsychosocial model is an explanatory framework that recognises the importance of psychological and social factors in determining how those with MSD cope with their conditions. The following section provides a brief overview of the biopsychosocial model and outlines the implications that it has for the workforce.

4.5

The biopsychosocial model and work

The biopsychosocial model advocates that clinicians, occupational health professionals and others should assess the interplay between the biological (eg disease, joint damage), the psychological (eg disposition, anxiety) and the social (eg work demands, family support). Clearly, the psychological disposition and behaviour of a patient can have a significant impact on the way a physical 'injury' (such as back pain) is approached by a patient. In some cases the patient risks entering a self-reinforcing cycle of incapacity, delayed recovery and even depression if their dominant response to pain is to 'catastrophise' it. Of course, there may be many factors which affect an individual's disposition to 'catastrophise', including personality,

previous medical history, levels of family support or job satisfaction (Sullivan and D'Eon, 1990). It is evident that the interaction of the biological, psychological and social dimensions can have a significant impact on the development, progression of, and rehabilitation from, a musculoskeletal condition.

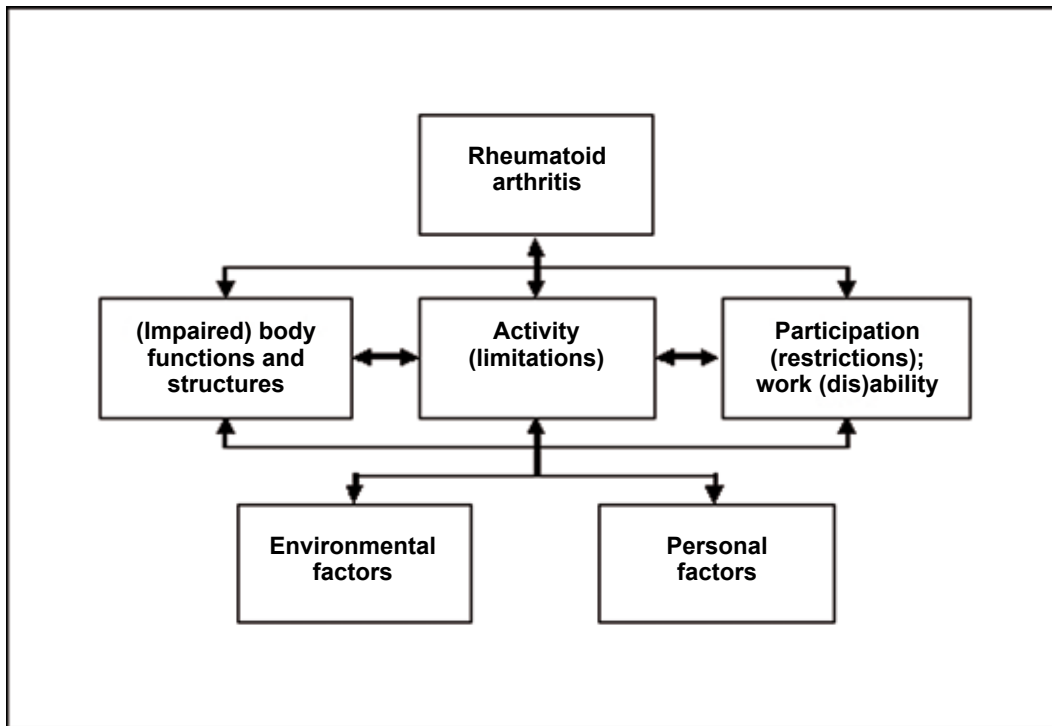
Since it was first proposed in the late 1970s, a growing body of evidence has developed to support the biopsychosocial model. For example, research has demonstrated that job dissatisfaction can be an important predictor of speedy and successful return to work (Bigos, Battie and Sprengler, 1992). On the issue of social support, studies have shown that limitations in functioning attributable to MSDs can stress family systems and lead to family conflicts if the patient is unable to perform normal family duties (Hamberg, Johansson, Lindergren and Westamn, 1997; MacGregor, Brandes, Eikermann and Giammarco, 2004; Kemler and Furnee, 2002). On the other hand, an overly solicitous family (or, by extension, manager or colleague) may reinforce MSD patient passivity and encourage the patient to adopt a 'disabled' role (Kerns, Haythornthwaite, Southwick and Giller, 1990; Block, Kremer and Gaylor, 1980).

De Croon et al. (2004) looked at the research on work disability among people with RA and concluded that psychosocial factors were often a better predictor of work disability than standard bio-medical factors. In Figure 4.2, on the next page, the authors highlight how wider environmental and personal factors enhance the explanatory power of the *International Classification of Functioning, Disability and Health (ICF)* in the case of work disability and RA.

Some critics of the biopsychosocial model (McLaren, 2006) have focused on this last point, highlighting concerns that this approach may encourage or 'permit' helplessness in some patients or that, in other circumstances, it may alienate patients who feel that they are being told that their condition is 'all in the mind'. Clearly, care must be taken in the way that clinicians and others mitigate these risks, but the balance of the literature – and of the expert opinion offered during the course of our interviews – is strongly in support of the biopsychosocial model and its role in informing the management of MSDs in both clinical and occupational settings (Smyth, Stone, Hurewitz and Kaell, 1999; Carter, McNeil and Vowles 2002). Indeed, it forms the basis of the World Health Organisation's *International Classification of Functioning, Disability and Health (ICF)* which has been widely embraced as an authoritative guide for vocational rehabilitation (WHO Scientific Group, 2001).

