

**First EFIC Symposium  
SOCIETAL IMPACT OF PAIN  
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**The Impact of Pain  
According to Consumers and Patients**

Results of a survey in the big 5 EU countries

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# Presentation Objectives

- To report on the results of a recent pan-European survey of the societal impact of pain
- To describe the prevalence, severity, frequency and demographics of pain experienced
- To describe patterns of pain medication utilization, adherence and satisfaction with care
- To assess the societal impact of pain in terms of:
  - health-related quality of life
  - workforce status and productivity
  - healthcare resource utilization

# The Survey

- National Health and Wellness Survey 2008
- Internet-based survey conducted in the UK, France, Spain, Germany and Italy
- A total of 53,524 persons 18 years of age and over interviewed (weighted population 247.3 million)
- A total of 11,891 respondents reported experiencing pain in the last month (weighted estimate 51.8 million) or 1 in 5 of the population
- Present analysis based on persons reporting both severity and frequency of pain
- Reference category: persons reporting no pain in the previous month

# Pain Population

- Respondents were asked
  - Whether or not they had experienced pain in the last month .... if YES
  - Whether that had experienced mild, moderate or severe pain and the frequency with which pain was experienced (daily to weekly or less)
  - What conditions were associated with the pain experienced (e.g., Back pain, joint pain, neck pain)
  - Medical conditions experienced in the last year (co-morbidities)
  - Prescription and OTC pain medication utilization, duration and adherence
  - Excluding respondents only reporting dental-, menstrual-pain, headache or migraine

# 1 in 5 of respondents report pain in the last month

<b>Frequency of Pain Reported</b>	<b>Mild (%)</b>	<b>Moderate (%)</b>	<b>Severe (%)</b>	<b>Total Pain Population (%)</b>
<b>Once a Day</b>	<b>0.59</b>	<b>4.79</b>	<b>3.47</b>	<b>8.85</b>
<b>2 - 6 times a week</b>	<b>1.06</b>	<b>4.16</b>	<b>0.70</b>	<b>5.92</b>
<b>Weekly or less</b>	<b>2.00</b>	<b>3.06</b>	<b>0.45</b>	<b>5.51</b>
<b>Total Pain Population (%)</b>	<b>3.66</b>	<b>12.00</b>	<b>4.61</b>	<b>20.27</b>

