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# Inequalities in hearing and vision health

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14:00 - 14:20 - Piers Dawes - Hearing/vision inequalities in Europe

### **Hearing health**

14:20 - 14:40 – Jack Allum: Demographics of hearing impairment

14:40 – 15:00 – Harry Taylor: Ethnicity and hearing health inequality

### **Vision health**

15:00 - 15:20 - Christopher Davey: Ethnicity and vision health inequality

15:20 - 15:40 - Katey Matthews: vision health inequality

15:40 - 16:00 - Q&A with the panel of speakers

# Inequalities in hearing and vision health in Europe

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Piers Dawes, Asri Maharani, Neil Pendleton, Gindo Tampubolon, James Nazroo, on behalf of the Sense-Cog WP1 group

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- 1.3 billion people with hearing impairment
  - 661 million people with vision impairment
  - Mostly (older) adults
  - Impact: quality of life, activity, education, employment, communication, mobility, social engagement, mental well-being

Hearing (#2)  
vision (#3)



Leading causes 2015	% change number of YLDs 2005-15	% change all-age YLD rate 2005-15	% change age-standardised YLD rate 2005-15
1 Lower back and neck pain	18.6	4.9	-2.1
2 Sense organ diseases	25.2	10.8	0.6
3 Depressive disorders	18.2	4.5	1.0
4 Iron-deficiency anaemia	-3.8	-14.9	-11.6
5 Skin diseases	11.7	-1.2	0.4
6 Diabetes	32.5	17.2	5.4
7 Migraine	15.3	2.0	0.8
8 Other musculoskeletal disorders	20.5	6.6	1.3
9 Anxiety disorders	14.8	1.5	1.0
10 Oral disorders	22.4	8.2	-0.2
11 Asthma	9.4	-3.3	-2.3
12 Schizophrenia	19.5	5.7	0.3
13 Osteoarthritis	34.8	19.2	3.9
14 COPD	16.2	2.8	-5.9
15 Falls	11.3	-1.5	-8.6
16 Autistic spectrum	12.3	-0.7	0.6
17 Gynaecological diseases	10.7	-2.1	-3.3
18 Drug use disorders	23.6	9.4	8.2
19 Other mental and substance	18.7	5.0	0.3
20 Medication overuse headache	18.9	5.2	0.6
21 Bipolar disorder	14.9	1.6	0.5
22 Congenital anomalies	28.5	13.7	14.7
23 Haemoglobinopathies	4.3	-7.7	-4.9
24 Chronic kidney disease	23.8	9.5	0.1
25 Ischaemic heart disease	30.2	15.2	-0.3
26 Alzheimer's disease	38.8	22.8	1.1
27 Cerebrovascular disease	20.7	6.8	-4.2
28 Alcohol use disorders	11.1	-1.7	-4.5
29 Epilepsy	-6.4	-17.2	-16.3
30 Other cardiovascular	23.9	9.6	0.5

