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"Influence of Peer Perception and Survey Location on E-cigarette Use in 2021 and 2022 High School Students"

Introduction: In 2018, over 4.04 million high school students (27.1%) in the U.S. reported current e-cigarette use. E-cigarette use is associated with an increased risk of developing several health conditions such as asthma, chronic obstructive pulmonary disease, and cancer. High school students surveyed during the COVID-19 pandemic (2021) self-reported higher levels of e-cigarette use when surveyed at school (15.0%) compared to when surveyed at home (8.2%). These findings possibly could have been a result of the increased influence of friends at school and inversely less friend influence at home. This study examines the association between self-reported high school e-cigarette use, location of survey completion, and perception of friends' acceptance of e-cigarette use.

Methods: Using a cross-sectional study design, we examined a combined sample of nationally representative data from the 2021 (N=20,413) and 2022 (N=28,291) National Youth Tobacco Survey (NYTS). The 2021 NYTS was administered to students at home and across 279 schools, while the 2022 NYTS was administered to students at home and across 341 schools. Demographic measures included sex, race, grade, and survey completion location. E-cigarette use measures included ever use ("*Have you ever used an e-cigarette, even once or twice?*") and current use ("*During the past 30 days, on how many days did you use e-cigarettes?*" [0-30]). The measure for perception of friend's e-cigarette use acceptance was ("*Please Complete the Following Sentence. My friends think that e-cigarette use is*), with a four-point Likert scale response of completely acceptable, mostly acceptable, mostly not acceptable, and not acceptable. We used Microsoft Excel to run descriptive statistics to characterize the sample and SAS to run a multiple linear regression analysis to determine the relationship between variables of interest.

Results: The majority of the final sample (n=23,719) reported as male (50.8%), Non-Hispanic White (45.8%), in the 9th grade (28.8%), and completed the survey at school (79.5%). Linear regression analysis revealed that when taking the survey at home, students whose friends had an acceptable perception of e-cigarette use on average used 1.80 more e-cigarettes (p-value <0.001) compared to students whose friends did not have an acceptable perception of use. When taking the survey at school, students whose friends had an acceptable perception of e-cigarette use, on average, used 3.01 more e-cigarettes (p-value <0.001) than those whose friends did not. Peer perception has a greater influence on students taking the survey at school, contributing to 1.21 more e-cigarettes used, than students taking the survey at home (p-value <0.001).

Conclusion: Friend acceptance of e-cigarette use and the location of the survey significantly impacted self-reported e-cigarette use. Friend acceptance of e-cigarette use had significantly different influences on self-reported use based on survey location. Study findings suggest the need for future interventions with a focus on peer reinforcement and future research studies on the effect of survey methodology and peer influence on survey responses.