The Paradox of Health Education: Increased Prevalence of Smoking and Nicotine Use in Teenagers

Luke Clancy, Salome Sunday, Joan Hanafin

TobaccoFree Research Institute Ireland, TU Dublin

www.tri.ie

EUSPR: EUROPEAN SOCIETY FOR PREVENTION RESEARCH
DUBLIN, IRELAND
15-18 SEPTEMBER 2026

Disclosures & Acknowledgements

Conflicts of Interest: the authors have no real or perceived conflicts of interest that relate to this presentation.

Funding: this study was funded by the Royal City of Dublin Hospital Trust.

Ethical approval: For each country, see ESPAD Group (2021), ESPAD 2019 Methodology: Methodology of the 2019 European School Survey Project on Alcohol and other Drugs, EMCDDA Joint Publications, Publications Office of the European Union, Luxembourg. https://www.espad.org/sites/default/files/TD0221506ENN_002.pdf

Acknowledgements

The authors would like to acknowledge the members of the ESPAD international coordination body and national teams for the relevant ESPAD data collection year(s) and the funding bodies who supported the international coordination of ESPAD including the Italian National Research Council and the EUDA. Special thanks are due to the schoolchildren, teachers and national funding bodies who made this project possible. ESPAD data use “application approval number

Background

Why this matters

Health education and training (HET) is commonly recommended for teenage tobacco prevention and cessation[2].

Study Rationale

Unexpected findings among Irish youth linked tobacco education with a higher prevalence of smoking and nicotine use[3].

Objective

To examine associations between current smoking/nicotine use and participation in four types of Health Education and Training (HET) across 37 European countries.

Tobacco awareness	Social skills	Personal skills	Media literacy
Effects and possible harms of tobacco	Communication, empathy and dealing with peer pressure	Impulse control, anger, goal-setting and mindfulness	Analysing advertisements and media messages

HET categories are separate questions. Students reported participation in up to 4 HET activities during the previous two years.

ESPAD

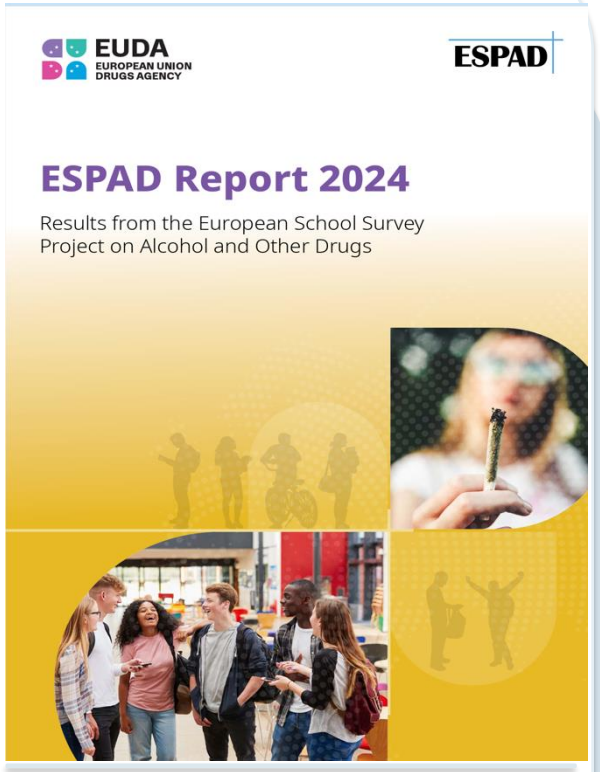
European School Survey Project on Alcohol and Other Drugs

ESPAD is a nationally representative, cross-sectional survey conducted every four years since 1995 in up to 40 European countries, with the aim of collecting comparable data on substance use among students aged 15–16 years in Europe to monitor trends within and between countries.