As Waddell and Burton (2006b) have argued, the goals of the biomedical model are to relieve symptoms, whereas the goals of clinical management informed by the biopsychosocial model –

Figure 4.2 ICF Model applied to work disability in RA



Source: de Croon et al., 2004

especially in occupational settings – should be to control symptoms and to restore function. This suggests that employers contribute to the ‘social’ part of the biopsychosocial model and that their actions can make a difference to the outcome for individuals with MSD.

4.6 4.6.1 Awareness of conditions and their management

The role of employers

Many employers remain unaware of the nature of MSDs, both in terms of the immediate impact on functional capacity at work and, where relevant, the manifestations and progression of the conditions. For example, employees with RA or SpA may be susceptible to periodic ‘flares’ of inflammation and severe pain followed by fatigue and possible depressed mood. Unless employers are aware that these symptoms are expected or ‘typical’, they can adopt an unhelpful or over-cautious approach to return to work.

In Italy a new law on health and safety in the workplace (Decree 81/2008) has meant a step forward in the prevention of work-related MSDs. The new decree obliges employers to carry out an evaluation of all the risks in the workplace and sanctions all those who do not comply with it with a jail sentence of 6 to 12 months, or a penalty varying between 5,000 and 15,000 euros.

In addition, and in contrast to the previous decree (626/94), the new decree obliges employers to organise prevention within his/her company and to provide constant and up-to-date training for all the people who deal with safety within the company.. More responsibility is also given to occupational clinicians who now have to cooperate with employers in the evaluation of risks and the organisation of prevention, plan programs to promote health within the company, update and keep safely all the files related to employees who work in conditions of risk and inform employees about procedures to manage risks effectively.

Whilst the message about manual handling and work design may have got through to many employers, the fact that absence and even reduced work requirements can be counter-productive has yet to become common currency. Changing attitudes and raising awareness about the management of MSDs is an important part of reducing their burden to employers and society.

However, it is not just employers that need to know more about MSDs and their treatment. One of the most persistent (and pernicious) myths about back pain, for example, is that bed rest is the best solution. Health promotion campaigns have been shown to be effective at getting the message across that experiencing pain does not necessarily mean that the condition has worsened or that being active is bad for you (Buchbinder, Jolley and Wyatt, 2001). This demonstrates that with sufficient commitment and investment from central government, campaigns of this scale can have an impact on public perceptions of common MSDs.

4.6.2 Intervention and adjustment of work demands

Not only has evidence shown that work is good for you but returning to modified work can help recovery (Feuerstein, Shaw, Lincoln, Miller and Wood, 2003). Among occupational health specialists, the use of vocational rehabilitation has long been an accepted mechanism for ensuring that individuals with illness, injury or incapacity can return to work (even to perform adjusted work) as soon and as sustainably as possible. There have been concerns that rehabilitation is not well-integrated into mainstream clinical practice and that return to work is not seen by a sufficient proportion of clinicians as a valued outcome for the patient (Frank and Chamberlain, 2006). It is also important to stress that vocational rehabilitation is not the preserve of professionals. In practice, effective management is as, if not more important than formal rehabilitation.

Yet, employers, if they think about this at all, invariably consider the physical job demands which need to be met by an employee with an MSD. The biopsychosocial model requires that the mental demands of the work are also considered as part of the return to work process. There is a growing body of work which shows that adjusting a range of work demands can support

successful return to work among those with a range of MSDs (Schultz, Stowell, Feuerstein and Gatchel, 2007; de Croon et al, 2004; Feuerstein, Shaw, Nicholas and Huang, 2004; Chorus, Miedema, Wevers and van der Linden, 2001). The success with which both employee and employer can manage the process of re-adjustment during return to work can also depend on the beliefs that both parties have about the extent to which the work itself is (at least in part) caused by or related to the incapacity.

There are numerous types of work-based intervention for assisting those with MSDs, ranging from ergonomic adjustments to providing access to physiotherapy, modifying work programmes to cognitive behavioural therapy, or a combination of various strategies. Evidence on the success of these interventions at tackling non-specific MSDs is mixed (Meijer et al, 2005).²¹ A systematic review of multidisciplinary treatments of patients with low back pain, for example, demonstrated that whilst the treatment improved function and decreased pain in individuals, it could not be demonstrated that this was linked to employees returning to work earlier than those who had not received it (Guzman et al., 2001). Whilst biomechanical or ergonomic factors may be related to the onset of back pain, evidence that interventions based on these principals will prevent re-occurrence or progression to chronicity is thin on the ground (Burton, 1997). In fact, it has proved virtually impossible to determine whether one treatment is significantly more effective than another (Ekberg, 1995). Even for specific conditions such as RA, the evidence for the effectiveness of vocational rehabilitation is slim (Backman, 2004).²²

There is nonetheless broad agreement on the principles for managing non-specific MSDs, particularly back pain, that are outlined in Box 2 on the next page. This includes advice and a number of relatively simple measures for employees and employers to follow on how to deal with back pain.

This requires employers to think beyond their statutory duty to address health and safety risks, and to recognise that sickness absence management, effective return to work programmes and rehabilitation are, at bottom, principles for effective management (Waddell and Burton, 2006b). Much is dependent on raising awareness about how to manage the symptoms of MSDs amongst employees and their managers, and ensuring that the latter have the skills and confidence to support employees in work.

