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Tobacco Trends in a Young Adult Hispanic Population

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Dedication

For me. I had to remind myself that I can do this because even when I thought I couldn't, I did.

Also, my family who never stops loving and encouraging me.

TOBACCO TRENDS IN A YOUNG ADULT HISPANIC POPULATION

by

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Introduction

Smoking remains the leading cause of preventable death in the United States (Centers for Disease Control and Prevention, 2019). Cigarette smoking in particular is responsible for more than 480,000 deaths per year in the United States, including more than 41,000 deaths resulting from secondhand smoke exposure (US Department of Health and Human Services, 2014). Cigarettes contain tobacco, a filter, and paper wrapping; cigarette users are using this product for the nicotine but there are other toxic cancer-causing chemicals that are created when the cigarette is lit and burned (U.S. Food and Drug Administraton, 2016). Rates of smoking cigarettes have declined steadily from 20.9 percent in 2005 to 14 percent in 2017 (Wang, et al., 2018), which is seen as a small victory, but there is a larger issue emerging with the use of Electronic Nicotine Delivery Systems (ENDS).

Tobacco companies have historically preyed on marginalized communities. Over time tobacco companies have evolved their tactics, branding, and products to introduce new forms of consuming tobacco. I begin by outlining types of tobacco products as well as a review of the social science and public health academic literature on tobacco use. I then detail demographics of smokers who are the priority populations that tobacco control experts have identified as having higher rates of smoking compared to the general population and they are populations who are at higher risk of health effects due to their vulnerabilities. People are an interconnected web of networks. Understanding that smoking and secondhand smoke affects everyone is an important social consequence looked at in the next section. In the next policy section of the paper I discuss tobacco-related policy that has been implemented as both prevention and cessation efforts. Next, some theories have been highlighted as possible sociological theories that can be used to help describe the themes collected from the research study's data.

The methods section of the paper outlines focus group and interview data that were collected as part of another study in the UTEP School of Pharmacy that I use for my analysis. I then utilize content analysis and present a discussion of my findings. The results section is focused on the main findings from the focus groups and interviews. In the discussion I focus on the findings from the study and examine in further detail how it compares and contrasts with other tobacco literature. I continue to re-discuss theories and how they can be used to further tobacco prevention and cessations efforts. The conclusion includes updates on tobacco policy and recommendations for tobacco control experts and public health researchers.

Types of tobacco products

There are more than eight ways to consume a tobacco product (U.S. Food and Drug Administraton, 2016). Traditional tobacco products are cigarettes, cigars, little cigars, and cigarillos; cigars, little cigars, and cigarillos are cured tobacco wrapped in leaf tobacco, or other types of substances containing tobacco. What differentiates cigars, little cigars, and cigarillos is the size of the product that determines the amount of tar is in the product, also some little cigars are made in different flavors which is an identifying characteristic. Waterpipes such as hookahs are especially popular in the Unites States. Tobacco in waterpipes comes in different flavors (e.g. mint and cherry), waterpipe smoke delivers nicotine to the user that can be just as or more toxic than cigarette smoke. In a single one-hour hookah session, the user inhales anywhere between 100-200 times the volume of smoke from a single cigarette. Lastly, there are traditional smokeless tobacco products such as chewing tobacco and snuff. Chewing tobacco can be consumed in many forms, made from cured tobacco, loose leaf, plug or twists. Snus on the other hand is finely ground moist snuff that can be loose or packaged. Users of traditional smokeless tobacco place the product between the cheek or lip and the gum. Novel tobacco products are

dissolvable products and electronic devices (more to follow). Dissolvable products are products that are not smoked; these products include lozenges, stripes, sticks, and orbs. Dissolvable products require the consumer to spit or discard the product remains after use (U.S. Food and Drug Administration, 2016).

Cigarette smoking may have declined since 2005, but the tobacco industry has changed and expanded with the introduction of new products. The CDC (2012) reports the increasing use of flavoring in ENDS products. Electronic cigarettes come in a variety of forms, and they can be referred to as a vape, pen, e-hookah, hookah pen, or by the brand such as Juul. These products contain e-liquid which contains nicotine from tobacco and flavoring. ENDS products use a heat source, typically a battery, which turns the e-liquid into aerosol and the aerosol produced is what the user inhales (U.S. Food and Drug Administraton, 2016). E-cigarettes are a modern alternative to traditional cigarettes and although they are promoted as a cessation device many tobacco experts state ENDS products are gaining popularity and are re-normalizing tobacco products (Al-hamdani, 2014). Electronic cigarettes were not regulated by the FDA at the time of the publishing of the CDC (2012) report discussed above, and in 2019 Juul has pulled products from shelves due to health concerns and problems that product users are experiencing; this is in part because the product is not regulated. These products are still relatively new and additional research needs to be conducted about the long-term effects of ENDs products.

Addiction

Tobacco use and addiction is a widely researched topic in public health. There is a considerable amount of people both directly and indirectly affected by tobacco related illnesses, making tobacco an important topic for health professionals to study and understand. The larger issue in tobacco research is the funding discrepancy between disciplines. Dingel, Karkazis, &

Koenig (2014) broke down the funding by the National Institute on Drug Abuse (NIDA), the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and the National Cancer Institute (NCI), into research categories. Most of the funding ($519.497 million) was designated to basic and clinical neuroscience, pharmacotherapies received about $116.017 million, and epidemiology served and prevention efforts received about $260.465 million. With most of the research being produced is largely from a biological perspective and addiction being understood as a disease of the brain it fails to recognize the social and contextual variables that contribute to tobacco use and addiction. While it is important to understand the biological and physiological aspects of addiction, this perspective perpetuates tobacco cessation frameworks as the individual's health problem instead of a structural issue with potential structural solutions.

Demographics of smokers

There are priority populations tobacco control experts have identified as having higher smoking rates than the overall population. These populations include youth, persons with mental illness, military personnel, pregnant women, and the LGBTQIA community.

Tobacco control professionals focus on preventative efforts during adolescence due to the vulnerability and susceptibility of this population. In a study published by the US Department of Health and Human Services (2014), tobacco product use is established primarily during adolescence, and 9 out of 10 cigarette smokers tried their first cigarette before or by the age of 18 and 98 percent have tried smoking by the age of 26. Children are frequent targets of youth-oriented products, by using deceptive advertisements to reassure health conscious smokers, and camouflaging their unethical activities (Al-hamdani, 2014). Recent trends in Electronic Nicotine Delivery Systems (ENDS products) show that middle and high school aged youth are becoming an emerging priority population for tobacco control experts due to their high rates of use. The

number of middle and high school students using e-cigarettes rose from 3.6 million in 2018 to 5.4 million in 2019 (Wang, et al., 2019). With time and further research we will learn the health effects of ENDS on smokers who began using during their adolescence.

According to the CDC (2019), approximately 1 in 4 U.S. adults have some form of mental illness or substance use disorder and almost 40% of all cigarettes are smoked by these adults. Another common technique used by big tobacco is to provide free or reduced price tobacco products to psychiatric facilities, and they supported efforts that fought back against smoke-free hospital policies (Gfroerer, et al., 2013).