Hearing & vision

Diabetes



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**Hearing & vision**



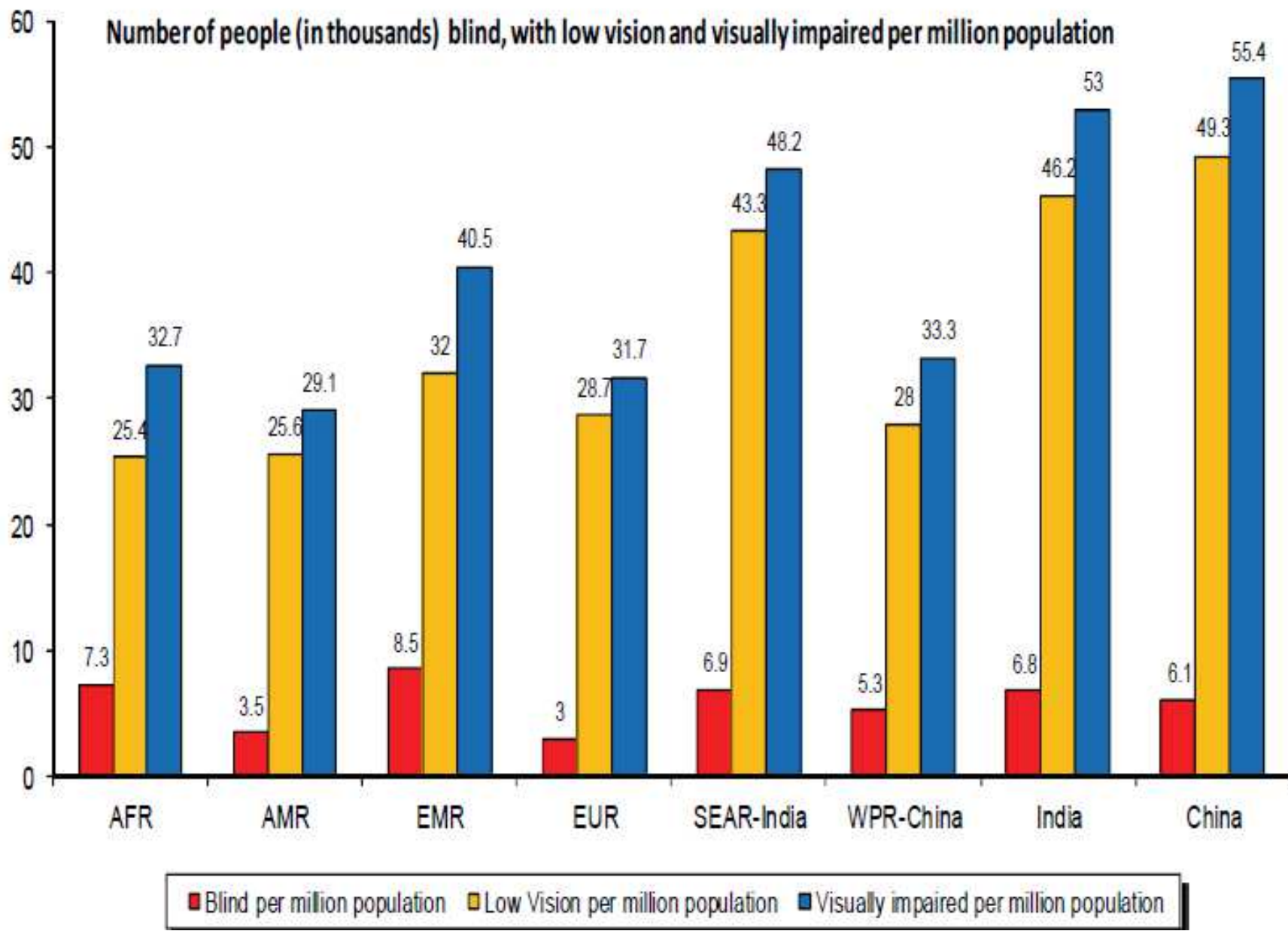
**Diabetes**



**Alzheimer's disease**

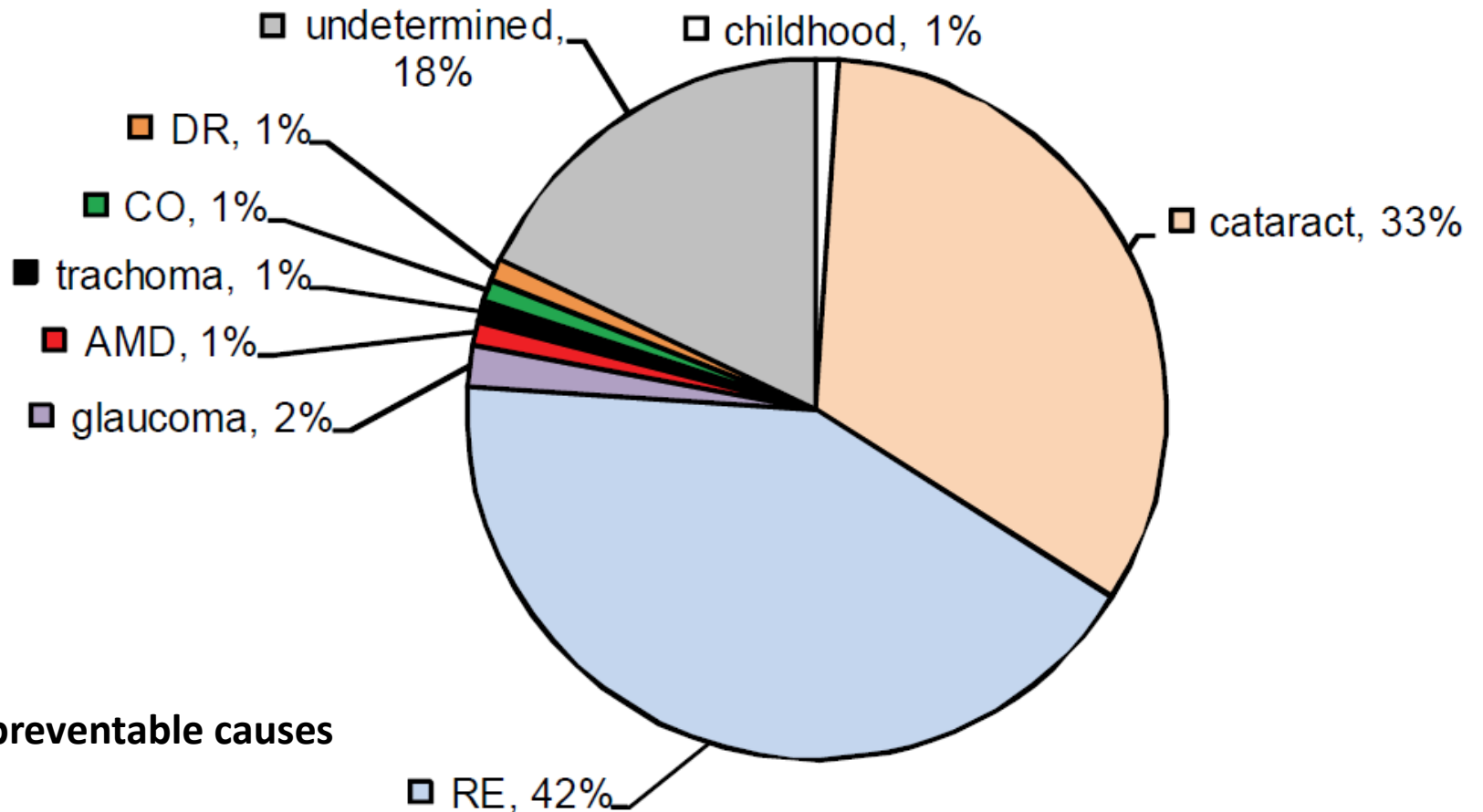


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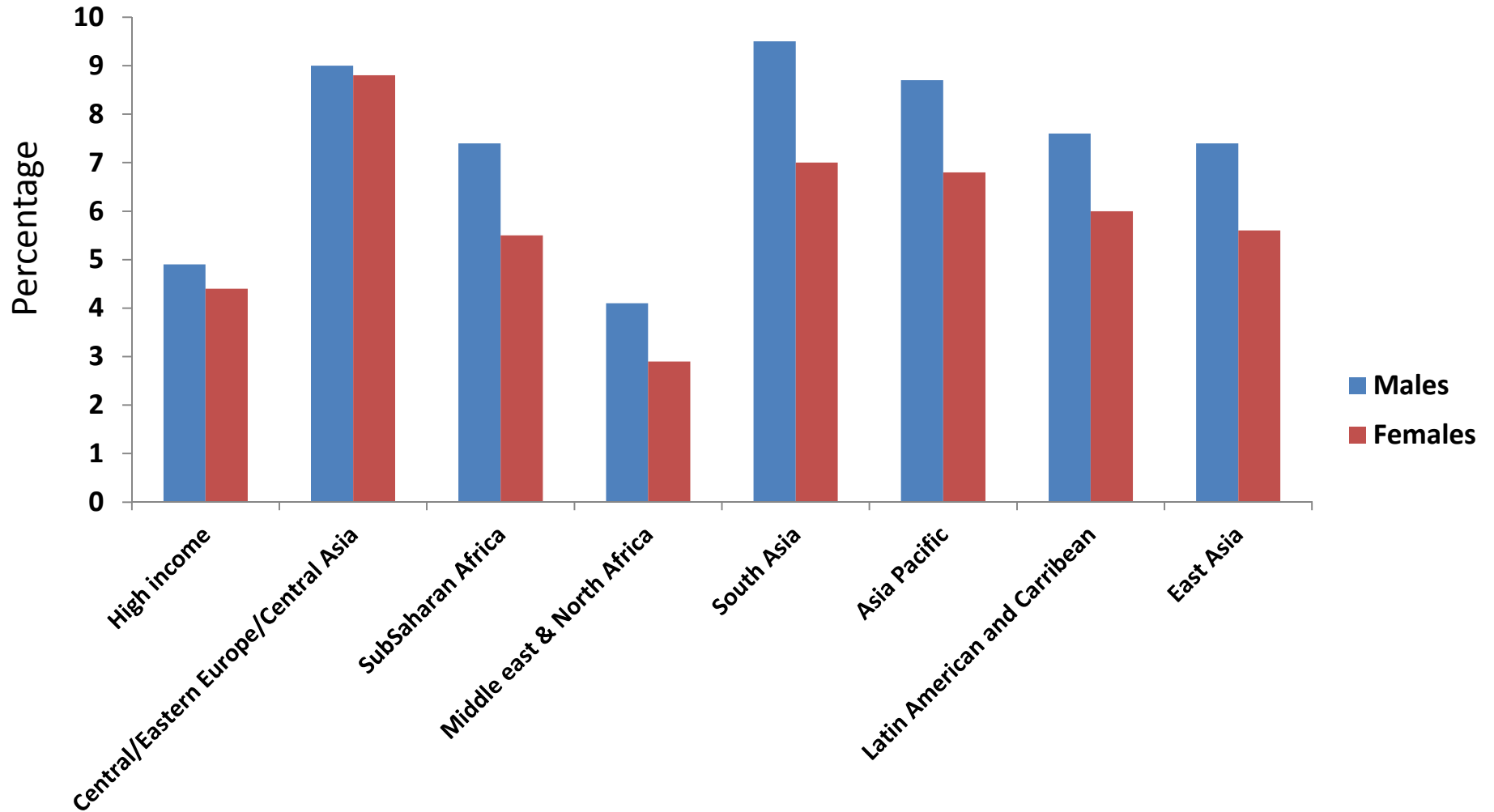
# Causes of vision impairment

