

E-cigarette use associations with cigarette, marijuana, and other drug use initiation among adolescents and young adults

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E-cigarette use remains one of the most prevalent substance use behaviors among adolescents and young adults in the U.S. with 21% of U.S. 12th graders and 24% of U.S. young adults reporting the use of e-cigarettes in the past 30 days. Extant research has demonstrated a link between e-cigarette use and cigarette initiation and cannabis initiation. However, existing research has not examined this risk beyond 1 to 2 years, little research has examined other drug use, and often do not consider risk for adolescents separately from young adults.

This study used data from the Population Assessment of Tobacco and Health (PATH) Study (waves 1-6; 2013-2021), a longitudinal nationally-representative survey of U.S. residents aged 12 and older to examine associations of e-cigarette and other tobacco product use with risk for cigarette, marijuana, and other drug use initiation among adolescents (ages 12-17 years; n=13,293) and young adults (ages 18-25 years; n=6,448). Lifetable methods and discrete time survival modelling methods were employed. All analyses included time-varying survey weights that incorporated balanced repeated replication (BRR) and Fay's adjustment ($p=0.3$) to account for non-response and the PATH complex survey design. All three tobacco use groups, including adolescents and young adults who used e-cigarettes and no other tobacco products at baseline, were more likely to initiate cigarette use, marijuana use, and other drug use. Specifically, adolescents using e-cigarettes and no other tobacco products had 4.97 (95% confidence interval[CI]=4.17, 5.95) greater odds of cigarette initiation, 3.56 (95% CI=2.94, 4.32) greater odds of marijuana use initiation, and 1.54 (95% CI=1.20, 1.98) greater odds of other drug use initiation. Young adults using e-cigarettes and no other tobacco products had 3.70 (95% CI=2.11, 6.50) greater odds of cigarette initiation, 3.33 (95% CI=1.91, 5.83) greater odds of marijuana use initiation, and 1.67 (95% CI=1.10, 2.53) greater odds of other drug use initiation.

Using nationally representative data, these findings demonstrate that for U.S. adolescents and young adults using e-cigarettes, the risks for cigarette initiation, marijuana initiation, and other drug use initiation among persist beyond one to two years. Prevention strategies to reduce e-cigarette use for adolescents and young adults are needed to reduce risk for cancer-related risk behaviors.