



**LISBON
ADDICTIONS
2022**

E-cigarette use and conventional cigarette smoking among high school students in 35 European countries: findings from the 2019 ESPAD survey

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Smoking prevalence worldwide

Prevalence of smoking is declining globally

1990
⋮
2020

Males

↓ 27.2%
decrease

Females

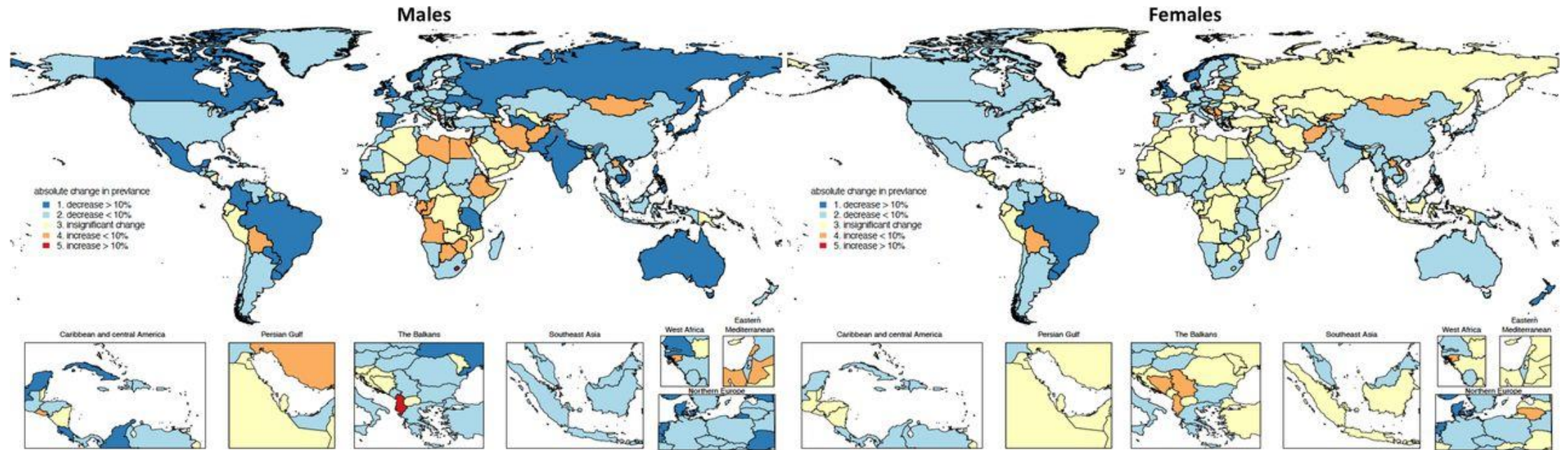
↓ 37.9%
decrease

Evolution of the global smoking epidemic over the past half century: strengthening the evidence base for policy action **FREE**

Xiaochen Dai^{1, 2}, Emmanuela Gakidou^{1, 2}, Alan D Lopez^{1, 2}

Correspondence to Dr Alan D Lopez, Department of Health Metrics Sciences, University of Washington, Seattle, WA 98195, USA. Dr. Lopez was affiliated with IHME and HMS when this work was undertaken; adlopez704@gmail.com

Absolute percentage points change of age-standardised prevalence of current smoking for men and women aged 15 years and above from 2000 to 2020.



¹The percentage points change in prevalence between 2020 and 2000 is grouped into five categories according to the magnitude of the change and the statistical significance of the change. ²The standard population age weights used for calculating age-standardised prevalence are taken from the Global Burden of Disease study.

Smoking prevalence in Europe

PREVALENCE OF TOBACCO USE AMONG ADULTS IN THE WHO EUROPEAN REGION

OVERVIEW

- Estimated **prevalence of current tobacco use declined** from 35 per 100 adults (34.6%) in 2000 to 25 per 100 (25.3%) in 2020 (1).
- An estimated **180 million people** in the WHO European Region were **current tobacco users in 2020** (down from 230 million in 2000) (Fig. 1).

FIG. 1. ESTIMATED NUMBER OF CURRENT TOBACCO USERS, WHO EUROPEAN REGION, 2000–2020



230 000 000
in 2000

180 000 000
in 2020

Source: WHO (1).

Source: WHO global report on trends in prevalence of tobacco use 2000–2025, fourth edition. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/348537>).

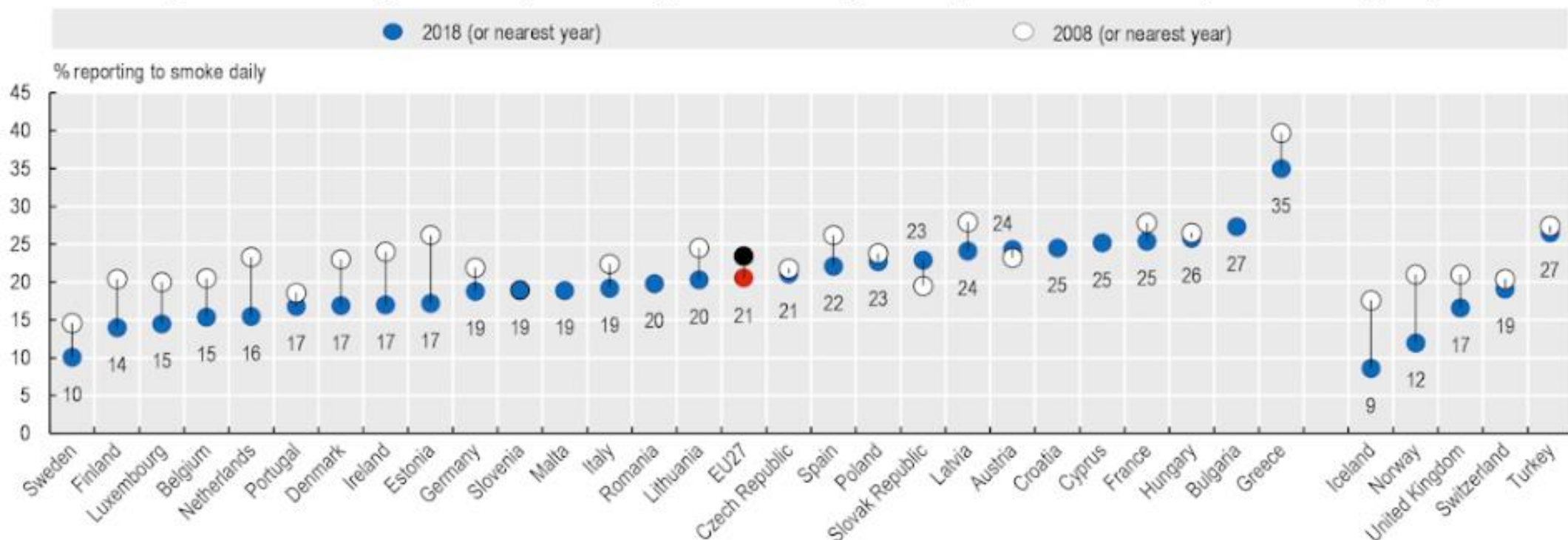
- Based on modelling, the European Region is tracking towards a **relative reduction in rates** from 2010–2025 of only 19% (instead of the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013–2020 target of 30% reduction in global prevalence (2)).
- The European Region is the only WHO region not expected to reach the female 30% relative reduction target by 2025.