Military personnel is another subculture of people who have higher smoking rates than the rest of the civilian population. This may be in part due to military culture playing a role in subtly upholding the use of tobacco in the armed services (Hoffman, et al., 2011). In a 21 year-long study with 48,304 participants, Smith et al. (2008) found "military deployment is associated with smoking initiation, and more strongly, with smoking recidivism, particularly among those with prolonged deployments, multiple deployments, or combat exposures" (p.1). The authors of this article recommended tobacco control experts should focus on prevention efforts especially among those at risk of smoking relapse during or after deployment (Smith, et al., 2008), which is important because according to a 2018 national sample study, 30 percent of veterans reported current (i.e., past 30 days) use of tobacco products (Odani, 2018).

Smoking rates in the LGBTQIA communities are higher than that of the heterosexual population, 20.5 percent as opposed to 15.3 percent respectively. Project SCUM (Project Subculture Urban Marketing) was a marketing campaign devised by big tobacco that disproportionately pursued marginalized communities. Project SCUM was the scheme organized

to create subcultures in the 1990s in the LGBT+ communities of San Francisco. Tobacco companies have sponsored pride events and donated money to LGBT+ organizations (Smokefree.gov, 2020). By building strong ties within these communities, big tobacco is attempting to mislead people into engaging in risky behavior by portraying a false sense of camaraderie. Offen, Smith, & Malone (2008) conducted 74 interviews with various leaders of the LGBT+ community across Australia and found leaders did not see tobacco as an identity of the population, did not see tobacco control as a relevant topic in their missions, and tobacco use was seen as an issue of the individual.

Social Networks and Consequences

Smoking not only affects the user but it affects the community surrounding the smoker. The Merriam-Webster (n.d.) dictionary defines secondhand smoke as "tobacco smoke that is exhaled by smokers or is given off by burning tobacco and is inhaled by persons nearby." The National Cancer Institute (2020) expands on the definition to include, "inhaling smoke is called involuntary or passive smoking, also called environmental tobacco smoke (ETS)." Oftentimes this means the family and friends of smokers have their health compromised due to secondhand smoke. Thirdhand smoke is an emerging concern among health experts, it can be defined as residual nicotine and other chemicals left on indoor surfaces by tobacco smoke (Hays, 2020). Thirdhand smoke clings to clothes, furniture, drapes, walls, bedding, carpets, dust, vehicles and other surfaces long after smoking has stopped (Hays, 2020). A study conducted examining the thirdhand smoke exposure in children found genetic damage to the human cells, children who were exposed to thirdhand smoke had significantly higher amounts of tobacco related chemicals in their urine and hair, and children who live with adults who smoke have higher exposure to nicotine, due to thirdhand smoke exposure, than adults secondhand smoke exposure (Drehmer et

al., 2017). There are both physical and cognitive effects on children who are around smokers. Physical ailments include childhood asthma, recurring ear infections, asthma exacerbations, leading to adult cancers, metabolic complications of obesity, dental issues, and decreased physical and mental health. Children exposed to tobacco have higher rates of behavioral and emotional problems and neurocognitive impairments than children who are not exposed to tobacco (Weitzman & Gittelman, 2011).

The United States culture has a strong sense of individualism. Risky behaviors are seen as a personal, rather than a structural, issue. This becomes apparent in social situations with highly vulnerable populations. Adolescents in particular rely more on their peers for social cues to mirror appropriate norms and behaviors. This helps shape future behaviors of the individual and their acceptance or denial of engaging in risky health behaviors. Hispanic cultures on the other hand tend to be collectivist cultures and are more parent-oriented as opposed to peer-oriented (Hamilton, Palermo, & Green, 2015). Familism is a term used to define the cultural values guiding Latino families in the United States (Knight et al., 2010). Familism has been studied for many years and has been used to further understand Latino socialization and social structures. In further detail, familism is described as a cultural value that emphasizes obligation, filial piety, family support and obedience and key tenets of this perspective consider how familism develops within an individual across time and manifests itself at different points in development and impacts a child, adolescent, and family functioning (Stein et. al., 2014). Understanding cultural differences helps tobacco control experts gear their tobacco prevention and cessation efforts towards the differing needs of the community. A single campaign may not work for all smokers across the population but by addressing the cultural standards efforts will

reach a wider audience. Thus, public health campaigns are more likely to be successful if they address the values and beliefs of the intended audience (Thrasher & Jackson, 2006).

Parent-child communication regarding tobacco use has received limited research attention even though it has the potential to effectively deter young people from smoking. Parents' educational attainment affects the types and depths of conversation revolving around tobacco use; parents with high educational attainment are more likely to engage in these types of conversations (Ennett, Bauman, Foshee, Pemberton, & Hicks, 2011). Class distinctions are an important consideration for examining tobacco use between high socioeconomic status and low socioeconomic status smokers with respect to smokers' knowledge or lack thereof and access to information about health risks (Pampel, Krueger, & Denney, 2010).

Parenting style, parental tobacco use, and timing of conversation are also influential in discouraging youth from engaging with tobacco products. Parents, peers, and siblings have an enormous influence over adolescents' views and engagement in risky behavior. Types of childrearing influence the types of peers children choose (Melby, Conger, Conger, & Lorenz,1993). Tobacco used is modeled by imitation such as siblings and peers; siblings and peer tobacco use has been associated with adolescents' beliefs about smoking and actual smoking behavior (Melby, Conger, Conger, & Lorenz, 1993).

The physical and behavioral effects of secondhand smoke on children poses an ethical dilemma mothers and other caretakers face. This dilemma becomes even more complex with an additional layer for children of mothers or caretakers who are low income and tobacco users. Robinson (2008) conducted focus groups with mothers and other caretakers from the United Kingdom and found social circumstances have complicated their social relationships with

smokers; mothers are conflicted with competing desires to protect their children from smoke exposure while still maintaining relationships with family and friends who use tobacco products. Social relationships and modeling behaviors are proven important in contexts such as these. Health is interconnected from a young age well into adulthood.

Policy

Policy can be a step taken towards tobacco prevention and cessation. One policy effort aimed at reducing smoking has been to raise taxes on tobacco products. The most recent policy implementation enacted in 2020 raised the federal minimum age of sale of tobacco products to twenty-one (U.S. Food and Drug Administration, 2020). Another method used by tobacco control experts is to limit the sales of flavorings for electronic cigarettes and other vape products. As of January 2014, there were 466 brands of ENDS products with a total of 7764 types of flavorings (Zhu, et al., 2014). By January 2020 the FDA has implemented an enforcement policy on unauthorized flavored cartridge-based e-cigarettes, but the authorization does not include products that have already been pre-market authorized (U.S. Food and Drug Administration, 2020). This means if the company acquires pre-market authorization stating their flavors are not appealing to children they are still allowed to sell flavored products (U.S. Food and Drug Administration, 2020).

Other countries have tried other policy routes in order to reduce the sale of tobacco products. In Australia, plain packaging has been seen as a successful tactic in preventative measures taken by tobacco control professionals, the purpose of which is to deter people from buying tobacco products because plain packaging is less appealing to consumers (Chapman, 2015). Since the policy was passed in Australia, there has been bipartisan support and an overall decrease in smoking which is expected to continue to decrease (Australian Government

Department of Health, 2020). In the United Kingdom legislation passed that bans smoking in public spaces and this has been associated with reducing smoking or complete cessation at home yet this ban does not have a strong impact on low income families who are less likely to visit public places so their smoking habits are less likely to be disrupted (Robinson, 2008).

