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# Inequalities in adolescent smoking in Europe

## Findings of the HBSC and ESPAD surveys

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## Determinants of socioeconomic inequalities in smoking

- Strong socioeconomic inequalities in smoking among adults; for adolescents a less pronounced social gradient is found.
- Little is known about the determinants of smoking inequalities among young people at the individual level.
- Increasing attention to influences at the national level (structural determinants) for health and health inequalities.
- For adolescents, the role of national determinants (e.g. national wealth, tobacco control policies) has not been investigated.

## WP 4: General objectives

### Objectives

- (1) Describe the magnitude of socioeconomic inequalities in regular smoking and smoking initiation
- (2) Identification of “intermediate” smoking-related factors from peer groups, family and school environment
- (3) Assessment whether and how smoking inequalities are associated with tobacco control policies, type of educational system and welfare state regimes

3

## WP 4: From objectives to papers...

### HSBC:

1. International overview of socioeconomic inequalities in smoking (objective 1)
2. Understanding inequalities in smoking at the individual level (objective 2)
3. The impact of national tobacco control policies on smoking inequalities (objective 3)
4. The role of educational systems for smoking and smoking inequalities (objective 3)

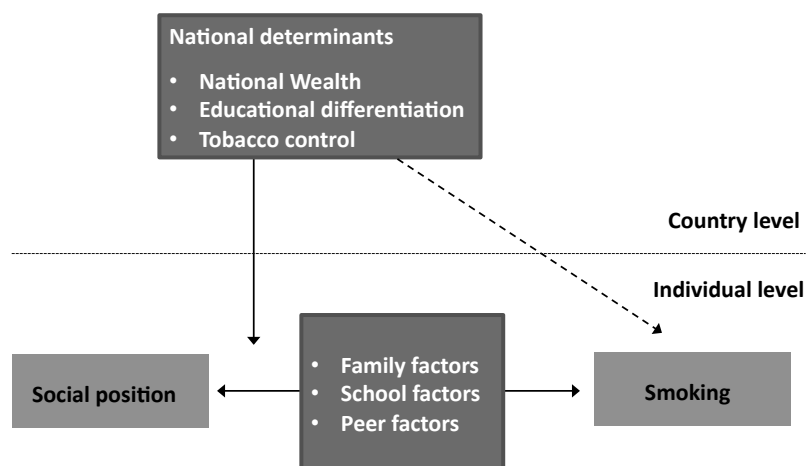
### ESPAD:

1. National tobacco control policies and smoking inequalities
2. Age restrictions on tobacco sales

country/  
national level

4

## Analytic model



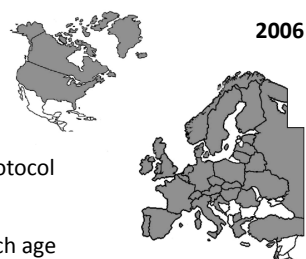
5

## Material and methods: The HBSC study



- HBSC is a cross-national study supported by the World Health Organization.
- Cross-sectional surveys of adolescents carried out every four years in a growing number of countries.

- Survey (2006) included 38 countries.
- School-based survey with common research protocol and questionnaire in each country.
- In each country at least 1500 adolescents in each age group (11, 13 and 15 year olds) are sampled.  
total: N > 200.000



6

## Samples and variables

### Samples

27-35 countries (N = 48.025-60.490 students), only 15 year olds

### Smoking

Regular smoking (daily/weekly smoking)

### Socioeconomic position

Family Affluence Scale (FAS)

