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"If You Are Old Enough to Die for Your Country, You Should Be Able to Get a Pinch of Snuff": Views of Tobacco 21 Among Appalachian Youth

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INTRODUCTION

Tobacco use tops the list of causes of preventable disease and death in the U.S., accounting for 20% of deaths.[1] Despite abundant research documenting the negative health effects associated with tobacco use, and numerous tobacco control measures put in place to reduce use over the past fifty years,[1] an estimated 36.5 million U.S. adults 18 years and older currently smoke cigarettes.[2] Although the number of adult current cigarette smokers has declined over the past ten years, approximately 15% of U.S. adults continue to smoke.[2]

In addition to the high prevalence of tobacco use among adults, tobacco use rates among youth are also staggering. Recent assessments suggest that 3.9 million students in U.S. middle and high schools are current tobacco users.[3] Each day more than 3,800 U.S. youth under age 18 smoke a cigarette for the first time, with more than 1,000 likely to become daily users.[4] Furthermore, approximately 90% of adult daily smokers report initiation of cigarette use before age 19.[5] If these high tobacco use rates among youth persist, estimates suggest that 5.6 million people currently under age 18 in the U.S. will die prematurely from smoking-related diseases.[1]

Despite declines in the prevalence of youth current cigarette use, other tobacco products, such as e-cigarettes and hookahs, are popular in this population.[3] Moreover, the health consequences of these products are unknown,[6–7] and their dangers are potentially magnified as many youth are polyusers.[3] Due to the high prevalence of youth tobacco use in the U.S., addictiveness of nicotine, and negative health effects associated with the use of tobacco

products, developing tobacco use prevention strategies for this subpopulation is particularly important.[4]

Tobacco 21

Multiple strategies have been used to decrease the prevalence of youth tobacco use, including anti-tobacco media campaigns, school-based policies, and tobacco product price increases.[4] One recent strategy involves raising the minimum legal sale age (MLSA) for tobacco products to 21.[8] In 2005, Needham, Massachusetts raised the MLSA to 21, making it the first community in the U.S. with this restriction.[9] Since then, more than 270 counties and cities throughout the U.S. have joined Needham in raising tobacco MLSAs.[9–10] Many large cities, such as New York City, Boston, and Chicago, have passed ordinances adopting what has been termed "Tobacco 21," a national campaign aimed at raising the tobacco and nicotine MLSA to 21.[8] The Tobacco 21 movement made great progress in 2016 when Hawaii and California became the first states to raise the tobacco MLSA to 21 statewide.[9–11] In 2017, New Jersey, Maine, and Oregon joined in passing statewide Tobacco 21 laws.[9–11]

Though many areas across the nation have recently adopted Tobacco 21,[9–11] there is little evidence that increasing the tobacco MLSA will decrease the prevalence of tobacco use among youth.[12] Many Tobacco 21 supporters cite Needham as convincing evidence for implementing Tobacco 21 legislation in other areas throughout the U.S.[8,13–14] For example, one study found that Needham had a significantly greater decrease in past 30-day cigarette use among high school students than communities without MLSAs of 21.[12] Additional support for Tobacco 21 stems from the success of raising the MLSA for alcohol to 21 and subsequent decreases in the prevalence of alcohol use among youth.[13–16] Moreover, tobacco simulation models projected that raising the tobacco MLSA to 21 nationwide in 2015 would lead to a 12% decrease in tobacco use among future adults (i.e., who began using as youth), and estimates suggested that premature deaths and years of life lost would decrease (e.g., saving over 200,000 individuals from premature death and retaining more than 4 million years of life).[5]

Tobacco 21 legislation targets youth tobacco use by obstructing two main channels youth employ for obtaining tobacco products: stores (commercial sources) and older friends (social sources). Raising the tobacco MLSA inhibits the likelihood of youth directly purchasing through stores[14,17] and having friends in their social circles who can legally purchase tobacco.[5,14,17] Most research indicates that few stores sell tobacco products to underage youth; instead, friends and peers with access more often supply tobacco to underage youth.[17–20]

The success of Tobacco 21 as a tobacco control strategy assumes youth reliance on procuring tobacco via commercial sources and older friends. Although such sources are recognized as the primary means by which underage youth obtain tobacco products across the U.S.,[4] regional differences (e.g., the Appalachian region) in such sources have not been explored. These regional differences should be identified before changes to the tobacco MLSA are considered by a community.