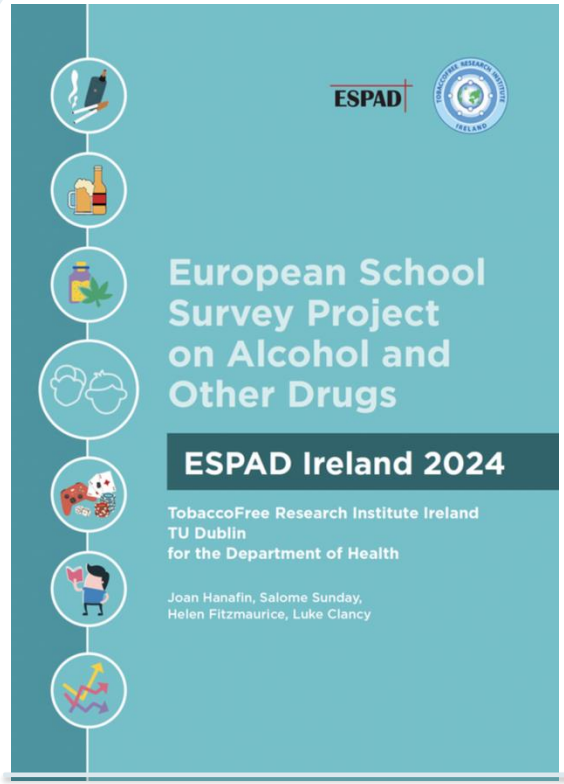
There have been 8 waves, the most recent in 2024.

Methods

DATA SOURCES



ESPAD Report 2024



ESPAD Ireland 2024

AGE

15–16 years

Born 2008

REPRESENTATIVE SAMPLE

N = 113,882

ESPAD PROTOCOL

Cross-sectional ESPAD 2024 analysis across 37 European countries

Methods

Participation in Health Education and Training

The next questions are about your participation in prevention activities.

Think about the LAST TWO YEARS. Do you recall having participated in the following activities?

ESPAD Ireland 2024 Student Questionnaire 24/31

C58 **Awareness events/information activities about effects and possible harms of:**

	Mark one box for each line.	Never	Once	More than once
C58a	Alcohol	☐	☐	☐
C58b	Tobacco	☐	☐	☐
C58c	Other drugs	☐	☐	☐
C58d	Gambling, Gaming or Internet disorders	☐	☐	☐
		1	2	3

C59 **Training (i.e. interactive, not lessons) about better interaction and communication with others: expressing feelings, empathy, compliments, dealing with peer pressure (social skills training)**

1 ☐ Never
2 ☐ Once
3 ☐ More than once

C60 **Training (i.e. interactive, not lessons) about better dealing with yourself: controlling impulses, anger, setting goals and objectives, being mindful (personal skills training)**

1 ☐ Never
2 ☐ Once
3 ☐ More than once

C61 **Training in how to analyse ads and media messages and to detect the intended messages in order to be less manipulated (media literacy)**

1 ☐ Never
2 ☐ Once
3 ☐ More than once

Methods

Smoking prevalence measures

The following questions are about tobacco smoking (traditional cigarettes, rolled cigarettes, cigarillos, cigars) EXCLUDING e-cigarettes (vapes) and alternative products (nicotine pouches, heated tobacco products, water pipe, moist snuff etc.)

C06 **Have you ever smoked cigarettes (excluding e-cigarettes (vapes) and alternative smoking products)?**

1	☐	Yes, in the last 30 days
2	☐	Yes, in the last 12 months but not in the last 30 days
3	☐	Yes, more than 12 months ago
4	☐	Never

C07 **How often have you smoked cigarettes (excluding e-cigarettes (vapes) and alternative smoking products) during the LAST 30 DAYS?**

1	☐	Not at all
2	☐	Less than 1 cigarette a week
3	☐	Less than 1 cigarette a day
4	☐	1–5 cigarettes a day
5	☐	6–10 cigarettes a day
6	☐	11–20 cigarettes a day
7	☐	More than 20 cigarettes a day

Methods

E-cigarette use prevalence measures

The next questions are about e-cigarettes (vapes, mods) and alternative smoking products (nicotine pouches, water pipe (shisha), snus, heated tobacco products).

C10 **Have you ever used e-cigarettes?**

1	☐	Yes, in the last 30 days
2	☐	Yes, in the last 12 months but not in the last 30 days
3	☐	Yes, more than 12 months ago
4	☐	Never

C11 **How often have you used e-cigarettes during the LAST 30 DAYS?**

1	☐	Not at all
2	☐	Less than once per week
3	☐	At least once a week
4	☐	Almost every day or every day

Methods

Other nicotine products prevalence measures

C15 Have you ever used the following alternative smoking products?

	Mark one box for each line.	Yes, in the last 30 days	Yes, in the last 12 months but not in the last 30 days	Yes, more than 12 months ago	Never
C15a	Water pipe (shisha)	☐	☐	☐	☐
OC15b	Moist snuff (snus)	☐	☐	☐	☐
OC15c	Heated tobacco products	☐	☐	☐	☐
OC15d	Nicotine pouches	☐	☐	☐	☐
		1	2	3	4

Analysis

Binary logistic regression estimated cross-sectional associations between HET participation and current smoking/nicotine use.

