Published in final edited form as:

Tob Control. 2014 May ; 23(3): 209–214. doi:10.1136/tobaccocontrol-2012-050470.

Adolescent and adult perceptions of traditional and novel smokeless tobacco products and packaging in rural Ohio

Sherry T. Liu, MPH¹, Julianna M. Nemeth, MA¹, Elizabeth G. Klein, PhD, MPH¹, Amy K. Ferketich, PhD², Mei-Po Kwan, PhD³, and Mary Ellen Wewers, PhD, MPH¹

¹Division of Health Behavior and Health Promotion, The Ohio State University College of Public Health, Columbus, Ohio, USA

²Division of Epidemiology, The Ohio State University College of Public Health, Columbus, Ohio, USA

³Department of Geography, The Ohio State University, Columbus, Ohio, USA

Abstract

Objective—As smokeless tobacco (ST) marketing increases and new products emerge on the market, very little is known about consumer perceptions of ST products. To inform development of future ST counter-marketing approaches, this qualitative study examined consumer perceptions of traditional and novel ST products and packaging.

Methods—Focus groups and qualitative interviews were held with adolescent (n=23; mean age of 17 years) and adult (n=38; mean age of 29 years) male ST users from rural Ohio counties. Participants were shown a variety of traditional (e.g., Copenhagen®, Timber Wolf®) and novel (e.g., Camel Snus®, Orbs®) ST products and asked about perceptions of these products and their packaging. Transcriptions were coded independently for common themes by two individuals.

Findings—Adolescents and adults generally had similar beliefs and reactions about ST products. While participants were familiar with a variety of traditional ST products, Copenhagen® was the most frequently used product. Perceptions of quality and price of traditional products were closely tied to product taste and packaging material. Colors, design, and size of ST packaging appealed to participants and influenced decisions to purchase. Adults believed novel ST products had a weak taste and were targeted to untraditional ST users. While the vast majority was unfamiliar with dissolvable tobacco, adolescents noted that they would be more convenient to use during school than traditional ST.

Conclusions—Packaging has a significant role in shaping perceptions of ST and consumer behavior. Regulation of product packaging such as shape, size, and images should be part of comprehensive tobacco control.

Keywords

Smokeless tobacco; marketing; product packaging; rural Ohio

Corresponding author: Mary Ellen Wewers, PhD, MPH, The Ohio State University College of Public Health, 349 Cunz Hall, 1841 Neil Avenue, Columbus, Ohio 43210, USA. wewers.1@osu.edu; Telephone: 614-292-3137; Fax: 614-688-3533..

Competing interests: None.

As cigarette consumption declines in the United States (U.S.) due to rising cigarette taxation and smoke-free policies, major U.S. cigarette manufacturers have entered the smokeless tobacco (ST) market.[1, 2] In addition to acquiring ST companies, cigarette manufacturers have also developed novel ST products such as snus and dissolvable tobacco.[3] Snus, which originated in Sweden where use is prevalent among males, is a spit-free form of moist snuff packaged in small pouches.[1] Dissolvable tobacco is a lozenge, stick, or strip that melts in the mouth. In contrast to traditional ST (i.e., chewing tobacco, snuff), these novel ST products display popular cigarette brand names (i.e., Marlboro®, Camel®) and are sold in unique tin packages rather than round cans.[4] As ST marketing increases and new products emerge on the market, very little is known about consumer perceptions of ST products.

Most research on traditional and novel ST has focused on characterizing marketing strategies such as point-of-sale promotions and print advertisements rather than consumer perceptions of ST products.[5-7] In particular, perceptions of product packaging, which has been shown to convey price and quality, attract consumer attention, communicate brand image, and reflect social identity, has been understudied.[8, 9] Investigations of cigarette packaging have found that the color scheme, pack size, shape, and opening method of cigarette packs appeal to certain target groups, influence brand selection, and shape beliefs about product strength and relative harm.[9-11] For example, lighter colors on cigarette packs have been associated with perceptions of lower tar or mild cigarettes.[9, 10] There are concerns that the creative packaging of novel ST products, which also resembles mint and candy packages, may increase appeal among youth and encourage initiation.[4]

The purpose of this study was to examine perceptions of traditional and novel ST products and packaging in rural Ohio among adolescent and adult male ST users. Understanding consumer perceptions of ST products and the role of product packaging, especially in rural areas where ST use is more prevalent, will help identify factors that influence use and inform future tobacco counter-marketing strategies and regulations.[12]