### Intermediary factors

Family, school and peers factors

### National determinants

National wealth, Educational differentiation, Tobacco Control Scale

7

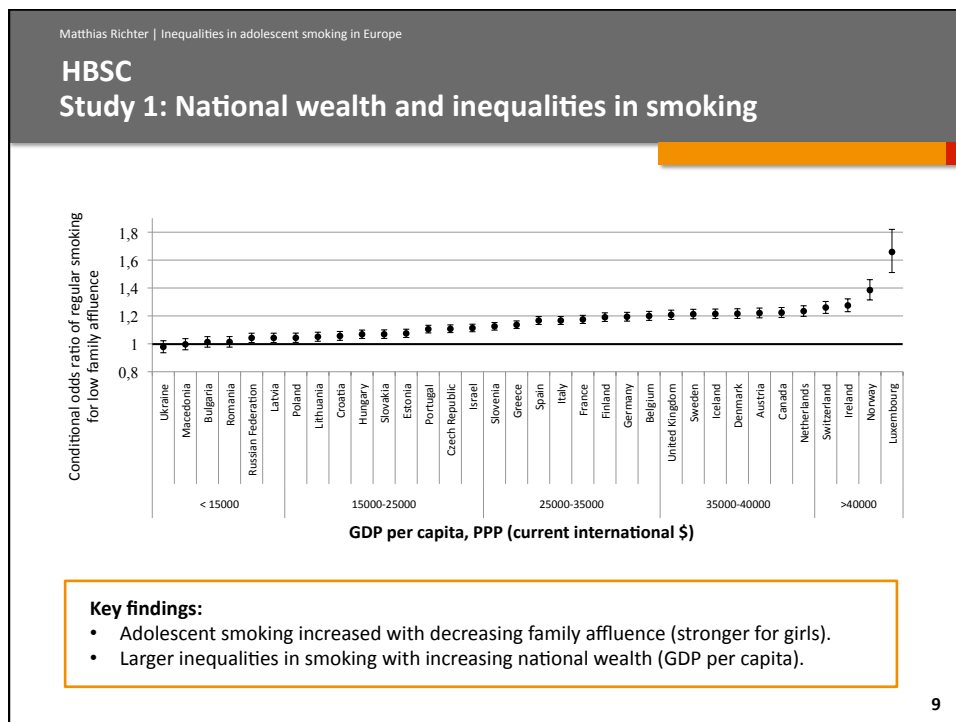
## Material and methods: The ESPAD study



**The European School Survey Project on Alcohol  
and Other Drugs**

- Cross-national study in Europe
- Cross-sectional surveys of 15 and 16 year old adolescents carried out every four years
- 36 European countries
- School-based survey with common research protocol and questionnaire in each country
- More than 100.000 adolescents included per survey year

8



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### HBSC Study 2: Explaining smoking inequalities at individual level

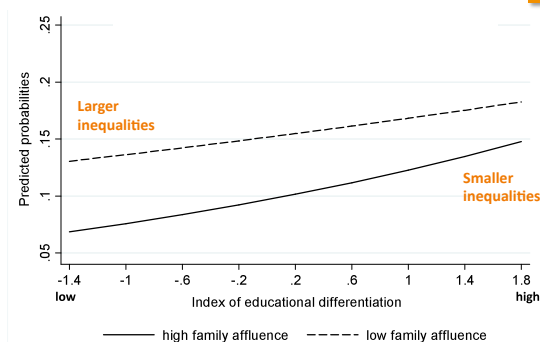
Model	Boys		Girls	
	low affluence		low affluence	
	OR	Reduction (%)	OR	Reduction (%)
<b>Model 1: adjusted for age only</b>	1.14*		1.36**	
<b>Model 2: Family factors</b>	1.05	64%	1.16**	56%
<b>Model 3: School factors</b>	1.00	43%	1.22**	39%
<b>Model 4: Peer factors (n.s.)</b>	-	-	-	-
<b>Model 5 (Family + school factors)</b>	1.00	100%	1.07**	81%

**Key findings:**

- Family and school factors explained a large proportion of inequalities in smoking.
- Important: family structure, relationships with parents, academic achievement and school satisfaction.
- Peer factors important for smoking but not for socioeconomic inequalities in smoking.

10

## HBSC Study 3: Smoking and educational differentiation

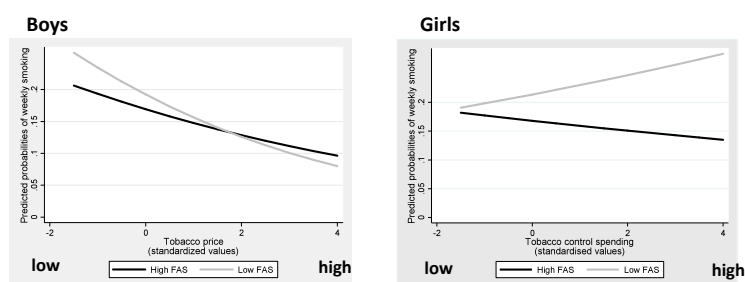


### Key findings:

- Prevalence of smoking increased with in countries with higher educational differentiation (e.g. Austria, Belgium, Hungary and the Netherlands), girls only.
- Inequalities in smoking were larger in countries with a lower educational differentiation (e.g. Canada, UK and Scandinavian countries), girls only.