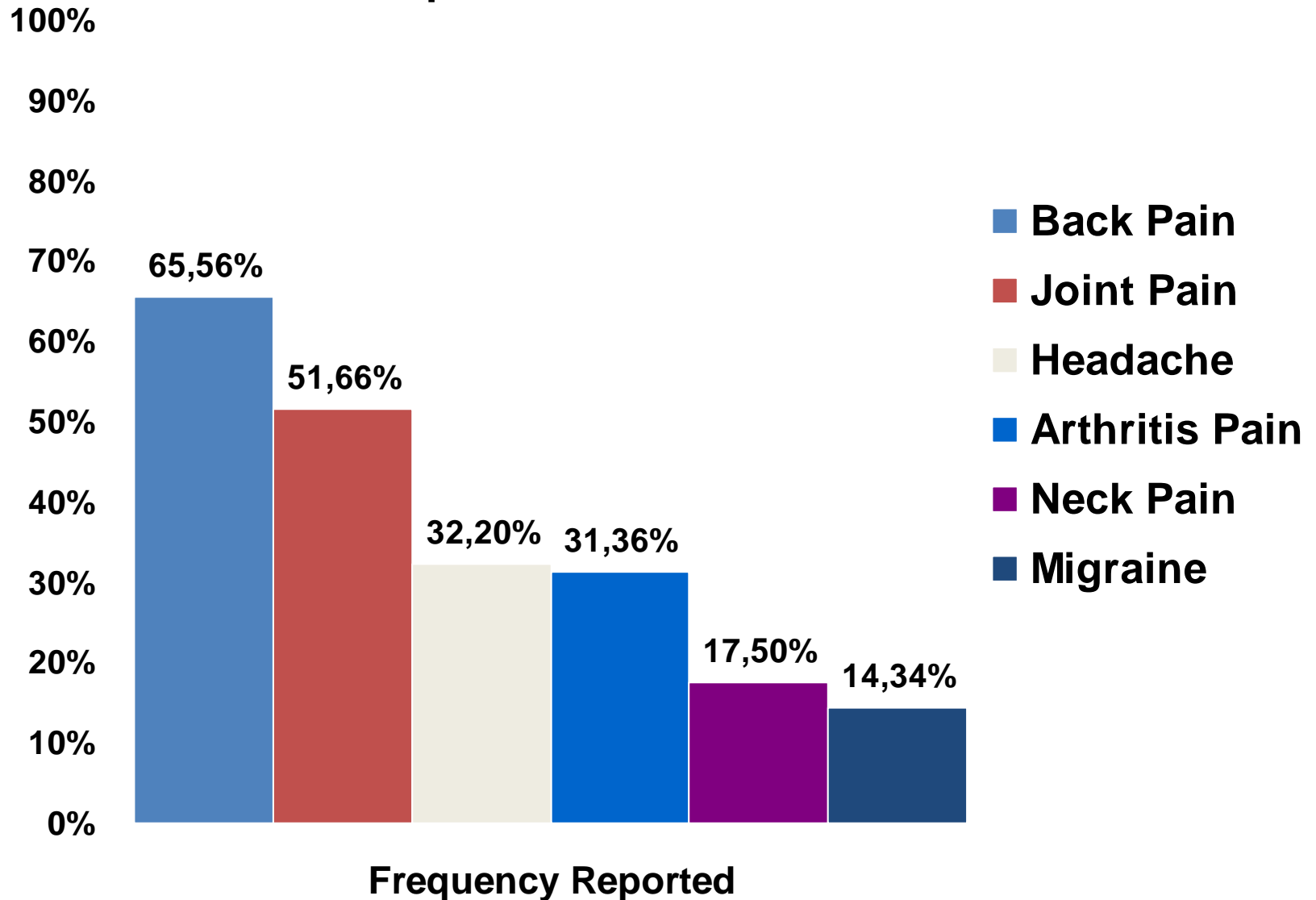
# 1 in 5 of the big 5 EU population has experienced pain in the last month

- Almost 9% of the big 5 EU population has experienced pain on a continuing, daily basis
- Almost 5% of the big 5 EU population is experiencing severe pain with 75% of these experiencing this on a daily basis
- A further 12% of the big 5 EU population has experienced moderate pain in the last month with 40% of these experiencing it on a daily basis

# Typical pain patient: 48 years of age, female, low income and low educational attainment

- The population prevalence of pain is highest for those in the 40-59 year age group (8.45%)
- Females are more than twice as likely than males to report pain (12.30% vs. 7.98%)
- The population prevalence of pain declines with higher educational attainment and household income