On the other end of policy, tobacco companies keep track of elected officials' voting records regarding tobacco. Big tobacco compiles a list of people and unions who they may see in the future as an ally for pro-tobacco legislation (Bergan, 2010). Bergan (2010) found through a content analysis that large campaign contributions do not have as strong of an influence over voting as smaller local campaigns and unions.

Sustaining tobacco cessation resources remains imperative. Chronic diseases caused by tobacco use continues to be a public health problem. The CDC's Office on Smoking and Health (OSH) and the Department of Health and Human Services' (DHHS) lead policy regarding issues related to tobacco control and prevention; the CDC and ISH develops, conducts, and supports strategic efforts to protect the public's health from the harmful effects of tobacco use (Wisotzky, Albuquerque, Pechacek, & Park, 2004). Tobacco products are evolving and tobacco cessation efforts have to change just as fast. Without the proper resources and knowledge of smokers, the products' cessation efforts will not be as effective or reach as many people.

Theory

There are various health-related sociological theories that can be applied to studying tobacco use. Health lifestyle theory (Cockerham, 2005) utilizes the agency/ structure debate as a framework. It is the first of this type of theory that seeks to explain how daily lifestyle practices influence health outcomes. The purpose of health lifestyle theory is to take into consideration

both agency and structure, where health-related choices are not singular random choices, but rather associated with structural variables such as race, class, and gender that determine health choices. A central theme of health lifestyle theory is that the individualistic paradigm of health lifestyles is too narrow and unrealistic because it fails to consider structural influences on health lifestyle choices (Cockerham, 2005). In order to address the gaps of care, Cockerham (2005) formulated a model that examines the ways social structures influence the world and the individual. The health lifestyle of the individual needs a well-rounded approach to address care for the individual or a community. As Cockerham (2005) states, there are times when structure outweighs but does not void agency while in other circumstances structure overwhelms agency, both of which should be considered by health experts when explaining health practices.

The theory of constrained choice may also help explain why people pick up smoking. Context matters and contextual constraints affect a person's priorities. Bird and Rieker (2008) argue that to improve people's health, individuals, researchers, and policymakers must understand the social and biological sources of the perplexing gender differences in illness and longevity. They continue to detail, "although individuals are increasingly aware of what they should do to improve health, competing demands for time, money, and attention discourage or prevent healthy behavior" (Bird & Rieker, 2008, p.1). Bird and Rieker's (2008) sociology of constrained choice has three levels of contextual constraints that are (1) policy, (2) community, and (3) work/family which affects the individuals' choices and health outcomes. The theory of constrained choice seeks to understand the cumulative impact of choices, at each of these levels, which can inform an individual and how to better integrate health implications into their everyday decisions and actions. Bird and Rieker's (2008) theory of constrained choice calls for radical reorientation of health science and policy to help individuals pursue health and to lower

the barriers that may discourage that pursuit. Vuolo, Kadowaki, & Kelly (2016) found constrained choice theory to be under-utilized in tobacco related research. With the ever-changing policy revolving around tobacco this theory would be helpful to understand the efficacy of policy on tobacco cessation. Moreover, understanding community and work/family are important components in individual tobacco use.

Agency is a common theme throughout health related theories Other tobacco control experts have utilized social cognitive theory for their research, such as Bandura's (1999). In social cognitive theory, people must believe they can produce the desired action if they have incentive to follow through with the behavior. Bandura (1999) found self-efficacy affects every phase of change throughout the smoker's quit attempt. Supportive resources are especially helpful in gaining self-efficacy throughout the quitting process (Bandura, 1999). In social cognitive theory, personal agency is the most central in the person's capabilities to exercise control of their lives. The cognitive process Bandura (1999) explains is the self-efficacy beliefs and their effect on thought patterns that could be either self-aiding or self-hindering. Using social cognitive theory, tobacco control experts utilize the theory of self-efficacy beliefs affecting cognitive functioning through the joint influence of motivational and information-processing operations. This theory reinforces the idea that the stronger the belief in quitting tobacco the more effort the person devotes to the task of cessation.

Methods

Kitzinger (1995) describes focus groups as a useful methodology for exploring people's knowledge, experiences, assessing health education messages, and the participant's understanding of illness and health behaviors. Hopkins (2007) writes that focus groups are useful for researchers who are trying to learn and immerse themselves into a new field and can enhance the role of research participants in the findings. An example of a focus group being used to understand tobacco health behaviors is Luke et al. (2001), who studied teens' views on tobacco and other teens who use these products. Studies such as these have the potential to be used by public health professionals to inform and change opinions and images of smoking.

Participants

A mixture of group interviews and single person interviews were conducted between April 29, 2019 and June 26, 2019 in the School of Pharmacy at the University of Texas at El Paso. There were a total of 21 participants over a span of 14 sessions with 1-3 people per session. Before the interviews were conducted, each participant completed a demographic questionnaire (see Appendix A). Participants were representative of the local young adult population, 52.4% were women, 81% were Hispanic. The levels of education varied, 4.55% had less than high school, 13.64% had a high school diploma, 63.64% had some college, 4.55% had an Associate's degree, and 13.64% had a college degree. These demographics were not linked to individual participants for confidentiality purposes.

My research project is part of a larger research study conducted by Dr. Shenberger-Trujillo, School of Pharmacy Associate Dean, at the University of Texas at El Paso. The research project was submitted for IRB and approved in 2018. An important note regarding the size of the focus groups is there were some difficulties with the recruitment and scheduling of the focus

groups throughout the study. Common issues encountered during data collection were people registering for intended focus group time slot and then not showing up also there were issues recruiting people for the study. This may have been because data collection was conducted more towards the summer when there were fewer people on campus and there were requirements such as being 18 years old and older and either a current or former tobacco user. For the reasons mentioned, the study was intended to be all focus groups but data collection sessions turned into single person and group interview style format.

Measures

The questions that were asked to facilitate conversation focused on both traditional and novel tobacco products. Questions were separated by traditional tobacco products and novel tobacco products. The beginning of the focus group and interview started with some basic questions about traditional tobacco products such the age the participant began using the product, why they started, who introduced them/how was the product obtained, considerations made for product selection, who of their family and friends uses the product, and if they believe they are addicted to the product of choice. The same questions were asked for novel tobacco products past and present. The next section of the discussion was about product use, peer and family attitudes, quit attempts, how the participant views safety of tobacco and novel products, and the last question asked the participant what they thought tobacco researchers should know, and what questions they would personally ask if they were researching tobacco products (see Appendix B for question guide).

Procedure

Group and single interviews lasted between 30 minutes to an hour. The research team was compromised of 2 facilitators and 8 research assistants. Semi-structured interview sessions

were conducted. Sessions were not audio recorded. One of the facilitators led the discussion while taking notes on the focus groups. Research assistants were present to take notes on the focus groups as well. Thus, researcher notes were not word-for-word participant responses, rather, abbreviated notes. Participants received 30 dollars cash as compensation for their time.