Tobacco Use in Appalachia

Appalachia is a region where youth tobacco use differs from other areas in the U.S. For example, Appalachian communities frequently have higher tobacco use rates compared to their national counterparts.[21–25] These high tobacco use rates have been related to several factors common in Appalachia, such as cultural characteristics, including rurality,[24,26] low incomes,[1,24] acceptance of tobacco use,[22,23] and a history of tobacco farming.[22,23]

Youth living in Appalachian communities are particularly at risk for using tobacco.[26–27] The acceptance of tobacco by family members, friends, and communities can influence youth to experiment with or use tobacco[4,28]; further, wide acceptance of tobacco use by several key groups in many Appalachian communities is common.[23,27] Hence, it is not surprising that Appalachian communities have a high prevalence of tobacco use among youth.

Widespread acceptance of tobacco in Appalachia increases the number and variety of tobacco sources for underage youth. These sources are different from those in areas where tobacco products are not commonly accepted. In previous studies, youth were asked to identify sources of their tobacco products. Some studies identified family members as frequently listed sources.[29–32] Few studies have expanded upon such findings to explain which family members were providing the tobacco products and whether they were actively supplying youth with tobacco or youth were stealing these products.[29,31] However, one study involving Appalachian youth described cases of parents directly supplying underage youth with tobacco products, such as cigarettes and dip.[32] Such findings suggest yet another reason to investigate youth sources of tobacco products in Appalachia, particularly when considering the implementation of tobacco control measures.

Tobacco 21 in Appalachia—Given the high prevalence of youth tobacco use in Appalachia, it is clear that this population needs targeted anti-tobacco campaigns and additional tobacco control strategies. Some Appalachian counties are taking measures to increase tobacco control. For example, as of late 2017, four counties in Appalachia (as defined by the Appalachian Regional Commission) have enacted Tobacco 21 laws,[11,33] with three counties passing legislation in 2016 and one in 2017. These counties are all located in New York state, which has the lowest prevalence of youth tobacco use in Appalachia.[34]

AIMS

Currently, there is a lack of exploration into common tobacco product sources for Appalachian youth and their perspectives on raising the tobacco MLSA. If included in such conversations, youth may help to identify potential challenges to implementing tobacco control measures, as well as suggest new avenues for intervention. Thus, youth may prove to be important assets in shaping successful tobacco control policies.

This study aimed to 1) examine perspectives on raising the tobacco minimum legal sale age to 21 and 2) identify common sources of tobacco products among middle and high school students living in rural, low-income Appalachian communities in order to explore the potential impacts of such purchase age legislation and the challenges involved in its implementation.

METHODS

Data Collection

The Youth Appalachian Tobacco Study (YATS) questionnaire was distributed to middle and high school students in the Appalachian regions of three states: New York, North Carolina, and Kentucky. Data collection occurred between fall 2014 and spring 2016. The questionnaire contained approximately 150 items and included demographic information, as well as questions regarding participants' beliefs surrounding, attitudes toward, and perceptions of tobacco products; tobacco communication; tobacco marketing and advertising; and tobacco use among friends and family members. Prior to data collection, parents received a letter (from the investigators and distributed by school administrators) describing the study and could choose to decline their child's participation. In addition, on the day of data collection, students were given assent forms and could elect not to participate. The questionnaire was administered during the school day and took approximately 40 minutes to complete. The university's Institutional Review Board approved this research.

State and School Selection

The Appalachian states surveyed were selected based on their youth tobacco use rates. Among the Appalachian states, Kentucky had one of the highest youth tobacco use rates (17.9%), North Carolina had a moderate youth tobacco use rate (15.0%), and New York had one of the lowest youth tobacco use rates (10.6%) in the region.[34]

Counties within the Appalachian region of all three states were selected based on poverty levels. Counties in these regions that had poverty levels above both the national average (15.5%) and their state's average (19.0% for Kentucky, 17.2% for North Carolina, and 16.0% for New York) were selected.[35] Previous studies have indicated that youth in low-income areas are more likely to use tobacco; thus, examining perceptions in such areas seem warranted to gain insight into youth perspectives on Tobacco 21. Public middle and high schools in each selected county were contacted and invited to participate in the study. If a school did not wish to participate, another nearby school was contacted.

