

Teen Tobacco Use in Rural Minnesota

RURAL TEENS START EARLIER, USE MORE OFTEN, USE SMOKELESS

The tobacco use landscape in the United States and Minnesota is evolving. E-cigarettes are rapidly increasing in popularity, especially among youth. However, products like cigarettes and smokeless tobacco continue to have a stronger hold in rural areas due to decades of targeted marketing by the tobacco industry, which integrated tobacco use into rural culture.^{1,2} Internal tobacco industry documents show that since 1968 the industry has studied the values of rural area residents, such as self-reliance and an outdoor lifestyle, and used those values to market their products.³ In addition, after flavored cigarettes were prohibited the tobacco industry continued to introduce other flavored products, especially smokeless tobacco and e-cigarettes, which are appealing to kids and sustains youth use.³

All tobacco products contain nicotine, which is highly addictive and can harm brain development during adolescence.⁴ Rural youth are at higher risk for harm, because they tend to begin using tobacco products at a younger age and use tobacco products more frequently.⁵ To better understand rural youth tobacco use in Minnesota, we analyzed data from the 2017 Minnesota Youth Tobacco Survey (MYTS), a survey conducted every three years using a randomly selected sample of middle schools and high schools.⁶



Defining Rurality

Schools in the Twin Cities 7-county metro area were classified as a large metropolitan and will be referred to as Twin Cities metro (TC metro). Schools in greater Minnesota's largest cities (Rochester, Duluth, St. Cloud, and their suburbs) were classified as a small metropolitan and will be referred to as small metro. Schools located elsewhere in greater Minnesota were classified as nonmetropolitan and will be referred to as rural.

Teen Tobacco Use Varies by Minnesota Region

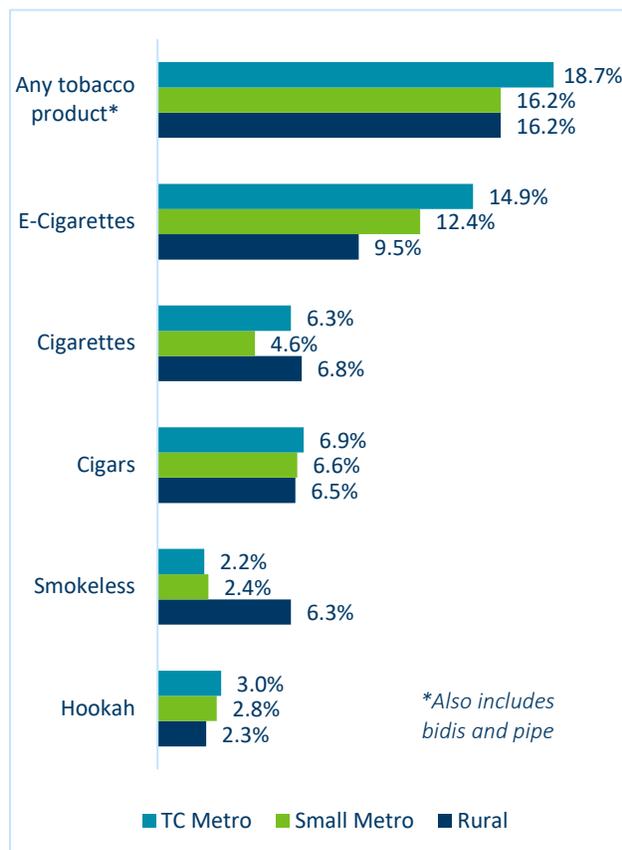
A smaller share of rural students use tobacco products

Among middle and high school students in Minnesota, 18.7 percent from the TC metro area and 16.2 percent from the small metro and rural areas used a tobacco product within the last 30 days (**Figure 1**). The slightly higher prevalence of tobacco use among TC metro students is due in large part to the popularity of e-cigarettes.

E-cigarettes surpass conventional tobacco products

Consistent with national trends, e-cigarettes (also called vapes) were the most commonly used type of tobacco by Minnesota students across all regions.⁷ Although the proportion of rural students using e-cigarettes was lower than that of TC metro students, e-cigarettes were still the product with the highest use rate among rural students; 14.9 percent of TC metro students, 12.4 percent of small metro students, and 9.5 percent of rural students reported using e-cigarettes in the past 30 days (**Figure 1**).