Data preparation

After the group and single person interviews were conducted, researchers finished taking notes and transferred these to a typed copy to be sent to the principal investigator who combined all notes into a comprehensive password protected Excel document. The notes were then organized by myself and one other student research member on the team. The interview notes were combined into sections by date and time. Each section has the researchers who were present for the focus group and their individual notes per session. One question is equal to one column while one row is representative of one participant's answers for the entire session. If there was more than one participant present in the group interview, researchers indicated in their notes which response belonged to who, e.g. Participant A, Participant B. In the Excel document Participant A had their own row for their responses and Participant B had the row directly below them. There was only one discrepancy between the researchers' notes about age of first product use, which was resolved by looking at other notes. One participant from the single interviews was not included in the analysis. The notes from the interview were lost when a researcher's desktop was replaced.

The data cleaning process was thorough. After combining all notes into one Excel sheet, the first step was to identify themes in the participants' responses. Themes in the data were developed, defined, and agreed upon by all researchers involved. After the themes were defined each of the three researchers coded the themes for each question the participants answered. The

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second step of the data preparation was color coding the codes in order to identify each theme in an organized manner. In the next step the researchers combined the count of all coded themes in a combined column for each question, (e.g. social norms: 10). After that, each defined theme that was not relevant to the question, meaning the question had zero coded, was deleted in order to clean the data sheet. Themes that were coded per focus group only by one researcher were highlighted and not counted towards the final count. At least two of the three researchers must have coded a theme for it to be counted towards the final. Lastly the top three coded themes for each question after this process were put into a different Excel sheet with three examples per theme.

Approach to analysis

Qualitative coding is an essential part of the qualitative research process. During coding researchers examine themes and patterns within the data. First the researchers prepare the data, they define what their unit of analysis is, they develop categories and a coding scheme, they test the coding scheme on the text, and finally repeat the process for all developing themes (Zhang & Wildemuth, 2009).

<center>**Results**</center>

Group and single person interview data revealed that 16 of the 20 participants have either tried, previously used, or are current users of traditional tobacco products, 19 participants reported having tried, used, or currently use novel tobacco products, and 15 of the 20 participants have reported having tried, used, or currently dual use traditional and novel tobacco products. A total of 25 themes were identified and defined in the data by the researchers (Figure 1). For the purposes of this paper, the focus will be on novel tobacco products, more specifically electronic cigarettes and vapes, due to their recent gain in popularity and how new the products are to the market in comparison to other tobacco products. Several themes were revealed in the data. The common themes discussed by the participants in the study are as follows: introduction to ENDS products, the appeal of devices, trends of use participants identified, knowledge and opinions about vaping, information about ENDS products, and health effects from ENDS use.

Introduction to Electronic Nicotine Delivery Systems

Participants were asked about their product use and habits. As stated above, 19 participants identified ENDS use, and of those 19 users the Juul brand was identified specifically by ten participants. Four participants had a familial introduction to ENDS, such as participant 2 who was introduced by their father giving them the opportunity to use ENDS under the father's supervision, and participant 4 who said their cousins used novel tobacco products and introduced them. Thirteen participants were first introduced to ENDS products by friends. A person's social circle influencing their behavior was a common theme for seven participants. Popularity was an identifying factor why participants began using ENDS, such as for Participant 3, who said, "Everyone else is using" and described Juuls as the iPhone of e-cigarettes. Participant 4 shared a similar attitude as participant 3. Participant 1 was able to get products through a friend and at

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parties and participant 10 said their friends introduced them to vapes without nicotine but the subject transitioned into nicotine novel products.

Appeal of ENDS products

There are a variety of reasons why participants in the study tried ENDS products. Sensory, such as smell, taste, and smokeless inhalation was one theme identified as a reason for using ENDS (14 participants). For example, participant 11 said the smell and taste were considerations into why they started using vapes and participant 2 specifically identified pineapple coconut as the flavor they enjoy most. Participant 15 stated their curiosity began when their friend had a device and said it tasted good.

Curiosity of ENDS products was identified by four participants as one reason they picked up the product. Participant 15 was curious to try ENDS after learning from a friend about the product and wanted to have their own experience and opinion on the product. There was a sense of rebellion discussed by participant 2 who said, "When you tell someone not to have something you feel like you want to try it."

ENDS products vary. Being able to choose and customize devices was part of the appeal of product use for participants. "The buying experience is enjoyable" said Participant 4, who continued to describe being able to customize the ENDS product with more nicotine or flavor of choice. Participant 2 also detailed their experiences in smoke shops where the patron can customize flavors and nicotine content for their products. Customization was additionally mentioned by participant 3 who said, "Juuls give you a sense of control;" contrasting ENDS to cigarettes where there is no control over nicotine levels. Beyond juice and nicotine control, being able to customize a device was appealing for two participants. Participant 10 described the

process of building a device such as the voltage, air flow, price, online accessibility, and replacement parts, in "vape stores you are able to craft your device there." Having access to both online shops and in person vape stores allows ENDS users the ability to find parts and products to continue the product customization process.

Discreetness of the device attracted users for product uptake and use. Besides fulfilling a sensory preference flavorings help disguise the use of ENDS devices. Hiding the product or being discreet with the product was mentioned by six participants total. ENDS products are easily concealed through the size of the device, having minimal scent and smoke, and/or being unidentifiable for people who are not familiar with the devices. Participant 3 chose Juul in particular because it is pre-packaged in a discreet manner—it is small and additionally their parents do not know what it looks like or even what it is. Participant 4 stated they not only hide ENDS use from their parents but also do not use them during class and other public spaces where smoking is not acceptable.

Product accessibility was specified by the participants. Accessibility in this case means convenience, cost, and availability to different populations. Participants spoke about how easily available ENDS products are. Four participants discussed the price difference between ENDS products and choosing which one to use based off the cost of the product, how much nicotine there is per milliliter, and how often they would have to replace the product. Five participants discussed being able to find ENDS in at any convenience store and vape shop. There are some pre-packaged ENDS products that can be bought online which is seen as a positive for two of the participants.

Concern about the availability of ENDS products by populations under the legal purchasing age was discussed in the group and single person interviews. Participant 14 discussed focusing on high schools as a breeding ground of popularity for ENDS, stating Juul as a product has become increasingly popular among students; part of the allure is it is a new product that teenagers find cool to use and is accessible for this age group. Similarly, participant 15 stated they learned about Juuls from their younger sibling in high school. Use of Juuls "keeps getting younger and younger and more popular" said participant 8, stating "They already have access to these products in middle school." There are a variety of ways of obtaining ENDS, participant 8 would like see prevention of younger kids from obtaining these products. Participant 11 explained the rise in popularity of JUUL and vape video challenges. Participant 12 also mentioned influencers on social media who post about tricks in attempts to appeal to people to try and look cool.

Trends in Use

The following paragraphs focus on other social factors identified by the participants as trends in their ENDS use. Using novel tobacco products only with other people was specified by five participants, and in fact, one person does not even own any ENDS devices, rather uses others' devices when they are in social situations. ENDS use in bars and at parties was described by participants 1 and 3. Another unexpected location of product use was cars. Six participants said they use ENDS in their own vehicles or friends' vehicles. Five of the participants said they chose specific ENDS products because they are trying to be considerate around their parents or social environments where it is not acceptable to vape (e.g., schools, malls, parks, and in front of children). Participant 1 said they do not use at their house because it can be perceived as rude or disrespectful to their parents.