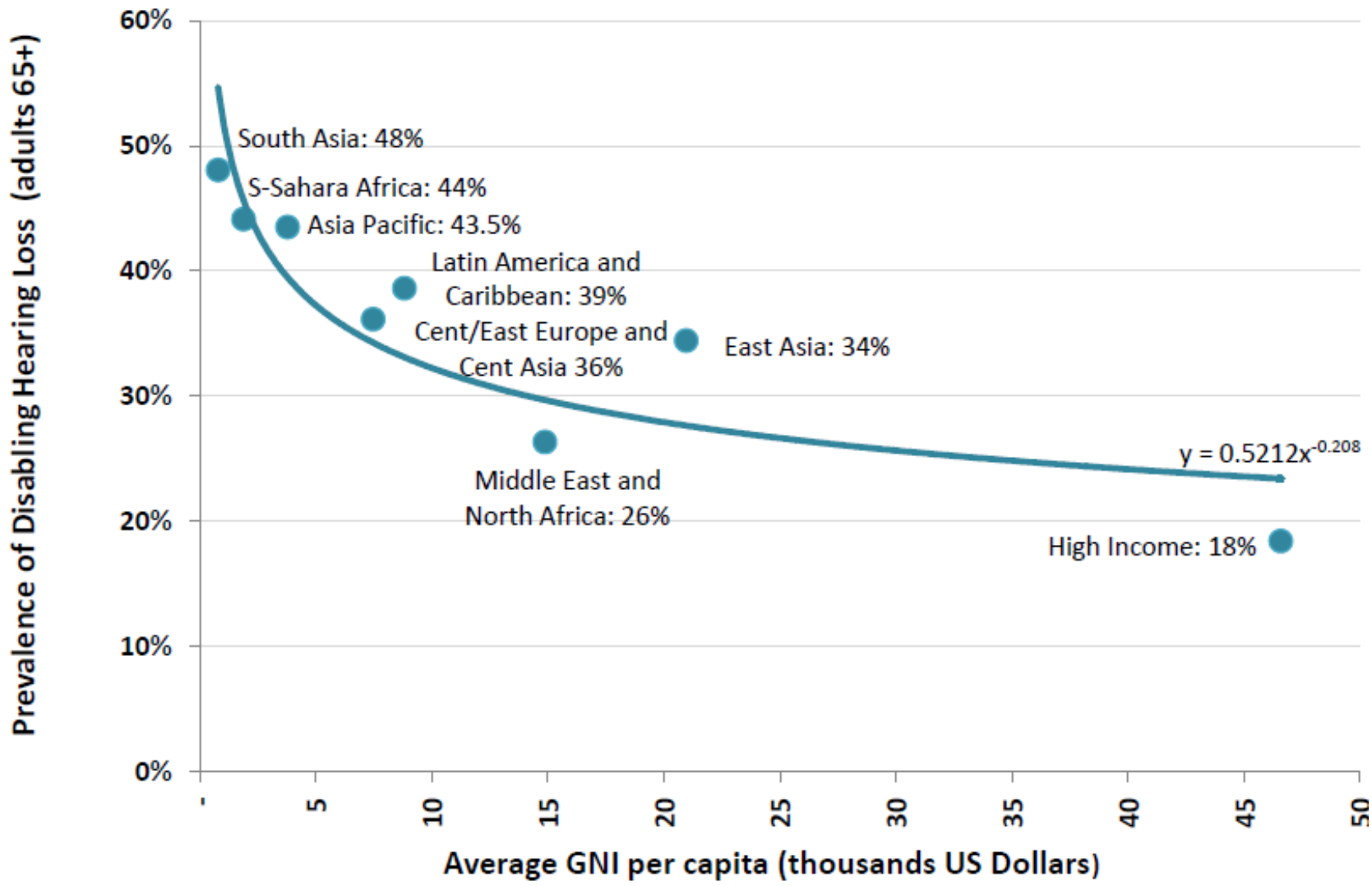


- 80% preventable causes

- Socioeconomic factors: 69.4% of global variation in MSVI and 76.3% of blindness

# Hearing impairment in adults





- Prevalence of Disabling Hearing Loss for adults over 65 years old
- Power (Prevalence of Disabling Hearing Loss for adults over 65 years old)

# Causes of hearing impairment

‘Presbycusis’: environmental + genetic contribution

- Noise
- Ototoxic drugs
- Smoking
- Diabetes
- Cardiovascular disease

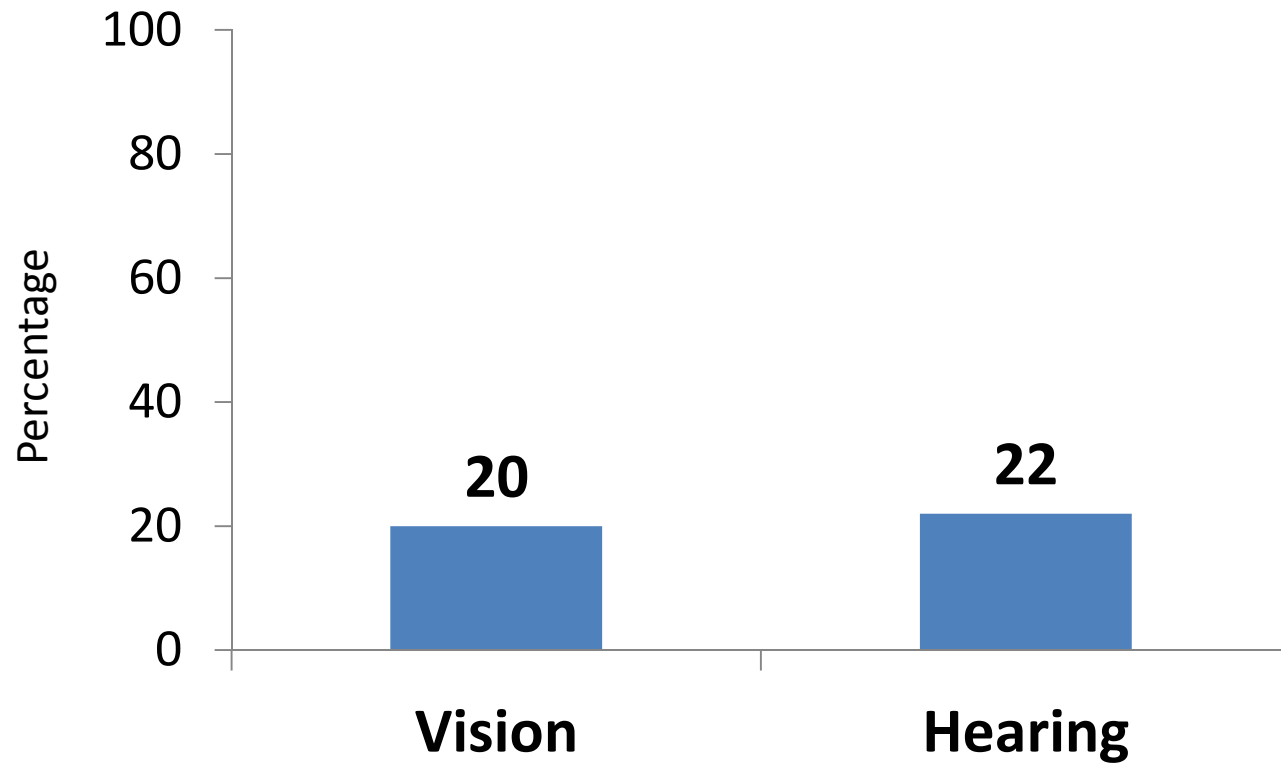
- Look at hearing/vision in Europe
- What might explain any differences?



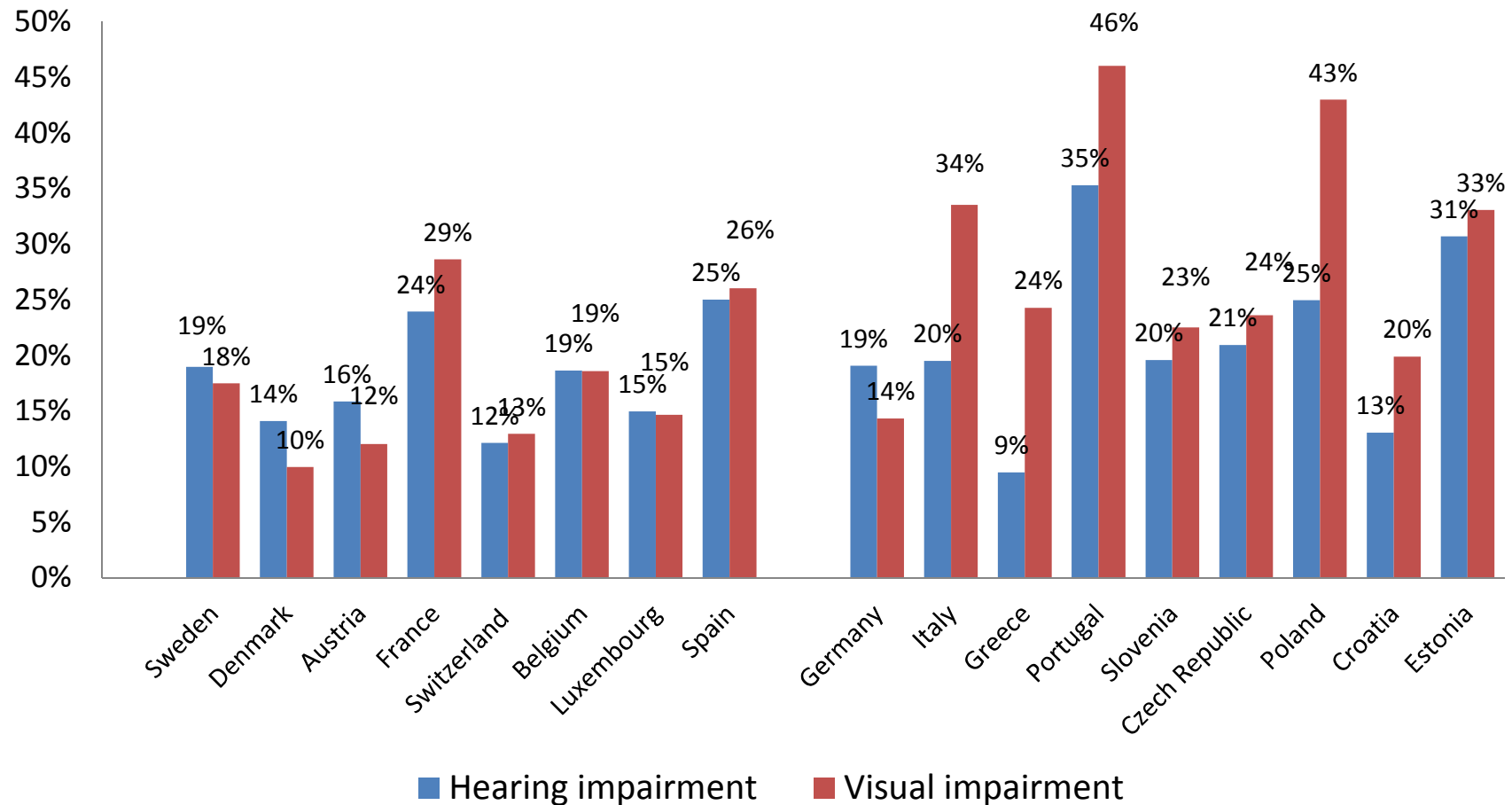
## Survey of health, aging and retirement in Europe