Participants

Although schools in New York, North Carolina, and Kentucky participated in YATS, the questions of interest in this analysis—items concerning increasing the legal tobacco purchase age—were added to the questionnaire after data collection in New York was completed and after several schools in both Kentucky and North Carolina were surveyed. Therefore, only participants from three schools in North Carolina and one school in Kentucky were considered in this analysis. A total of 513 students from these four schools participated.

Only participants who responded to both questions concerning the effects of raising the legal tobacco purchase age to 21 were included in this analysis. Sixty-eight participants did not respond to one or both of these key questions. An additional 19 participants did not respond

to the open-ended question in a comprehensible way. Thus, the final sample for this analysis included 426 participants.

Measures

Tobacco 21—Two questions about raising the legal age to purchase tobacco products were included. The first question was multiple choice and asked participants to complete the sentence, “If the age to buy tobacco were raised to 21:”. Answer choices included, “the same number of youth would use tobacco products,” “fewer youth would use tobacco products,” and “more youth would use tobacco products.” The second question was open-ended in format and asked, “How would you feel about raising the age to buy tobacco products to 21?” These questions were created for use in this study and were not pretested.

Demographic information—Demographic information such as gender, race, Hispanic ethnicity, age, grade level, and state were included in this analysis.

Tobacco use behaviors—Current tobacco use was defined as self-reported past 30-day use of cigarettes, electronic cigarettes, and/or smokeless tobacco. Participants’ ever use of tobacco was defined as self-reported trying of cigarettes, electronic cigarettes, and/or smokeless tobacco. Participants also reported current tobacco use (i.e., past 30-day use) by their friends. The number of tobacco users living in the participant’s home was also included in this analysis. This variable was measured on a continuous scale, but was dichotomized to enable comparisons between participants with no tobacco users in their homes and participants with any tobacco users in their homes.

Sources of tobacco products—Participants were asked three questions concerning sources of tobacco products. The same question was asked about three different tobacco products. This question was open-ended in format and asked, “Where do people around your age get cigarettes (friend, parent, store, sibling, etc.)?” The same question was asked for smokeless tobacco and electronic cigarettes. Participants could list multiple sources per question. Answers to all three questions were pooled for each participant to identify sources of any tobacco product. Sources were then categorized into four main groups due to the frequency with which they were listed: friends, family members, stores, and unknown source. Sources identified that did not fit into these categories were placed into a collective category of other sources. The family category was divided into two subcategories, parents and siblings, for further analysis. There were 27 participants who did not respond to any of the tobacco source questions.

Analysis

Statistical analysis—Descriptive techniques were used to characterize demographic factors, personal use behaviors, use behaviors of participants’ family members and friends, and reported sources of tobacco products by participant’s Tobacco 21 views. Frequencies and percentages for categorical variables, as well as mean (SD), median (IQR), and range for continuous variables were summarized and compared between the three Tobacco 21 view groups. The distribution of continuous variable (age) was assessed for normality using the Shapiro-Wilk Test. P-values were calculated using chi-square tests of independence for

categorical variable comparisons involving large expected or observed cell counts (n≥5), Fisher's exact test for categorical variables involving small expected or observed cell counts (n<5), and Wilcoxon Rank-Sum (two-group comparison) or Kruskal-Wallis (three-group comparison) tests for the comparison of continuous variables. Data were analyzed using SAS 9.4 (Cary, N.C.).

Thematic analysis—Inductive thematic analysis was used to examine themes among responses to the open format Tobacco 21 question, "How would you feel about raising the age to buy tobacco products to 21?" Any coding differences were resolved through discussion.

