

Indirect Costs of Chronic Pain in Portugal

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Workshop 6



Chronic Pain in Portugal

- ★ Chronic pain is a major Health Policy concern, embodied in the National Program for Pain Control.
- ★ In 2002 the National Health Observatory estimated that **74% of the population had pain** in the 2 weeks prior to the interview.
- ★ Also based on interviews (over 5.000), the Portuguese Association for the Study of Pain concluded that **34%** of the Portuguese population suffers from **chronic pain**.

Why study indirect costs?

- ★ **Indirect costs** are the value of lost output due to cessation or reduction of productivity caused by morbidity and mortality.
- ★ In other words, it is the **production the Society “loses”** due to non-participation (temporary or permanent) in the labor market caused by health problems.
- ★ We estimated the indirect costs of **lower back** and **joint pain** in Portugal (2008), areas chosen due to their degree of disability and contributions to chronic pain prevalence.



Methods

Study methodology

- ★ From the point of view of the **Society**
- ★ Based on the **prevalence** of chronic pain
- ★ **Bottom-up** approach
- ★ Indirect costs estimated using **human capital** methodology:
 - wages as an approximation to market prices of productivity

Data

- ★ Primary source of data is the **National Health Survey 2005/6 (NHS)**:
 - socio-demographic information
 - presence of chronic pain
 - Participation in the labor market
- ★ **National Institute of Statistic (NIS)**: data on the Portuguese population's structure
- ★ **Personnel Files “Quadros do Pessoal”**: Administrated database with wage data on private sector workers from the **Ministry of Labor**.

Long term disability: Preliminary approach

Estimation of the No. of individuals not participating in the labor market due to chronic pain.
(lower back or joints)



- ★ Unemployment rates (NHS)
- ★ Chronic pain prevalence rates (NHS)
- ★ Portuguese Population (NIS)



Estimates, by gender and age group, of the population with **chronic pain** that:

- Works
- Does not work

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Estimates, by gender and age group, of the population with **chronic pain** that:

- Works
- Does not work

Estimation of the difference of labor market participation, between chronic pain and general population



- ★ Estimation of **average productivity** of an individual.

(corresponds to the production lost by Society due to the absence from the labor market)

Long term disability: Labor market participation

- ★ Estimation of labor market participation using age, gender, level of education, region, a set of dummies for different health problems
 - NHS data and a Logit model that estimates patterns of labor market participation:
(1) $Work_i = \begin{cases} 1, & \text{if } Work_i^* > 0, \\ 0, & \text{otherwise} \end{cases}$ where $Work_i^* = \delta X_i + u_i$

1. Use the model to predict employment status using :
 - **Actual population**
(original data: people with pain and no pain)
 - **Counterfactual population**
(all observations: no pain)

2. Comparison of the **employment** probability in these 2 populations.

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Number of patients that do not work due to chronic pain

Indirect costs: Long term disability (2)