²¹ Findings from an evaluation of the effectiveness of return-to-work treatment programmes were inconsistent

²² Backman, 2004 found only six studies for the period 1980 to 2001

Box 2: Principles of managing non-specific MSDs

- Early treatment should be sought for back pain.
- Most back pain is not due to a serious condition.
- Simple back pain should be treated with basic pain killers and mobilisation.
- It is important to keep active both to prevent and to treat back pain.
- Getting back to work quickly helps prevent chronic back pain.
- Adopt the correct posture while working.
- All workplace equipment should be adjustable.
- Take breaks from repetitive or prolonged tasks or postures.
- Avoid manual handling and use lifting equipment where possible.
- Clear information should be provided to employees about back care.
- Health and safety policies should be implemented to cover all aspects of day-to-day work and should be reviewed regularly.

Source: Health and Safety Executive (HSE), (1999)

4.6.3 Line managers

What is clear is that the role of line managers in early intervention is crucial, both in work retention and rehabilitation. Yet many line managers feel ill-equipped to manage long-term absence and incapacity. They may find aspects of mental ill-health or chronic incapacity awkward and embarrassing to talk about or confront, and are concerned about asking for more information about GP sick notes, making home visits or telephoning staff at home for fear of being accused of harassment or falling foul of the law and landing themselves and their organisation in a tribunal. However, based on a review of the available evidence, Breen, Langworthy and Bagust (2005) recommend that employers and employees should discuss and adjust work within the first week. If employees have concerns about their condition they should consult a health care professional, and following referral or diagnosis, advice and planned action, a review should be conducted within four weeks.

Given that MSDs are the most common work-related health problem, and the importance of psycho-social factors in determining whether an employee remains in work or returns to it as soon as they can, managers need to have the skills to deal with staff who have them, or the costs to their organisation may be significant, particularly for small and medium enterprises. According to Douillet and Schweitzer (as cited in Eurofound, 2007) a management practice that allows workers to be involved in a significant amount of the planning and controlling of their own work (what is called 'participatory ergonomics') is a key prevention priority: '*not just to reduce the physical and psychological stressors, but also as a way of recognising the individuals' creativity at work*'. However factors limiting such a preventive approach are economic

constraints, such as productivity, overall performance management and further investment, and social constraints such as population characteristics, level of experience, training and level of exposure.

Small employers also have issues with employees with MSDs, as their absence from work can have, potentially, more impact on customer service, productivity and business performance.

4.6.4 Improved employer-clinician dialogue

On the face of it, many of the return to work challenges faced by employees with MSDs may be improved if there was an improved level of mutual understanding between employers and clinicians. As highlighted above, the clinical appreciation of most MSDs by employers can be cursory to say the least. It is often argued that most GPs, in their turn, have little or no appreciation of the vocational or occupational dimension of many MSDs. Many GPs are making return to work judgements without a very clear view of the demands of the job, the extent to which adjustments to the job can be made or, indeed, whether swift and appropriate return to work might have positive psychological (and economic) benefits. Without this understanding of specific tasks undertaken by employees and the ability to adjust those tasks, GPs may feel that a return to work would exacerbate a condition unless an individual is 100 per cent fit.

For their part, employers will only very rarely investigate employees' state of health beyond the diagnosis written on a GP's sick note, or ask for a second opinion on the potential for a beneficial return to work for a patient. The consequence of this mutual lack of understanding and resulting dearth of dialogue can often be that the MSD patient is left stranded in the middle, with no clear pathway back to work and, more importantly, no voice. A proactive, inclusive, multi-disciplinary, capability-focused approach to vocational rehabilitation, informed by the biopsychosocial model and delivered through case management is widely regarded as the most enlightened and effective approach to take in the majority of work-related MSD cases. Quite often both employers and GPs will focus on the aspects of the job which an MSD patient cannot currently perform, rather than on those which they can.

One of the attractions of the biopsychosocial model is that it 'joins up' the three core strands of the MSD patient's experience, and management of, their condition. It offers a comprehensive framework with which to look at the diagnosis and treatment of a range of MSDs, especially when an important outcome for the individual is to stay in, or to return swiftly to, work.

4.7 This section has outlined the case for early intervention, first and foremost to benefit the health of those with MSDs, but also to ensure that they remain productive members of the workforce. We have presented an example of best practice, the Early Clinic, and have commented on the necessity to improve local health services in order to facilitate early diagnosis, intervention and clinical remission of the condition.

Summary

We have also looked at the Italian National Health care System and reported figures that highlight how far it still is from appropriately address the rights of care of patients with chronic illness. We have then strengthened the idea that intervention should ideally begin before those experiencing musculoskeletal pain visit their GP, and extend beyond the signing of a sick note. The biopsychosocial model clearly illustrates the need for a more comprehensive understanding of the factors that contribute to the development of non-specific MSDs, taking into account individual or psychological factors as well as the social milieu in which the sufferer lives their lives, in which work plays a large part. To achieve this, employers, employees and clinicians need to talk to one another more effectively. Whilst this is challenging, and undoubtedly not common practice today, the costs of not addressing this problem were highlighted in this chapter.