- 17 EU countries
- Self reported hearing/vision
- Adults >50
- 2014/2015





# Prevalence of hearing and visual impairment in Europe per country





- Health care system?
- OECD report: Europe 2018
- Health care function and performance indicators (older adults)
- Compare 'good' vs 'poor' performers

1. Healthy Life Years at 65years > median EU28
2. Self reported health % good or very good > median EU28
3. Health expenditure and financing: Categorise as health expenditure as percentage of GDP >mean EU28
4. Effectiveness, quality of care and patient experience: preventable mortality >mean for EU28
5. Accessibility affordability availability and use of services: unmet need for medical exam for financial, geographic or waiting time parameters <mean for EU28

**Good: 4 or more**

**Poor: less than 4**

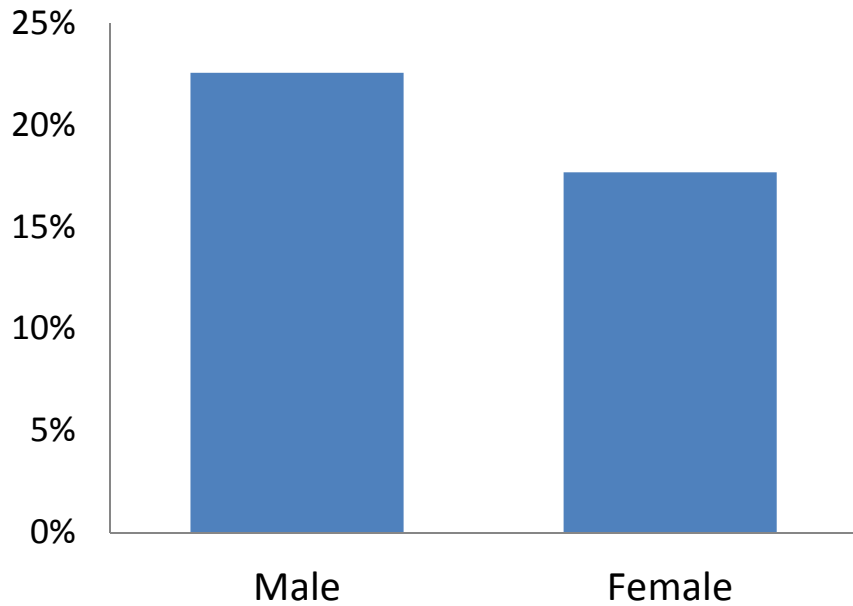
	Healthy Life Years at 65years > median	Self reported health % good or very good > median	Health expenditure as % GDP > median	Preventable mortality < median	Unmet medical examination need <median
Sweden	Y	Y	Y	Y	Y
Denmark	-	Y	Y	Y	Y
Austria	Y	Y	Y	Y	Y
Germany	-	-	Y	Y	Y
France	Y	-	Y	Y	Y
Switzerland	Y	Y	Y	Y	Y
Belgium	Y	Y	Y	Y	Y
Luxemburg	Y	Y	-	Y	Y
Spain	Y	Y	-	Y	Y
Italy	Y	Y	-	Y	-
Greece	Y	Y	-	Y	-
Portugal	Y	-	-	Y	Y
Slovenia	Y	-	-	-	Y
Czech Republic	-	-	-	-	Y
Poland	-	-	-	-	-
Croatia	-	-	-	-	Y
Estonia	-	-	-	-	-
UK	-	Y	Y	Y	Y