Trends in use also includes the rationale of when ENDS users are deciding to use products. Participants 1 and 2 stated they use ENDS when they are stressed, especially during difficult times like finals week. There were only two people who picked up ENDS as a cessation device for traditional tobacco products.

Vaping is Safer

Participants were asked to rank traditional and novel tobacco products based off of their previous knowledge and opinions, from safest to least safe, meaning the effects of the products on user's health. The question gave participants the opportunity to examine their perception of products and the effects they have on smokers. Two participants were unsure how to exactly rank them due to not knowing a lot about vapes and other ENDS products because of the infancy of the products on the market. Other lack of knowledge about other products came from a lack of personal experience, e.g., hookah.

Despite not having a lot of information on all types of tobacco products, nine participants ranked ENDS products, or certain ENDS products, as safer than traditional tobacco products. Five participants said traditional tobacco was safer and six participants did not answer the question. Participant 5 said they know cigarettes are the most dangerous but would not know how to differentiate between Juuls over vapes. Participants 3 and 1 said cigarettes are the worst health-wise, then cigars are next worst, then vaping. Participant 1 continued: "you do not really feel the effects of vape at all," which is similar to participant 7 who said ENDS use "feels clean or healthier and you don't have to shower after use." Participant 15 offered their rationale behind their ranking, saying E-cigarettes are the safest because you can control levels of nicotine whereas levels cannot be controlled with cigarettes, cigars, and chew; participant 4 said many of their family members smoke traditional tobacco products so they know cigarettes are bad, then

cigars, then Juuls and then vapes because you can get vapes without nicotine. Participant 3 also

based their assessment on personal family history—they have had two aunts die from smoking.

They continued to state that they believe that cigarettes are particularly harmful currently and

used to be healthier than they are now.

Health Effects

Despite many people ranking ENDs as healthier than traditional tobacco, many subjects

in the study were concerned about how ENDS use will affect their health. Participants who

identified using or having tried ENDS raised concern about the infancy of the products and were

curious to learn more about the long-term health effects of the products. Participant 20 asked

what the differences are between traditional and novel tobacco products' health damages on the

user. A specific concern participant 19 had was about the health effects of those who continually

used ENDS opposed to those who quit. Other participants were concerned about the length of

use, wondering about those who began using ENDS during adolescence, whether this applied to

their personal histories or not. Participant 12 raised concerns for those who are inhaling second-

hand smoke, especially with new products. Participant 11 wanted to understand the effects of

devices and pods on the environment.

Research and Consumer Education

Many of the participants discussed long-term health effects of ENDS products in regard

to general consumer education. Participant 8 asked where to get information on the health effects

of ENDS products. According to participant 11, the marketing of JUUL as safer or a safer

alternative to traditional tobacco products should be researched further to prove the validity of

the information used in the marketing approach. There is a desire for more information

Participant 7 said, and there is conflicting information about the positives and negatives of vape

use. Participant 15 said that reliable information about the benefits and risks would help people make health decisions, but where this information comes from matters and helps distinguish between reliable and unreliable research on ENDS products. Participant 15 continued to state not only do they do their own research using YouTube but so do their friends and the subject does not trust information on Facebook.

Subjects stated a need for ENDS product information. Five participants asked what are the ingredients that make up the juice. Participant 11 asked about the contents in ENDS devices, what amount/concentration is the user getting every time the product is used: "if 6% of the product is nicotine, what's the other 94%?" There is confusion about the safety of product use; participant 14 questioned why they are being banned if they are safer alternative to traditional cigarettes. Participant 10 shared a similar sentiment stating they know cigarettes are bad and wondered why novel tobacco products are safer. Participant 13 said the labeling of the product needs to be better to understand. Participant 11 wondered if there were expiration dates on the product and not having enough of that information on the packaging.

Addictiveness of novel tobacco products and ENDS use leading to the use of other substances was an area of interest for some participants. Participant 7 wondered if the use of ENDS would lead young people to use other substances, "Why not just smoke other things?" Along a similar sentiment by participant 9, ENDS can lead to the use of CBD devices. Participant 16 wondered why people continue to use ENDS products if they know it is harmful. Participant 20 asked the fundamental question about ENDS, "how addictive are these new products?"

The participants were asked what additional research would they like to see on the use of ENDS devices. Participant 13 suggested researchers study ENDS consumers using devices as a form of managing their anxiety, including considering consumers without health insurance coverage to understand why people are turning to ENDS as a cheaper alternative to doctor's appointments and prescribed medications. Participant 2 stated research on the long-term effects of Juuling would influence their habits from using the product more or less.

Discussion

One main finding from the study is that ENDS use is popular. ENDS popularity was repeatedly spoken about by the participants in the study and according to the CDC (2012) there is a decrease in traditional cigarette consumption and a 123.1% rise in ENDS use. This is what Al-hamdani (2014) termed the re-normalization of ENDS products by the tobacco industry, which means ENDS devices have become commonly used products seen as different from traditional tobacco products such as cigarettes.

Participants were primarily introduced to ENDS products by their peer group while only four were introduced by a family member. Melby et al. (1993) discussed how dependence on child-parent communication will decrease as child-peer communication increases during adolescence and similarly Myers, et al. (2009) stated that peer relationships are a primary factor in whether youth engage in and maintain substance use behavior.

Despite using ENDS products with their peers, participants worried about the accessibility of products to kids in middle and high school. This worry mirrors recent US trends in ENDS products that show that middle and high school aged youth are becoming an emerging priority population for tobacco control experts due to their high rates of use. The number of middle and high school students using e-cigarettes rose from 3.6 million in 2018 to 5.4 million in 2019 (Wang, et al., 2019). In other words, social relationships and protecting those who are most vulnerable was a concern for the participants in this study. Robinson (2008) explored the lengths communities, but especially mothers, go through in order to protect children from the harm of tobacco smoke. Perhaps our findings are somewhat different and extend beyond mothers looking after children due to the majority Hispanic demographic, because Hispanics are found to have higher levels of familialism than other ethnic groups (Bulcroft, Carmody, & Bulcroft, 1996).

Hispanic cultures tend to be collectivist cultures and are more parent-oriented as opposed to peer-oriented (Hamilton, Palermo, & Green, 2015).

On the other hand, the participants in the current study contradicted Hispanic familialism and collectivist culture when they discussed their parents not approving of their use of ENDS but continuing using with their peers who approve and engage in the same health behaviors. As a result of their upbringing teens adopt their viewpoints similar to their social groups leaning towards that of their peers. Luke et al. (2001) used focus groups to assess how teens view smoking, though at the time of publishing was heavily centered on cigarette use, teens view smokers as people who have nothing else to do but smoke as well as not having self-control (Luke et al., 2001) while the participants in this study did not mention holding those same views. Teens in Luke et al. (2001) describe negative and rebellious depictions of smoking, but given adolescence is a time to engage in risky behaviors including risky health behaviors there is a connection between this time and tobacco use.