1 EXPOSURE

HET participation (previous 2 years)

- Tobacco awareness
- Social skills
- Personal skills
- Media literacy

2 OUTCOMES

Current use (past 30 days)

- Binary yes/no outcomes

cigarettes | e-cigarettes | Snus/pouches | Water pipes/shisha | Heated Tobacco Products | Composite nicotine use

3 MODEL

Binary Logistic regression

- Cross-sectional data
- Unadjusted analysis

4 OUTPUT

- Odds ratios (OR)
- 95% confidence intervals
- Reference: no HET

Composite Nicotine Use

How the composite exposure measure was derived,

Cigarettes	E-cigarettes	Oral nicotine products (snus/pouches)	Water pipe / shisha	Heated tobacco products

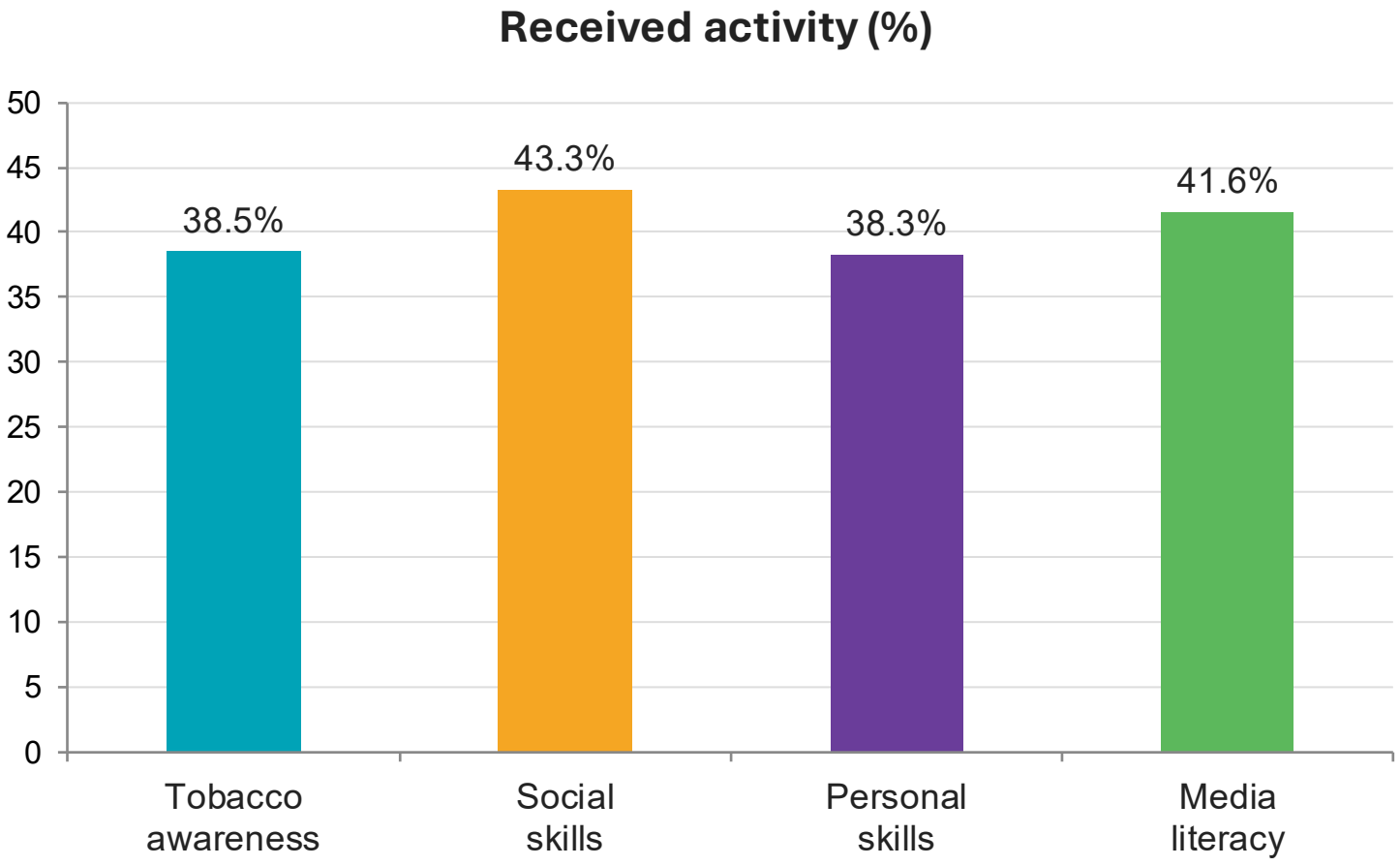
Each product is measured as ever used and current use (use in the last 30 days).