5. Conclusions and recommendations

Work is, unambiguously, good for our health (Coats and Max, 2005; Waddell and Burton, 2006a). It provides us with income, generates social capital and gives us purpose and meaning. Even when unwell or injured, remaining in work – at least in some capacity – is often better for recovery than long periods away from work. If Italy's workforce is to be productive and competitive in the global economy, and if the quality of their working lives is to be enhanced, it is important that a high proportion of the workforce is, as far as possible, fit for work.

The evidence presented in this report illustrates that a large proportion of working age people in Italy are, or will be, directly affected by musculoskeletal conditions (MSDs). This can have very significant social and economic consequences for these individuals and their families, it can impede the productive capacity of the total workforce and parts of Italian industry and it can draw heavily on the resources of both the health service and the benefits regime.

As in many countries, there is a disappointing shortage of clinical, epidemiological, psychological and economic evidence on the nature, extent and consequences of the MSD problem in Italy. However, from the data presented in this report we know that the economic and social burden of MSDs will increase dramatically in the coming years if appropriate strategies are not developed. By including some work-related MSDs among the tabled occupational diseases, the INAIL will certainly be able to provide better estimates of prevalence of these conditions among Italian workers in the coming years. Similarly, with the recent debate about the social and economic costs of specific MSDs in parliament, and the call for accurate epidemiological data, let us hope that in the near future more attention will be paid to these conditions and to the difficulties faced everyday by those who are affected.

In the current economic climate the importance of considering people with MSDs as workers is critical. Keeping people at work means not only reducing public expenditure on social and disability benefits but also reducing the intangible costs that these conditions cause. Therefore, not only is the prevention of non-specific MSDs and early diagnosis and intervention for specific MSDs fundamental to reduce the progression of the conditions but also the direct and indirect costs associated with them.

The Work Foundation has a number of recommendations for several interested parties in this field. Our intention is to encourage some of the key players to recognise that more can be done to ensure that continued active participation in the labour market is almost always a strongly positive force for health, fulfilment and for prosperity.

5.1

Recommendations for government

- Facilitate collection of accurate national data to estimate the prevalence of non-specific and specific MSDs.
- Intervene to reduce inequalities between regions in terms of access to care. This report has showed that inequalities between regions and even areas within the same region are very common and well known. A balance between people's right of care and federalism need to be found.
- Increase control on the correct supply of the LEA (Essential Level of Assistance), update and verify at a regional level the waiting lists, bookings, access and quality of services.
- Program the supply of health at regional level by focusing on the actual needs of citizens in the local territory and integrate the provision of care in order to provide a national framework to the health service, which today is too fragmented.
- Promote and support strategies of prevention and early diagnosis of MSDs. The faster the intervention, the smaller the social and economic costs of these conditions.
- To accommodate the projected growth of MSDs as the population ages, an evaluation of the current medical workforce, as well as of the treatment centres available in Italy, needs to be carried out.
- Help make GPs more effective in handling occupational health issues. This will require an input into GP training, through postgraduate medical education and training. In fact, we believe that medical training at all levels, from undergraduate to continuing professional development would benefit from the inclusion of health and work issues, especially if the health of the working age population is set to deteriorate.

5.2

Recommendations for GPs

- Return-to-work should become a treatment goal. Identify where job retention or early return to work is *good* for the patient. It is easy to assume that work is unambiguously bad for your patient, especially if you suspect that aspects of their job make their symptoms worse. Consider carefully whether, with some adjustments, you can recommend staying at work on lighter duties or with adjusted hours might still be a better option than a prolonged absence from work.
- Think beyond the physical symptoms. Bring to bear your understanding of the biopsychosocial model and the limitations of the biomedical model in your diagnosis of the patient and – most importantly – your assessment of the role that their job might play in helping them stay active and avoid isolation. As a GP you are ideally placed to identify the early presentation of many MSDs. Where appropriate, you should seek to refer patients to specialist teams as early as practicable, to enable management of the condition to begin.

- Avoid catastrophising. A patient can hold a very negative view of the impact and likely progression of their condition if the way that clinicians present it focuses on incapacity rather than capacity.
- Encourage self-management. Try to ensure that the patient can adopt strategies to manage aspects of their own condition, especially if they are staying in or returning to work. A feeling of empowerment and control will help their mood and ensure that they can keep on top of important aspects of their incapacity while at work.
- Early intervention. The evidence suggests that long periods away from work are usually bad for MSD patients. The longer they are away from work, the more difficult it is to return. Early action, preferably in partnership with the patient and their employer, can help achieve a balance between the individual's need for respite and their need to work.
- If you are not sure about your diagnosis, do refer the patient to a specialist. Early diagnosis are critical in stopping the progression of the conditions and can avoid a lot of distress on the patient's side.

5.3

Recommendations for occupational health professionals

- Think beyond the physical symptoms. More importantly, ensure employers, employees and GPs fully appreciate how this multi-factor perspective can contribute to constructive, active, participative and sustainable rehabilitation. Shape your interventions and advice around the three domains of the biopsychosocial model and help employers see how small workplace adjustments can bring wider benefits than just compliance with the Employment Equalities Act.
- Early intervention. OH professionals, above all others, understand the benefits of early interventions with MSDs. They must play a proactive part in mediating between employer and employee, or employer and GP to ensure that the patient can use return to work as a positive part of the way they learn to manage their condition and maintain their sense of self-worth and self esteem.
- Encourage self-management. Working with the employee, their colleagues and their manager, help the individual to find strategies to manage their own condition. This will enable them to make their own decisions about their working arrangements.
- Support managers with job design interventions. Making changes to work demands under the Employment Equalities Act is often seen by managers as a way of complying with the law. Helping managers to look at job redesign as a more constructive way of meeting the needs of a patient/worker with an MSD and meeting changing customer demands can help them to see the business benefits of more flexible working arrangements.

