VAPING PREVENTION AMONG THE YOUTH POPULATION IN PITT COUNTY

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Background

Vaping and nicotine products have been identified as an increasing problem in schools in the U.S. Although electronic cigarettes are relatively new, they pose a significant issue. Nicotine usage amongst adolescents has spiked according to the CDC. In 2021, about 1 out of every 35 middle school students and about 1 out of every 9 high school students reported using an electronic cigarette in the past 30 days ("Youth and Tobacco Use"). Since 2014, electronic cigarettes are identified as the "most commonly used" product among the youth. However, nicotine usage accounts for several other products (Hookah, Nicotine pouches, Pipes, etc.) that have been reported to be used among the youth in the National Youth Tobacco Survey, 2021 ("Youth and Tobacco Use"). To aid in the prevention of nicotine usage in the youth, national, state, and local programs have been implemented. The primary focus of this study will be analyzing and implementing the program, Catch my Breath.

The first occurrence of the electronic cigarette was introduced by Joseph Robinson in the 1930s, when he presented the first patent prototype documented. However, Herbert A. Gilbert is commonly linked with the development of a device most similar to the e-cigarette design in the 1960's. Both Robinson and Gilbert were unable to commercialize and manufacture their devices. The e-cigarette became commercialized starting in 1979 when Phil Ray and Norman Jacobson were able to reach major retailers ("The History of Vaping"). The technology invented was short lived until the 20th century and early 2000s. Due to the idea of vaping being branded as less harmful and a better alternative to smoking cigarettes, companies and manufacturers of nicotine nebulizer devices skyrocketed in the 1990's. The first commercially successful e-

cigarette device was created by Hon Lik in 2003. Strategic marketing for electronic cigarette devices as a smoking cessation aid and a clean alternative to smoking led to the popularization and demand for e-cigarette devices worldwide. However, after investigations and research studies conducted about vaping effect, many organizations and foundations worldwide proclaim e-cigarettes to be just as harmful as regular cigarettes ("The History of Vaping").

As electronic cigarettes became more widespread, the bans, restrictions, and lawsuits amplified against electronic cigarette companies. In 2011, the FDA states that the U.S. Food Drug and Cosmetics Act will regulate e-cigarettes similar to how tobacco products are regulated. Although regulation of manufacturing and distribution of these products were declared, e-cigarette marketing practices were not under scrutiny yet. In December 2018, Jerome Adams, the U.S. Surgeon General, called for action towards "restricting young people's access to vapor products and retail settings… urban advertising and marketing that are appealing to young people." ("The History of Vaping"), spurring controversy and debate surrounding whether vaping products are truly effective in smoking cessation. Additionally, tactical marketing strategies towards the younger population and public messaging have amplified the number of youthful smoking initiators. These observations cause many concerns as to whether or not e-cigarette marketing is creating a whole new generation of youth smokers. Data from the 2018 National Youth tobacco survey verifies an epidemic among e-cigarette use in the youth population. The spike of youth e-cigarette users has caused a direct linkage of vaping related health issues to arise. In July 2019, the CDC identified eight teenagers in Wisconsin that were hospitalized due to e-cigarette or vaping associated lung injury

(EVALI) (“The History of Vaping”). This instance led to tighter restrictions and bans on vaping products and eventually leading to raising the legal age to purchase tobacco products to 21 years old. However, it is likely for adolescents to continue to gravitate towards e-cigarettes due to social and marketing influences.

Any form of tobacco/nicotine use in youth is unsafe. Smoking illnesses and deaths will escalate if cigarette smoking and vaping/nicotine usage continues among youth. In the U.S., the tobacco epidemic is primarily established during adolescence. The CDC states, youth who use tobacco products have an increased risk for nicotine dependence (“Youth and Tobacco Use”). Additionally, the introduction of flavorings in tobacco products has increased the usage among youth. The variety of flavorings created in tobacco products makes them more appealing. About 85.8% of high school students and 79.2% of middle school students used a flavored e-cigarette in 2021 (“Youth and Tobacco Use”). In 2022, the FDA issued marketing denial orders to JUUL Labs Inc. for all their products marketed in the U.S.. The JUUL Labs Inc. has been accused of causing the nicotine epidemic/dependency in the U.S. (“FDA Denies Authorization to Market Juul Products”). Several JUUL marketing strategies have been accused of targeting individuals under the legal age of buying/using tobacco products. Therefore, hooking adolescents into buying and using their nicotine products.