Composite nicotine use (ever): used at least one of the five products at any point in their life.

Composite nicotine use (current): used at least one of the five products in the last 30 days.

Why a composite measure: single-product figures miss poly nicotine product use and underestimate overall nicotine prevalence. The composite gives a more accurate overall prevalence of nicotine use.

Results: Participation in Health Education and Training



HET reported participation%*

Tobacco awareness: 38.5% (n=40,353)
Social skills: 43.3% (n=42,738)
Personal skills: 38.3% (n=37,678)
Media literacy: 41.6% (n=40,856)

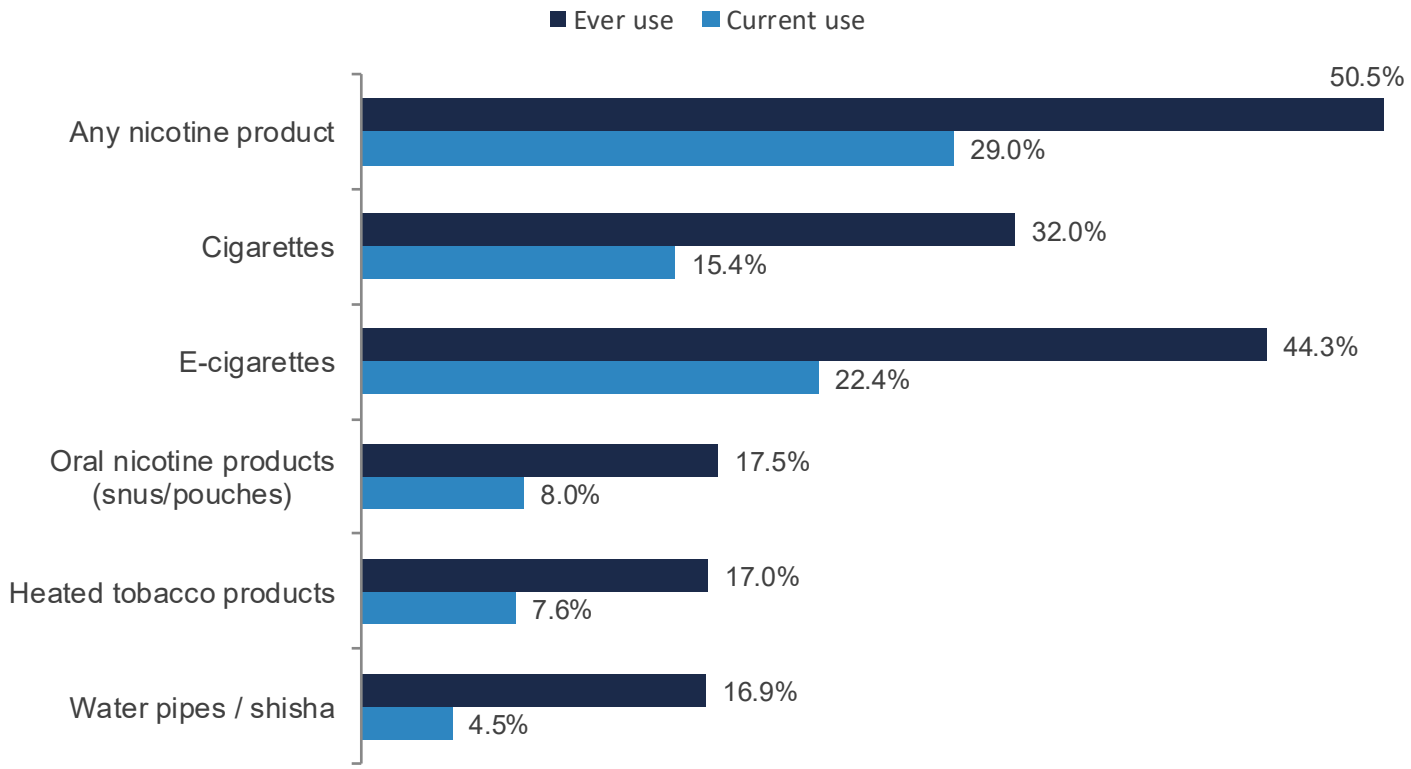
** Students reported participation in up to 4 HET activities during the previous two years.*

