A Longitudinal Analysis of Common Liability Theory from Adolescence to Adulthood Associations Between Adolescent Nicotine Use and Smoking or E-cigarette Use to Age 25

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BACKGROUND

Common liability theory proposes that shared familial, social and behavioural factors predispose adolescents to multiple forms of substance use, including nicotine. We examined associations with smoking and e-cigarette use through age 25.

METHODS

DATA SOURCE

Growing Up in Ireland Cohort '98, Waves 1-5 (ages 9-25 years).

EXPOSURES

Sociodemographic, familial, peer and behavioural factors measured at age 13 (Wave 2) and age 17/18 (Wave 3).

STATISTICAL ANALYSIS

Multivariable logistic regression estimated associations between adolescent vulnerabilities and current nicotine use at ages 20 and 25.

Models adjusted for sociodemographic factors, mental health difficulties, delinquency and truancy.

SAMPLE FOR MAIN ANALYSIS

Wave 4 (age 20; 2018/19)	n = 4,663
Wave 5 (age 25; 2023/24)	n = 3,380

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RESULTS

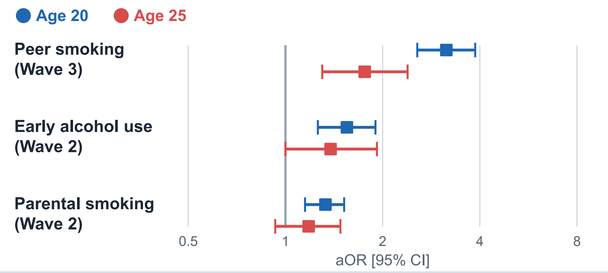
Prevalence of nicotine use at ages 20 (2019) and 25 (2023) - weighted %

Nicotine use	Age 20 (Wave 4; 2018/9)	Age 25 (Wave 5; 2023/24)
Current smoking	37.4%	25.0%
Current e-cigarette use	12.8%	38.4%
Dual use (smoking and e-cigarette)	9.1%	15.6%

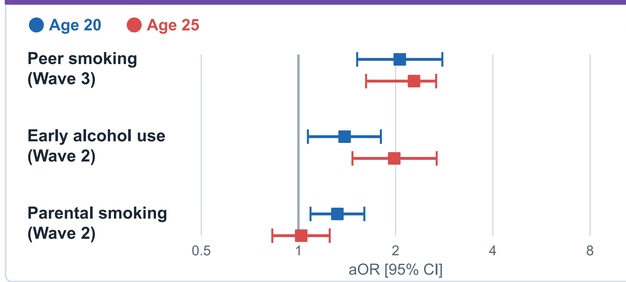
Associations between adolescent vulnerabilities and nicotine use at ages 20 and 25

Adjusted odds ratios (aOR) [95% CI]

CURRENT SMOKING



CURRENT E-CIGARETTE USE



All exposures were measured in adolescence (Waves 1-3). Models adjusted for sociodemographic factors, mental health difficulties, delinquency and truancy.

ACKNOWLEDGEMENTS

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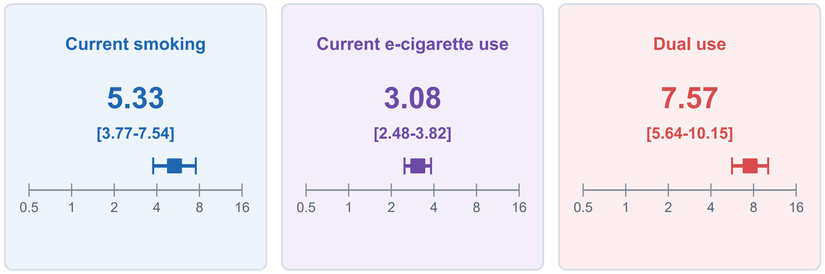
AGE 25 ASSOCIATION

Any adolescent nicotine exposure* and nicotine use at age 25 (2023; Wave 5)

Adjusted odds ratios (aOR) [95% CI]



* Any smoking or e-cigarette use at ages 13 or 17/18.

Participants with adolescent nicotine exposure had higher adjusted odds across all age-25 nicotine-use categories.

KEY FINDINGS

1 LONG-TERM ASSOCIATION

Any adolescent nicotine exposure was associated with higher odds of current smoking, e-cigarette use and dual use at age 25, with the strongest association for dual use (aOR 7.57).

2 KEY PREVENTION WINDOW

The persistence of associations from adolescence to age 25 highlights adolescence as an important period for preventing early nicotine exposure.

CONCLUSION

Adolescent nicotine exposure and shared familial, social and behavioural risk factors remained associated with smoking and e-cigarette use into adulthood. The persistence of these associations supports a developmental common-liability framework for nicotine use.