Smoking prevalence in Europe

Progress in reducing tobacco consumption has been registered in many European areas

Figure 4.3. **Changes in daily smoking rates among adults, 2008 and 2018 (or nearest year)**



Note: The EU average is unweighted.

Source: OECD Health Statistics 2020 (based on national health interview surveys), complemented with Eurostat (EHIS 2014) for Bulgaria, Croatia, Cyprus, Malta, and Romania.



Smoking prevalence among adolescents

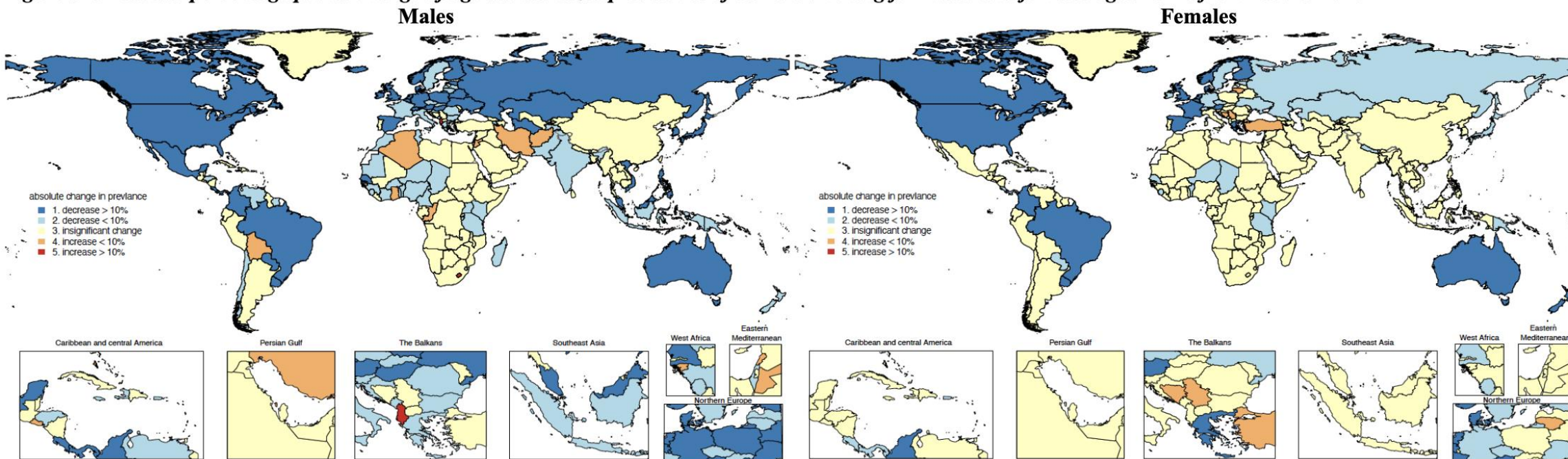
A key indicator of future smoking prevalence is the level of smoking among youth

Evolution of the global smoking epidemic over the past half century: strengthening the evidence base for policy action **FREE**

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Figure S2: Absolute percentage points change of age-standardized prevalence of current smoking for males and females aged 15-24 from 2000 to 2020