RESULTS

Participant Characteristics

Overall, the sample consisted of slightly more males (51.2%, n=215) than females (48.8%, n=205). The median age was 14 years (IQR=2) with participants ranging from 11-18 years. More participants were in middle school (grades 6-8; 55.2%, n=235) than high school (grades 9-12; 44.8%, n=191). The majority (90.9%) of participants who provided their race identified as White (n=368), followed by Native American or American Indian (4.7%, n=19), Black (2.0%, n=8), and other race (0.5%, n=2). Eight participants (2.0%) were biracial and 17 (2.0%) reported Hispanic ethnicity.

Approximately one-fourth (25.6%) of participants were current tobacco users (n=108), though a larger portion of the sample (46.4%, n=196) reported ever using tobacco. Most participants (61.0%) reported having friends who were current tobacco users (n=257), and the majority (62.3%) reported having at least one household member who used tobacco (n=264).

Perspectives on the Effect of Tobacco 21

The descriptive characteristics of participants by their perspectives on the effect of Tobacco 21 legislation are reported in Table 1. More than half (58.7%) of the participants felt raising the MLSA for tobacco products to 21 would result in the same number of youth tobacco users (n=250), followed by reports that fewer would use (28.9%, n=123) and more would use (12.4%, n=53). There was no significant difference in responses concerning the effect of Tobacco 21 legislation by gender, race, or ethnicity. There were significant differences by age and by grade level (middle vs. high school) (p<.001 and p=.03, respectively); however, it should be noted that middle school students were from Kentucky and high school students were from North Carolina. Participants who responded that fewer youth would use tobacco were more likely to be younger than those who reported the same or more would use. Additionally, middle school students were more likely to report that fewer youth would use tobacco than high school students (34.0% vs. 22.5%), and high school students more often reported that the same number or more would use tobacco compared to middle school students (77.5% vs. 65.9%, p=.009).

Significant differences in Tobacco 21 perspectives were also observed based on current and ever tobacco use status. Significantly more current tobacco users than non-users responded

that the same number or more youth would use tobacco if the purchase age were increased (80.6% vs. 67.4%), and more current non-users responded that fewer youth would use compared to users (32.6% vs. 19.4%, p=.01). The same pattern was observed for ever tobacco users, with more ever tobacco users reporting that the same number or more youth would use tobacco if the purchase age were increased (78.1% vs. 65.0%), and more never tobacco users reporting that fewer youth would use (35.0% vs. 21.9%; p=.003).

Participants who reported having friends who currently used tobacco were more likely to respond that the same number or more youth would use if the purchase age were increased (78.2% vs. 59.2%), whereas participants who did not have friends who were current tobacco users more frequently responded that fewer youth would use if the legal age were increased (40.9% vs. 21.8%, p<.001). There was no significant difference in participants' Tobacco 21 perspectives by presence of tobacco users in the home.

Sources of Tobacco by Tobacco 21 Perspective

The most frequently listed youth sources of tobacco products included friends (62.7%), family members (46.1%), and stores (38.6%; Table 2). Responses involving family members were further divided into those who specifically mentioned parents or siblings. Parents were more often reported as sources of tobacco than siblings (33.3% vs. 22.6%). The only significant difference in participants' Tobacco 21 perspectives by reported sources of tobacco products was when comparing all three Tobacco 21 perspectives by reports of any family member as a source of tobacco products (p=.047). In this case, participants who reported family members provided tobacco products to youth were more likely to indicate that the same number of youth would use tobacco if the legal purchase age were raised compared to those who did not list family members as youth sources of tobacco (65.2% vs. 53.0%). Participants who did not list family members as youth sources of tobacco products were more likely to report that fewer or more youth would use tobacco if the legal purchase age were raised compared to those who did list family members as youth sources of tobacco (33.0% vs. 25.0% and 14.0% vs. 9.8%, respectively).

Youth Opinions on Raising the Legal Age to Purchase Tobacco to 21 by Tobacco 21 Perspective

Participants who responded fewer youth will use—When given the opportunity to expand on their viewpoints about raising the legal tobacco purchase age to 21, youth who felt that fewer would use offered a variety of additional opinions on the matter. Several participants discussed the negative health effects associated with tobacco use. Some of these respondents saw a raise in the tobacco MLSA as an opportunity to decrease use in the community overall, and others saw it as a chance to push back the age at which their peers would start to use tobacco, giving their young bodies a chance to grow. As one participant shared, "It would give your body more time to develop to be able to handle smoking/dipping." Others discussed how raising the MLSA would limit youth access to tobacco products. As expressed by one participant, the new MLSA "would keep younger children from messing up like me." Interestingly, though many youth believed that the prevalence of youth tobacco use would decrease if the tobacco MLSA were raised, many used the open-ended response to express that they would be upset if the purchase age were raised.