# Back and joint pain are the most frequently reported conditions



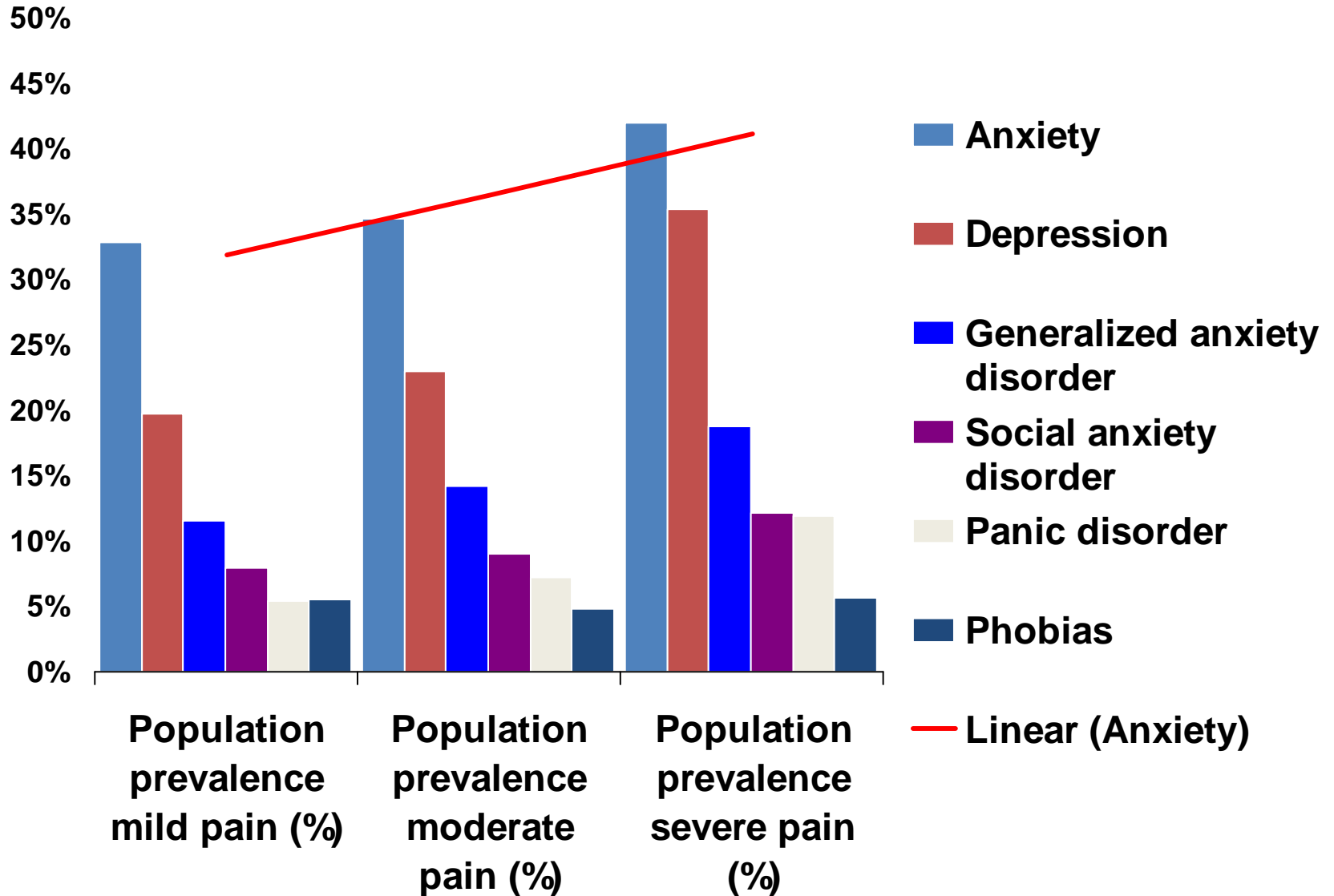
\* headache migraine as co-morbidity to other pain types



# High prevalence of comorbidities in pain

- The survey confirms the high prevalence of a range of psychiatric and other comorbidities in the big 5 EU pain population
- Headache and sleep difficulties dominate with a reported prevalence of 63.35% and 46.55% respectively
- The prevalence of comorbidities increases with pain severity

# The prevalence of psychiatric conditions increases with pain severity



# Opioid use is strongly related to increasing pain severity

Medication Utilization	Mild pain (%)	Moderate pain (%)	Severe pain (%)
Only prescription pain medications	<b>9.89</b> <b>Strong opioids</b> <b>0.47</b> <b>Weak opioids</b> <b>2.69</b> <b>Other 6.73</b>	<b>25.79</b> <b>Strong opioids</b> <b>1.11</b> <b>Weak opioids</b> <b>10.97</b> <b>Other 13.70</b>	<b>53.89</b> <b>Strong opioids</b> <b>10.96</b> <b>Weak opioids</b> <b>27.57</b> <b>Other 15.36</b>
Prescription and OTC medications	<b>5.48</b>	<b>11.97</b>	<b>17.48</b>
Only OTC pain medications	<b>48.55</b>	<b>39.86</b>	<b>17.31</b>
No pain medication	<b>36.09</b>	<b>22.38</b>	<b>11.31</b>
Total	100.0	100.0	100.0

# **Almost 40% of the severe pain population in the big 5 EU use opioids**

- Over 12% of the moderate pain population use opioids
- Prescription medication use declines relative to OTC utilization with decreasing pain severity
- Opioid use declines relative to non-opioid prescription drug utilization use with decreasing pain severity
- Exclusive OTC use increases with reduced pain severity