ESPAD

European School Survey Project on Alcohol and Other Drugs

STARTED IN 1995 AS
INDEPENDENT COLLABORATIVE
STUDY

7 CROSS-SECTIONAL SURVEYS

MORE THAN 600,000 STUDENTS
SURVEYED AND 49 COUNTRIES
INVOLVED

ABOUT 100,000 STUDENTS IN 35
COUNTRIES IN 2019



ESPAD



COLLECTED DATA IN 2019



EARLIER ESPAD DATA COLLECTIONS

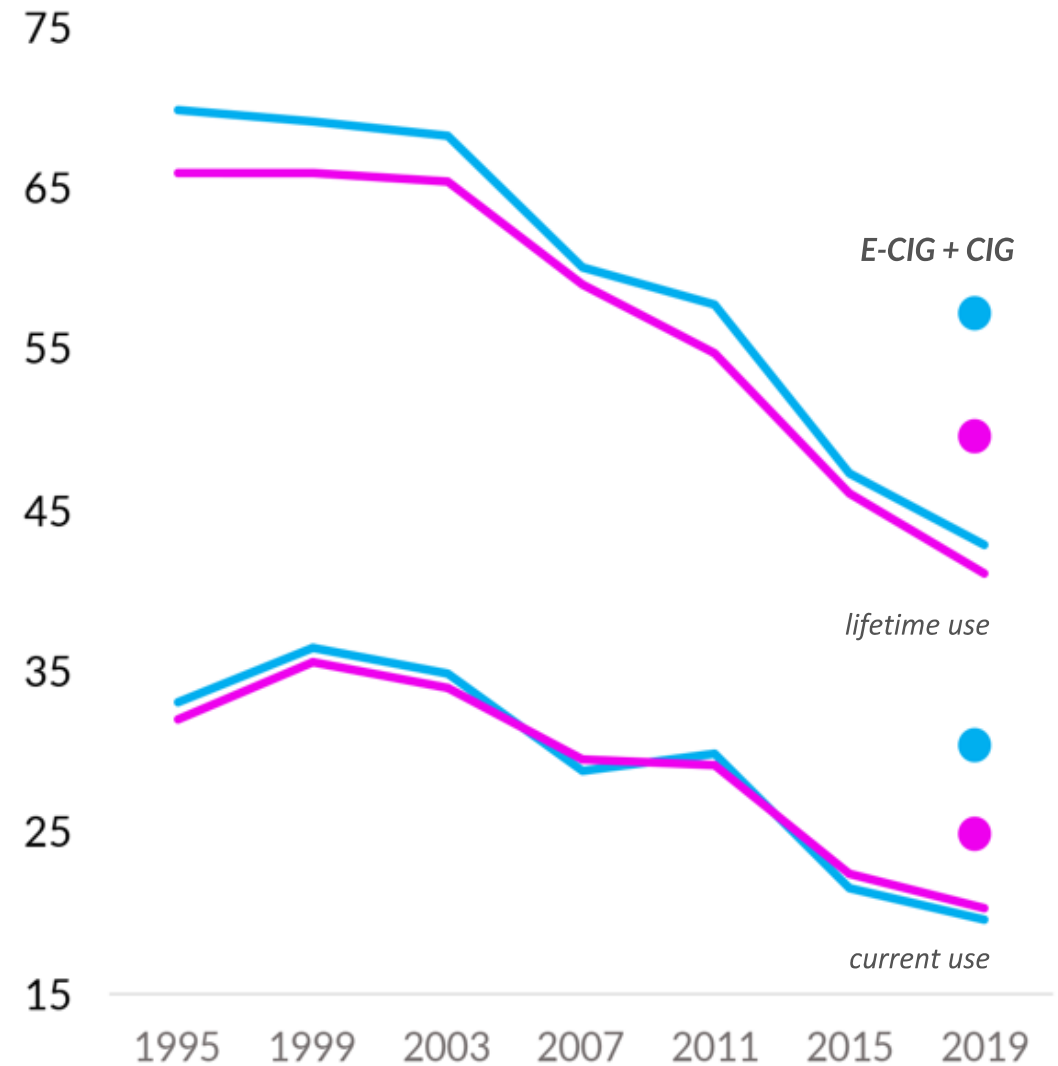


NON-ESPAD COUNTRIES



ESPAD key results / smoking & vaping

- Most had **never smoked** traditional cigarettes (58 %)
- Gender differences seem to have **narrowed** over time
- One fifth (20 %) reported being a **current smoker**
- High prevalence of **e-cigarettes vaping** both for lifetime use (40%) and for current use (14%)
- Considering cigarette and e-cigarettes use together, **the prevalence of lifetime use rises to 53%** and that of current users to **26%**



RESEARCH REPORT

E-cigarette use and conventional cigarette smoking among European students: findings from the 2019 ESPAD survey

Sonia Cerrai, Elisa Benedetti, Emanuela Colasante, Marco Scalese, Giuseppe Gorini, Silvano Gallus, Sabrina Molinaro ✉

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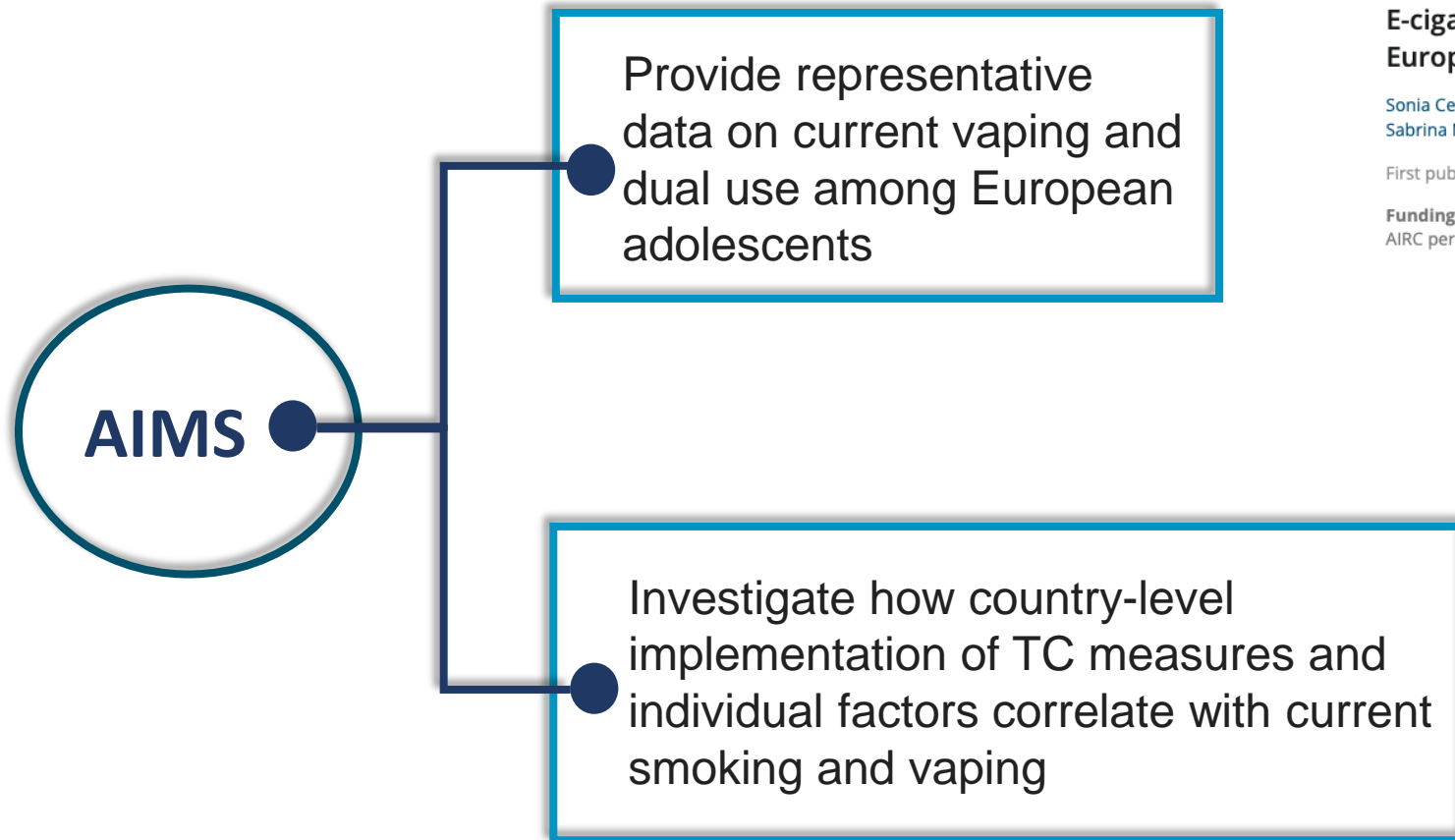
Funding information: The work of S.G. is partially supported by an Investigation Grant from Fondazione AIRC per la Ricerca sul Cancro (AIRC IG 2021, ID 25987).