As a preventative measure, Berman (2016) argued that raising the legal purchasing age of tobacco products to 21 would decrease the accessibility and prevent young people from experimenting with tobacco when they are at risk to become addicted. An example of this is the Texas Tobacco 21 law that passed in 2019 that raised the legal purchasing age of tobacco products from 18 years of age to 21 (Paso Del Norte Health Foundation, 2021). The law was passed as an attempt at prevention efforts to minimize the window of opportunity for children and teens to be exposed to tobacco but specifically ENDS products. We propose that different approaches to interventions beyond the legal purchasing age are needed because our participants noted the accessibility high school and middle schoolers have to these products. Luke et al.

(2001) also state that public health and tobacco researchers have not been able to shape the image of smoking for teens.

Participants stated that the appeal of ENDS products were popularity among peers, price, customization, and discretion. Pampel, Kruger, & Denney (2010) found that youth are influenced more by their peers than by prices of tobacco products, which may be true for our sample as well because price was only mentioned by four of the participants as a motivating factor in their product choice. Thus, the policy effort to raise taxes aimed at reducing smoking may not be enough in and of itself, but a good supplement to other policies.

Customization includes being able to choose your own flavoring for ENDS devices. Preferences in products such as customization and flavorings are part of the appeal of ENDS products (Kong et al., 2020). Using this information tobacco control experts are using a method of limiting the sales of flavorings for electronic cigarettes and other vape products. As discussed above there are 466 ENDS brands and 7764 of flavorings to choose from by January 2014 (Zhu, et al., 2014), six years later in January 2020 the FDA implemented an enforcement policy on unauthorized flavored cartridge-based e-cigarettes, but the authorization does not include products that have already been pre-market authorized (U.S. Food and Drug Administration, 2020). Pre-market authorization has created a loophole Big Tobacco companies are taking advantage of to keep producing flavor cartridges. Based on the information of the current study a large part of the appeal of ENDS products was being able to choose flavorings.

The re-normalization of ENDS products also means that these products are less policed than cigarettes (Al-hamdani, 2014). Being an easy to conceal product, participants found both public and private spaces to use despite smoke free policies that may be enacted in the area.

Although Al-hamdani (2014) states that decreasing the visibility of vaping and smoking behavior is essential to keeping smoking stigmatized as unhealthy risky behavior, and that limiting the visibility of vaping will reinforce smoke free policies (Al-hamdani, 2014), our participants still found ways to discreetly use ENDS products. Thus, we recommend that laws be enacted to not allow the manufacturing of certain devices (e.g. Juul resembling a small sleek shape similar to USB flash drives).

Another major finding was that consumers do not have enough information on new products to assess their health effects over time, and consumers are seeking education on products and the safety of themselves and minors who are using ENDS devices. Yet despite this lack of information, they overwhelmingly felt that vaping is safer than traditional tobacco products. More research on the short- and long-term effects of vaping may help inform current users and potentially influence health behaviors.

Phillips & Hallman (2013) studied subjects' perceptions and understanding of different food labeling and their risk-benefit analysis. Similarly, people weigh the risk-benefit analysis of vaping as a product. Phillip & Hallman (2013) found there was a general mistrust of products the subjects in the study were unfamiliar with, in the current study participants wondered what the full list of ingredients are for ENDS devices, yet they trusted ENDS products more than tobacco products, where there is more available information. Perhaps this discrepancy is due to the successful campaigns of revealing the real harms of traditional tobacco. Thrasher and Jackson (2006) found mistrust of the tobacco industry had a strong influence on anti-tobacco industry attitudes. In this study, participants did not outright mention their distrust of the tobacco industry, but they questioned the validity of some of the claims the industry has made such as vaping being a safer alternative to traditional tobacco products. Yet despite this questioning, most

participants felt that vaping is safer. Thus, perhaps much more is needed for similar campaigns for ENDS products that have been used for traditional tobacco products.

Although participants felt that vaping was safer than traditional tobacco products, they still understood that there are risks involved with vaping. Risks ranged between participants in this study and Rutsaert (2014) who examined risk-benefit social media communication in relation to food. Effective communication about risk-benefit analysis regarding health behaviors has the potential to build trust, consensus, create awareness, education, and influence perceptions, attitudes and beliefs (Rutsaert, 2014). The infancy of ENDS products coupled with the lack of information available for users would benefit from health communication that can educate as well as create awareness of products and make devices recognizable and easier to enforce prevention and cessation efforts. Rutsaert (2014) found accessibility and peer-to-peer awareness were benefits of social media communication. Using this study's findings, tobacco researchers can focus on online communication because the participants had unanswered questions about the risks of ENDS products and the younger generation relies more on social media than older generations; our participants even discussed sharing vape meme pages with each other. One caveat, however, is that Rutsaert (2014) found that a weakness identified with online communication was low trust in the information source, which was mentioned by the participants our study as well. Thus, tobacco communication should pay close attention to the media outlets used. Participants in the current study would also benefit from peer-to-peer awareness. As participants were introduced to ENDS by peers, prevention and cessation information can come from peers to influence health behaviors for users to stop using. Thus, tobacco control and public health experts have to be able to present trusted information, and combat misinformation about ENDS devices.

Risky health behaviors can be studied more from an ENDS use context to better understand how users understand the health effects of the products. Using the information that has been provided in this study, public outreach and education would help educate potential and current users about the health effects of ENDS products use. Health researchers can direct some of the focus on community education of different ENDS products and their health effects. Thrasher & Jackson (2006) found public health campaigns are more likely to be successful if they address the values and beliefs of the audience it is intended for. As seen, this leaves a space for the need for reliable information. Participants identified not knowing what the long-term effects of ENDS use would be largely because of the infancy of these devices. Bergan (2010) reviewed Big Tobacco contributions and the effects on legislative behavior. In the analysis Bergan (2010) found tobacco companies who contribute to campaigns do so as an attempt to invest in legislators who are likely to be in office for a longer period of time seeing them as an investment with greater rewards. Thus, we recommend a contribution limit on lobbying monies from all private companies.

The theory of constrained choice may help explain why people pick up smoking. Context matters and contextual constraints affect a person's priorities. Bird & Rieker's (2008) sociology of constrained choice has three levels of contextual constraints (1) policy, (2) community, and (3) work/family, which affect the individuals' choices and health outcomes. Vuolo, Kadowaki, & Kelly (2016) found constrained choice theory to be under-utilized in tobacco related research. With the ever-changing policy revolving around tobacco this theory would be helpful to understand the efficacy of policy on tobacco cessation. Policy such as pre-packaged ENDS devices and unauthorized flavorings not being as strictly enforced provides examples how contextual constraints are continuously effecting health outcomes. Community and family are

relationships that influence the individual. In the current study there was some family influence but the majority of influence came from peers who influenced the participants to try and or continue using ENDS devices. Understanding these social relationships are important to prevention and cessation efforts to expand past the user and to include entire communities of people Instead of placing the responsibility of prevention and cessation on one person these examples show the need for a well-rounded approach to care. Moreover, understanding community and work/family are important components in individual tobacco use.