# Measuring compliance using the (Donald E.) Morisky Scale



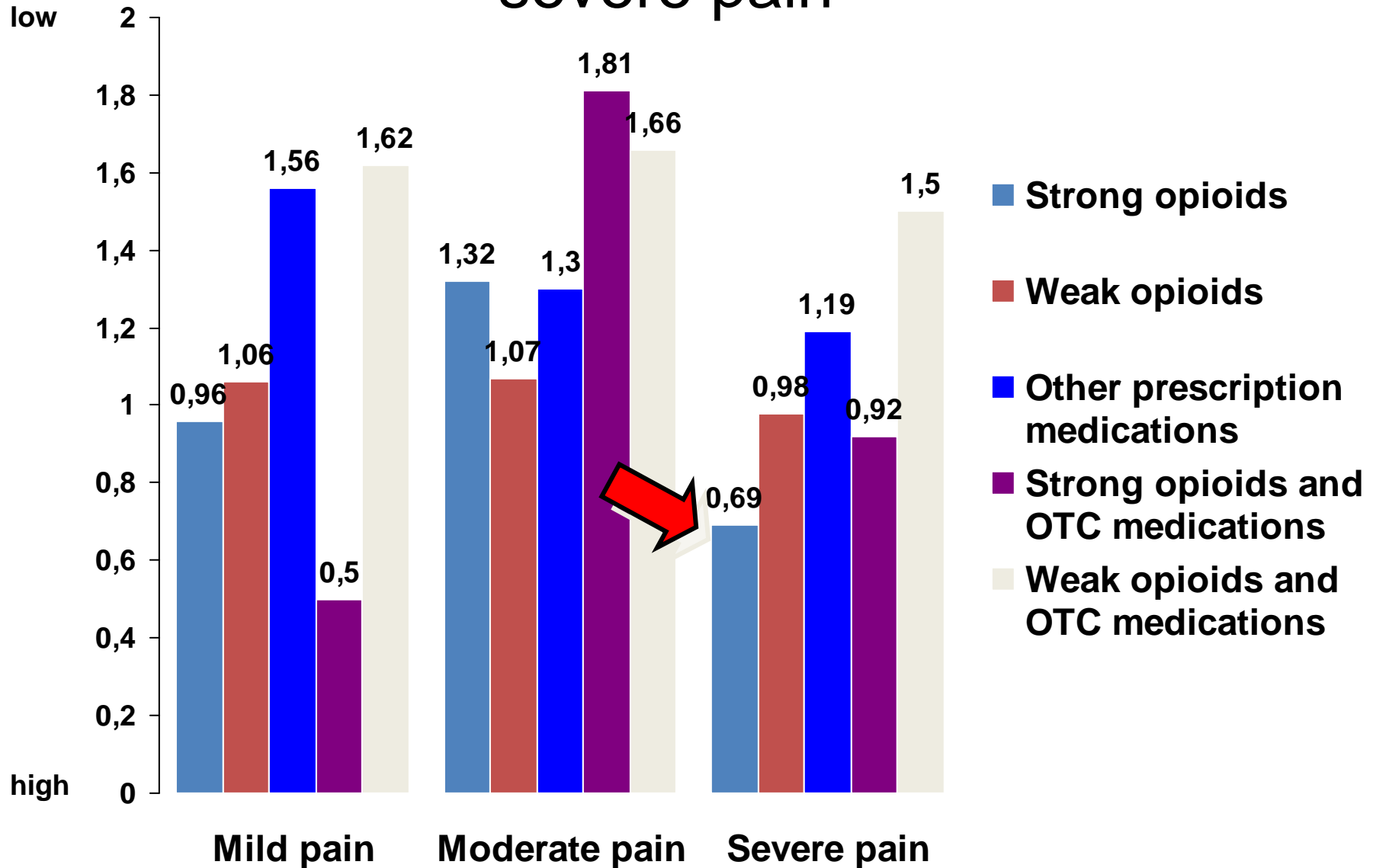
Respondents were asked four questions to assess compliance with medications:

1. Do you ever **forget** to take your medicine?
2. Are you **careless** at times about taking your medicine?
3. When you feel better do you **sometimes stop** taking your medicine?
4. Sometimes if you feel worse when you take the medicine, do you **stop taking** it?