5.4

Recommendations for employers

- Managerial awareness-raising and training must include a health and well-being component. Managers are in the front line of staff absence and are in a good position to spot the early warning signs of a problem and to help rehabilitate employees after a period away from work.
- Imaginative job design will assist rehabilitation. Managers can change the ways work is organised (including simple changes to working time arrangements) to help prevent MSDs getting worse and to help MSD patients return to work. They need to do this in a way which preserves job quality, avoids excessive or damaging job demands and takes heed of ergonomic good practice.
- Build a dialogue with GPs. If sick notes from GPs are not providing a clear enough indication of the nature of the health problem an employee has, and its impact on their capacity to work, employers should clarify the GP's assessment, if only to help understand which tasks the employee can still perform, or what support they might need to return to work.
- Intervene early. Employers should always take action sooner rather than later because caution and delay can only make matters worse. As long as they behave compassionately and make decisions based on evidence and on expert opinion, early intervention cannot be construed as harassment and can often hasten recovery or rehabilitation.
- Use occupational health advice. Vocational rehabilitation, carefully organised and tailored to the individual, can make a real difference to return to work, productivity, morale and sustainability of performance. Involve occupational health professionals as early as possible.
- Beyond legal compliance. Try to avoid a 'risk management' mentality when dealing with an employee with an MSD, this can often lead to delay and ambiguity. In almost all cases, the employee is better off at work.
- Use the biopsychosocial framework. Thinking about the physical symptoms of the MSD without considering the psychological and social dimensions, can mean that the work-related causes of an MSD, or the work-related benefits of rehabilitation can be underestimated.
- Focus on capacity not incapacity. Employers can catastrophise too! Most workers with MSDs can continue to make a great contribution at work if they are allowed to. They do not need to be 100 per cent fit to return to work, and a little lateral thinking will allow you to give them useful work to do which will support them on their journey back to full productive capacity.

5.5

Recommendations for employees

- Focus on capacity not incapacity. It's natural to be anxious or even guilty about the parts of your job which you may find difficult to perform because of your MSD. But you still have much to contribute and you should play to your strengths. Your specialist knowledge and experience doesn't disappear just because you are suffering pain, discomfort or mobility problems, you can still contribute in many ways. Work with your managers and your colleagues to find out how you can maximise your impact at work within the constraints of your condition. Be open with them and they should respond better.
- Talk early. Your line manager, despite what he or she might tell you, is not a mind-reader. If your MSD is causing you difficulty or you anticipate a period when you will need to adjust your working time, talk to your manager so that you can both plan what to do about it. The earlier the better as managers don't like last minute surprises, but they can usually find a solution to most problems if they have some notice. You might also find it useful to talk to your union representative, your HR manager or someone in occupational health.
- Play an active part in the management of your condition. Your MSD is bound to get you down sometimes and you will feel like it's controlling your life at home and at work. But you don't need to be a passive victim of pain or immobility. Find out more about your condition, watch for patterns in pain or fatigue and learn how you can minimise its impact on your functioning and your mood. This can sometimes be very hard to do, but persevere: people who play an active part in the management of their condition tend to get back to work more quickly.
- Know your rights. As both a patient and as a worker you should know what support and advice you are entitled to. If you are a trade union member, your union should be able to guide you on much of this.
- Family involvement in job retention and rehabilitation. Your family and friends are important sources of support. They may not realise that staying in or returning to work is both possible and desirable. You need to help them to help you by getting them involved in your rehabilitation at work. Even small adjustments to working time or travel to work arrangements can make the world of difference.

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Appendix 1: Interviews and consultation with experts

The following people shared their views and information with us during the course of our research and we are very grateful for the time each spent. We have taken their views into account in writing this report, though their participation in the study does not in any way imply endorsement of the report's conclusions.

Antonella Celano	President ANMAR
Prof Gianfranco Ferraccioli	Professor and Director of Rheumatology Universita' Cattolica del Sacro Cuore
Dr Mario Giaccone	Italian correspondent of the European Working Condition Observatory (EWCO) of the European Foundation for the Improvement of Living and Working Conditions. Lecturer at the Faculty of Economics at the Universita' di Venezia and at the Universita' di Ferrara
Prof Carlomaurizio Montecucco	Fondazione Irccs Policlinico S. Matteo, President of the Italian Society of Rheumatology (SIR)
Dr Alessandro Ridolfi	Lecturer of Economics at the Università Cattolica del Sacro Cuore

Appendix 2: Benchmarking grid

The Fit for Work Europe study has looked across 23 European countries plus Israel and Canada. This approach allows us to explore how far early intervention is implemented across Europe. It also enables us to see how far we may identify both enablers and barriers to early intervention given the different approaches to policies that affect the labour market, the welfare system and the health care system. To explore this we have looked widely at a number of indicators covering the:

- Labour market;
- Welfare system ;
- Health care system.

The data presented below come from various international data sources. We used 2005 data to allow for comparisons across countries for a number of different indicators. The data mainly come from the OECD. However, where OECD data was not available the data was supplemented with Eurostat data. We present a selection of indicators below.