Additionally, some participants noted that, though youth tobacco use would decrease as a whole, those with "connections" would still find a way to use.

Participants who responded more youth will use—Participants who indicated that more youth would use tobacco if the MLSA were raised often took the opportunity to expand upon how much they disliked the idea of raising the purchase age and how little good the law would do. One participant explained, "It [Tobacco 21] would be useless in my opinion. [Y]ou would just have more youth and the 18-21 year olds breaking the law." Another expressed, "it's their body. [I] think [they] can do whatever [they] want to it." One participant disagreed with raising the MLSA stating that, "I think if people are responsible then they can handle it [tobacco] at 18." Several participants expressed that the law would not "accomplish the desired goal." One participant captured these views by stating, "I think it would not be very helpful. People are going to do what they want and find somewhere to get the products."

Participants who responded the same number of youth will use—Many participants who believed that an increase in the tobacco MLSA would have no effect on the prevalence of youth tobacco use cited youth sources of tobacco as a reason for the perceived lack of change. For example, one participant indicated, "I don't think it would help because parents could still purchase [tobacco products] for their child." Others responded similarly citing friends, siblings, and stores as sources of youth tobacco products. For example, one participant said, "the thing is teens with older friends will still be likely to get tobacco products" and another stated, "I think stores around here would still sell them [tobacco products] to minors." Others expressed that an increase in the legal purchase age would be "practically useless because the same amount of young kids would still be exposed to them [tobacco products]" and noted that they "doubt it [an age increase] will help much due to how easily obtainable they [tobacco products] are, especially in [their] community."

Some participants remarked that the current MLSA does not mean much to youth, so it is unlikely that raising it will have an effect. This viewpoint was captured well by one participant who said, "most kids start at a younger age, [and] turning 18 doesn't really change the amount they smoke/dip." Another expressed, "21 doesn't stop people from drinking. What makes you think it'd stop tobacco use?"

Other participants who believed the same number of youth would use tobacco if the MLSA were raised discussed their lack of support for the legislation. For example, one such participant asserted that, "If you are old enough to die for your country, you should be able to get a pinch of snuff." Others argued that, "you are an adult at 18" and "should have the right to purchase tobacco."

DISCUSSION

The results of this study provide important information on the perspectives of Appalachian youth concerning a raise in the tobacco minimum legal sale age to 21. The purpose of implementing Tobacco 21 legislation is to limit youth access to tobacco products, thereby decreasing the prevalence of tobacco use among youth. However, the majority (58.7%) of

our Appalachian youth participants believed that the same number of youth in their community would use tobacco products if the legal purchase age were raised, and an additional 12.4% responded that increasing the legal purchase age would result in more youth tobacco users. Fewer than one-third (28.9%) believed that Tobacco 21 legislation would succeed in reducing the prevalence of youth tobacco use.

Youth perspectives on the potential effects of Tobacco 21 implementation were significantly related to their current and ever tobacco use as well as their friends' tobacco use. Participants who were not current tobacco users, had never used tobacco, and did not have friends who are current tobacco users were more likely to report that fewer youth would use tobacco products if the legal purchase age were raised. Youth with a history of tobacco use or friends who used tobacco were more likely to report that the same or more youth would use tobacco if the purchase age were raised. These results suggest that the more experience youth have with tobacco products, the less likely they are to believe that Tobacco 21 legislation would be successful in lowering the prevalence of youth tobacco use.

