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**ADVERSE SCHOOL OUTCOMES AND SEXUAL RISK BEHAVIORS AMONG HIGH SCHOOL STUDENTS WITH E-CIGARETTE AND MARIJUANA USE**

Nicholas Chadi, MD, MPH<sup>1</sup>, Guilin Li, MBBS, MS<sup>2</sup>, Scott E. Hadland, MD, MPH, MS<sup>3</sup>

<sup>1</sup>*Sainte-Justine University Hospital Centre, University of Montreal*; <sup>2</sup>*Harvard University*; <sup>3</sup>*Boston University School of Medicine*

**Purpose:** The rapid emergence of youth-friendly nicotine-containing e-cigarettes and the increasing legality and accessibility of marijuana have led to high rates of adolescent use of these two substances. While several health risks of e-cigarette and marijuana use in youth have been described, little is known about how the use of these substances may be related to school performance and sexual behaviors in this population. We describe the associations between e-cigarette and marijuana use and adverse school outcomes and high-risk sexual behaviors in a large sample of high school students.

**Methods:** We used data from the two most recent waves (2015 and 2017) of the Youth Risk Behavior Survey, a nationally representative survey of high school students in the US. Our sample consisted of 30,389 students of which 26,821 (88.3%) had complete data on socio-demographic characteristics and exposure to e-cigarettes and marijuana. Participants were divided into four exposure groups for past 30-day use of e-cigarettes and marijuana: (1) no use, (2) e-cigarette-only use, (3) marijuana-only use and (4) dual use. We compared rates of e-cigarette and marijuana use for different demographic characteristics using chi-squared tests and performed multivariate logistic regressions exploring associations between e-cigarette and marijuana use and low school performance in the past year (grades that were mostly C's or lower) and high-risk sexual behaviors (3 or more sexual partners in the past 3 months and sex without a condom at last sexual encounter). Regression models were adjusted for survey year, grade, gender, race/ethnicity, sexual orientation and past-year use of alcohol and other substances. Complex sampling design was taken into account and results were weighted to reflect national estimates.

**Results:** Participants were primarily White (52.9%), Hispanic (22.1%) or non-Hispanic Black (13.2%) and 49.3% were female. E-cigarette-only use was reported in 7.7% of participants, marijuana-only use in 8.5%, and dual e-cigarette/marijuana use in 9.2%. Multivariable analyses revealed that youth with e-cigarette-only use had higher odds of reporting grades that were mostly C's or lower than youth with no use (adjusted odds ratio [AOR] 1.64, 95% confidence interval [CI] 1.43-1.87), which was also observed in youth with marijuana-only use (AOR 1.86, 95%CI 1.60-2.17) and dual use (1.98, 95%CI 1.67-2.35). Similarly, youth with e-cigarette-only use had higher odds than youth with no use of reporting 3 or more sexual partners (AOR 2.23, 95%CI 1.34-3.72), which was also observed in students with marijuana-only use (AOR 2.65, 95%CI 1.70-4.12) and dual use (AOR 3.52, 95%CI 2.19-5.68). However, increased odds of having sex without a condom were only seen in youth with marijuana-only use (AOR 1.41, 95%CI 1.16-1.71) and not in youth with e-cigarette-only use (AOR 0.96, 95%CI 0.77-1.19) or dual use (AOR 1.12, 95%CI 0.91-1.38).

**Conclusions:** We found increased odds of low school performance in all three use categories and increased yet contrasting sexual risk profiles between use groups. Considering the high prevalence of e-cigarette and marijuana use among adolescents, there is a need for effective screening and education strategies which could help mitigate adverse school outcomes and sexual risk behaviors seen in students exposed to these substances.

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