Appendix 2: Benchmarking grid

	GDP per capita in PPP	Percentage of the population working age	Unemployment rate (%)		Long term unemployment rate, % of unemployed	Average age of withdrawal from the labour market		Labour productivity per hour worked, GDP in PPS	Hourly labour costs
			Male	Female		Male	Female		
Romania	\$33,496	67.7	4.9	5.5	23.3	59.1	58.1	100.2	€26.23
Belgium	\$32,063	65.6	7.7	9.5	51.6	59.3	58.1	123.4	€30.73
Canada	\$35,002	69.3	7.0	6.5	9.6	63.3	61.5	-	-
Spain	-	66.9*	-	-	58.4*	60.5*	-	-	-
Czech Republic	\$20,366	71.0	6.5	9.8	53.6	61.5	58.4	51.7	€6.63
Denmark	\$33,196	66.1	4.4	5.3	25.9	64.1	61.4	101.6	€31.98
Finland	\$30,695	66.7	8.2	8.6	24.9	60.5	60.1	94.9	€26.70
France	\$29,759	65.1	8.4	10.2	41.4	58.6	59.4	116.2	€29.29
Germany	\$31,380	66.9	11.2	10.0	54.1	61.6	60.7	113.0	€27.20
Greece	\$24,928	67.3	6.2	15.3	53.7	62.4	61.2	71.2	-
Ireland	\$38,693	68.3	4.6	4.0	34.3	65.2	65.3	105.9	-
Israel	\$23,207	-	6.2	10.0	52.2	-	-	-	-
Italy	\$28,122	66.5	9.5	32.5	32.5	60.4	60.9	90.4	€21.39
Lithuania	-	67.8*	8.2*	8.3*	52.5*	60.0*	-	43.1	€3.56
Netherlands	\$35,111	67.5	4.4	5.0	40.1	60.3	60.5	121.2	€27.41
Norway	\$47,319	65.6	4.8	4.4	9.5	63.3	61.8	159.3	-
Portugal	\$20,656	67.4	6.8	8.7	48.6	66.2	66.0	54.4	€10.60
Romania	-	69.4*	7.8*	6.4*	56.3*	63.0*	-	28.8	€2.33
Slovakia	\$16,175	71.5	15.5	17.3	68.1	59.2	55.5	57.5	€4.80
Slovenia	\$23,456	70.2*	6.2	7.1	49.2	58.5*	-	62.8	€10.76
Spain	\$27,377	68.8	7.1	12.2	32.6	61.2	63.6	89.9	€15.22
Sweden	\$32,298	65.3	7.3	7.3	18.9	65.4	62.5	101.6	€31.55
Switzerland	\$35,839	68.0	3.9	5.1	39.0	65.3	64.9	92.3	€32.82
Turkey	\$10,841	65.7	10.2	10.1	39.6	64.5	63.8	-	-
UK	\$32,695	66.0	5.2	4.3	22.4	63.2	61.4	91.9	€24.47
OECD	\$26,849	-	8.3	9.6	45.9	-	-	-	-
EU-27*	-	67.0	-	-	-	-	-	88.3	€20.47

Sources: GDP per capita in PPP, Unemployment rate: Long-term unemployment rate: OECD, 2009b; *Eurostat, 2009; Working age population: OECD, 2009a;

Average age of withdrawal, 2000-2005: OECD, 2009d; *Eurostat, 2009; Labour productivity per hour worked, GDP in PPS: Eurostat, 2009b; Hourly labour costs:

Eurostat, 2009a

Appendix 2: Benchmarking grid

	Public social expenditure (% GDP)	Public expenditure on health (% GDP)	% spent of benefits spent on*:			Generosity of the welfare system	Social protection system interventions
			Sickness/health care	Disability	Unemployment		
Romania	27.2	7.9	25.5	8.6	5.8	5.46	2
Belgium	26.4	7.4	27.1	7.0	12.2	4.38	2
Canada	16.5	6.9	-	-	-	3.52	-
Spain	-	-	-	-	-	-	-
Czech Republic	19.5	6.3	35.3	7.8	3.6	5.15	2
Denmark	26.9	7.9	20.7	14.4	8.6	5.40	2
Finland	26.1	6.2	25.9	12.9	9.3	2.60	3
France	29.2	8.9	29.8	5.9	7.5	5.24	3
Germany	26.7	8.2	28.4	6.2	7.0	6.11	2
Greece	20.5	5.6	27.8	4.9	5.1	-	1
Ireland	16.7	6.5	40.9	5.3	7.5	-	3
Israel	-	-	-	-	-	-	-
Italy	25.0	6.8	26.7	6.0	2.0	-	2
Lithuania	-	-	30.3	10.4	1.8	-	2
Netherlands	20.9	6.0	30.7	9.7	6.1	3.40	3
Norway	21.6	7.6	32.0	19.1	2.7	-	3
Portugal	-	7.3	30.1	10.0	5.8	4.75	1
Romania	-	-	36.2	6.8	3.2	-	-
Slovakia	16.6	5.3	29.6	8.1	3.4	5.00	2
Slovenia	-	6.1	32.3	8.5	3.3	-	2
Spain	21.2	5.8	30.9	7.5	12.3	4.75	2
Sweden	29.4	7.5	25.9	15.0	6.1	6.73	2
Switzerland	20.3	6.8	26.4	12.7	4.4	5.09	2
Turkey	13.7	4.1	-	-	-	-	-
UK	21.3	7.1	30.9	8.9	2.6	3.87	3
OECD	20.5	6.5	-	-	-	-	-
EU-27	-	-	28.8	7.6	6.0	-	-