Participants' perspectives on the effects of Tobacco 21 legislation were explored in relation to where the participants believed their peers obtained tobacco products. The only significant difference emerged when reports of family members as sources of youth tobacco products were compared with participants' Tobacco 21 perspectives. Participants who did not list family members as youth sources of tobacco products were more likely to report that fewer youth or more youth would use tobacco if Tobacco 21 were implemented than participants who listed family members as sources, whereas participants who did list family members as sources more frequently reported the same number of youth would use tobacco if Tobacco 21 were implemented than those who did not list family members as sources. Participants' Tobacco 21 perspectives did not significantly differ based on the presence of tobacco users in their homes, however.

When given the opportunity to expand upon their views concerning Tobacco 21 laws, many respondents addressed difficulties in implementing such legislation in their communities. Poor enforcement of tobacco MLSAs at stores, continued access to tobacco products from family members and friends, and the overall abundance of tobacco in their communities were all cited as potential barriers to the successful implementation of Tobacco 21 laws in these Appalachian communities.

The findings of this study contribute to the literature on youth perspectives on tobacco. In particular, investigating youth views in areas where tobacco is more frequently used, such as rural and low-income communities, is important in understanding influences on tobacco use as well as potential methods of and barriers to reducing youth initiation and use of tobacco products.

Limitations

This study has several limitations. Missing values impacted our ability to characterize participants and led to a decrease in sample size. In addition, data on the participants' personal sources of tobacco products were not collected, which would have added to the analysis on the reported youth sources of tobacco products in general. The study sample was

limited to four schools, one in Kentucky and three in North Carolina. Since the middle school was located in Kentucky and the high schools were located in North Carolina, it was not possible to separate differences in Tobacco 21 perspectives by age/grade level and state. Though Appalachia has a degree of homogeneity in terms of elevated tobacco use rates and acceptance, there may be differences in perspectives between subregions or states. Additionally, although all four schools were located in Appalachia, the results may not be representative of all middle and high school students living in the Appalachian region. Despite these limitations, this study provides initial insight on youth perspectives of tobacco use and regulation in the region and may help characterize challenges for tobacco control policy that are culturally unique to Appalachia.

CONCLUSION

Most Appalachian youth sampled do not believe raising the tobacco minimum legal sale age to 21 would decrease youth tobacco use. Perceptions of the effect of Tobacco 21 legislation were related to personal tobacco use, exposure to tobacco users, and beliefs that family members provide tobacco products to youth. Open-ended responses identified potential obstacles in implementing Tobacco 21 legislation in Appalachia. The success of Tobacco 21 is contingent on eliminating youth commercial and social sources of tobacco products, but this legislation does little to prevent youth obtaining tobacco from family members 21 years or older. Future research should attempt to include youth perspectives when designing and implementing tobacco control policies. Additionally, the findings of this study point to the importance of further examining family members as tobacco sources and targeting family members in anti-tobacco campaigns, especially given that the effectiveness of legislation such as Tobacco 21 would be diminished by this form of tobacco access.

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Table 1

Descriptive Characteristics of Participants by Tobacco 21 Perspective[a]

		% (n)			
Characteristic	**Total % (N)**	**Fewer Will Use**	**More Will Use**	**Same Number Will Use**	***P* value**
Overall	100 (426)	28.9 (123)	12.4 (53)	58.7 (250)	–
Gender					
Male	51.2 (215)	29.8 (64)	14.4 (31)	55.8 (120)	.46
Female	48.8 (205)	28.8 (59)	10.7 (22)	60.5 (124)	.82[b]
Race					
White	90.9 (368)	28.3 (104)	11.7 (43)	60.0 (221)	.21[c]
Native American	4.7 (19)	31.6 (6)	15.8 (3)	52.6 (10)	.74[b,c]
Black	2.0 (8)	37.5 (3)	37.5 (3)	25.0 (2)	
Biracial	2.0 (8)	37.5 (3)	25.0 (2)	37.5 (3)	
Other	0.5 (2)	50.0 (1)	0.0 (0)	50.0 (1)	
Ethnicity					
Hispanic	4.1 (17)	23.5 (4)	17.6 (3)	58.8 (10)	.73[c]
Non-Hispanic	95.9 (400)	29.0 (116)	12.5 (50)	58.5 (234)	.79[b,c]
Age					
Mean (SD)	13.9 (1.7)	13.3 (1.7)	14.4 (1.6)	14.1 (1.7)	<.001[d]
Median (IQR)	14 (2)	13 (3)	14 (3)	14 (2)	<.001[b,d]
Range	11-18	11-18	11-17	11-18	
Grade Level					
Middle School (Grades 6-8)	55.2 (235)	34.0 (80)	10.6 (25)	55.3 (130)	.03[e]
High School (Grades 9-12)	44.8 (191)	22.5 (43)	14.7 (28)	62.8 (120)	.009[b,e]
Current Tobacco User					
No	74.4 (313)	32.6 (102)	10.2 (32)	57.2 (179)	.01
Yes	25.6 (108)	19.4 (21)	17.6 (19)	63.0 (68)	.01[b]
Ever Tobacco User					
No	53.6 (226)	35.0 (79)	9.7 (22)	55.3 (125)	.009