Compliance is measured in terms of a 0-to-4 scale, which comprises the number of “yes” responses to these four questions.

- ‘0’ score indicates high compliance.
- ‘4’ score indicates low compliance.

# Compliance is highest with opioid use in severe pain



# The Morisky scores indicate a high level of compliance for all medication regimens involving strong or weak opioids in the big 5 EU countries

- Compliance is greatest for those experiencing severe pain, notably for regimens involving strong opioids
- Compliance tends to decline with decreasing pain severity
- The overwhelming majority of respondents declare themselves satisfied with prescription medications
- Satisfaction declines with severity of pain experienced

# Constipation is the most common side effect for those on opioids

Side Effect	Severe pain (%)	Moderate pain (%)	Mild pain (%)	Total patients with opioids (%)
Constipation	63.01	47.40	58.54	57.89
Sleepiness	48.76	30.85	36.50	42.90
Nausea	38.39	19.64	45.92	24.38



# Measuring health related quality of life deficits with the SF-12

- The SF-12 instrument
  - includes questions on physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality, social functioning, and role limitations due to emotional problems and mental health.
  - generates standardized summary physical and mental component scores
- The SF-6D instrument
  - uses a subset of items from the SF-12 to generate absolute health utilities (range 0 – 1 for perfect health)

# Severe and moderate daily pain have a major deficit impact on SF-12 PCS and utility scores

Frequency of pain reported	Mild pain	Moderate pain	Severe pain
<b>SF-12 Mental Component score</b>			
Daily pain	46.71	45.32	41.36
Total pain population	46.01	44.72	41.65
<b>SF-12 Physical Component Score</b>			
Daily pain	45.40	37.56	29.20
Total pain population	48.54	42.27	32.05
<b>SF-6D Utility</b>			
Daily pain	0.72	0.64	0.54
Total pain population	0.72	0.66	0.56
Persons not reporting pain	Utility: 0.74	PCS Score: 50.96	MCS Score: 47.00

# Multivariate results confirm HRQoL deficits are greatest with severe daily pain

<b>Pain severity and frequency</b>	<b>SF-12 PCS score deficits</b>	<b>SF-12 MCS score deficits</b>	<b>SF-6D utility deficits</b>
Severe pain	<b>-15.40</b>	<b>-5.09</b>	<b>-0.16</b>
Severe daily pain	<b>-17.86</b>	<b>-5.50</b>	<b>-0.19</b>
Moderate pain	<b>-6.69</b>	<b>-2.49</b>	<b>-0.07</b>
Moderate daily pain	<b>-10.27</b>	<b>-2.61</b>	<b>-0.10</b>
Mild pain	<b>-2.18</b>	<b>-1.16</b>	<b>-0.03</b>
Mild daily pain	<b>-4.11</b>	<b>-1.20</b>	<b>-0.04</b>

# The more frequent and the more severe the pain experienced, the greater the deficit in HRQoL

- The greatest burden of pain deficit in the big 5 EU is experienced by those with severe daily pain
- For the SF-12 the greatest deficits are with the PCS scores
- For the SF-6D the greatest deficit is with severe daily pain
- The HRQoL deficit is substantially greater than that due to socio-demographic characteristics, health risk behaviors or the presence of comorbid disease states

# Estimating employment and productivity deficits

- Employment Status
  - The NHWS identifies respondents by current workforce status – employed, looking for work, not in the labor force
  - This allows an assessment of the impact of pain on employment status and job seeking in both descriptive and multivariate terms (multinomial logit model)
- Absenteeism and Presenteeism
  - The NHWS uses the Work Productivity and Activity Impairment Scale (WPAI) to measure lost productivity in the workplace and impairment in daily activities attributable to pain experience
  - Absenteeism: percentage of work time missed
  - Presenteeism: percentage of hours with reduced workplace effectiveness
  - Multivariate ordered logit model