E-cigarette use and conventional cigarette smoking among high school students in 35 European countries: findings from the 2019 ESPAD survey



Objective



ADDICTION

SSA SOCIETY FOR THE STUDY OF ADDICTION

RESEARCH REPORT

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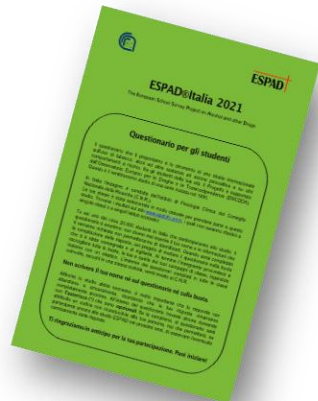
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Methods

DESIGN and SETTING

- 2019 ESPAD data collection
- 35 countries – European region
- 99,648 students (50.9% female) turning 16 in the survey year
- Self-administered questionnaire



DEPENDENT VARIABLES

- Smoking in lifetime; smoking in the last month
- E-cigarette use in lifetime; e-cigarette use in the last month

INDEPENDENT VARIABLES

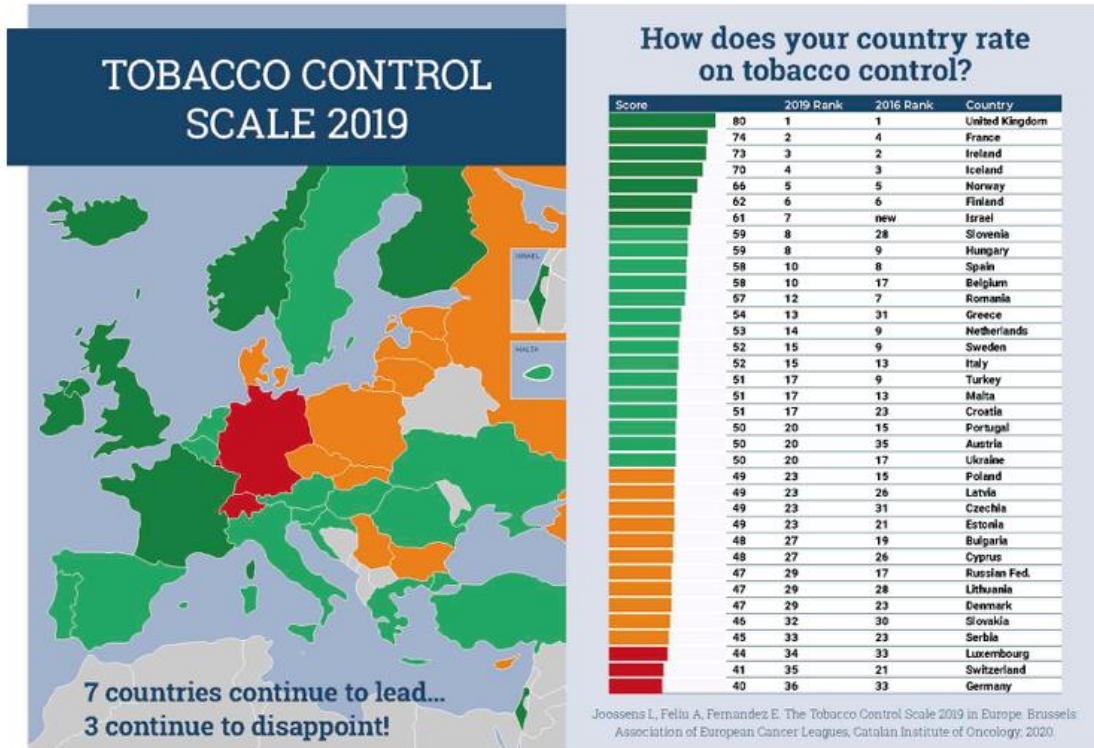
- **Individual factors:** sex; lifetime smoking or vaping; cigarette and e-cigarette use debut age; parents' educational level; economic status; family structure (traditional, non-traditional)
- **Country-level factors:** Gross Domestic Product (GDP) per capita; TCS and TCS selected parameters



The **Tobacco Control Scale (TCS)** quantifies the implementation of tobacco control policies at country level and is based on six policies described by the World Bank.

Six cost effective tobacco control interventions:

- Price increases through higher taxes on cigarettes and other tobacco products.
- Bans/restrictions on smoking in public and work places
- Comprehensive bans on the advertising and promotion of all tobacco products, logos and brand names
- Large, direct health warning labels on cigarette boxes and other tobacco products
- **Treatment** to help dependent smokers stop, including increased access to medications
- Better consumer information, including public information campaigns, media coverage, and publicising research findings (**Budget**)



TCS total score: 0 – 100 points

tot TCS high: 54 to 80

tot TCS medium: 50 to 53

tot TCS low: 40 to 49

- Price component (max score 30; ≤ 15 or > 15)
- Public place component (max score 22; ≤ 11 or > 11)
- Advisory ban component (max score 13; ≤ 6 or > 6)
- Health warning component (max score 10; ≤ 5 or > 5)
- Budget component (max score 10; ≤ 5 or > 5)

available for 30 of the 35 ESPAD countries

(excluding Georgia, Kosovo, Monaco, Montenegro and North Macedonia)

available for 25 of the 35 ESPAD countries

(excluding Bulgaria, Georgia, Greece, Kosovo, Monaco, Montenegro, North Macedonia, Portugal, Slovakia, Ukraine)

Table 4. 36 European countries ranked by total TCS score in 2019

Ranking 2019 (ranking 2016)	Country	Price (30)	Public place bans (22)	Budget (10)	Ad bans (13)	Health warning (10)	Treatment (10)	Illicit trade (3)	Art 5.3 (2)	Total (100)
1 (1)	– United Kingdom	25	22	0	12	9	9	2	1	80
2 (4)	▲ France	22	18	4	11	9	7	2	1	74
3 (2)	▼ Ireland	18	22	1	13	9	8	1	1	73
4 (3)	▼ Iceland	23	17	9	13	4	4	0	0	70
5 (5)	- Norway	22	17	1	13	8	4	1	0	66
6 (6)	- Finland	18	18	2	13	5	5	1	0	62
7 (new)	Israel	27	15	1	11	1	6	0	0	61
8 (28)	▲ Slovenia	12	16	2	13	9	6	1	0	59
8 (9)	▲ Hungary	15	21	0	11	5	6	1	-	59
10 (8)	▼ Spain	15	21	1	9	5	5	2	0	58
10 (17)	▲ Belgium	16	16	1	8	9	6	2	0	58
12 (7)	▼ Romania	16	21	0	8	5	6	1	0	57
13 (31)	▲ Greece	18	20	-	7	5	3	1	0	54
14 (9)	▼ Netherlands	14	15	1	9	5	7	1	1	53
15 (9)	▼ Sweden	14	15	0	9	5	7	2	0	52
15 (13)	▼ Italy	15	16	0	9	5	6	1	0	52
17 (9)	▼ Turkey	10	15	0	8	10	6	2	0	51
17 (13)	▼ Malta	16	12	0	11	5	5	2	-	51
17 (23)	▲ Croatia	16	11	0	12	5	5	2	-	51
20 (15)	▼ Portugal	18	11	-	10	5	4	2	0	50
20 (35)	▲ Austria	11	20	0	7	5	5	2	0	50
20 (17)	▼ Ukraine	17	15	-	11	4	3	0	0	50
23 (15)	▼ Poland	14	11	0	11	5	7	1	0	49
23 (26)	▲ Latvia	14	12	2	10	5	4	2	0	49
23 (31)	▲ Czechia	12	15	0	8	5	7	2	0	49
23 (21)	▼ Estonia	13	14	1	11	5	3	2	0	49
27 (19)	▼ Bulgaria	15	11	-	11	5	5	1	0	48
27 (26)	▼ Cyprus	15	10	0	11	5	5	2	-	48
29 (17)	▼ Russian Fed.	8	15	0	13	4	6	1	-	47
29 (28)	▼ Lithuania	12	13	1	10	5	4	2	0	47
29 (23)	▼ Denmark	13	11	2	8	5	7	1	0	47
32 (30)	▼ Slovakia	12	12	-	9	5	6	2	0	46
33 (23)	▼ Serbia	19	11	0	9	1	4	1	0	45
34 (33)	▼ Luxembourg	5	16	0	9	5	7	2	0	44
35 (21)	▼ Switzerland (-1)	13	11	4	2	5	7	0	0	41
36 (33)	▼ Germany	14	11	0	4	5	4	2	0	40