Sources: Public social expenditure; Public expenditure on health: OECD, 2009d; % spent on disability benefits: Eurostat, 2009c; Generosity of the Welfare System: Osterkamp and Rohn, 2007 (higher score = more generous); Social protection system intervention ratings (1 = limited interventions to 3 = advanced interventions available)

Appendix 2: Benchmarking grid

	Sickness absence due to health reasons (%)	Average days absent ¹	DALYs MSDs (% of Total)		DALYs RA (% of Total)	Prevalence work-related backache (Working population)	Number of RA Patients (General population)	Physicians per 1,000	
			Male	Female				Rheumatologists*	GPs
Romania	20.6	3.4	3.3	5.4	0.86	23.9	55,000 (0.67)	0.024	1.47
Belgium	28.8	7.0	3.1	5.1	0.78	19.4	69,000 (0.66)	-	2.08
Canada	-	-	-	-	0.86	-	215,000 (0.66)	0.014	1.03
Spain	19.3	9.4	2.3	4.5	-	41.7	-	-	-
Czech Republic	28.2	5.5	-	-	0.69	22.8	68,000 (0.66)	0.014	0.73
Denmark	32.8	6.6	3.1	4.7	0.78	18.8	36,000 (0.66)	-	0.77
Finland	44.6	8.5	3.1	5.5	0.88	26.1	35,000 (0.67)	0.020	0.72
France	19.1	5.5	3.1	5.4	0.81	21.6	283,000 (0.45)	0.036	1.66
Germany	28.0	3.5	3.3	5.5	0.83	18.8	544,000 (0.66)	0.015	1.46
Greece	14.0	2.8	3.1	5.5	0.78	47.0	50,000 (0.45)	0.025	0.29
Ireland	21.1	3.9	2.7	4.6	0.77	14.4	28,000 (0.67)	0.011	0.51
Israel	-	-	-	-	-	-	-	0.014	-
Italy	25.1	3.8	3.5	6.0	0.91	24.3	264,000 (0.45)	0.029	0.94
Lithuania	21.1	4.3	2.8	6.6	0.79	37.8	22,000 (0.65)	0.024	-
Netherlands	33.7	8.6	3.6	5.2	0.87	13.9	108,000 (0.66)	0.014	0.46
Norway	27.2	7.1	3.5	5.3	0.89	22.6	31,000 (0.67)	0.044	0.81
Portugal	13.4	8.6	2.5	5.1	0.72	30.8	70,000 (0.66)	0.009	1.68
Romania	11.1	2.0	3.2	5.9	0.76	42.4	143,000 (0.66)	0.013	-
Slovakia	22.9	5.2	3.6	7.3	0.93	38.9	36,000 (0.67)	0.017	-
Slovenia	28.2	8.7	2.7	4.9	0.72	46.2	13,000 (0.65)	0.012	-
Spain	14.2	3.6	3.1	6.0	0.83	29.1	197,000 (0.45)	0.018	0.85
Sweden	28.1	-	3.9	5.9	0.97	27.9	60,000 (0.66)	0.029	0.59
Switzerland	19.2	4.0	3.9	6.2	0.96	18.1	49,000 (0.66)	0.055	0.52
Turkey	18.6	4.8	-	-	0.84	34.7	482,000 (0.66)	0.002	0.74
UK	22.6	3.7	3.2	4.9	0.81	10.8	399,000 (0.66)	0.015	0.71
EU-27	22.3	4.6	3.2	5.5	-	25.6	-	-	-
Europe	-	-	-	-	0.84	-	2,962,000	-	-

Sources: Sickness absence due to health reasons: prevalence work-related backache: EWCS 2005; Parent-Thirion et al., 2007 DALYs MSDs: WHO 2006, 2007; DALYs RA, Prevalence RA: Lundkvist et al. 2008; Rheumatologists per 1,000 population: various sources and years*; GPs per 1,000: OECD, 2009c

Appendix 2: Benchmarking grid

Variable	Definition – Provided by source	Source
<i>Labour indicators</i>		
GDP per capita in PPP 2005	Gross domestic product is an aggregate measure of production equal to the sum of the gross value added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). The sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services, or the sum of primary incomes distributed by resident producer units.	OECD, 2009b; Data starred (*) in the table come from Eurostat, 2009
Working age population, % 2005	Share of total population between the ages of 15 and 64, inclusive.	OECD, 2009a
Unemployment rate by gender 2005	Unemployed persons are defined as those who report that they are without work, that they are available for work and that they have taken active steps to find work in the last four weeks. The ILO Guidelines specify what actions count as active steps to find work and these include answering vacancy notices, visiting factories, construction sites and other places of work, and placing advertisements in the press as well as registering with labour offices. The unemployment rate is defined as the number of unemployed persons as a percentage of the labour force, where the latter consists of the unemployed plus those in employment, which are defined as persons who have worked for one hour or more in the last week.	OECD, 2009b
Long-term unemployment – Annual averages by gender (%) 2005	Long-term unemployment is conventionally defined either as those unemployed for six months or more or, as here, those unemployed for 12 months or more. The ratios calculated here show the proportion of these long-term unemployed among all unemployed.	OECD, 2009b