Results: Nicotine Product Use Prevalence

Current use vs. ever use, by product

EVER COMPOSITE NICOTINE USE
50.5% *(n=57,474)*

CURRENT COMPOSITE NICOTINE USE
29.0% *(n=33,048)*



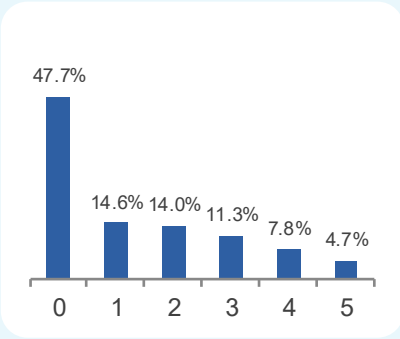
Valid n: Cigarettes 113,566 | E-cigarettes 113,465 | Oral nicotine products 87,384 | Heated tobacco 87,325 | Water pipes 104,922. Oral nicotine, heated tobacco and water pipe items were not collected in all countries.

Number of nicotine products used

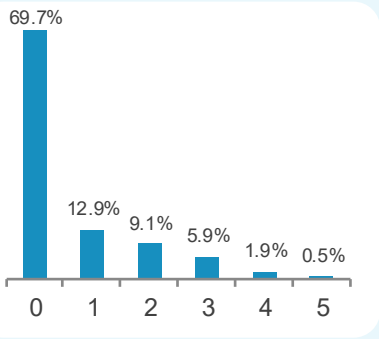
37.7%
have ever used 2+ products
Ever use (n=27,715)

17.5%
use 2+ products currently
Last 30 days (n=12,841)