# Hearing and visual impairment in Europe per region



# Hearing and visual impairment in Europe per region based on gender

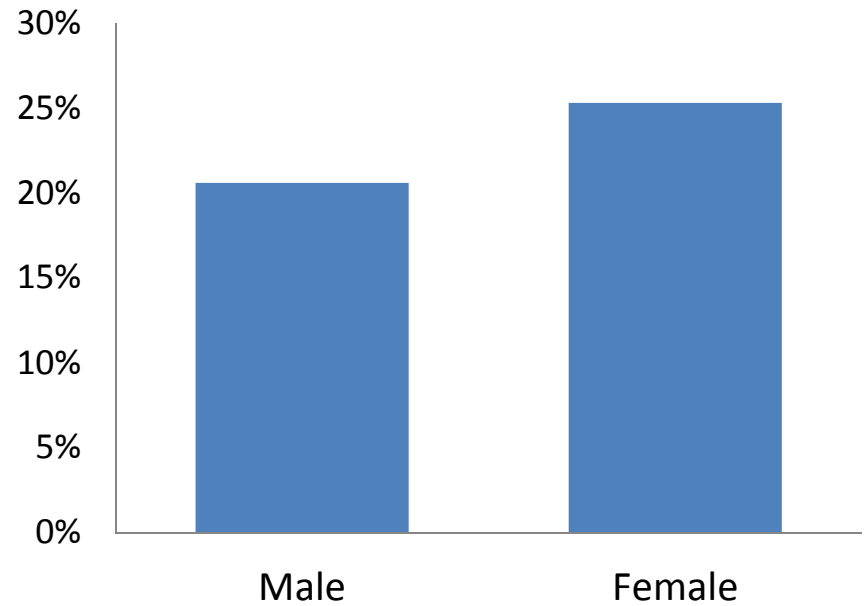
## Hearing



■ All

- **Males: poorer hearing**
- **Females: poorer vision**

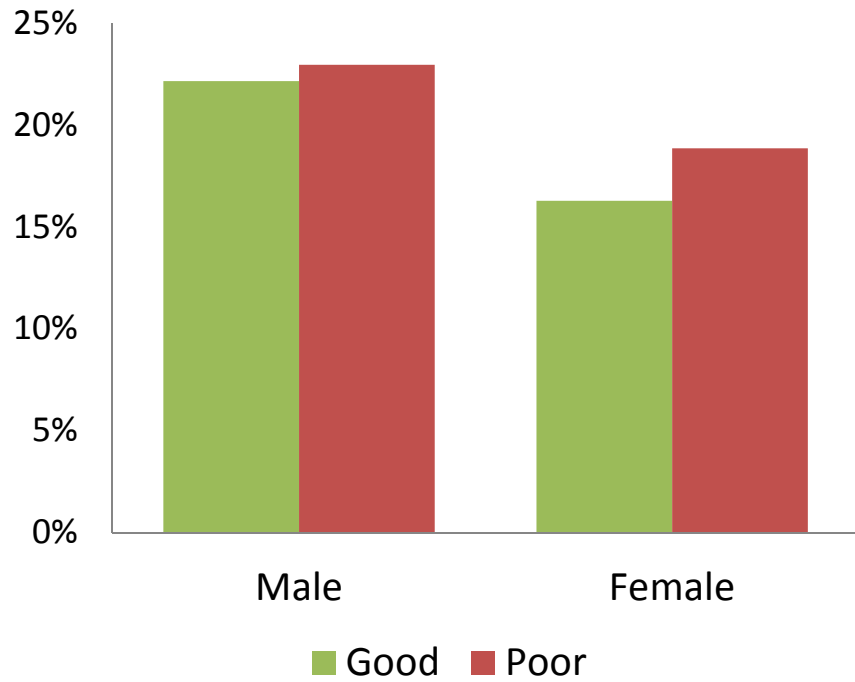
## Vision



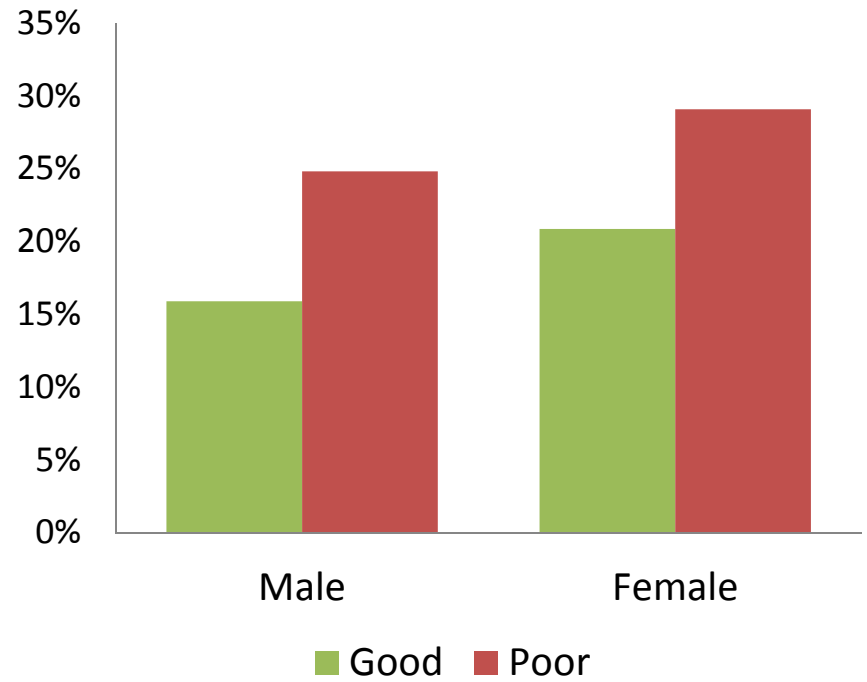
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# Hearing and visual impairment in Europe per region based on gender

## Hearing



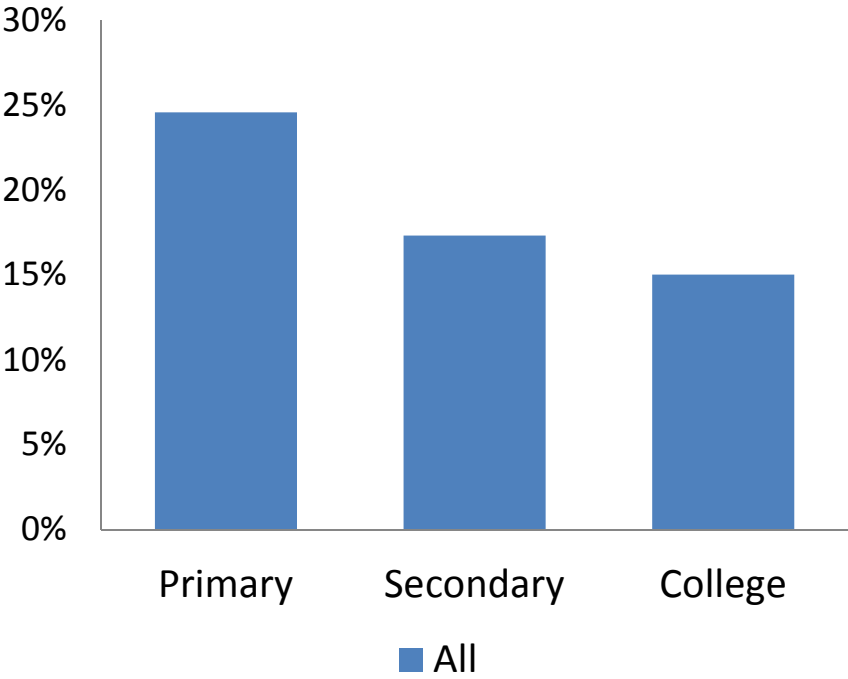
## Vision



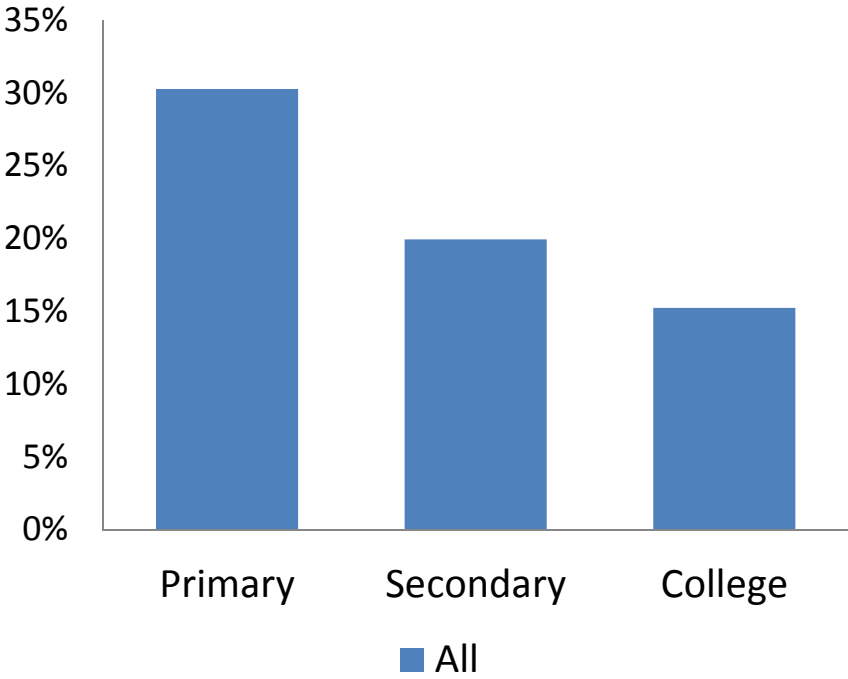
- **Males: poorer hearing**
- **Females: poorer vision**
- **Similar patterns across region**