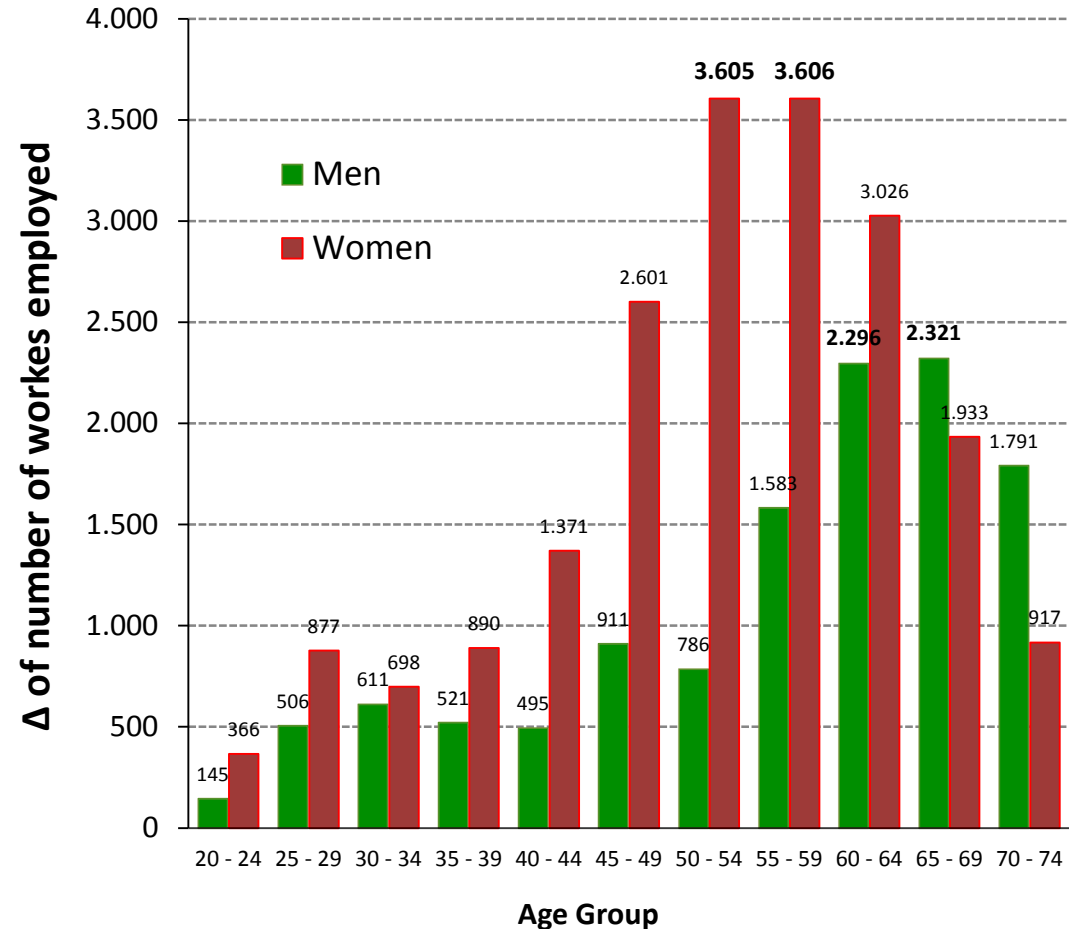
★ Participation in the Labor Market estimates:

— **11.966** men

— **19.890** women

do not work due to chronic pain.

(Portugal, 2008)