CURRENT SMOKING

19.3%

n. 19,255

Current smoking

30.2%
Italy

5.1%
Iceland



19.3%



19.4%

CURRENT VAPING

12.4%

n. 12,375

Current vaping

41.5%
Monaco

5.5%
Serbia

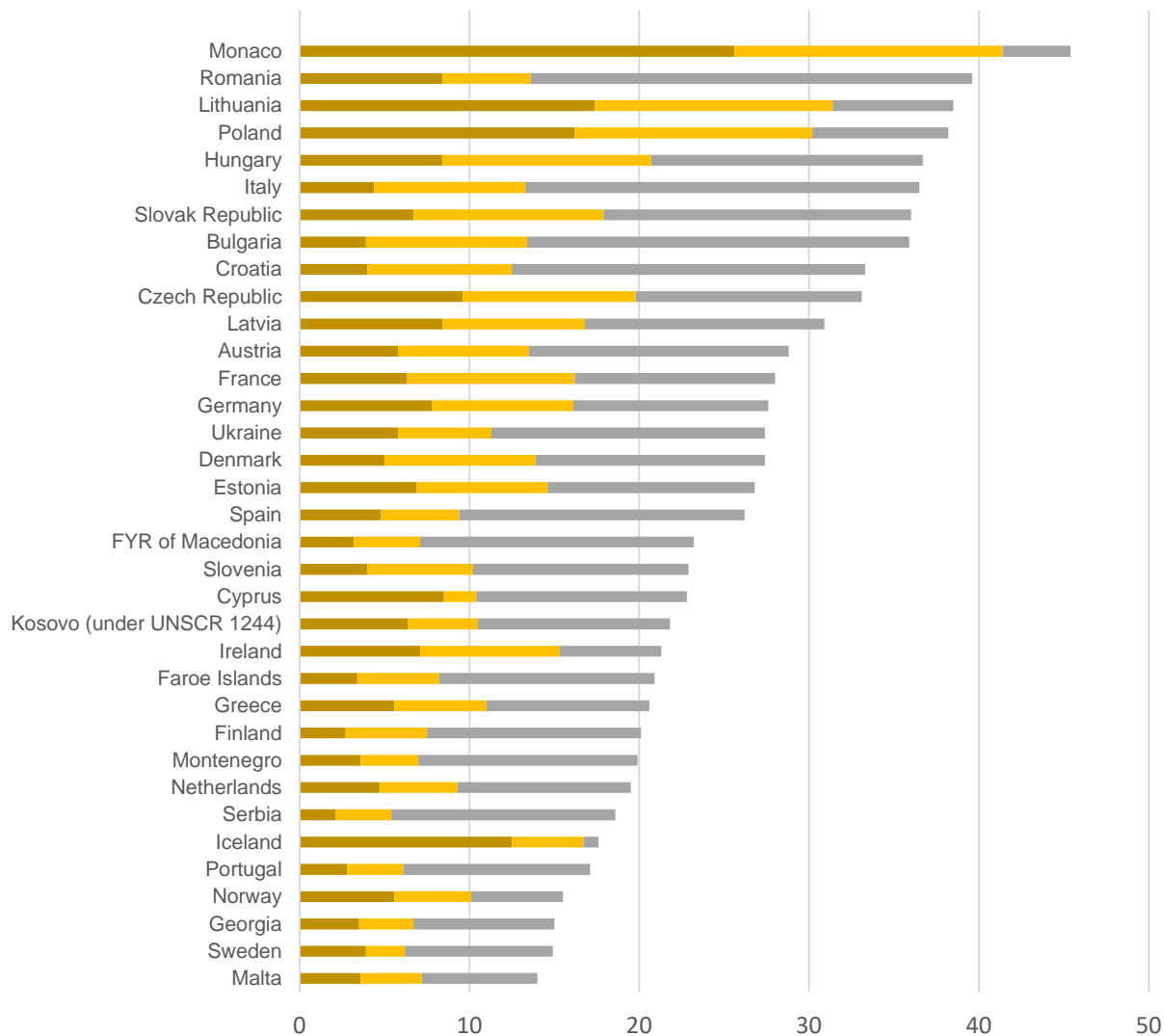


15.2%



9.8%

Exclusive tobacco cigarette smokers, dual users, exclusive e-cigarette users* in 35 countries. ESPAD, 2019



EXCLUSIVE CURRENT SMOKING **12.6%**

DUAL USE **6.9%**

EXCLUSIVE CURRENT VAPING **6.8%**

Dual users ranged from 1.9% in Cyprus to 15.8% in Monaco.

In ten countries e-cigarette use was more prevalent than smoking.

In Iceland and Monaco $\geq 80\%$ of smokers were dual users; in Lithuania, Poland, Ireland about 60%; in Germany, Czech Republic, Hungary, France, and Norway about 45%.