Variable	Definition – Provided by Source	Source
<i>Labour indicators, continued</i>		
Average age of withdrawal from the labour market – retirement 2005	Retirement is associated with cessation of work and receipt of a pension. Actual retirement ages are difficult to measure directly without internationally comparable longitudinal data, so international comparisons must rely on indirect measures from cross-sectional data. Indirect measures regard persons above a specified age as 'retired' if they are not in the labour force at the time of the survey (average age at labour force exit). Net movements into retirement are proxied by the changes over time in the proportion of the older population not in the labour force. This indirect measure is used in ongoing OECD reviews of older workers. It measures the average effective age of retirement. The official age of retirement is also complex to pin down, especially when retirement is based on fixed years of pension contribution.	OECD, 2009d; Data starred (*) in the table come from Eurostat, 2009
Labour productivity per hour worked – GDP in PPS	Gross domestic product (GDP) is a measure for the economic activity in an economy. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP per hour worked is intended to give a picture of the productivity of national economies expressed in relation to the European Union (EU-15) average. If the index of a country is higher than 100, this country level of GDP per hour worked is higher than the EU average and vice versa. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. Expressing productivity per hour worked will eliminate differences in the full-time/part-time composition of the workforce.	Eurostat, 2009b
Hourly labour costs 2005	Average hourly labour costs, defined as total labour costs divided by the corresponding number of hours worked.	Eurostat, 2009a

Appendix 2: Benchmarking grid

Variable	Definition – Provided by Source	Source
<i>Welfare indicators</i>		
Public social expenditure (% of GDP) 2005	Social expenditure is classified as public when general government (ie central administration, local governments and social security institutions) controls the financial flows.	OECD, 2009d
Public expenditure on health care 2005	Public expenditure on health refers to expenditure on health care incurred by public funds. Public funds are state, regional and local government bodies and social security schemes. Public capital formation on health includes publicly financed investment in health facilities plus capital transfers to the private sector for hospital construction and equipment. Public funds correspond to HF.1 in the ICHA-HF classification of health care financing.	OECD, 2009d
Sickness/health care benefits – % of total benefits 2005	Expenditure on social protection contain: social benefits, which consist of transfers, in cash or in kind, to households and individuals to relieve them of the burden of a defined set of risks or needs; administration costs, which represent the costs charged to the scheme for its management and administration; other expenditure, which consists of miscellaneous expenditure by social protection schemes (payment of property income and other).	Eurostat, 2009c
Disability – Social benefits by function – % of total benefits 2005	Same as above.	Eurostat, 2009c
Unemployment – Social benefits by function – % of total benefits 2005	Same as above.	Eurostat, 2009c

Variable	Definition – Provided by Source	Source
<i>Welfare indicators continued</i>		
O&R generosity index	Seven different measures of generosity were combined to construct a single measure of generosity that ranges from between zero and seven, where seven indicates the highest level of generosity. The seven variables include waiting period, self-certification, total maximum duration of payment, employer maximum duration of payment, employer amount of payment, sickness fund amount of payment and external proof.	Osterkamp, and Rohn, 2007
Social protection system interventions	The Mutual Information System on Social Protection (MISSOC) database provides a description of the social protection systems for each European country and allows for comparison between systems. Three independent reviewers reviewed the summary descriptions of the social protection topics geared toward benefits for invalidity and employment injuries and occupational diseases. The systems were scored from one to three with one meaning very limited regulations in place that could contribute to early intervention and three meaning advanced regulations in place that could contribute to early intervention.	Ratings by independent reviewers. Data from MISSOC (2009). Comparative tables on social protection – January 2005. Retrieved 27 July 2009 from http://ec.europa.eu/employment_social/misoc/db/public/compareTables.do?lang=en

Appendix 2: Benchmarking grid

Variable	Definition – Provided by Source	Source
<i>Health outcomes</i>		
Average days absent due to health reasons	The median number of days absent because of health.	Parent-Thirion, Ferrández Macías, Hurley and Vermeylen, 2007
% sickness absence due to health reasons 2005	% reporting absence caused by ill-health.	EWCS, 2005
DALYs – MSDs, male and female	Disability adjusted life years (DALYs) are frequently used to assess the burden of disease. The WHO's definition of DALY – 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.'	WHO, 2006, 2007)
DALYs – RA	DALYs are frequently used to assess the burden of disease. The WHO's definition of DALY – 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.'	Lundkvist, Kastäng and Kobelt, 2008
Prevalence – Backache 2005	% reporting work-related backache in the EWCS.	EWCS, 2005
Number of people with RA	Estimated number of people with RA. The percentage is calculated from the number of people with RA divided by the population numbers listed in the article.	Lundkvist, Kastäng and Kobelt, 2008
Practicing rheumatologists, density per 1,000 population	Number of practising rheumatologists per 1,000 population. The definition that was used to derive the ratio for rheumatologists may differ by country depending on the source, which makes comparability difficult.	Various sources
Practicing general practitioners (GPs), density per 1,000 population 2005	Number of practicing GPs per 1,000 population.	OECD, 2009c

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The Work Foundation

21 Palmer Street

London

SW1H 0AD

Telephone: 020 7976 3519

Email: jtaylor@theworkfoundation.com

Website: www.theworkfoundation.com

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