METHODS

Sample

Eligibility criteria included being a resident of one of four rural Ohio counties and at least 15 years old for adolescent participants and at least 18 years old for adult participants. The sample for this analysis consisted of adolescent (n=23) and adult (n=38) male ST users from rural Ohio counties (Washington [n=15], Ross [n=20], Pike [n=15], and Muskingum [n=11]). Participants were asked if they currently use tobacco, the type(s) of tobacco product(s) used (e.g., cigarette, snuff, chew), and how often they use. Self-reported “daily” use of chew and/or snuff or use on “most days” was defined as ST use. Adolescents were recruited from public and vocational schools using flyers while adults were recruited from community colleges and county agencies such as health department clinics, and farm bureaus. Assent was obtained from adolescent participants and informed consent was obtained from adult participants.

Setting

This study was conducted in four rural Ohio counties (Washington, Ross, Pike, and Muskingum), which ranged in size from 635-689 square miles with populations of 62,000-86,000 residents.[13] ST marketing has typically targeted a rural population and there is evidence that rural areas have higher prevalence of ST use compared to metropolitan areas.[12] The rural counties for this study were selected given existing relationships with local county Cooperative Extension Service offices. These counties, which span the Ohio Appalachian region, are similar demographically and are characterized by a high rate of poverty, low educational attainment, high unemployment, and high prevalence of ST use compared to the state.[13] In Ohio, the prevalence of ST use is highest among Appalachian males at 10.2% compared to 6.9% among rural non-Appalachian males (unpublished data, Ohio Family Health Survey, 2010). In December 2006, the state of Ohio enacted legislation prohibiting smoking in all indoor work facilities and public places.[14] Although enforcement of the legislation legally began on May 3, 2007, there has not been systematic statewide enforcement. All counties included in this study were self-enforcing, as are the majority of Appalachian counties in Ohio.[15] Since 1993, statewide tobacco taxes have remained at \$1.25 per cigarette pack and 17% of the wholesale price of ST.[16]

Procedures

Seven focus groups (4-5 participants per group) and 23 qualitative individual interviews were conducted between February 2009 and May 2010. Focus groups were held separately for adolescents and adults. Adolescent focus groups were held in classrooms during school hours (e.g., free period, lunch-time); adult focus groups and interviews were held at community colleges and county agencies. Participants were shown a variety of ST products arranged in three groups: 1) “lower-cost” traditional ST (i.e., Kodiak®, Grizzly®, Husky®, Redman®, Timber Wolf®), 2) “more expensive” traditional ST (i.e., Cope®, Copenhagen®, Skoal®), and 3) novel ST (i.e., Camel Snus®, Camel Orbs®, Camel Sticks®) (see Figure 1). Each group was presented one at a time in the aforementioned order and participants were asked about their general perceptions (i.e., familiarity, price and quality, target audience) and reactions to packaging. All focus groups were conducted by a trained moderator. Due to low attendance at focus groups planned for adults, interviews (n=23) were also conducted following the same procedures and open-ended questions used in the focus groups. Demographic and tobacco use characteristics were collected at the start of the focus group or interview. All sessions were audio-taped. Focus groups lasted about one hour; qualitative interviews lasted about 30 minutes. Participants were reimbursed \$25 for their time. The study was approved by the university’s Institutional Review Board.

Data analyses

Focus group and qualitative interview data were transcribed verbatim. Transcriptions were reviewed and a preliminary coding structure consisting of major discussion topics and themes was developed by the research team. Text from focus groups and interviews were then organized into major discussion topics and coded independently for common themes by two research staff using QSR NVivo®. Initial inter-rater agreement was 89.6%. Discrepancies in coding were resolved by a third coder.

RESULTS

Study sample

Sample and tobacco use characteristics are presented in Tables 1 and 2. Adolescents were on average 17.2 years old ($SD=0.8$), 73.9% were white, and 21.7% lived with both parents. Adults were on average 28.9 years old ($SD=12.9$), 100.0% were white, and 55.3% were single. Only 50.0% of adults lived with other people who use tobacco compared to 82.6% of adolescents.

Overall ST product familiarity

Most participants were familiar with a variety of “lower-cost” traditional ST products; however, adults were more likely to be past or current users of these products than adolescents. A majority of adolescents and adults recognized Copenhagen® and Skoal® as well-established products that have “been around quite some time.” Copenhagen® was the most frequently used ST product reported by adolescents (47.8%) and adults (42.1%) followed by Skoal® (adolescents: 39.1%; adults: 31.6%).