- Exclusive tobacco cigarette smokers
- Dual users
- Exclusive e-cigarette users

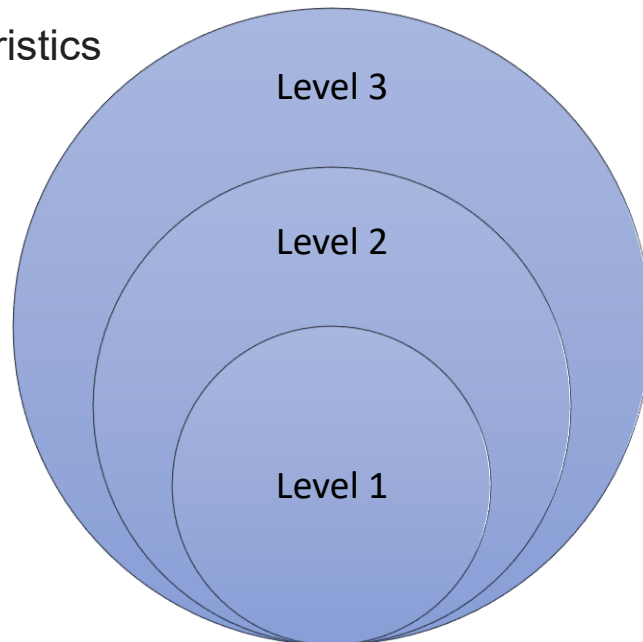
Statistical analyses

Multi-level mixed-effects logistic regressions.
Two-level random-slope models to assess individual and country-level factors associated with current smoking and current vaping.

LEVEL 1: students' characteristics

LEVEL 2: school class

LEVEL 3: country



Although a three-level model was appropriate, convergency issues made it necessary to do analyses on the selected sample modelling different countries as random effects, adding random coefficients (slope) for the independent variable.

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INDIVIDUAL FACTORS

Students' sex and parents' level of education as adjusting variables

CURRENT SMOKERS vs non-smokers

CURRENT VAPERS vs non-vapers

Sex: Male

Vaping in lifetime vs Smoking in lifetime

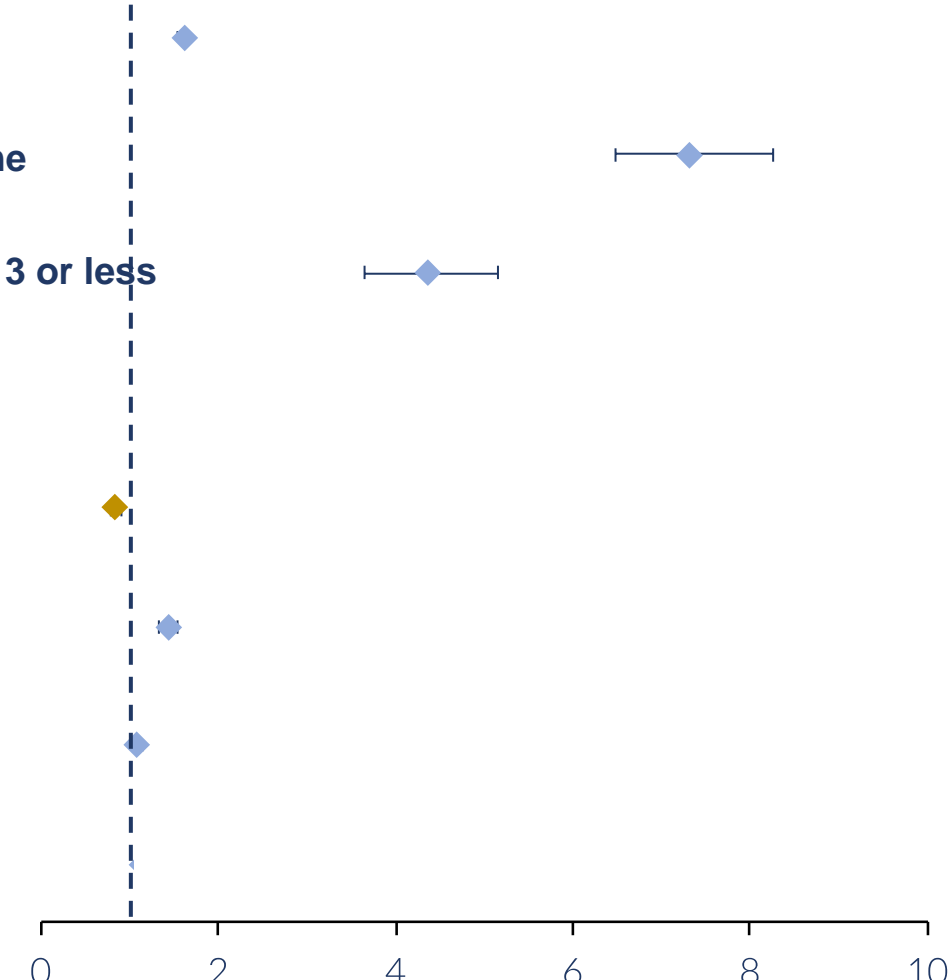
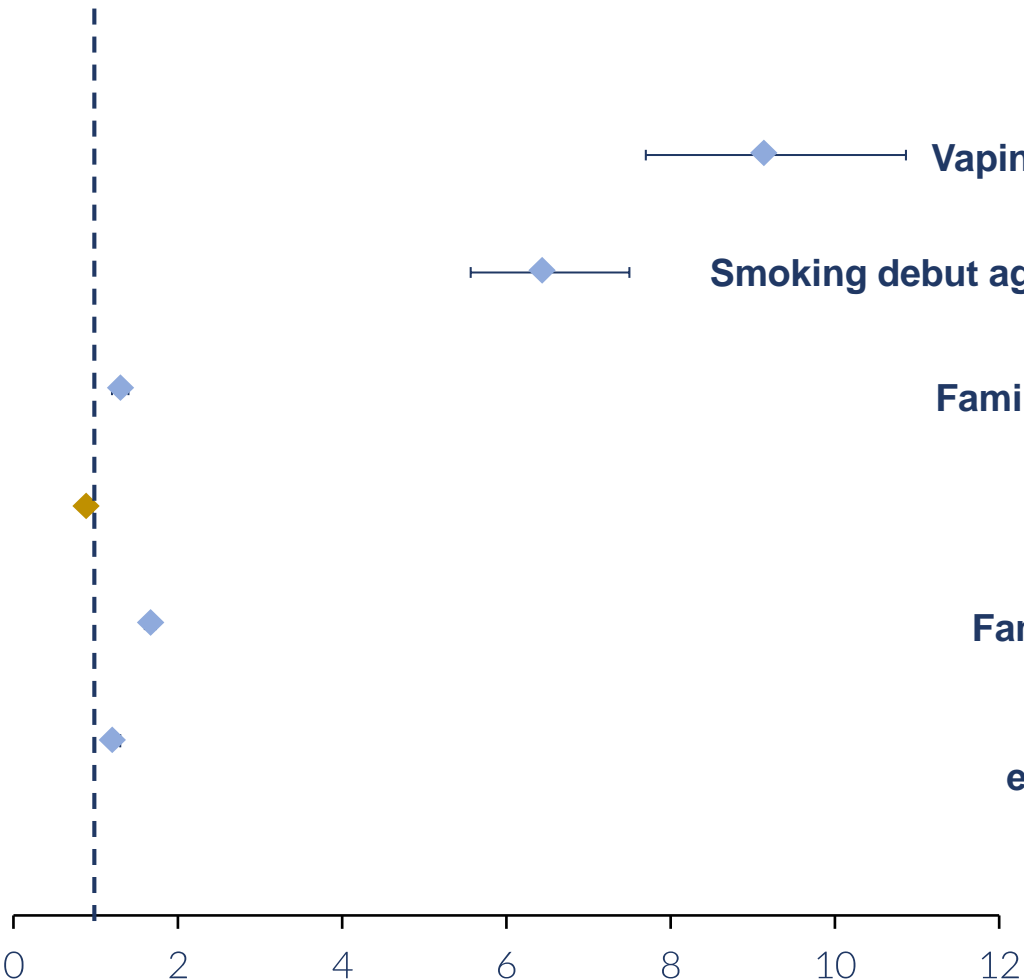
Smoking debut age: 13 or less vs Vaping debut age: 13 or less