Health lifestyle theory is another theory that can be used to further study ENDS trends. Cockerham (2005) made the argument for medical sociologists to start integrating health lifestyle theory as part of their lens for studying and their analysis to further understand daily lifestyle practices influencing a person's health outcomes. While uptake in tobacco use is largely viewed as the responsibility of the individual, based on the information above, tobacco introduction and use is more complicated than that given the user's social relationships and circumstances. Health related choices are not singular but rather should take into consideration how social identifiers as race, class, gender, etc. Big Tobacco has used many marketing techniques in order to expand their products and user markets. Part of their marketing techniques include messaging including misinformation, such as Juul marketing their product as solely a cessation device on their website. Other marketing techniques preyed on the vulnerability of marginalized populations as discussed above. Using health lifestyle theory it becomes apparent a population based approach to preventing and promoting cessation using health lifestyle theory helps address a larger structural problem. Focusing efforts on marginalized and targeted communities has the capacity to slow down the popularity of ENDS use.

Revisiting social cognitive theory of substance abuse (Bandura, 1999), is based on the individual's perceived self-efficacy to promote health changes. While this theory has been used in tobacco research for the last two decades, it largely focuses on a smoker's self-efficacy of cessation efforts and not as much on social circumstances of the individual. Messaging surrounding cessation as the individual's responsibility fails to consider the social relationships that initiate and maintain the risky health behavior. A recommendation is to use social cognitive theory of substance use used along with theory of constrained choice or health lifestyle theory to provide a well-rounded approach to tobacco cessation efforts. Using only social cognitive theory will not address the depth of the risky health behavior because it only reaches one part of the problem.

Given our research findings, we recommend that tobacco prevention researchers continue to, or devote more resources to peer groups and revisit policies on flavoring. Other recommendations are centered around focusing on community outreach to further understand the needs of marginalized groups who fall victim to Big Tobacco preying on their vulnerable status. Policy recommendations would be to pass comprehensive policy surrounding ENDS devices with clear and concise wording to avoid loopholes tobacco companies could potentially find to continue the production of their products.

The current study focused on tobacco trends of a young adult Hispanic population with findings that support other tobacco researchers' claims. What do findings such as these mean for moving forward in tobacco research? ENDS research findings such as customization, flavorings, and discreetness being appealing to users reaffirm efforts Big Tobacco is making in order to maintain popularity among users. Moving forward, tobacco control experts and public health

officials must stay on top of marketing techniques used by Big Tobacco as well as try to stay ahead of their prevention and cessation efforts to minimize the amount of new smokers.

There are limitations to this study. Recruiting for the study provided issues such as having to restructure focus groups to interviews in some cases as described above. There is a lack of rich data because the group and single person interviews were not recorded but instead a rigorous note taking method while the participant was describing their experiences. This study is not generalizable due to qualitative methods of the study. While the participants described their experiences with tobacco products in detail the findings are a result of having a relatively homogenous sample. We suggest future research use more in-depth qualitative methods and quantitative methods.

Conclusion

This study focused on the rise of popularity of ENDS products in a young adult primarily Hispanic community. Studying priority populations who are the most vulnerable to the efforts of Big Tobacco is necessary to close public health gaps. Targeting marginalized communities with everchanging products and creating new communities of concern, adolescent users, creates additional barriers for tobacco control and public health experts to address the larger issue.

Additional research studying the social dynamics of ENDS product use is recommended to get to the deeper social context of the problem. Placing the responsibility on the individual instead of a well-rounded approach like social cognitive theory along with health lifestyle theory and theory of constrained choice can prolong public health efforts. Studying prevention and cessation as well as addiction itself from social relationship lens provides a full understanding of ENDS use.

Policy is one approach that has been taken in order to stop the rise in ENDS use, but there are other avenues to explore to address the rise in popularity in new products. Policy can include a well-rounded approach that addresses Big Tobacco finding pre-market authorization loopholes. Exposure to products from a young age is becoming a challenge to address. Another approach to address the rise in ENDS use is by doing social interventions with both adolescents and their parents. Including information about the popularity of tobacco use and its effects on the smoker can be presented to middle and high school aged students in health classes as part of their curriculum. Lastly, informing parents about current risky health behaviors can be an approach used by pediatricians to teach families about current ENDS products and the effects on the body and health of users. Using information from this study in addition to the CDC recommendations,

prevention and education among young populations is key to addressing ENDS use and

popularity.

<div align="center">**References**</div>

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Demographic Questionnaire

1. **What is your current age?** (in years) _____

2. **To which gender identity do you most identify?**
   o Female
   o Male
   o Transgender Female
   o Transgender Male
   o Gender Variant/Non-Conforming
   o Other, Not Listed _____
   o Prefer not to answer

3. **What is your current level of education?**
   o Less than high school
   o High school diploma/GED or equivalent
   o Some college
   o College graduate (e.g., B.A., B.S.)
   o Graduate coursework

4. **I am:**
   o Single (never married)
   o Married
   o Divorced
   o Widow/Widower
   o Separated
   o Living with someone

5. **Are you of Hispanic, Latino, or Spanish origin?**
   o Yes
   o No
   o Prefer not to answer

6. **Please indicate the racial group(s) to which you belong:**
   o American Indian or Alaska Native
   o Asian

o Black or African American
o Native Hawaiian or Other Pacific Islander
o White

7. **What is your total annual household/family income from all sources?** (Check one)
   o Less than $20,000
   o $20,000 to $34,999
   o $35,000 to $49,999
   o $50,000 to $74,999
   o $75,000 to $99,999
   o Over $100,000

8. **What is the size of your household, including yourself?** _____ Members
9. **What is your smoking status?**
   o I smoke daily and 11 or more cigarettes per day
   o I smoke daily and between 5 and 10 cigarettes per day
   o I smoke daily but less than 5 cigarettes per day
   o I smoke weekly but not every day
   o I smoke monthly but not weekly
   o I no longer smoke at all, but in the past smoked at least 1 cigarette per day;
      o If so, how many cigarettes per day? _____
   o I no longer smoke at all, but in the past I smoked weekly but not daily
   o I have smoked a cigarette or a few, just to try it
   o I have never smoked before, not even a puff

**NOTE: If you do not currently smoke traditional tobacco products (e.g., cigarettes), please go to question 13

10. **How many cigarettes do you *currently* smoke *per day on average*?**

   _____ Number of cigarettes per day (20 cigarettes in a pack)

11. **In the last 30 days, how many days have you smoked?**

   _____ Number of days (please write your best estimate)

12. At what age did you first smoke traditional tobacco? _____ (age in years)

13. We would like to know more about other tobacco products you currently use. (select all that apply)

	Yes	No	If yes, how many times per week?	If yes, what quantity per week?
Smoke cigars				
Use dip				
Use chew				
Use hookah				
Use e-cigarettes				
Use snuss				
Use dissolvables				
Use snuff				

Focus Group Questions

When did you first try a novel tobacco product?

- Had you previously used traditional tobacco products?

What were some considerations when selecting a novel tobacco product?

- Availability/price
- Flavor/smell of products
- Satisfying
- Fun

Are novel tobacco products helpful for quitting smoking traditional tobacco products?

- Are novel tobacco products considered less harmful/healthier? (to self/others)
- Are novel tobacco products addictive at all/or less addictive than traditional tobacco products?

How do those you know (e.g., family, friends, co-workers) view novel tobacco products?