11

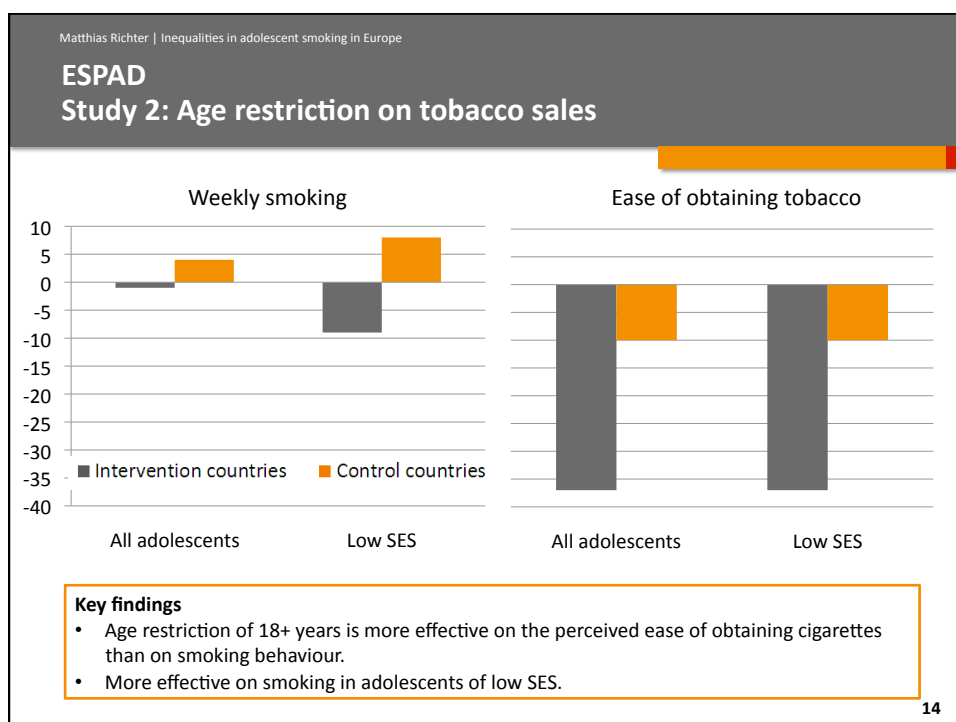
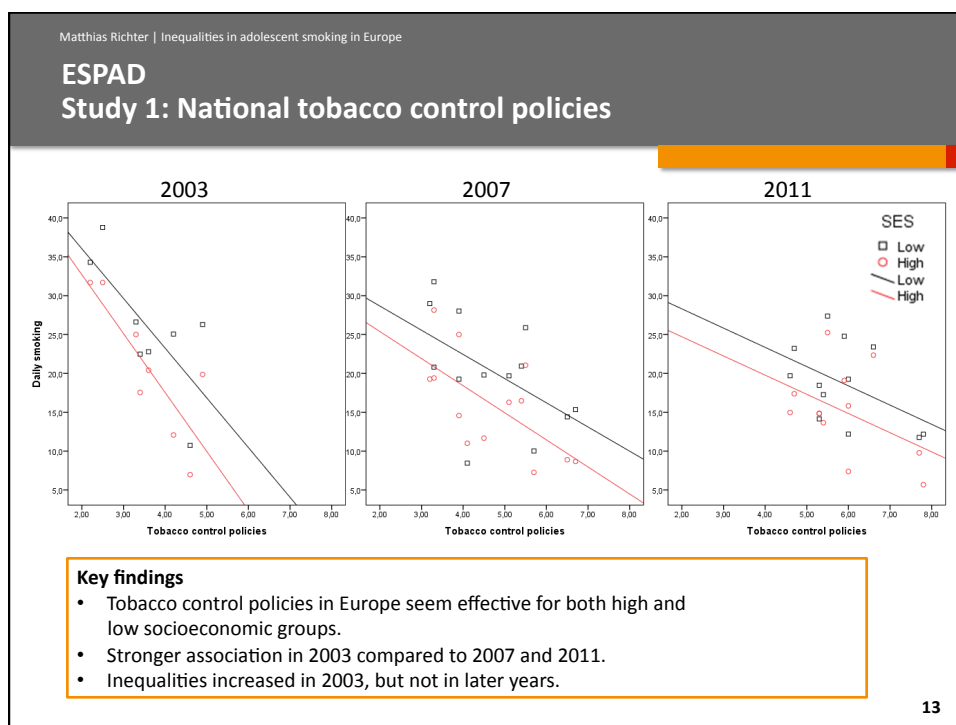
## HBSC Study 4: Smoking and country-level tobacco control policies