Ever use

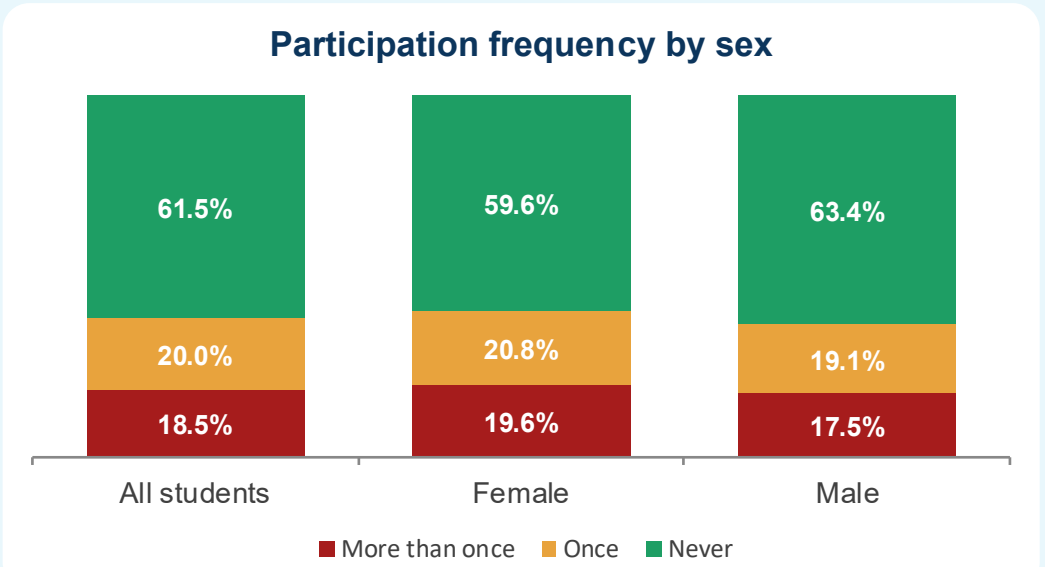


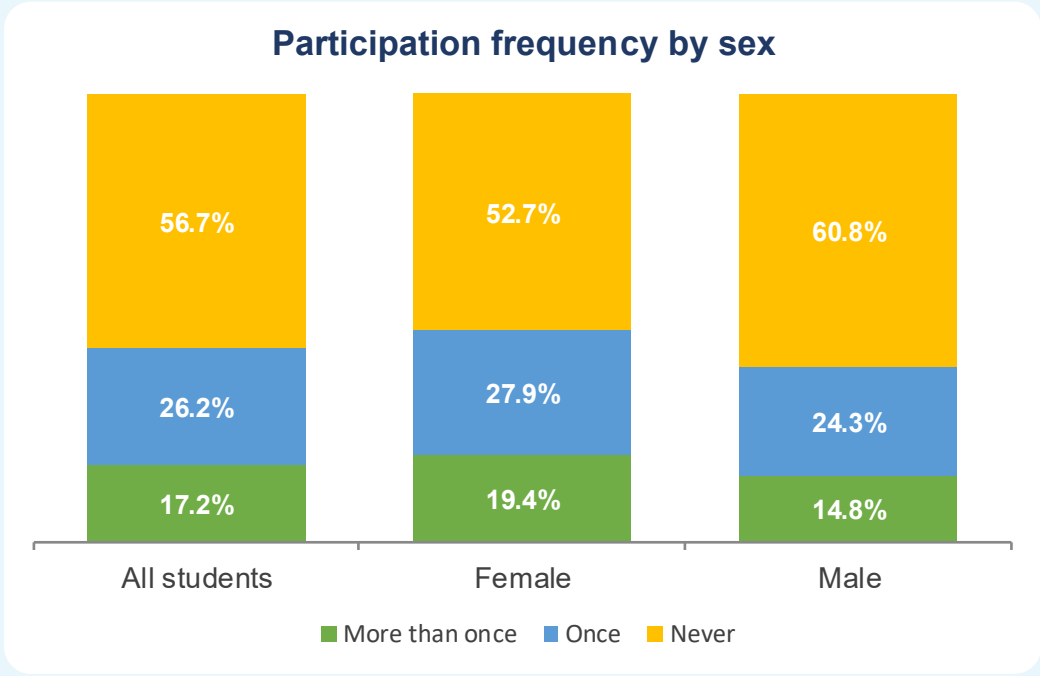
Last 30 days



Results: Tobacco awareness & social skills activities

Awareness events/information activities and social skills training | ESPAD 2024 frequency distribution