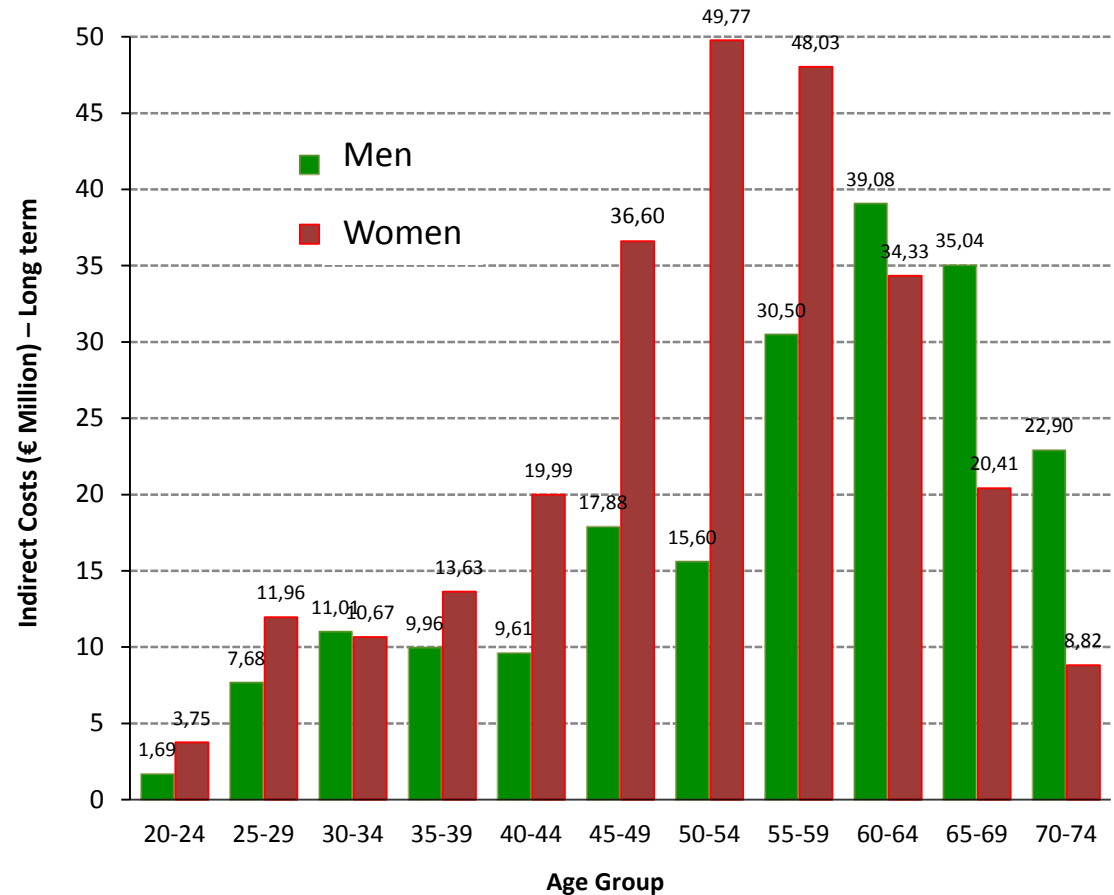
Indirect costs: Long term disability (3)

Workers' average productivity

- ★ Estimates using the human capital approach:
 - Data from “*Quadros do pessoal*”: **monthly wages** in the private sector, grossed up by employers' Social Security contributions and multiplied by 14 to include the Portuguese standard vacations and Christmas extra monthly pay.
- ★ Annual **average worker productivity**, for each age and gender group, was multiplied by the respective number of **individuals that do not participate** in the labor market due to chronic pain, yielding the **Indirect Costs**.

Indirect costs: Long term disability (4)

Age Group (Years)	Indirect Costs (€ Millions)		
	Men	Women	Total
20 - 24	1.69	3.75	5.44
25 - 29	7.68	11.96	19.64
30 - 34	11.01	10.67	21.68
35 - 39	9.96	13.63	23.59
40 - 44	9.61	19.99	29.60
45 - 49	17.88	36.60	54.48
50 - 54	15.60	49.77	65.37
55 - 59	30.50	48.03	78.53
60 - 64	39.08	34.33	73.41
65 - 69	35.04	20.41	55.45
70 - 74	22.90	8.82	31.72
Total	200.95	257.95	458,91



Indirect costs: Short term disability (1)