Family well-off: Lower than average

Family well-off: Average

Family structure: non-traditional

Parents' highest level of education: Secondary or less



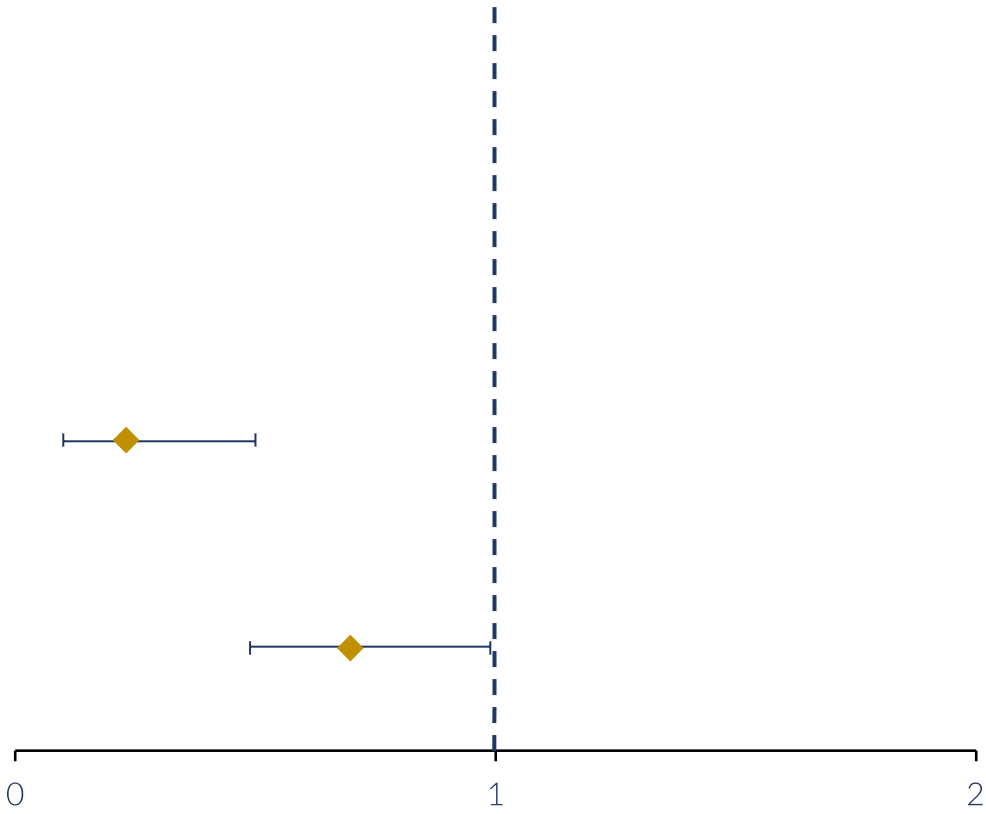
COUNTRY-LEVEL

Students' sex and parents' level of education as adjusting variables

FACTORS

CURRENT SMOKERS vs non-smokers

CURRENT VAPERS vs non-vapers

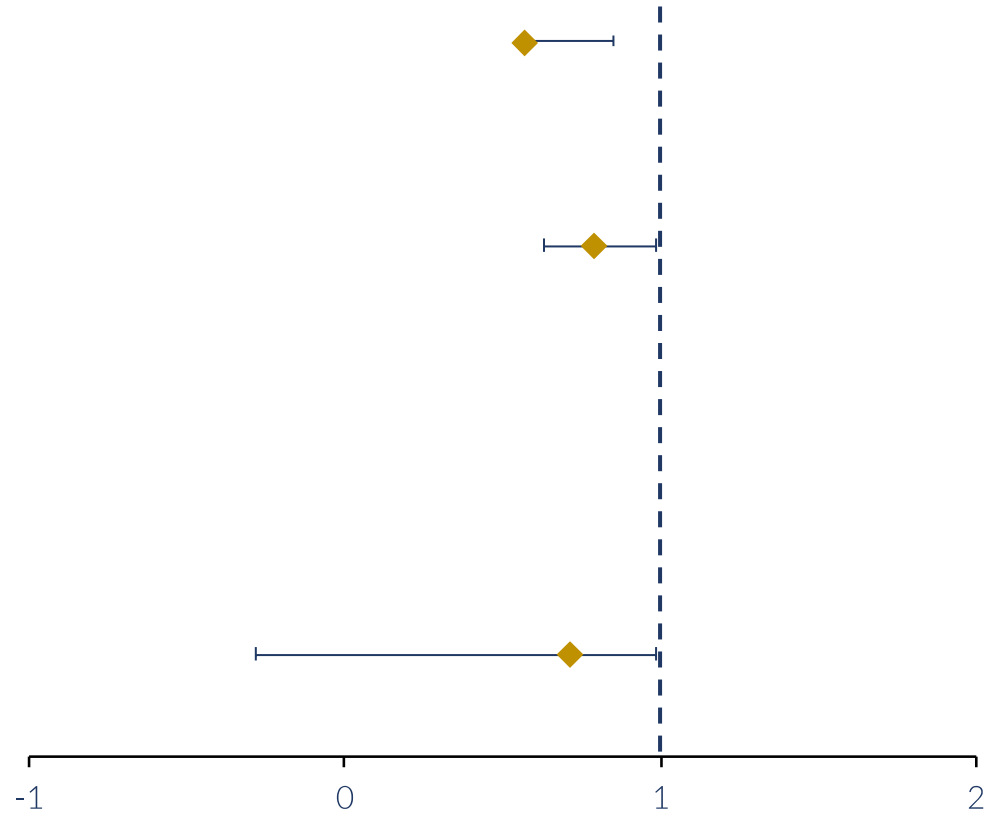


TCS tot: Medium

TCS advisory ban: >6

TCS budget: >5

TCS price: >15





Conclusion



Conclusion

THE POPULARITY OF ALTERNATIVE NICOTINE-BASED PRODUCTS HAS INCREASED AMONG TEENAGERS, RESULTING IN A SUMMATION OF USAGE PATTERNS RATHER THAN A COMPENSATION