Vaping poses a serious risk to dangerous chemical exposure, injuries, and addiction. As of November 5, 2019, there had been 2,051 cases of vaping-associated lung injury in 49 states (Perry & Rome, 2019). Lung associated injuries are one of the few concerns associated with vaping. Especially with adolescents, vaping is, “a common gateway to tobacco and marihuana use…” (Perry & Rome, 2019). When adolescents are exposed to vaping related activities, they

may also become interested in other methods of nicotine use (cigarette smoking, hookah, etc.). Exposure to these substances at a young age not only can cause serious health risks in the future, but also a higher risk for nicotine dependency and addiction. Therefore, it is essential to have stricter laws and strict regulations to protect adolescents. Without these stricter laws and regulations, a new generation of nicotine-addicted individuals will be created (Galderisi., et al., 2020). Nicotine use and exposure is particularly dangerous for adolescents. Research from the CDC states that using nicotine in adolescence can affect attention span, learning, mood, and impulse control ("Quick Facts"). Additionally, further research shows that nicotine usage during brain development can adversely affect growth and mental health. Current research on young animals shows nicotine can interfere with memory, learning, focus, impulse control and brain development (Hamilton, 2019). Strict enforcement and education of vaping needs to be instigated, primarily in schools, to lessen the degree of harm adolescents may experience when influenced by vaping and vaping related activities.

Coordinated Approach to Child Health (CATCH) My Breath is an evidence-based vaping prevention program that utilizes a peer-led teaching approach and is currently one of the few school-based vaping prevention programs proven to reduce the likelihood of vaping among the youth ("Whole Child Wellness"). This program is strictly a nicotine vaping prevention program that aims at grades 5-12. CATCH My Breath was developed by The University of Texas Health Science Center at Houston (UTHealth) School of Public Health and this program includes grade-level specific curriculum that aligns with health education standards, as well as supplemental materials such as STEM/Humanities/PE extensions, self-paced modules, and virtual field trips ("Whole Child Wellness"). Additionally, there is recommended training and certification for educators provided through this program. Catch My Breath has been utilized in several states

across the nation and has been recognized as a youth vaping intervention though The Substance Abuse and Mental Health Services Administration (SAMHSA).

Methodology

CATCH My Breath Implementation

This program was designed for Pitt County Schools to have vaping prevention presentations available to them. The vaping prevention presentations for Pitt County Schools have been conducted by ECU students in the Spring of 2023. Therefore, the primary focus for the Fall of 2022 was on recruitment of students suitable for the program. Flyers were made (including program details and requirements), posted around campus, and sent out to students via email list services. The flyers were sent out/posted three weeks prior to the deadline set for October 21st. The application was made through Qualtrics and involved general questions such as name, major/minor, expected graduation date, and additional information. The application also included a 2-minute video submission that required students to tell us about themselves and how they would be a part of the program. After looking over the applications, seven students were selected as facilitators for the program.

After the selected students were notified of their acceptance, there was an organized orientation conducted to review the program highlights, plans, and requirements. Facilitators were required to become familiar with the Catch my Breath program and obtain the training certification available for free online. Since the program already had presentations, posters, guides, and speaker notes for teaching each grade level, the primary focus for the facilitators was to become familiar with how lessons are

structured and the differences between grade levels and each program. Students had approximately two months to become familiar with the information before mock presentations in January. In December 2022, the process for planning which presentation(s), programs, and activities to utilize were determined. Materials provided for Catch my Breath were analyzed and sorted to design two 45-minute lesson plans. Catch my Breath will be implemented in grades 5-8.

At the beginning of January, after winter break, weekly meetings were held to practice presenting to the students at Pitt County Schools. Additionally, these meetings will cover more in-depth information about vaping. These presentations will cover how to effectively engage students, and appropriately convey information about vaping. Therefore, students are properly trained to lead the presentations and discussions. These sessions were overseen by 2 ECU faculty members. Recruitments are expected to demonstrate professionalism during the presentations and knowledge about the lesson plans/curriculum. Presentations to Pitt County Schools began in March 2023 with 3 pre-identified schools (recruitments that are available to present will be assigned). This program is a collaboration between Pitt County Schools, ECU, Safe Communities, and ECU Health.

Administrator Interviews

In addition to implementing CATCH My Breath, interviews were conducted with administrators from Pitt County Schools to assess the need for a vaping prevention measure and the prevalence of vaping in Pitt County Schools (Elementary-High Schools) from December through March. IRB approval was needed for the email to the administrators about participating in the program, the script and process of the interview,

and how data will be collected and stored. The consent letter to participate was emailed prior to the scheduled interview date to review and participants provided verbal consent to participate during the interview.

To conduct research within Pitt County Schools, approval was needed from the Superintendent of Educational Programs. The approval process consisted of submitting a request to conduct research study and research. The Educational Study and Research Procedure form consisted of 18 questions pertaining to the time required for students, teachers, parents, and administrative for the research. Additionally, the form included a description of the purpose and general methodology of the research process. Along with the form, the IRB approved consent letter, script/method, and questions were attached. A list of the Pitt County School Administrators was obtained on the Pitt County School's website directory. A randomized selection of about 15 schools were chosen to email regarding the research. A randomized selection of districts and grade levels were chosen to assess different areas within the county. Administrators (Principals and Assistant Principals) were contacted via the email provided on the Pitt County Schools website.