Figure 1. Current use of common tobacco types by region (MYTS, 2017)



Nearly three times as many rural students use smokeless tobacco

Smokeless tobacco use was considerably higher among rural students; 2.2 percent of TC metro students and 2.4 percent of small metro students used smokeless tobacco within the past 30 days, while 6.3 percent of rural students used smokeless tobacco within the same timeframe (**Figure 1**). In all regions, the vast majority of students who used smokeless tobacco were boys (TC metro: 85.7%; small metro: 78.4%; and rural: 85.8%).

Rural students more likely to smoke cigarettes

A larger share of rural students (6.8%) and TC metro students (6.3%) reported cigarette usage, compared to small metro students (4.6%) (**Figure 1**).

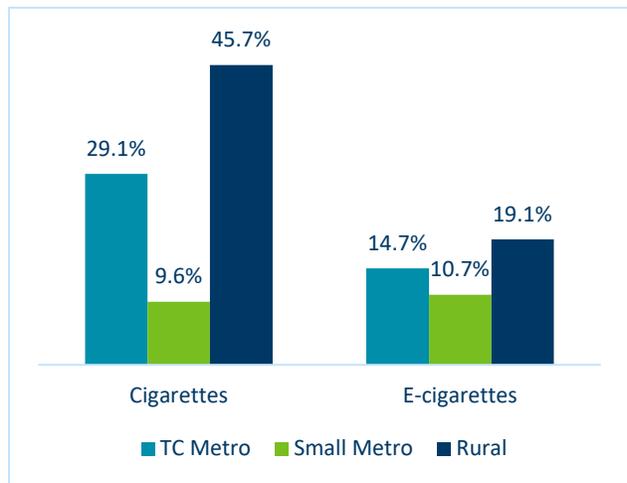
Rural youth are at higher risk for nicotine dependence

Rural youth try cigarettes and e-cigarettes at younger ages

Among students who reported smoking cigarettes within the past 30 days, 45.7 percent of rural students reported they were age 12 or younger when they first tried smoking cigarettes (**Figure 2**). In comparison, 29.1 percent of TC metro students and 9.6 percent of small metro students were age 12 or younger when they smoked their first cigarette. Rural students who currently use e-cigarettes were similarly more likely than students living in other areas to have tried them at age 12 or younger.

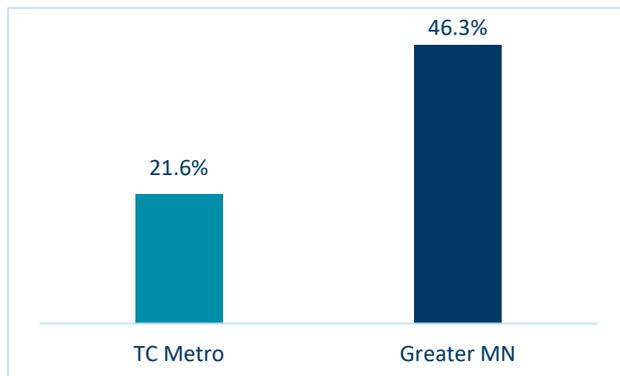
People who begin using tobacco products at an earlier age are more likely to become addicted to nicotine and to be more powerfully addicted than those who start when they are older.^{8,9} The younger adolescents are when they start consuming nicotine, the more harmful and long-lasting the effects can be due to permanent changes in brain development.^{10,11}

Figure 2. Among current users, proportion who were 12 or younger when they first tried it, by product type (MYTS, 2017)



Greater Minnesota youth try smokeless tobacco younger

Figure 3. Among current smokeless tobacco users, proportion who were 12 or younger when they first tried it (MYTS, 2014)



Although data on age of first use of smokeless tobacco was not available on the 2017 MYTS, those data are available from the 2014 MYTS with the rural and small metro categories combined. In 2014, among students who reported using smokeless tobacco within the past 30 days, 21.6 percent of TC metro students and 46.3 percent of students from greater Minnesota reported that they were age 12 or younger when they first tried smokeless tobacco (**Figure 3**).