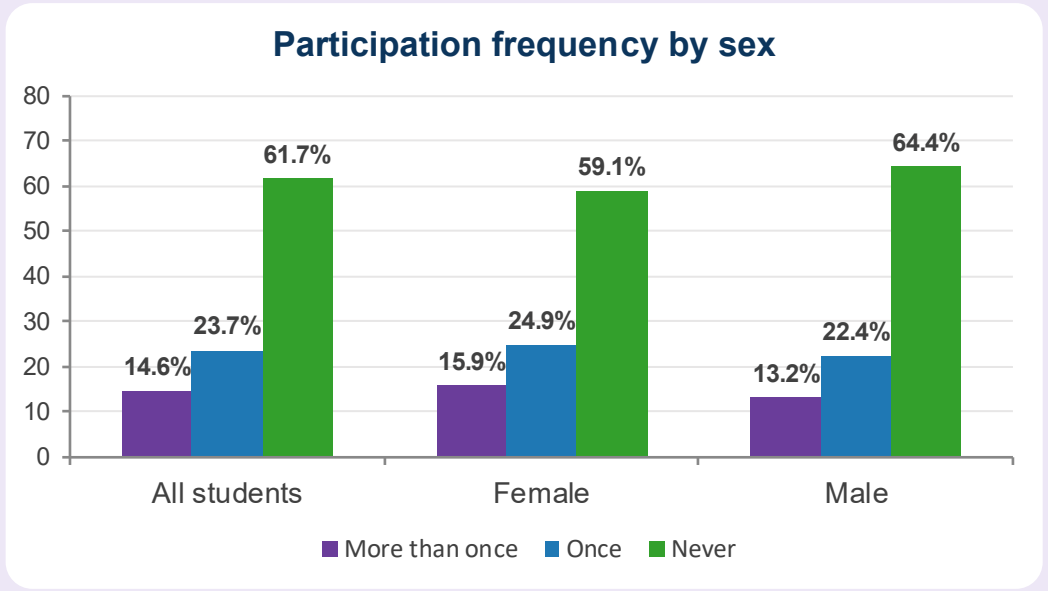
Tobacco harms awareness

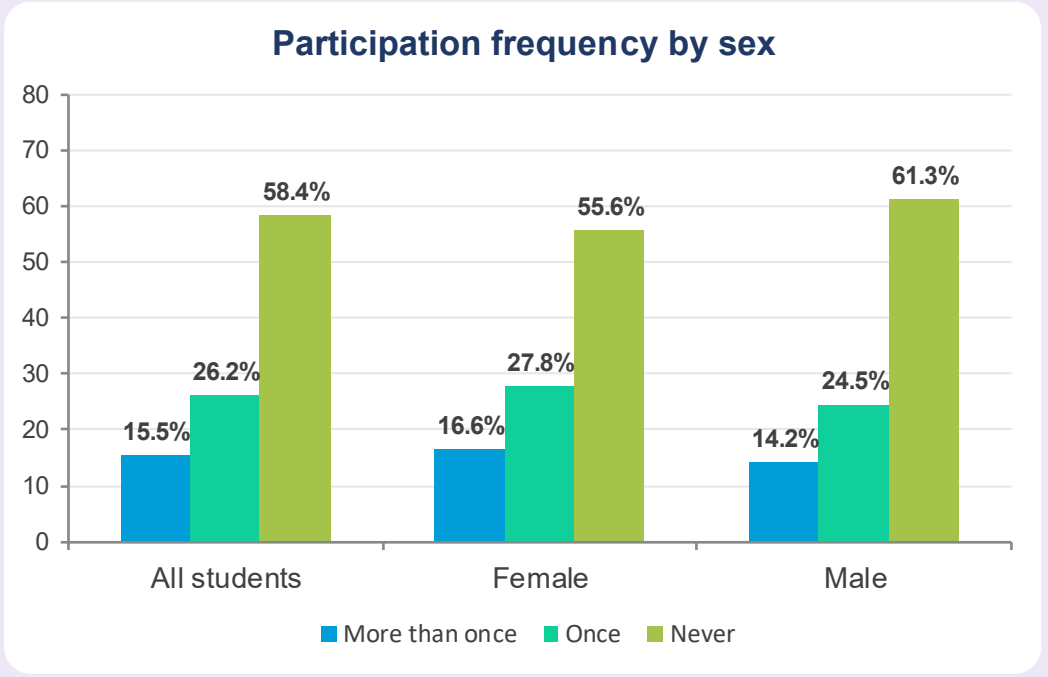
Social skills / peer pressure training

Source: ESPAD Ireland 2024 (EU sample). Excludes 'No answer' and 'Not collected' responses.