		% (n)			
Characteristic	**Total % (N)**	**Fewer Will Use**	**More Will Use**	**Same Number Will Use**	***P* value**
Yes	46.4 (196)	21.9 (43)	14.8 (29)	63.3 (124)	.003[b]
Are Friends Current Tobacco Users?					
No	39.0 (164)	40.9 (67)	10.4 (17)	48.8 (80)	<.001
Yes	61.0 (257)	21.8 (56)	13.6 (35)	64.6 (166)	<.001[b]
Number of Tobacco Users in the Home (Not Counting Participant)					
0	37.7 (160)	31.3 (50)	9.4 (15)	59.4 (95)	.32
1 or more	62.3 (264)	27.3 (72)	14.0 (37)	58.7 (155)	.38[b]

[a]Number of participants missing responses: gender (n=6), race (n=21), ethnicity (n=9), current tobacco use (n=5), ever tobacco use (n=4), friends' current tobacco use (n=5), tobacco users in home (n=2)

[b]Comparison of those who responded fewer will use to those who responded more or the same number will use

[c]Fisher's exact test was used due to small expected cell counts.

[d]Non-parametric test

[e]Middle school in Kentucky; high schools in North Carolina

Table 2

Reported Sources of Tobacco Products by Tobacco 21 Perspective[a,b]

		% (n)			
Source	**Total % (N)**	**Fewer Will Use**	**More Will Use**	**Same Number Will Use**	***P* value**
Friends					
Not Listed	37.3 (149)	31.5 (47)	13.4 (20)	55.0 (82)	.52
Listed	62.7 (250)	28.0 (70)	11.2 (28)	60.8 (152)	.45[c]
Family – Any Family Members					
Not Listed	53.9 (215)	33.0 (71)	14.0 (30)	53.0 (114)	.047
Listed	46.1 (184)	25.0 (46)	9.8 (18)	65.2 (120)	.08[c]
Family – Specifically Mentioned Parents					
Not Listed	66.7 (266)	30.8 (82)	12.0 (32)	57.1 (152)	.63
Listed	33.3 (133)	26.3 (35)	12.0 (16)	61.7 (82)	.35[c]
Family – Specifically Mentioned Siblings					
Not Listed	77.4 (309)	30.1 (93)	12.3 (38)	57.6 (178)	.74
Listed	22.6 (90)	26.7 (24)	11.1 (10)	62.2 (56)	.53[c]
Stores					
Not Listed	61.4 (245)	30.2 (74)	11.8 (29)	58.0 (142)	.89
Listed	38.6 (154)	27.9 (43)	12.3 (19)	59.7 (92)	.63[c]
Other Source					
Not Listed	92.5 (369)	30.4 (112)	11.9 (44)	57.7 (213)	.26[d]
Listed	7.5 (30)	16.7 (5)	13.3 (4)	70.0 (21)	.15[c,d]
Unsure of Sources					
Not Listed	89.5 (357)	28.6 (102)	11.5 (41)	59.9 (214)	.29
Listed	10.5 (42)	35.7 (15)	16.7 (7)	47.6 (20)	.34[c]

[a]Question asked, “Where do youth get tobacco?” Multiple answer choices were allowed.

[b]27 participants did not respond to this question.

[c]Comparison of those who responded fewer will use compared to those who responded more or the same number will use

[d] Fisher's exact test was used due to small expected cell counts.