The vast majority of adolescents had never heard about or tried any of the novel ST products. Only three adolescents were Camel Snus® users. Conversely, adults reported a high level of familiarity with Camel Snus®; about 50% of adults had tried Camel Snus® at least once and 13.2% were current users. Most adults tried the product because they had received a free giveaway: “I had tried snus a couple of times. I used to get these free at our drive-thru when they first came out.” Most adults were unfamiliar with dissolvable tobacco products. Adults who knew about these products ($n=6$) learned about them from their friends.

Common perceptions of ST products among adolescents and adults

1. ST products with a bolder taste, longer dip, and/or finer cut are better quality—Among traditional ST products, Timber Wolf®, Kodiak®, and Husky® were most often regarded as “cheap” and “poor quality.” Participants who were past or current users of these products noted their short-lasting taste and rougher cut compared to more expensive products shown. For example, one participant stated, “The juice in Copenhagen® lasts a lot longer. Timber Wolf® dip will last 30 minutes to an hour. I could put a Copenhagen® straight in and it will last me an hour and a half to two hours. The better the snuff, the longer the dip lasts.” Another participant shared, “The difference is the name brand grounds the snuff down to like really, really fine...the cheaper brands are a little rougher cut.”

2. ST products packaged in metal containers are more expensive and fresher than those in plastic. Metal containers are also more durable and less likely to spill snuff—The packaging material of traditional ST products was closely tied to perceptions of price and quality. Metal packaging was described as “classy” and “elegant” whereas plastic was regarded as cheap. Participants perceived traditional ST in “shiny tin” containers as more expensive than those in plastic. An adult said, “You can tell since this is all plastic that you aren’t going to pay as much for it. This aluminum or tin lid makes it a

little more appealing to people.” Compared to plastic, participants believed metal containers are more likely to keep product fresh, more durable, and less likely to spill snuff, which were highly valued qualities:

“It takes a metal lid to keep freshness in. You won’t have any freshness with [plastic]; they will expire quicker.”

“You generally put your snuff in your back pocket. When you sit on them enough times, it will crack the lid and it goes all over your pocket. Tin lids are nice because they don’t seem to do that nearly as often, if at all.”

3. Many traditional ST products use animal images on packaging to portray masculinity

—Participants noted the use of animal images such as wolves, bears, and huskies on the packaging of many traditional ST products shown. Adolescents and adults believed that animal images appeal to a more “manly,” “tough,” “rugged,” “outdoor hunter-type” audience. Participants made comments such as “You will not pick up a can of snuff that has a little fairy princess on it. You know Timber Wolf® has a wolf that’s not just howling, but I mean he is snarling. You know it’s mean; he is a man, he is tough.” and “You’ve got the grizzly bear and everything on a snuff can plays to that male ego of tough!”

4. The colors and unique designs of ST packaging are attractive and appealing to ST users

—Participants were attracted to the colors and designs of ST packaging. For example, one adult said, “The red in the middle of The Cope® kind of catches your attention.” Referring to Camel Snus® packaging, a participant commented, “The covering is really neat. That’s the thing that probably attracted me. Just the color, the design of it.” For several participants, the colors and designs influenced decisions to purchase and try different ST products. One adolescent said, “It’s a matter of the colors and designs too. If it has a cool design on it you’re like, ‘Well maybe it will taste as good as it looks!’” The color scheme was also used to identify specific ST products in the store:

“The colors more or less are how you identify it when you walk in the store to see if they’ve got what you are looking for...you know the green is going to be wintergreen. Then you look at the color of the lid to see if it is going to be long cut or straight cut. You can look and see if they have what you are looking for before you actually get up there.”

In response to novel ST packaging, several adults said they would keep the containers of novel ST products: “This is a different style of can so it’s kind of neat actually which is a bad thing. I threw away the contents and saved the can...I use the can to hold other little knickknacks and what not.”

5. Because of their small-sized packaging, novel ST products fit better in pockets and are more discreet

—Regardless of their opinions about novel ST products, participants liked the small-sized packaging, which was considered an advantage over the typical round can. These novel products fit better in pockets and did “not have the redneck status of the ring in the pocket.” An adult shared, “I just like that it is a little tin can you put in your pocket and it doesn’t look like a circle and people be like, ‘Oh he chews’.” Another participant said, “I think they make it more appealing to customers. Like you don’t have that

in your back pocket showing so people aren't going to know you are doing [ST] because it's really small.