Absenteeism due to Pain

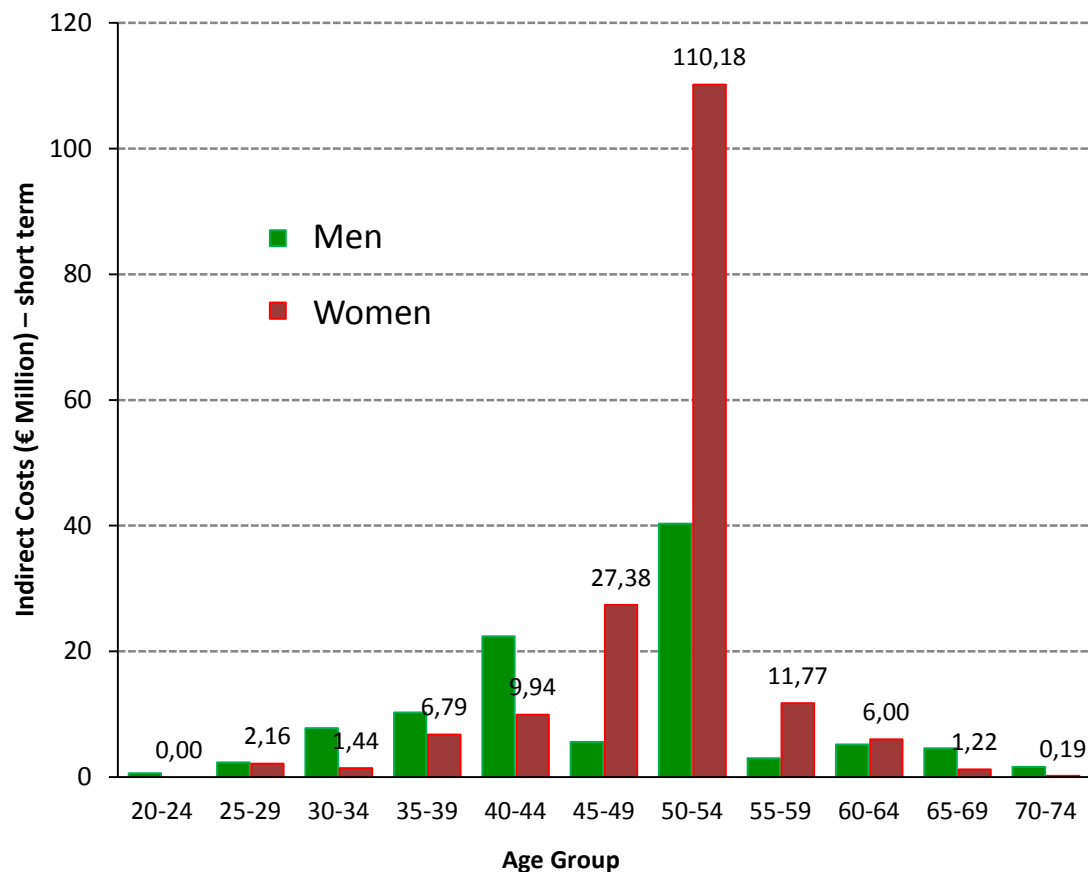
- ★ Average lost days estimated from the NHS 2005/6:

“How many times have you missed work due to pain, in the last 12 months?”

- ★ Number of **missed days** is multiplied by the daily **average worker productivity**, for each age and gender group, yielding **indirect costs** generated by short-term disability

Indirect costs: Short term disability (2)

Grupo Etário (Anos)	Indirect Costs due to absenteeism (Millions €)		
	Men	Women	Total
20 a 24	0.62	0.00	0.62
25 a 29	2.35	2.16	4.51
30 a 34	7.80	1.43	9.23
35 a 39	10.28	6.77	17.06
40 a 44	22.39	9.94	32.32
45 a 49	5.62	27.38	33.00
50 a 54	40.35	110.18	150.53
55 a 59	3.03	11.77	14.80
60 a 64	5.19	6.00	11.20
65 a 69	4.61	1.23	5.83
70 a 74	1.64	0.192	1.83
Total	103.87	177.08	280.95



Conclusions (1)

- ★ The estimates of total indirect costs of chronic pain in the lower back and joints are **€ 739.85 million**.
- ★ This monetary loss represents **7.53%** of the State's total health expenditure (2009) and an average loss of € 160.59 per worker.
- ★ In a more global perspective, the impact of the production lost due to chronic pain amounts to **0.46% of Portugal's GDP** in 2009.

Conclusions (2)

- ★ Comparing to the case of obesity, estimated for Portugal in 2002 to be € 199.8 million*, the indirect costs of chronic pain is **significantly superior**.
- ★ A more efficient allocation of resources and a greater effort in **prevention and reduction** of chronic pain could mitigate its impact on the health and welfare of the Portuguese population.

*Pereira *et al* (2003)

THANK YOU FOR YOUR ATTENTION

Disclosure Statement of conflict of interest in the context of the subject of this presentation

Within the past 12 months, I or my spouse/partner have had following financial interest/arrangement(s) or affiliation(s)

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