

**Haneen M. Awadallah**  
Undergraduate  
Xavier University of Louisiana, New Orleans, LA

Mentor: Michael Celestin Jr., Ph.D., CHES, NCTTS  
LSUHSC, School of Public Health

Differences in E-Cigarette Advertisement Exposure Among High School Students  
Between 2020 and 2022

**Introduction:** Multiple studies have linked e-cigarette use with significant health problems, including severe lung damage, respiratory disease, and death. Nicotine, the primary chemical found in most e-cigarettes, is highly addictive, sometimes three times the amount found in regular cigarettes, and harms brain development from fetal through young adulthood, including learning, mood, and impulse control. In 2018, a 78% increase in U.S. high school student e-cigarette use (from 11.7% in 2017 to 20.8% in 2018) prompted the U.S. Surgeon General to declare e-cigarette use a youth epidemic officially. The rate of U.S. high school students reporting monthly e-cigarette use decreased by 48.6% between 2019 (27.5%) and 2020 (19.5%). Following in 2021 and 2022, e-cigarette use increased among U.S. high school students. Studies show that exposure to e-cigarette marketing is associated with greater use of e-cigarettes. Tobacco companies have increased their marketing expenditures, sales, and revenue over the last decade despite pressure from restrictive federal policies. But did advertisement exposure change for vulnerable populations due to the COVID-19 pandemic? We compared differences in U.S. high school student e-cigarette advertisement exposure before and after the COVID-19 stay-at-home mandate.

**Methods:** Using a cross-sectional study design, we examined nationally representative data from the 2020 (N=14,531) and 2022 (N=28,291) National Youth Tobacco Survey (NYTS). The 2020 NYTS was administered to students across 180 schools, while the 2022 NYTS was administered to students at home and across 341 schools. Student demographic measures included age ("*How old are you?*" [13 – 17]), sex ("*What is your sex?*" [male/female]), race ("*What is your race?*" [Black, Hispanic, other]), and grade (8<sup>th</sup> – 12<sup>th</sup>). E-cigarette use measures included ever use ("*In total, how many days have you used an e-cigarette in your entire life?*") and current use ("*During the past 30 days, on how many days did you use e-cigarettes?*" [0-30]). The measure for e-cigarette ad exposure was ("*When you [use the Internet/read a newspaper or magazine/go to a store/watch TV or streaming service], how often do you see ads or promotions for e-cigarettes?*" [No exposure or exposure]). Using Microsoft Excel, we characterized the sample using descriptive statistics and performed a chi-square test to assess differences between years that yielded a statistically significant finding ( $p < 0.05$ ) in ad exposure.

**Results:** In 2020 (n=4,110), most of the participants reported as 13 (25.4%), female (51.3%), Hispanic (73.6%), and in the 8<sup>th</sup> grade (24.9%); in 2022 (n=7,964) most of the participants reported as 15 (22.4%), male (50.3%), Hispanic (59.8%), and in the 9<sup>th</sup> grade (23.7%). Chi-square analysis revealed a statistically significant reduction ( $p < .05$ ) in e-cigarette marketing exposure after the COVID-19 stay-at-home mandate via the Internet (41.0% vs. 38.3%), newspaper/magazine (19.2% vs. 16.5%), store (56.3% vs. 53.2%), and TV/streaming service (26.5% vs. 26.3%).

**Conclusion:** U.S. high school student exposure to e-cigarette product advertisements decreased after the COVID-19 stay-at-home mandate. Future research should examine federal policies' impact on curbing e-cigarette marketing exposure.