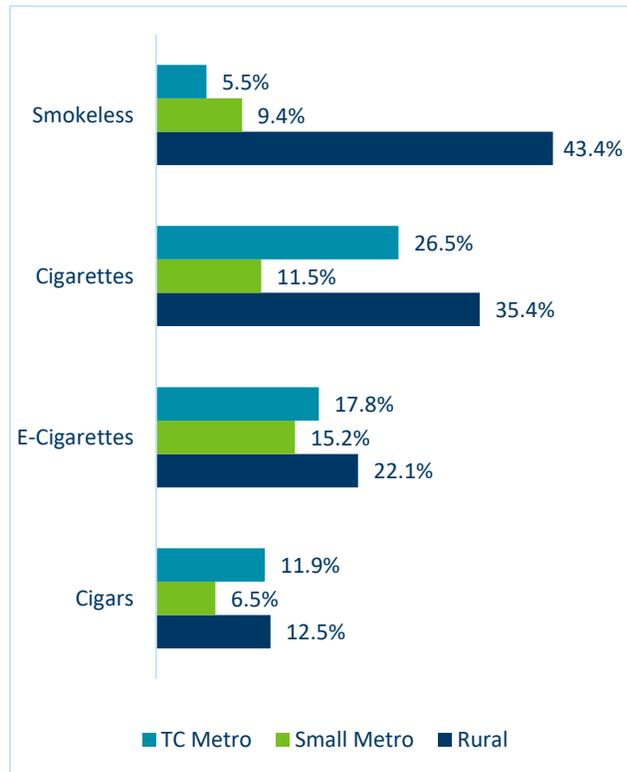
Rural youth use tobacco products more frequently, especially smokeless

Among current users of the four most commonly used tobacco products, rural students were more likely than TC metro students or small metro students to have used the product on at least 20 of the past 30 days. This difference is greatest for smokeless tobacco and cigarettes. Among rural smokeless tobacco users, 43.4 percent used the product on at least 20 of the past 30 days, while the same is true for only 5.5 percent of TC metro students and 9.4 percent of small metro students (Figure 4). Among current cigarette smokers, 35.4 percent of rural students smoked on at least 20 of the past 30 days, while 26.5 percent of TC metro students and 11.5 percent of small metro students smoked with the same frequency.

Rural students also reported using more tobacco on the days that they used tobacco products. While no small metro students reported smoking six or more cigarettes on days that they smoked, 10.7 percent of TC metro students and 21.4 percent of rural students did so.

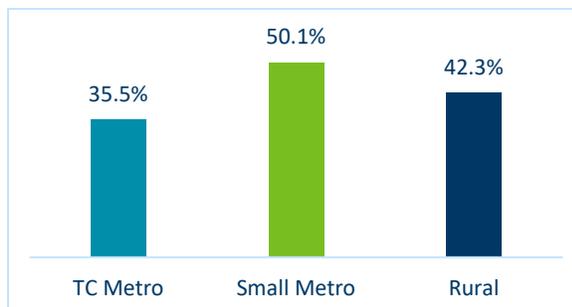
Using tobacco products frequently can be symptomatic of nicotine addiction.⁹ Studies show that smoking heavily and frequently, having higher levels of nicotine dependence, and initiating tobacco use at a young age are all associated with difficulty quitting tobacco.^{12,13}

Figure 4. Among current users, proportion that used the product on at least 20 of the past 30 days (MYTS, 2017)



Fewer quit attempts among rural youth tobacco users

Figure 5. Among current tobacco users, proportion who tried to quit in the past 12 months (MYTS, 2017)



Among current tobacco users, 35.5 percent of TC metro students, 50.1 percent of small metro students, and 42.3 percent of rural students tried to quit using tobacco products in the past 12 months (Figure 5).

Many youth tobacco users have attempted to quit and failed. Minnesota needs to strengthen its tobacco prevention efforts and create tobacco cessation programs tailored for specific age groups and geographic regions.

Summary

The 2017 MYTS revealed different patterns of tobacco use between youth living in the Twin Cities metro, small metro, and rural areas of Minnesota. According to the survey, rural youth use tobacco with greater intensity by starting younger and using tobacco products more frequently than youth living in more populated areas. Students throughout Minnesota are more likely to use e-cigarettes than any other tobacco product, but e-cigarettes are more popular among Twin Cities metro and small metro youth. In contrast, smokeless tobacco use is nearly three times as common among rural students. The high rate of Minnesota students who reported having attempted to quit using tobacco products but were unsuccessful in doing so indicates greater need for tobacco cessation support for teens, especially for teens in rural areas who may be more strongly addicted.

Implications for Rural Health Practitioners

Rural public health practitioners face a dual challenge—they must combat the emerging threat of e-cigarettes while finding new ways to drive down use of smokeless tobacco. Achieving these goals will likely require separate messaging and tactics due to manufacturers’ marketing these products to different peer groups. For example, e-cigarette companies sponsor events like independent film festivals and concerts featuring indie and hip hop artists, while smokeless brands target country music festivals, hunting and fishing expos, and auto racing events. One example of a successful campaign to reduce use of smokeless tobacco among specific groups is Virginia’s *Down and Dirty* campaign, which targeted the “country” peer crowd.¹⁴ The *Down and Dirty* campaign’s anti-tobacco messages are consistent with country values and aim to shift social norms by separating tobacco use from popular activities, like hunting and “mudding.” To prevent teens from using tobacco products, similar social branding campaigns are needed to authentically address the unique values and interests of youth targeted by industry.