- More/less favorably than traditional tobacco products?
- Use by peers? Family members?

Have you attempted to quit use of traditional tobacco products?

- If so, what products have you used?
- What services have you used?
- Which products or services are most helpful to quit?

Have you attempted to quit use of novel tobacco products?

- If so, what products have you used?
- What services have you used?
- What is most helpful to quit?

If you decide to quit tobacco, why would you consider quitting?

- Personal choice
- Health
- Person close to you
- Faith/religion
- Employment concern

Appendix C

- **Rebellion**: resisting authority, disobedience, defiance
    Example: "when you tell someone not to have something, you feel like you want to try it"

- **Social Norms**: perceptions of standard behavior and attitudes among a group

- **Family**: family members used the products, normalization through family
    Example: "parents are smokers"

- **Peer norms**: typical or standard behavior in a peer group, perceived attitudes and behavior in a group
    Example: "friends used these products and offered"

- **Social Disapproval:** family or peers do not approve of use of the product
    Example: "Does not even want to ask parents or tell parents about tobacco product use because feels they will not approve"

- **FOMO (fear of missing out)**: fear of missing out, using these products at social gatherings and didn't want to feel left out? Situation specific
    Example: "rushing for a frat"

- **Curiosity**: desire to know or learn
    Example: "wanted to see why my parents were doing it"

- **Co-use**: using tobacco products with other substances (drugs & caffeine)
    Example: "was drinking and it complemented alcohol nicely"

- **Accessibility**: easily accessed in their home or from family and friends.
    Example: "parents were smokers" "easy to obtain cigarettes without buying"

- **Accessibility**: Legal / general ease of accessibility.
     Example: "shops/convenience stores available" "enforcement in person and online"

- **Location**: different areas/locations use different products
    Example: "Westside uses Juul" "cigarettes more common in Juarez" "bars you'll see more Juuls"

- **Cost:** price of the product
    Example: "Baton is 10$ a month" "had extra money"

- **Sensory**: the taste and smell of the products, includes flavoring of the products
    Example: "strong smell and taste"

- **Branding**: promotion or distinctive design/packaging of the products
    Example: "shape of the JUUL is cool"

- **Discreetness**: easily concealed
    Example: "small and discreet" "parents do not know what it looks like"

- **Long Term Health Effects:** consequences/ effects from exposure
    Example: "safer alternative to cigarettes"
    Special Case: Environmental impact,

- **Desired Short-Term Effects**: positive and negative side effects/symptoms while using tobacco products. Physiological and psychological effects of using tobacco.
    Example: "you really do not feel the effects of the vape at all" "traditional is harsher"

- **Social media:** promotion of products on social media
    Example: "see memes about novel tobacco products"

- **Age**: age of the person
    Example: "was at an age that I could purchase the products"

- **Quit Product**: product used to help you quit another product
    Example: "used as a stop product"

- **Illegal product / Illegal use**: using the product and illegal substances and having access to this product at an early age.
    Example: "how to stop younger kids from obtaining them" "mix marijuana with JUUL"

- **Heat not Burn Devices:** interest and concern with newer heat not burn devices
    Example: "you don't know the long term effects of vape. can't know the long-term effects. interested in knowing about cigarette device that contains smoke and products with second hand smoke "heat not burn" devices."

- **Anxiety/Stress:** Use of ENDS product for anxiety or stress reduction
    Example: "Use JUUL to calm them down, especially during tests"
- **Consumer Education:** Concerned about education related to product contents
    Example: "what's in juice?"

- **Customization of nicotine levels:** expressed interested in being able to scale up or scale down nicotine levels to preference or personalization of electronic product including tanks, flavorings, or nicotine levels.

    Example: "liked the options for smoke, can adjust percentage of nicotine or choose to smoke without nicotine. Considers JUUL stronger because it does not have an option for no nicotine"

    Example: "familiar because friend uses these products; know the brand well; mods (build of the device) voltage, air flow, battery, nice tanks; you can go anywhere to find the juice; price; online accessibility; flavors; replacement parts are sometimes difficult to find; vape stores you are able to craft your device there but would rather buy online"
- **Addicted/addictiveness**: Feeling the need to continue using product/craving product when not using
    Example: Friend from Turkey introduced her and then a few hours later already felt the need [to use again]

Coded Themes	Themes Discussed in Paper
Rebellion:	*
Social Norms:	*
Location:	
Family:	*
Peer norms:	*
Social Disapproval:	
FOMO (fear of missing out)	
Curiosity:	*
Co-use:	
Accessibility:	*
Cost:	*
Sensory:	*
Branding:	
Discreetness:	*
Long Term Health Effects:	*
Desired Short-Term Effects:	
Social media:	*
Age:	*
Quit Product:	
Illegal product / Illegal use:	*
Heat not Burn Devices:	
Anxiety/Stress:	
Consumer Education:	*
Customization:	*
Addicted/addictiveness:	*

Figure 1.1. Coded themes discussed in paper

Session	Single Interview	Group Interview
1		*
2		*
3	*	
4		*
5	*	
6	*	
7	*	
9	*	
10	*	
11	*	
12		*
13	*	
14	*	
15	*	

Figure 2.1: Interview type*

*researcher note: Session 8 (single interview) was not included in analysis. This is the session which there are no notes.

Participant #	Traditional Tobacco	Novel Tobacco	Safest
1	*	*	ENDS
2	*	*	ENDS
3	*	*	ENDS
4	*	*	ENDS
5		*	ENDS
6	*	*	Traditional
7	*	*	N/A
8	*		N/A
9		*	N/A
10	*	*	ENDS
11	*	*	Traditional
12	*	*	N/A
13	*	*	ENDS
14	*	*	ENDS
15	*	*	ENDS
16	*	*	Traditional
17		*	N/A
18		*	N/A
19	*	*	Traditional
20	*	*	Traditional

Figure 3.1: Participant tobacco ranking

Vita

Gabrielle Clarisse Mendoza is a graduate from the University of Texas at El Paso. In 2018, Mendoza graduated with a double major Bachelors of Arts in Sociology and Women's and Gender Studies. Mendoza is set to graduate with a Masters of Arts in Sociology May 2021. From 2016-2018 Gabrielle was part of the BUILDing SCHOLARS program aimed at diversifying biomedical research. Throughout her time in the program Gabrielle helped conduct research, supervised by Dr. Shenberger-Trujillo in the School of Pharmacy. The project Cultural Barriers to HPV Vaccination Adherence Within a Primarily Hispanic Majority Young Adult Population was presented both as a poster and oral presentation earning her the University of Texas at El Paso COURI Spring 2017 Symposium Winner of Best Social Science poster as well as Research Centers in Minority Institutions Translational Science 2017 Conference in Washington D.C. student poster competition. Fall 2016 and Spring 2018 Gabrielle took part of the Research Training Integration program from the BUILDing SCHOLARS program where she presented her research as part of a lesson taught in a Sociology Theory 4301 (Fall 2016) and a course in the School of Pharmacy (Spring 2018). Gabrielle has been engaged as a student researcher from 2015 – 2020 focusing on HPV vaccination adherence and tobacco control and prevention. During the 2020-2021 school year Gabrielle served as a TA at the School of Pharmacy.