INTRODUCTION

Recently, snus and electronic cigarettes have been introduced to the US market, while hookah/waterpipes have gained popularity. As cigarette smoking rates among youth have decreased and leveled off in recent years (Centers for Disease Control and Prevention (CDC) 2010), the increased use of snus and e-cigarettes raises concerns about poly-tobacco use, renormalization of tobacco use, and related health concerns. Although snus and e-cigarettes are non-combustible forms of tobacco, their use is similar to other e-cigarettes and similar to use of hookah, which are less popular in the United States. Electronic cigarettes specifically claim to be less harmful than cigarettes and may serve as an alternative to regular cigarette smoking for adults (Centers for Disease Control and Prevention (CDC) 2013). Snus use is gaining popularity among youth because it is a multi-flavored and easily concealable (Jenkins et al. 2012). Although studies have provided data regarding adult use of these emerging products (McMillen, Maclver, & Winders, 2012), little research has been published on the effects on youth use.

METHODS

Background

Data are from the Mississippi Youth Tobacco Survey (YTS). The YTS provides states with the data needed to design, implement, and evaluate comprehensive tobacco control programs. We added items to assess the use of emerging tobacco products in 2010, and examined use among high school students for 2010, 2011, and 2012.

Sample Design

We applied a multistage sample design with public high schools selected proportionally to enrollment size. Classrooms were chosen randomly within selected schools and all students in selected classes were eligible for participation. Data were collected by an anonymous self-administered questionnaire during a normal class period by teachers following back-to-back. In Mississippi, tobacco products, demographic risk factors, and behavioral and situational predictors, will help to inform programmatic activity, public health policy, and regulatory action.

Editing, Weighting, and Initial Analysis of Data

The Research Triangle Institute and the CDC’s Office of Smoking and Health provided technical assistance with the processing and weighting of data. A weighting factor was applied to each student record to adjust for non-response of the school, class, and student levels. SUDAAN statistical software was used to calculate standard errors for estimates and 95 percent confidence intervals. Weight adjustments were made for the following:

- **Gender:** Male vs. Female
- **Race/Ethnicity:** White vs. Black
- **Age:** 14 vs. 15-17 years
- **School:** Public vs. Private

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Overall, use of snus and electronic cigarettes was more common among Mississippi youth than use of hookah. In general, being male, white, and in a higher grade are risk factors for use of emerging products. Further, students who currently smoke, are exposed to secondhand smoke, or believe that smoking is cool have higher rates of using emerging products than those with opposing characteristics. In multivariable analyses, race, exposure to tobacco smoke, and smoking status retained significant predictors of use of these emerging products. Increased awareness of the prevalence of emerging tobacco products, demographic risk factors, and behavioral and situational predictors, will help to inform programmatic activity, public health policy, and regulatory action.

DISCUSSION

Overview

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The use of emerging tobacco products among youth raises concerns regarding poly-tobacco use, renormalization of tobacco use, and related health concerns. This study assessed the use of hookah, e-cigarettes, and snus among high school students in Mississippi. Overall, use of hookah and e-cigarettes was more common among male students than female students. In general, being male, white, and in a higher grade are risk factors for use of emerging products. Further, students who currently smoke, are exposed to secondhand smoke, or believe that smoking is cool have higher rates of using emerging products than those with opposing characteristics. In multivariable analyses, race, exposure to tobacco smoke, and smoking status retained significant predictors of use of these emerging products. Increased awareness of the prevalence of emerging tobacco products, demographic risk factors, and behavioral and situational predictors, will help to inform programmatic activity, public health policy, and regulatory action.

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