# Hearing and visual impairment in Europe per region based on education

Hearing



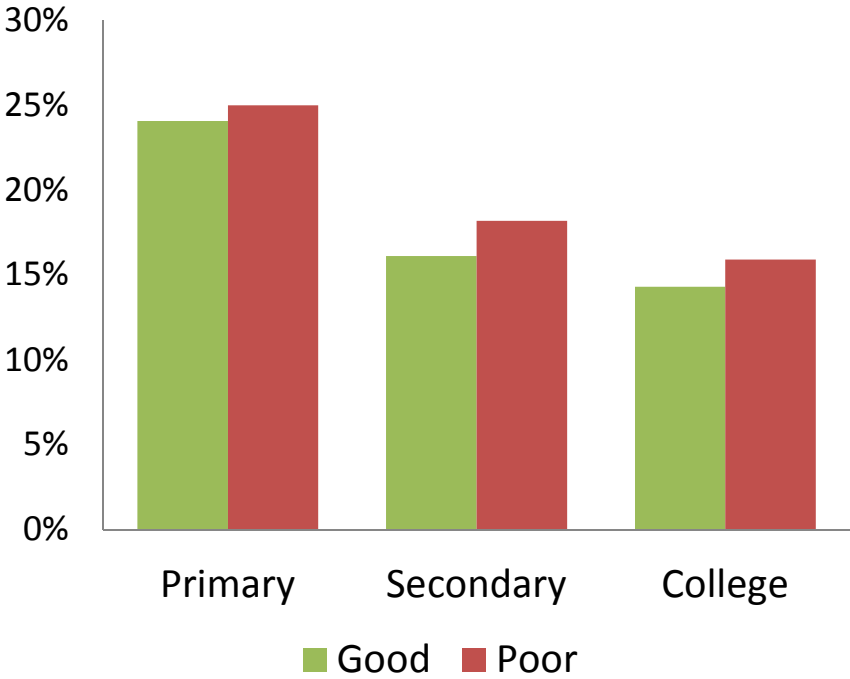
Vision



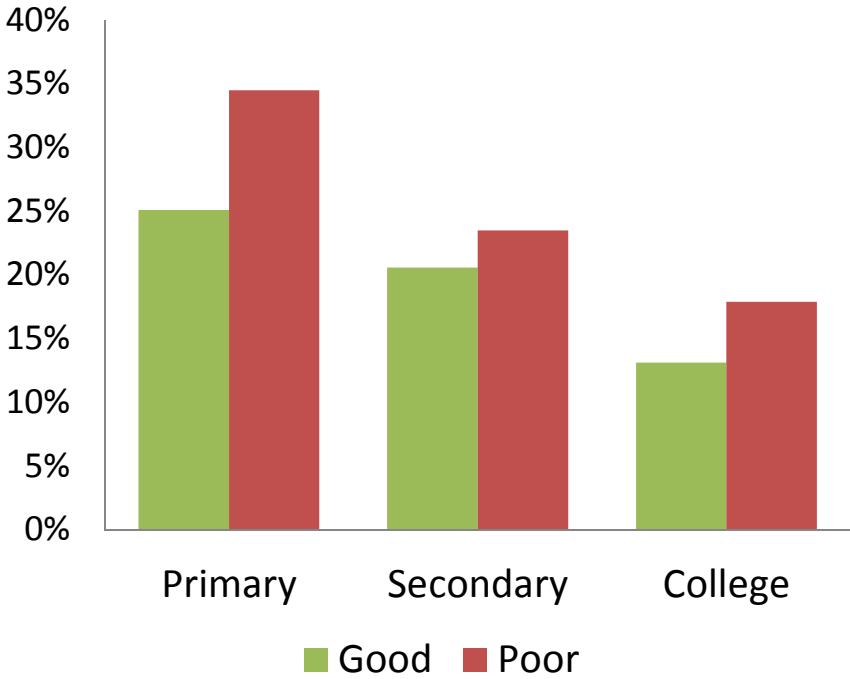
• Higher education → less sensory impairment