After IRB approval and approval from the Superintendent of Educational Programs, selected administrators were notified about the research study via email and were provided with the option to participate in the interview/research process. Attached in the email was a copy of the approval form, consent letter, script/method, and questions. A structured interview was conducted over Zoom to assess the prevalence of vaping in Pitt County Schools, the current disciplinary measures taken towards students who are caught vaping on campus, current training for school administrators on vaping, data on students who are caught vaping, and their thoughts about CATCH my Breath implementation in their school. Administrators who were unable to

schedule a meeting responded back to the questions via email. A total of 6 schools agreed to participate in the research study.

RESULTS

CATCH My Breath Prevention Program

What we have done:

Piloted this year at 2 schools in Pitt County that included one 5th grade class and two 7th grade classes. We have reduced/modified sessions to 2 x 45-minute lessons for each grade to better accommodate the school's schedule without losing the integrity of the evidence-based program. To accommodate the allotted time for presentations within the schools, introduction slides, lesson summary slides and time stamps for each lesson were modified. Certain activities within lessons were modified due to class sizes and resources that may not be accessible to students (writing utensils). Many of the activities that required a writing utensil, and/or many students were changed to a “shout-out” group discussion. Six total ECU students have completed the training for the program and become certified Catch my Breath trainers.

Further Analysis:

To evaluate the program's effectiveness, we will be collecting post-test data and collecting data from school personnel and facilitators on improvements for next year. Evaluation of data from facilitators and school perspectives will be considered for changes next year.

Interviews

From the data collected from the interviews with the administrative staff of Pitt County Schools, many of the schools identified as having a difficult time controlling vaping. This is due to the accessibility some students have of the devices, the smoke produced is often odorless and clears quickly, and how vapes are easily hidden within clothing. Currently, there is not a formal

training process for school staff and administrators on how to handle vaping. All the schools interviewed are trained in the Student Code of Conduct and proper legal requirements for searches. Only one school identified as having a presentation about what an electronic cigarette device looked like (approximately 5 years ago). No posters are currently in the interviewed schools against vaping usage. However, they all have a "Tobacco Free Campus" sign. When asked about the effectiveness of posters against vaping, most of the schools did not believe that posters would be effective in preventing vaping on campus.

The data of students caught vaping on campus varies significantly due to grade level. In the high school level, vaping occurs every day if not, every other day according to administrators. However, in K-8 schools the vaping cases caught on campus have been under 10 reports in the school year. While all the schools handle their disciplinary measures differently, most of the schools interviewed resort to giving the student that is caught vaping or with an electronic cigarette in-school suspension (ISS) and/or out-of-school suspension (OSS). One of the high schools in Pitt County Schools identified that for first offense students they do not give an automatic suspension. Instead, they have the school nurse provide counseling and must complete a vaping knowledge quiz. Another Pitt County School identified using Project Bridges as a referral to the community agency to reduce the number of ISS days. All schools interviewed confiscate the electronic cigarette device and do not release it back to the student. When asked about releasing the device to the parent, all schools expect one identified as releasing the device back to the parent due to the vape belonging to the parent/guardian.

When asked about any resources they currently offer to students about quitting, all schools identified as having no resources to give to their students about quitting vaping. The schools were then asked a series of questions pertaining to the CATCH program initiative and

the effectiveness of introducing this program. In Pitt County Schools, all the schools interviewed would like to see a program like this in their schools. Administrators state, “any help is good”. A few key points that schools shared in the effectiveness of the program include using peer-led teaching, real-world examples, educating the staff on warning signs of vaping in students, and having parent programs and information.

Discussion

The introduction of the CATCH My Breath program in Pitt County Schools can help decrease the rates of vaping in Pitt County Schools. Using a peer-led teaching approach may help with the effectiveness of the overall message of the program. One of the key training points in the program is to acknowledge the curiosity behind these new devices. Additionally, giving the students all the information on vaping effects so that they can make informed decisions. Nicotine discussion is a major concept in the CATCH My Breath curriculum, therefore, students that participate in the CATCH curriculum may understand the effects of addiction from nicotine usage in vaping devices.

After completion of the presentations, students in Pitt County Schools may be more informed about the effects of vaping and be able to make informed decisions for themselves when it pertains to electronic cigarette use. Future insight on the program's effectiveness will be analyzed using the post-test on vaping knowledge and behavioral insights from the students in Pitt County Schools. Additionally, evaluation of implementation from facilitators and school perspective will be utilized to make changes for the upcoming years. Insight from the interviews indicates a need to also train school staff.

Resources

"Whole Child Wellness - Health Education Programs - Global Catch." *CATCH*, 29 June 2022, https://catch.org/.

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