# Labor force participation is least with severe pain

Labor Force Status	No pain experienced (%)	Mild pain (%)	Moderate pain (%)	Severe pain (%)
Employed full-time	44.52	47.39	34.44	25.98
Employed part-time or self-employed	15.91	18.00	16.55	13.60
Unemployed	4.03	4.05	5.15	5.08
In the labor force	64.46	69.44	56.14	44.67
Not in the labor force	35.54	30.56	43.86	55.33

# Multivariate results confirm the negative impact of severe pain on labor force participation

	No pain reported	Mild pain	Moderate pain	Severe pain
Employed full-time	0.42	0.42	0.37	0.27
Employed part-time	0.07	0.08	0.06	0.04
Self-employed	0.11	0.12	0.10	0.09
Unemployed	0.04	0.04	0.04	0.04
Not in the labor force	0.36	0.34	0.42	0.56

# Severe and moderate pain have a negative impact on employment status, absenteeism and presenteeism

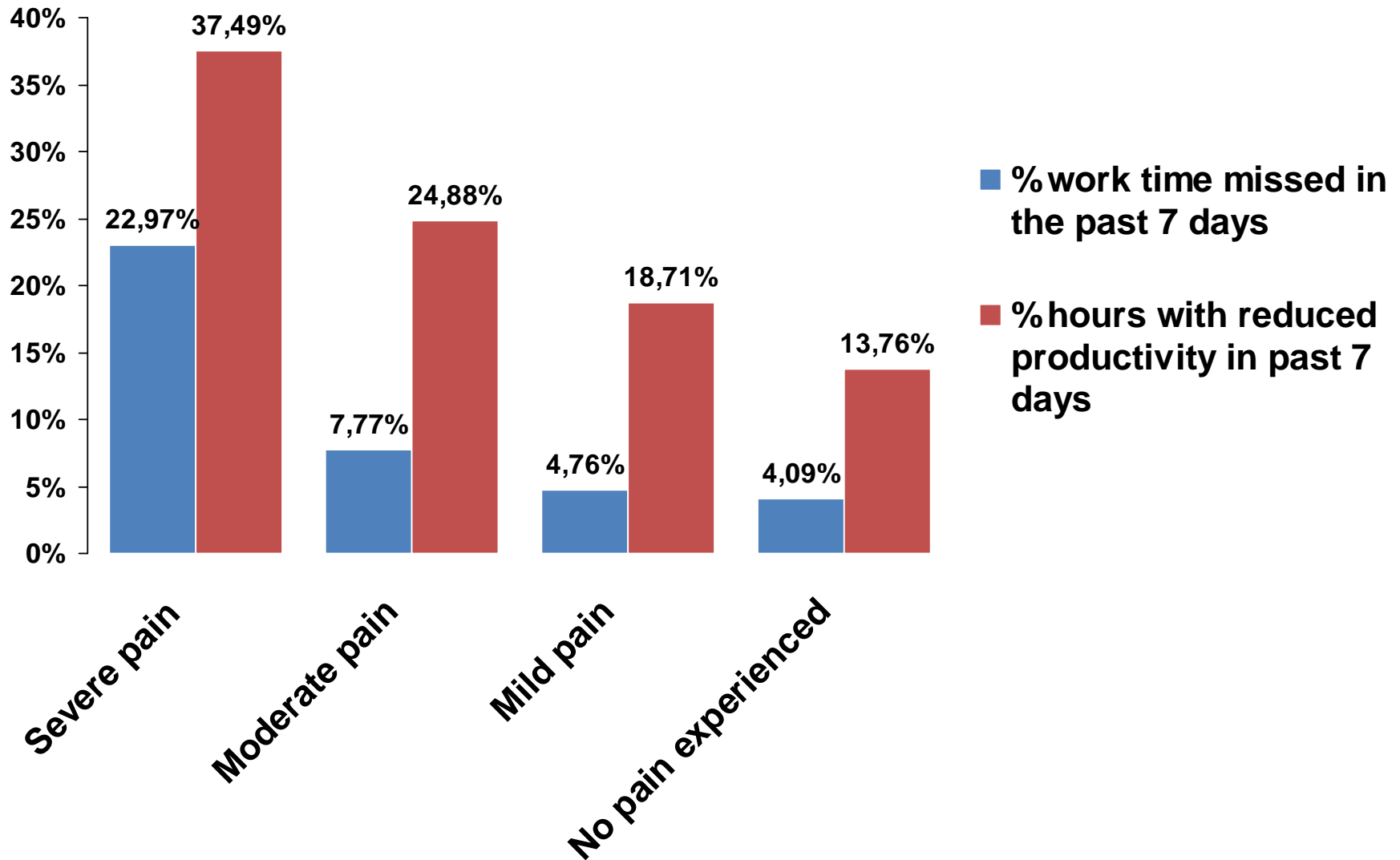
- Severe and moderate pain have a negative impact on rates of both absenteeism and presenteeism
- The presence of severe pain increases the likelihood of absenteeism by a factor of almost six
- The deficit experience of pain on presenteeism is more widely seen across all pain categories
- The deficit experience of daily severe and moderate pain is substantially greater than for severe and moderate pain alone
- The deficit impact of frequent severe and moderate pain is substantially greater than for socio-demographic characteristics, health risk factors and comorbidities.