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For questions, to request Minnesota Youth Tobacco Survey data, or to obtain this document in a different format please contact the Minnesota Center for Health Statistics.

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References

- ¹ Roberts, M. E., Doogan, N. J., Stanton, C. A., Quisenberry, A. J., Villanti, A. C., Gaalema, D. E., Keith, D. R., Kurti, A. N., Lopez, A. A., Redner, R., Cepeda-Benito, A., & Higgins, S. T. (2017). Rural versus urban use of traditional and emerging tobacco products in the United States, 2013–2014. *American Journal of Public Health, 107*(10), 1554-1559.
- ² American Lung Association. (2012). Cutting tobacco's rural roots: Tobacco use in rural communities. *Disparities in Lung Health Series*. <http://www.lung.org/our-initiatives/research/lung-health-disparities/tobacco-in-rural-communities.html>
- ³ Mejia, A. B. & Ling, P. M. (2010). Tobacco industry consumer research on smokeless tobacco users and product development. *American Journal of Public Health, 100*(1), 78-87.
- ⁴ Minnesota Department of Health. Health advisory: nicotine risks for children, teens, and pregnant women. (Accessed July 2018, http://www.health.state.mn.us/divs/hpcd/tpc/topics/nicotine_docs/2017nic_advisory.pdf)
- ⁵ Bernat, D. H. & Choi, K. (2018). Differences in cigarette use and the tobacco environment among youth living in metropolitan and nonmetropolitan areas. *The Journal of Rural Health, 34*(1), 80-87.
- ⁶ Evered, S. R. (2018) Teens and tobacco in Minnesota: Highlights from the 2017 Minnesota Youth Tobacco Survey. Saint Paul, MN: Minnesota Department of Health Center for Health Statistics.
- ⁷ Wang, T. W., Gentzke, A., Sharapova, S., Cullen, K. A., Ambrose, B. K., & Jamal, A. (2018). Tobacco product use among middle and high school students - United States, 2011-2017. *Morbidity and Mortality Weekly Report, 67*(22), 629-633.
- ⁸ Lydon, D. M., Wilson, S. J., Child, A., & Geier, C. F. (2014). Adolescent brain maturation and smoking: what we know and where we're headed. *Neuroscience and Biobehavioral Reviews, 45*, 323-342.
- ⁹ Apelberg, B. J., Corey, C. G., Hoffman, A. C., Schroeder, M. J., Husten, C. G., Caraballo, R. S., & Backsinger, C. L. (2014). Symptoms of tobacco dependence among middle and high school tobacco users: results from the 2012 National Youth Tobacco Survey. *American Journal of Preventive Medicine, 47*(2 Suppl 1), S4-14.
- ¹⁰ Smith R. F., McDonald, C. G., Bergstrom, H. C., Ehlinger, D. G., & Brielmaier, J.M. (2015). Adolescent nicotine induces persisting changes in development of neural connectivity. *Neuroscience & Biobehavioral Reviews, 55*, 432-443.
- ¹¹ National Institute on Drug Abuse. (2004). *Early nicotine initiation increases severity of addiction, vulnerability to some effects of cocaine*. Accessed July 2018, <https://archives.drugabuse.gov/news-events/nida-notes/2004/07/early-nicotine-initiation-increases-severity-addiction-vulnerability-to-some-effects-cocaine>
- ¹² Lanza, S. T. & Vasilenko, S. A. (2015). New methods shed light on age of onset as a risk factor for nicotine dependence. *Addictive Behavior, 50*, 161-164.
- ¹³ Ip, D. T., Cohen, J. E., Bondy, S. J., Chaiton, M. O., Selby, P., Schwartz, R., McDonald, P., Garcia, J., Ferrence, R. (2012). Do components of current 'hardcore smoker' definitions predict quitting behaviour? *Addiction, 107*(2), 434-440.
- ¹⁴ Wagner, D. E., Fernandez, P., Jordan, J. W., & Saggese, D. J. (2018). Freedom from chew: using social branding to reduce chewing tobacco use among country peer crowd teens. *Health Education & Behavior, Online First*, <https://doi.org/10.1177/1090198118806966>.