# Hearing and visual impairment in Europe per region based on education

### Hearing

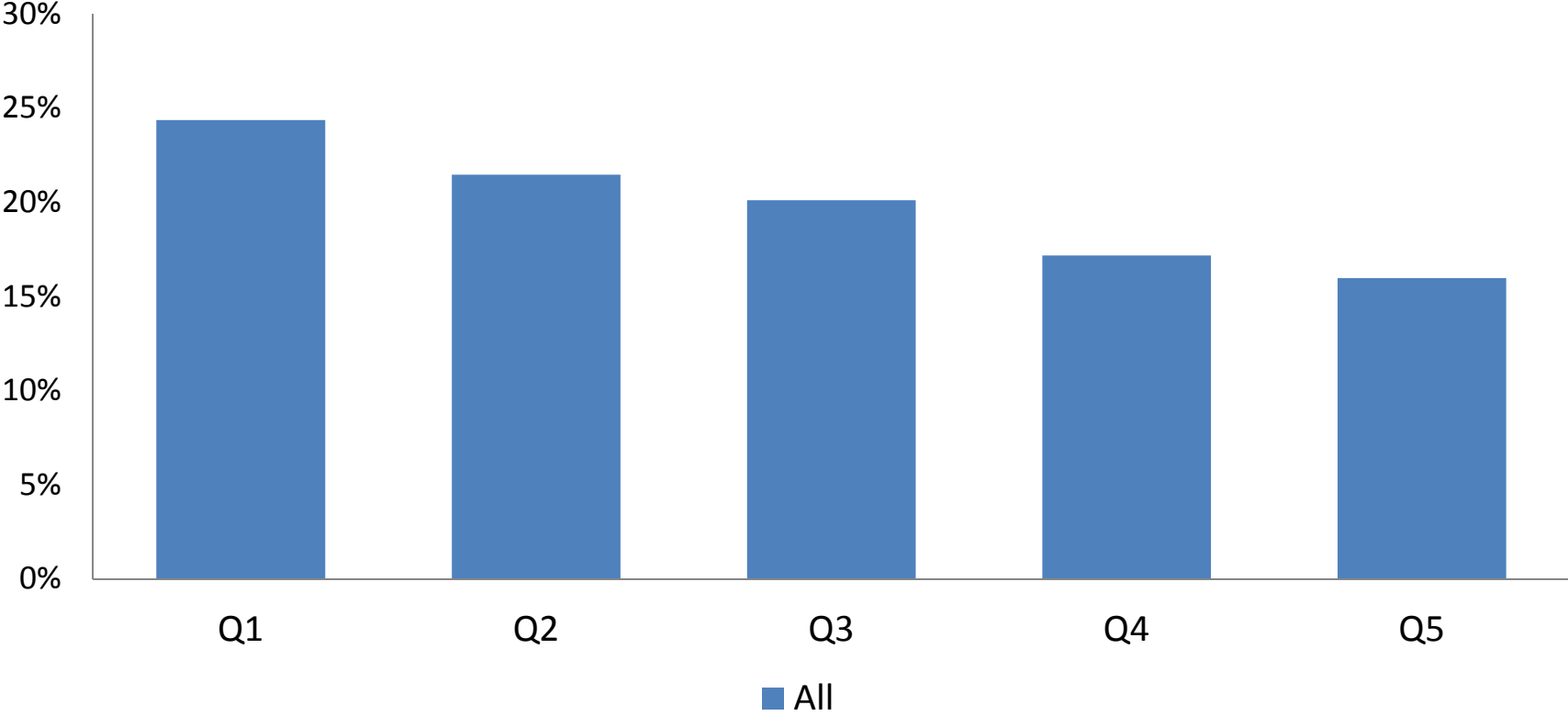


### Vision



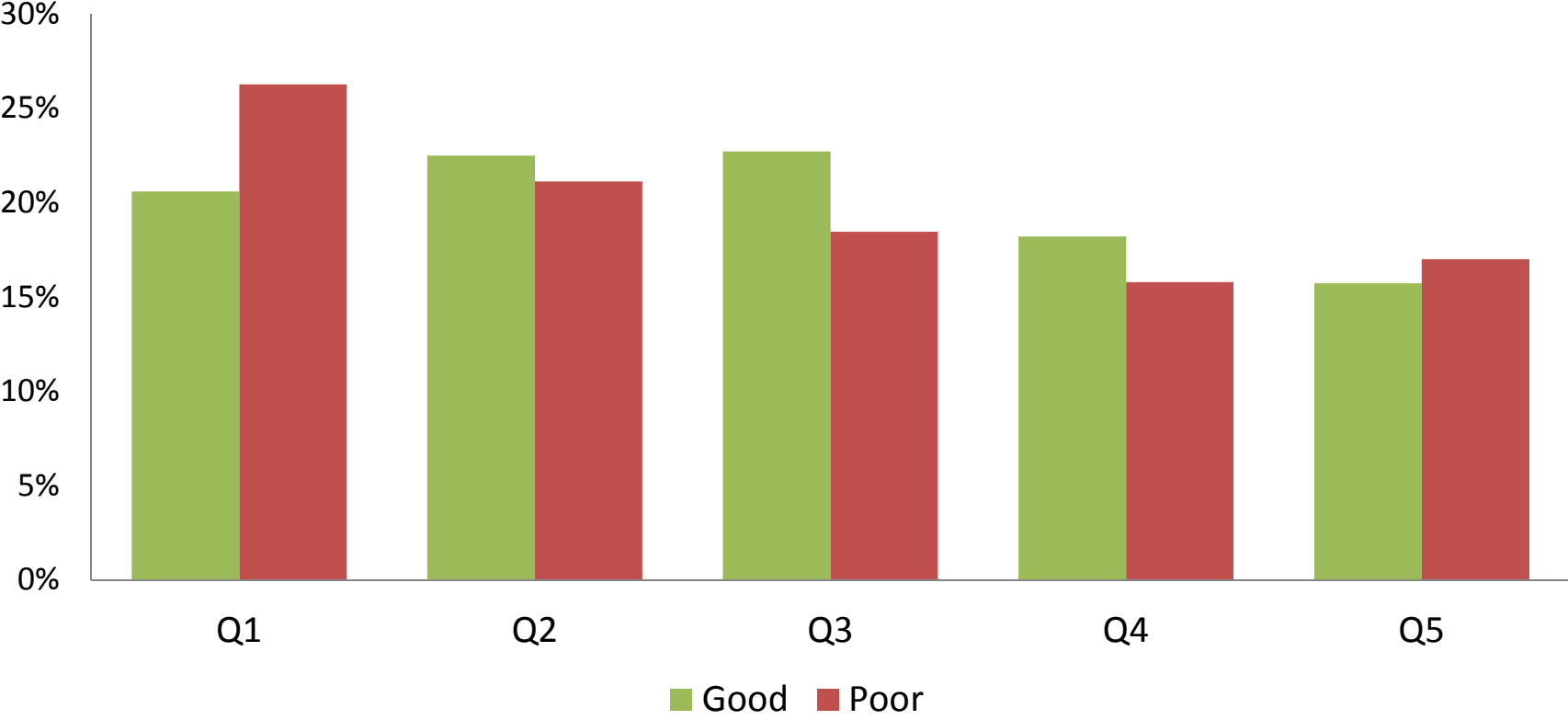


# Hearing impairment in Europe per region based on wealth quintile



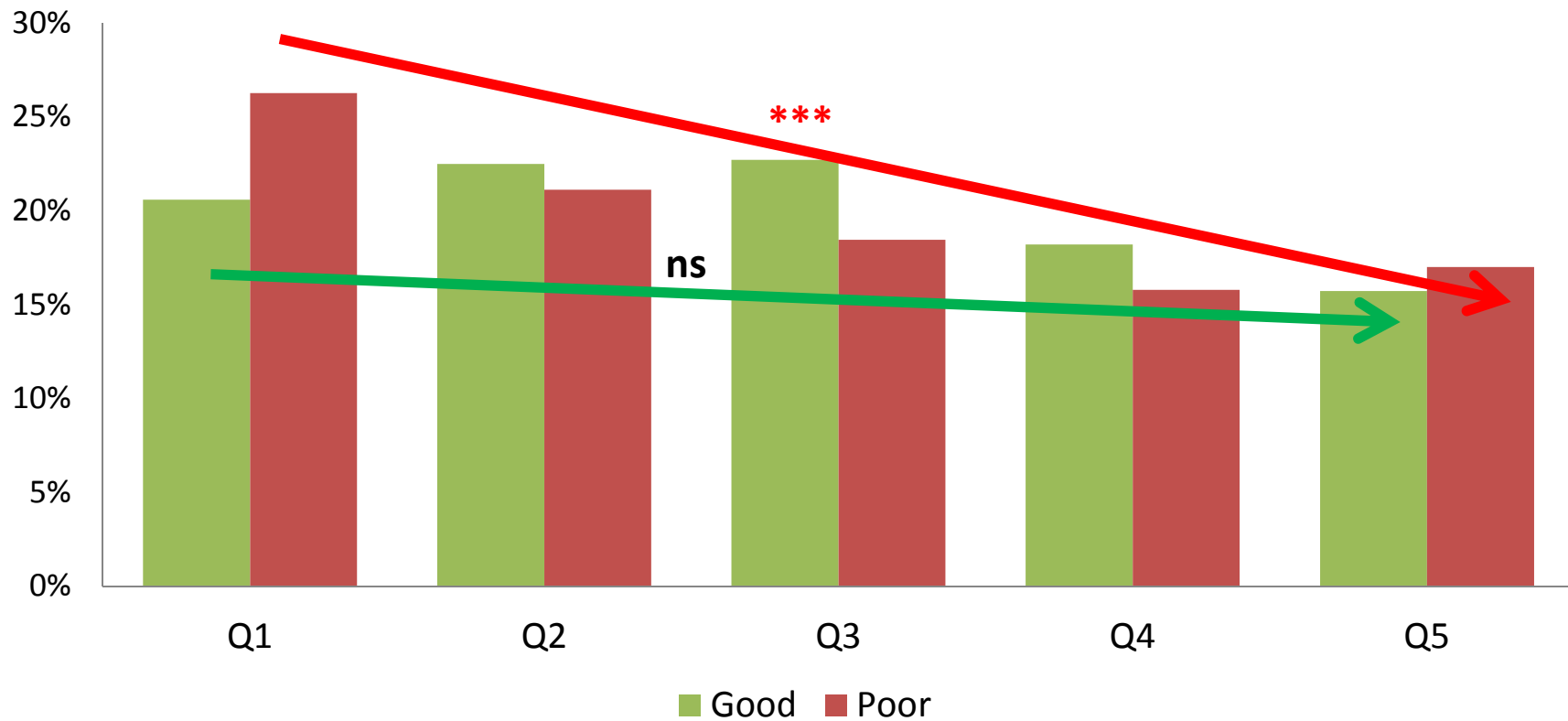
More affluent 

# Hearing impairment in Europe per region based on wealth quintile



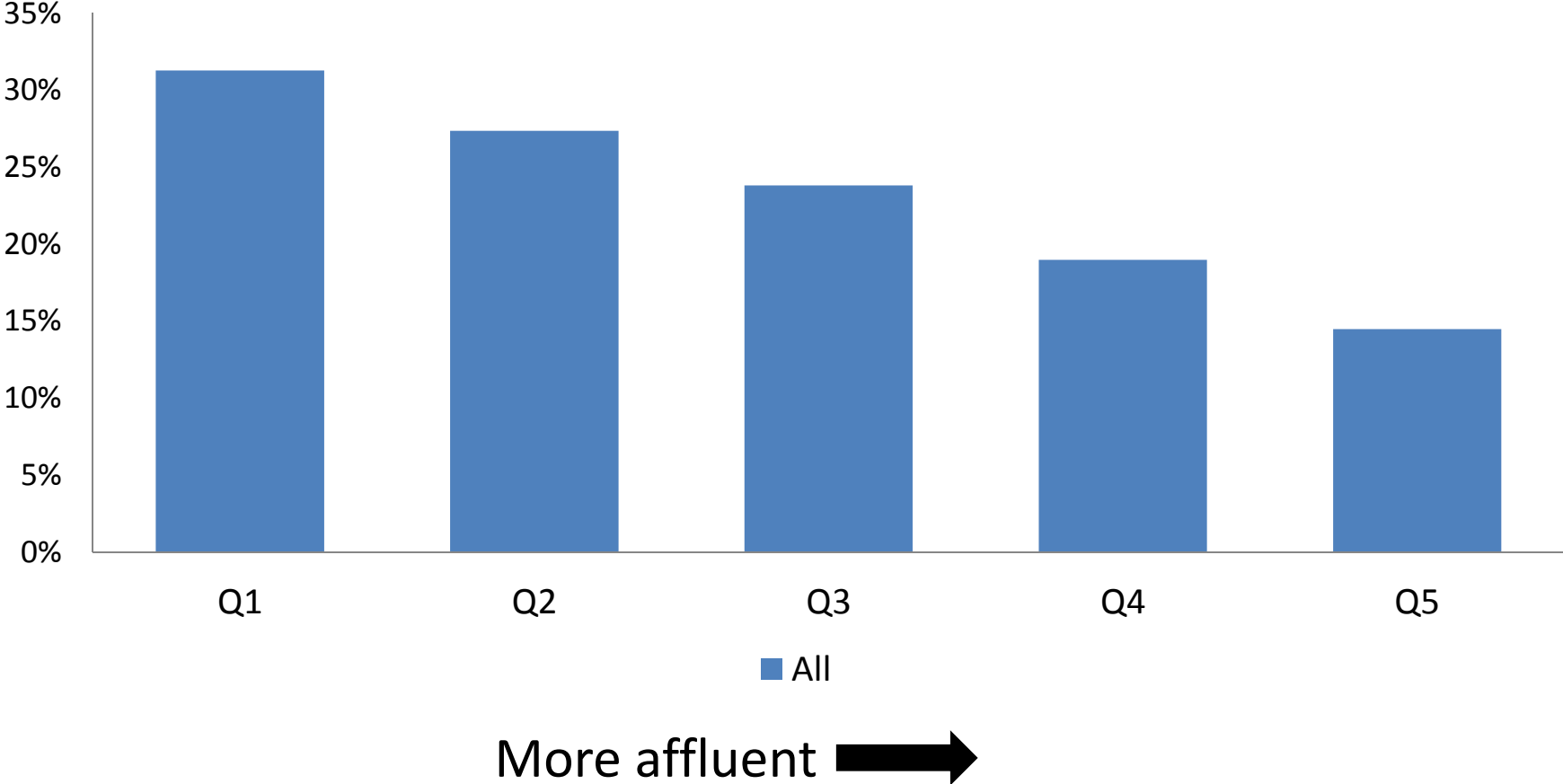
More affluent 

# Hearing impairment in Europe per region based on wealth quintile

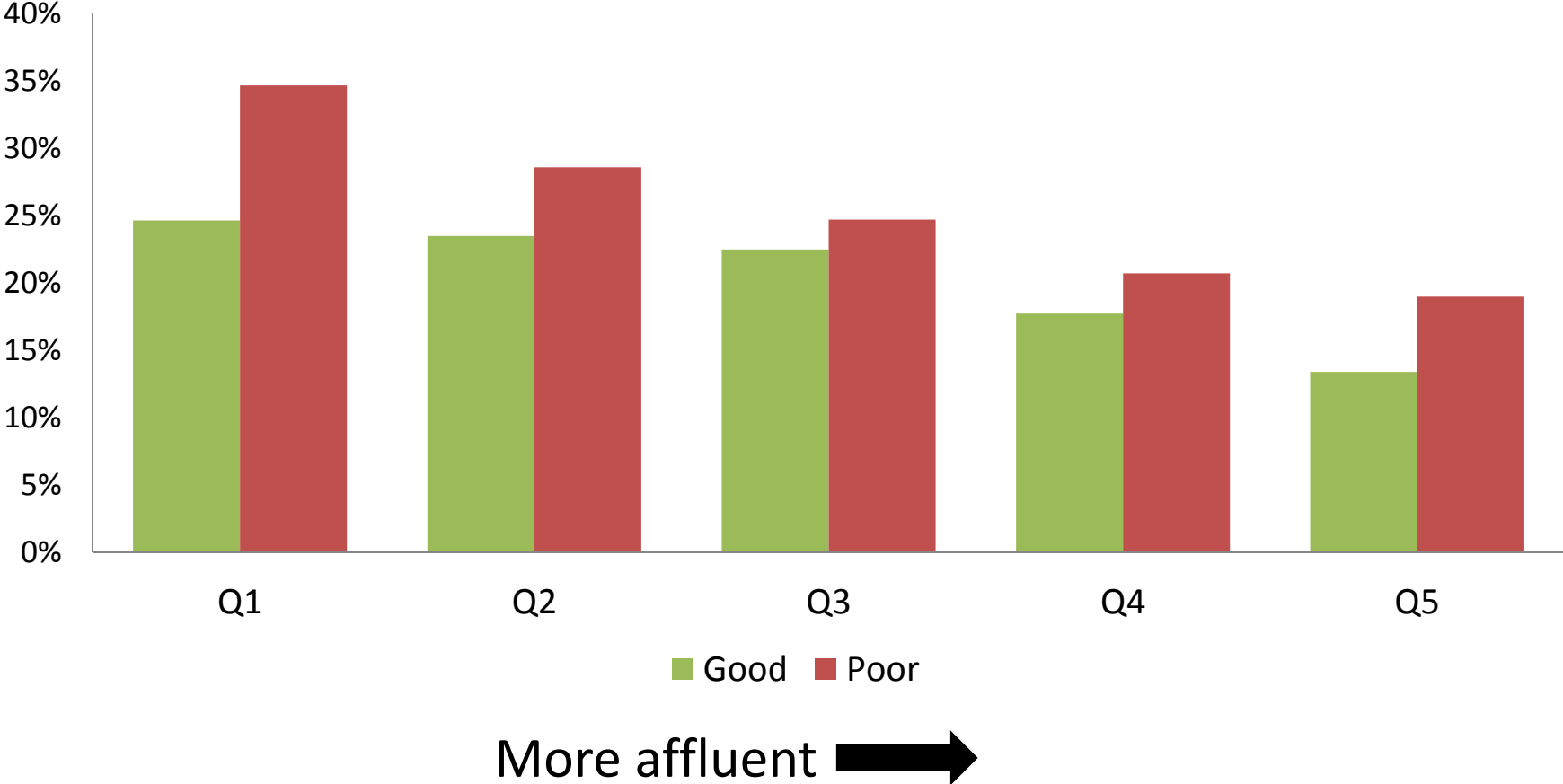


- **Wealth associated with HI in poor but not in good regions**

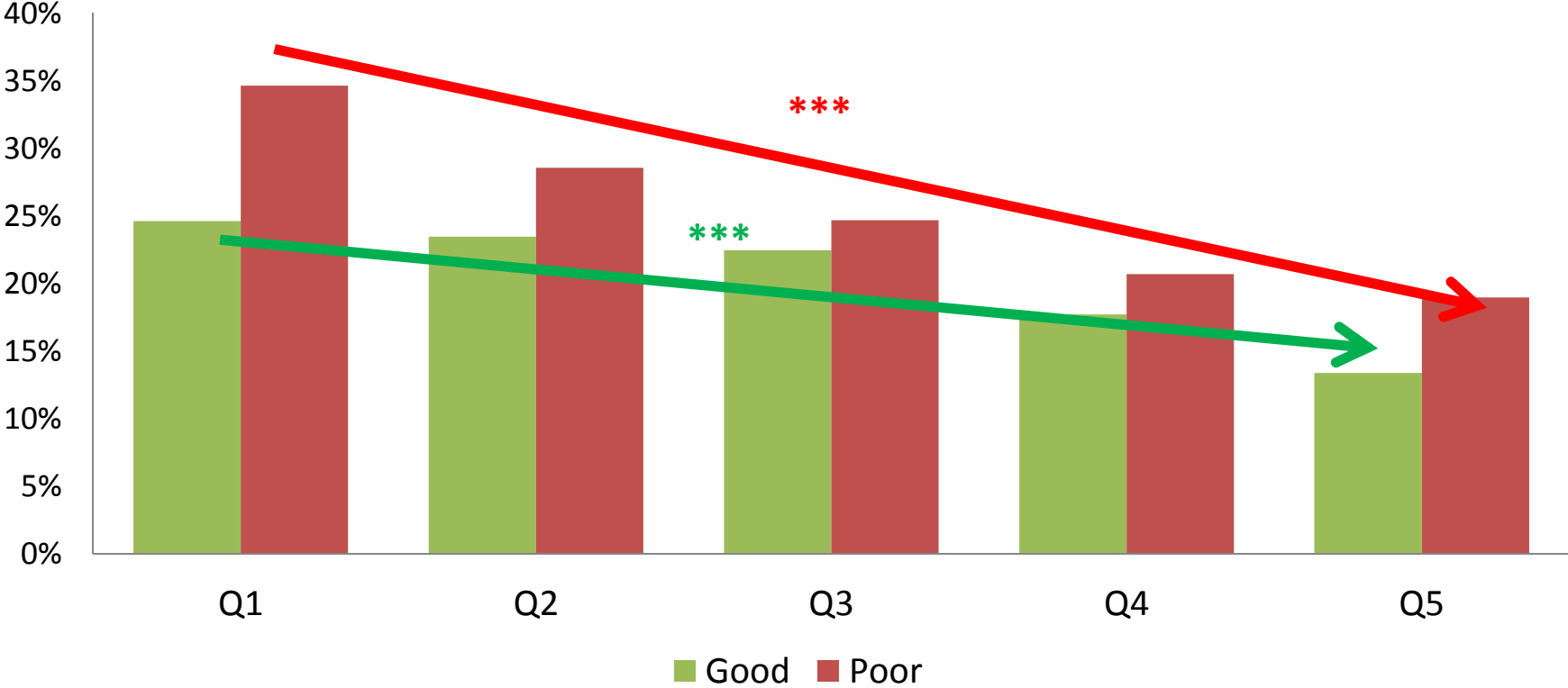
# Visual impairment in Europe per region based on wealth quintile



# Visual impairment in Europe per region based on wealth quintile



# Visual impairment in Europe per region based on wealth quintile



**More affluent: less vision impairment in BOTH regions**

- Reasons for wealth & hearing/vision link?
- Both education and income: target public hearing/vision public health programs (particularly in countries with poor healthcare performance)

**SENSE**  
 Promoting health  
for eyes, ears  
and mind.

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**PD is supported in part by the NIHR Manchester Biomedical Research Centre.**