# The presence of both severe and moderate pain has a significant negative impact on employment status

- This impact is seen principally in the case of full-time employment
- This deficit impact is seen in both the descriptive and multivariate analyses where the latter model predicts the probability of being employed
- The quantitative impact of severe and moderate pain on employment status is substantially greater than the deficit impact of health-risk factors and comorbidities

# Productivity deficits are positively related to pain severity



# Multivariate results confirm deficit impact of severe and frequent pain on productivity

<b>Pain severity and frequency</b>	<b>Absenteeism: odds ratio of increased absenteeism</b>	<b>Presenteeism: odds ratio of increased presenteeism</b>
Severe pain	<b>5.74</b>	<b>5.52</b>
Severe daily pain	<b>8.09</b>	<b>7.32</b>
Moderate pain	<b>1.84</b>	<b>2.58</b>
Moderate daily pain	<b>2.52</b>	<b>3.49</b>
Mild pain	<b>1.20</b>	<b>1.65</b>
Mild daily pain	<b>[1.01]</b>	<b>1.88</b>

# Impact of pain on healthcare resource utilization

- The NHWS asks respondents to report on their utilization of healthcare resources in the past 6 months
- Focus is on average number of visits and percentage change in utilization of healthcare resources associated with pain severity and frequency compared to the no pain population
- Multivariate model uses a negative binomial (count) regression
- Healthcare resources identified are:
  - Number of traditional healthcare provider visits
  - Number of emergency room visits
  - Number of hospitalizations

# Resource utilization increases with pain severity

Average number of visits (previous 6 months)	No pain experienced	Mild pain	Moderate pain	Severe pain
Traditional provider visits	4.39	5.51	7.82	11.83
Emergency room visits	0.18	0.22	0.32	0.50
Hospitalizations	0.14	0.16	0.22	0.59

# Severe daily pain has the greatest impact on resource utilization

Pain severity and frequency	Traditional Provider Visits: percentage change	Emergency room visits: percentage change	Hospitalizations: percentage change
Severe pain	132.3	172.7	229.0
Severe daily pain	145.4	194.1	263.1
Moderate pain	63.5	66.4	44.0
Moderate daily pain	84.6	86.2	66.5
Mild pain	27.9	[4.3]	[17.0]
Mild daily pain	41.0	[-7.6]	[-7.0]

# Severe and frequent pain imposes a substantial burden on individuals and society

- **Pain is widespread** with 1 in 5 of the big 5 EU population experiencing pain in the last month
- Almost 1 in 2 of those experiencing pain do so **on a daily basis**
- Pain experience has a systematic **negative impact on HRQoL**
- The disutility associated with pain is far **outweighing utility deficits associated with the presence of chronic disease or critical health risk behaviors**

## **Pain is associated with .....**

- **reduced likelihood of being employed**
- **increased workplace absenteeism and presenteeism**
- **increased healthcare resource utilization**