THE MAJORITY OF THOSE WHO STARTED USING E-CIGARETTES DID SO WITHOUT PREVIOUSLY TRYING TOBACCO

PARTICULAR ATTENTION SHOULD BE PAID TO STUDENTS BELONGING TO LESS WELL-OFF AND NON-TRADITIONAL FAMILIES

IN COUNTRIES WHERE MEASURES AGAINST SMOKING ARE MORE DEVELOPED, SMOKING HABITS IN GENERAL SEEM TO BE CONSIDERED LESS GLAMOUROUS AND THEREFORE STUDENTS ALSO TEND TO VAPE LESS

THE IMPLEMENTATION OF KEY MEASURES OF THE WHO FRAMEWORK CONVENTION ON TOBACCO CONTROL (WHO FCTC) CAN PREVENT NOT ONLY SMOKING, BUT ALSO VAPING AMONG ADOLESCENTS



ESPAD

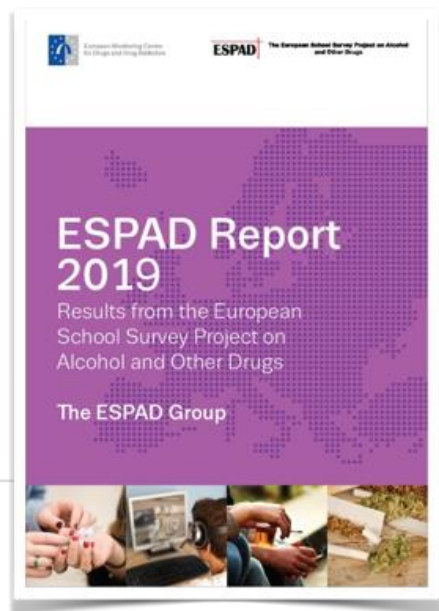
European School Survey Project on Alcohol and Other Drugs



Data access

● ESPAD project / Data access

European report



Additional tables



data.espad.org



ESPAD project / Data portal for open consultation



The screenshot displays the ESPAD data portal interface. At the top, there is a search bar with the text 'Cannabis, availability' and a 'Login' button. Below the search bar, a blue overlay shows search results for 'Cannabis, availability', indicating 25 results. The first result is a question: 'How difficult do you think it would be for you to get cannabis if you wanted?'. It shows 435,817 answers, with 70.15% for 'No' and 29.85% for 'Yes'. The second result is 'How difficult do you think it would be for you to get: Tranquillisers or sedatives? (UNTIL 2015)', showing 549,635 answers, with 75.97% for 'No' and 24.03% for 'Yes'. Below the search results, there is a purple banner with the text 'European School Survey Project on Alcohol and Other Drugs'. The banner includes a description of the project and a summary of the data: 7th wave, 2019 year, 35 countries, and 102,484 participating students.

European School Survey Project on Alcohol and Other Drugs

The European School Survey Project on Alcohol and Other Drugs (ESPAD) is a project conducted by research teams in more than 40 European countries to collect comparable data on substance use and other forms of risk behaviour among young people. The project has been running since 1988 and has conducted seven waves of data collection across 49 European countries. This website contains data from all the ESPAD survey waves. You can browse through the data, visualise and analyse them.

7th wave

2019 year

35 countries

102.484 participating students

data.espad.org



ESPAD project / Data portal for open consultation

ESPAD Search by keyword Advanced search Topics Login

Do you want to run an advanced research, visualise and download results?

Try our advanced search tool

Advanced Search

Cannabis All Subjects

Available questions (14)

Filter by indicator

Age: Cannabis

Cannabis: Lifetime

Cannabis: Alone

Cannabis: Intervention

Selected questions (2)

- Cannabis: Last 12 months
- Cannabis: Last 30 days

data.espad.org

ESPAD Topics Account

Filter and compare

Gender: Boys, Girls

Years: 2019, 2015, 2011

Countries: All Espad Countries

Once you have completed your selection, choose a specific ESPAD W (year), select a single ESPAD Country or compare more Countries, and by Gender

ESPAD Topics Account

View data

Cannabis: Last 30 days, Cannabis: Last 12 months, Frequency Distribution

Frequency Distribution

Category	1-2 occasions	3-9 occasions	10-19 occasions	20+ occasions
Cannabis: Last 30 days	~3.5%	~2.0%	~0.8%	~0.8%
Cannabis: Last 12 months	~5.5%	~3.8%	~1.3%	~2.1%

Select the chart type to be displayed: Bar

Choose what to show in the X-axis and Y-axis of the chart: Questions

Choose the statistical measure to be shown on the Y axis for your chart: Frequency Distribution

Hide answers: "Never", "0 Occasions", "0", "Does not apply", "None", "Impossible", "Not at all"

Use "Split chart by", if you want your to obtain a graph for each selected item

- Take home messages



Take home messages

- THE EXPANSION OF ALTERNATIVE TOBACCO PRODUCTS SUPPLY HAS LED TO A GENERAL INCREASE IN THE PREVALENCE OF NICOTINE CONSUMPTION, THUS CONSIDERING CIGARETTE SMOKING ALONE MAY LEAD TO AN UNDERESTIMATION
- CURRENTLY WE OBSERVE A RELEVANT LACK OF REGULATION WITHIN CURRENT POLICY TO LIMIT THE ACCESS TO ALTERNATIVE NICOTINE SUPPLY
- HOWEVER, TC MEASURES HAVE DEMONSTRATED TO BE EFFECTIVE ON SMOKING PREVALENCE IN THE LAST DECADES, AND THEY SEEM TO ALSO HAVE AN IMPACT ON VAPING HABITS
- STARTING FROM THIS, WE SHOULD REFRAME PREVENTION STRATEGIES SHIFTING THE FOCUS FROM TOBACCO TO NICOTINE CONSUMPTION IN ORDER TO AVOID A FUTURE NICOTINE ADDICTED POPULATION





Thank you for your attention and meet us at the ESPAD corner

Acknowledgments:

Sabrina Molinaro, CNR
Elisa Benedetti, CNR
Rodolfo Cotichini, CNR



A special thanks goes to all members of ESPAD who collected the national data and to the funding bodies who supported the international coordination of ESPAD: the Italian National Research Council and the EMCDDA.



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