Results: Personal skills & media literacy activities

Personal skills and media literacy training | ESPAD 2024 frequency distribution





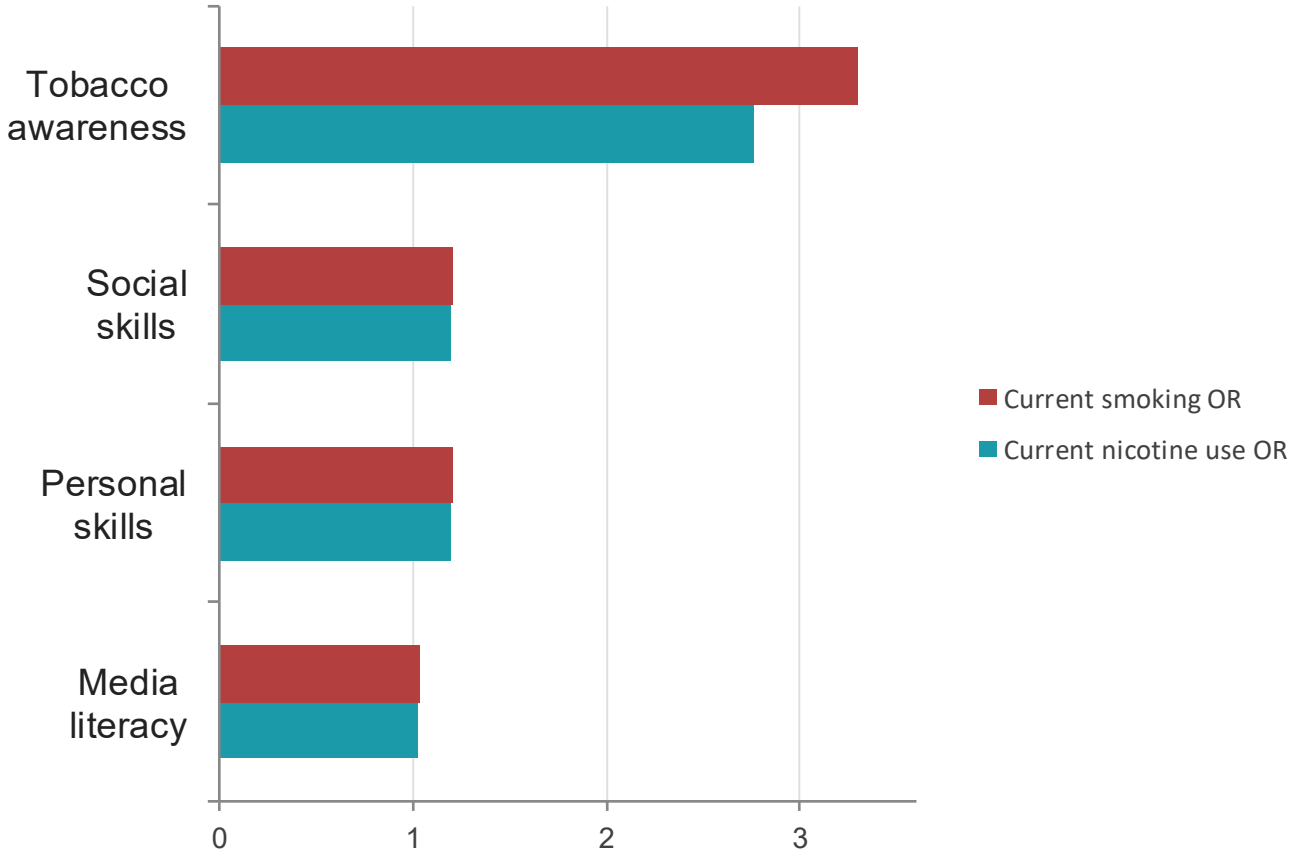
Personal skills training

Media literacy training

Source: ESPAD Ireland 2024 (EU sample). Excludes 'No answer' and 'Not collected' responses.

Results: Participation in HET and odds of current smoking/nicotine use

Crude odds ratios comparing participants with non-participants



Strongest association – Tobacco awareness

Tobacco awareness participants had higher odds of current smoking (OR 3.30, 95% CI 3.19–3.42) and current nicotine use (OR 2.76, 95% CI 2.68–2.83).

Smaller associations

Social skills and personal skills training showed modest positive associations with both current smoking and current nicotine use.

Media literacy

Media literacy training showed a small, borderline-significant association with current smoking (OR 1.04) and no significant association with current nicotine use.

Note: "Current nicotine use" is the composite measure (any of five products, past 30 days).

Results: Participation in HET and odds of current smoking/nicotine use

HET activity	Current smoking OR (95% CI)	Current nicotine use OR (95% CI)
Tobacco awareness	3.30 (3.19–3.42)	2.76 (2.68–2.83)
Social skills	1.20 (1.16–1.25)	1.19 (1.16–1.22)
Personal skills	1.20 (1.15–1.24)	1.19 (1.16–1.22)
Media literacy	1.04 (1.00–1.08)	1.03 (1.00–1.06)

Reference group for each: students who did not report that specific HET activity.

Discussion

This large-scale cross-sectional analysis found a strong, paradoxical association between HET participation and higher odds of current teenage smoking and nicotine use.

Rather than indicating causation, this pattern may reflect:

1. Targeted programme implementation
2. Selective recall
3. Cognitive dissonance in teenagers
4. Curriculum content & methodology

Limitations and Conclusion

Limitations

- Cross-sectional design.
- Unadjusted models: confounding and targeting of interventions may explain part of the pattern.
- Self-reported HET and product use may be affected by recall and reporting bias.
- HET categories capture participation, not program quality

Conclusion

Across 37 European countries, participation in tobacco awareness HET was strongly associated with higher odds of current smoking and current nicotine use.

Future work should assess programme content, target population, timing, and longitudinal effects.

References

1. ESPAD Group (2025), ESPAD Report 2024: Results from the European School Survey Project on Alcohol and Other Drugs, EUDA Joint Publications, Publications Office of the European Union, Luxembourg.
2. Angeli M, Hassandra M, Krommidas C, Morres I, Theodorakis Y. Assessing the Impact of a Health Education Anti-Smoking Program for Students: A Follow-Up Investigation. Children (Basel). 2024 Mar 23;11(4):387. doi: 10.3390/children11040387. PMID: 38671604; PMCID: PMC11049245.
3. Clancy, L., Sunday, S. & Hanafin, J. (2026). Increased prevalence of smoking and nicotine use in teenagers associated with participation in tobacco health education. Tobacco Prevention & Cessation, 12(Supplement 1), A145.

Contact

Professor Luke Clancy
Director General
TobaccoFree Research Institute Ireland
TU Dublin, Dublin 2

W: www.tri.ie
E: lclancy@tri.ie

Thank you