### Key findings:

- Lower smoking rates in countries with higher tobacco price among all affluence groups (boys only).
- Smoking in low affluent groups increased in countries with higher tobacco control spending (girls only).
- Other tobacco control policies were not related to smoking inequalities.

12



## Summary of the results

- Inequalities in adolescent smoking were larger in wealthier countries and increased with national wealth (GDP per capita).
- Smoking inequalities were largely explained by family and school factors (not peer influences) across all countries.
- Inequalities in adolescent smoking were larger in countries with lower educational differentiation.
- Tobacco control policies: Only total spending was associated with inequalities in smoking – larger inequalities for low affluent girls in countries with higher spending.
- Recent tobacco control policies did not increase inequalities.
- Age restrictions have the potential to decrease inequalities.

15

## Conclusions

- Compared to (young) adults, inequalities in adolescent smoking are still small.
- Focusing on the parent-adolescent relationship and school achievement can help to tackle inequalities in adolescent smoking (at individual level).
- Wealthier countries and countries with non-differentiated educational systems need to increase efforts in tackling smoking among adolescents from disadvantaged families.
- National tobacco control policies have the potential to decrease smoking rates in young people of different socioeconomic positions.
- Need to strengthen the evidence on the equity impact of tobacco control interventions among young people.

16



## Thank you!

**Pförtner et al.** The association between family affluence and smoking among 15-year-old adolescents in 33 European countries, Israel and Canada: The role of national wealth. *Addiction* (accepted)

**Moor et al.** Do family, school and peer factors mediate the relationship between socioeconomic status and adolescent smoking? A multilevel analysis across 35 countries. *European Journal of Public Health* (accepted)

**Rathmann et al.** Is educational differentiation associated with smoking and smoking inequalities in adolescence? A multilevel analysis across 27 European and North American countries?. *Submitted for publication*

**Pförtner et al.** Socioeconomic inequalities in adolescent smoking in 29 European countries: Does the impact of tobacco control policies on adolescent smoking vary by family material wealth? *Submitted for publication*

**Pförtner et al.** Smoking and socioeconomic inequalities in smoking among adolescents: the role of social capital in Flemish Belgium, Canada, Romania and England. *Submitted for publication*

**Kuipers et al.** National tobacco control policies and socioeconomic inequalities in adolescent smoking: international comparisons: 13 European countries in 2003, 2007 and 2011. *Submitted for publication*

**Brandhof et al.** The effect of age restrictions on tobacco sales on smoking among 15 and 16 year olds: 20 EU countries in 2007 and 2011. *Draft version*



## Thank you!

### Samples

27-35 countries (N = 48.025- 60.490 students), only 15 year olds

### Smoking

Regular smoking (0 = less than daily/weekly smoking; 1 = daily/weekly smoking)

### Socioeconomic position

Family Affluence Scale (FAS): (sum score of having a car, own bedroom and number of computers, and the times traveling on holiday), z-standardized score

### Intermediary factors

**Family** (relationship with parents, family structure)

**School** (classmate support, satisfaction with school, school-related stress, academic achievement)

**Peers** (quantity and quality of friends, peer relations outside school)

## Samples and variables

### National determinants

**National wealth:** Gross Domestic Product per capita (2006, in PPP, converted to current international dollars), from the World Bank database

**Educational differentiation** (Van de Werfhorst 2011): Index of age of first selection, length of tracked curriculum and number of tracks until the age of 15

**Tobacco Control Scale** (Joossens & Raw 2006): tobacco price, public bans, tobacco control spending, advertising bans, health warnings

### Statistical analyses

Logistic regression models and logistic multilevel regression models