6. The packaging of novel ST products look like packages of candy and mint

—Several participants thought the physical packaging of novel ST products resembled candy and mints packages. “I don't know if Camel Snus® and Camel Orbs® did it to look like the mints or the gum in tin packaging, but it reminds me of that.” One adult who saw Camel Orbs® for the first time said, “It looks like some sort of breath mint container. They look more like Altoids®...that breath mint.”

Adolescent perceptions of ST products

1. Because of the lack of spitting, novel ST products are convenient for people to use in school—Comments about novel ST from adolescents concerned their ease of use during school hours. While most adolescents were unaware of novel ST products, one noted, “Camel Snus® are small and easy to hide. These are just convenient because my high school, if you got caught with snuff you got suspended.” Another participant mentioned, “[I heard] that you don't have to spit or whatever and that's like ideal for school you know because you can't go around spitting on the floors.” Adolescents agreed that these novel ST products were being targeted toward high school students because there is no spitting involved.

“These ones they're kind of like mints and stuff...make it easier for students to do it in school. That's why they keep making these new things... Like with these, you don't have to spit or anything. You just keep it in your pocket and just pop one in your mouth and they dissolve. They make these so students don't get in trouble and underage kids can do it and just stick it in their mouth and go along with their day.”

Adult perceptions of ST products

1. Camel Snus® products are “weak” compared to traditional ST—Adults who had tried Camel Snus® commented on their weak taste and poor quality; they agreed that “[Camel Snus®] just doesn't seem to get you the ‘pick me up’ you need and you don't seem to get as much nicotine from it” and that “snus is not as good as the actual stuff.” Several adults mentioned using more than one pouch at a time to obtain a similar effect of traditional ST: “You use two? I have to use three or four.” Meanwhile, other adults focused on the short dip time of snus compared to traditional ST. For example, “The pouches you don't get nearly as much tobacco as you do long cut. I get more dip spit with the long cut. I can dip it a lot longer than the pouches. The pouches seem to dry out real fast.” Adults familiar with Camel Snus® also thought it was more expensive than traditional ST.

2. Novel ST is targeted to nontraditional users—Adults believed novel ST products were targeted to nontraditional users such as smokers to use in venues where smoking is prohibited. These products were described as having a good taste, being weak, and cleaner to use. According to adults, “[Pouches] are weenie snuff ...“Oh, I don't have to worry about it being in my teeth,” but if you're going to be a man you know, get it in your teeth.” “It is

not real snuff because it got to taste like crap. Pouches are for people that don't like to get stuff in their teeth."

3. The weak taste and candy-like flavor of novel ST products are designed to target adolescents—Adults viewed novel ST products as starter products designed to entice youth and get them addicted. An adult said, "Those attract a younger crowd; just people who might want to try it or are looking to see what's with tobacco." Adults who had tried novel ST products described the taste as sweet and candy-like: "The snus is a lot like candy which is kind of concerning. It tastes good, but is kind of concerning if the younger kids get a hold of it which they probably have. They could easily get addicted because of the sweet candy flavor."

DISCUSSION

Overall, adolescents and adults generally had similar beliefs and reactions about ST products. Their perceptions of quality and price were closely tied to product taste and packaging characteristics. In regards to novel ST, adults commented on their weak taste and appeal to untraditional ST users whereas adolescents noted they were convenient for school. This study is one of the first to examine perceptions of ST products and packaging and provides a basis for future tobacco counter-marketing and regulation efforts.

Study findings demonstrate that packaging conveys price and quality, attracts consumer attention, communicates brand image, and reflects social identity.[8, 9] Participants had strong opinions about ST products shown based on their packaging and taste. Although adults complained about the weak short-lasting taste and lower nicotine content of novel ST, total nicotine level in Camel Snus® is similar to those of popular traditional ST.[17] The misperception of lower nicotine levels in novel ST products, which may stem from their candy-like taste and packaging, warrants further investigation. Colors, design, and size of ST packaging appealed to participants. The fact that participants purchased products based on packaging appearance and kept the containers raises concerns about the influential role of packaging on consumer behavior. Participants believed that the animal images on traditional ST packaging reflected rural, manly, and tough qualities. Adults did not regard novel ST products as "real" ST products and believed they were targeted to nontraditional users such as smokers for use in venues where smoking is prohibited. This supports tobacco industry documents revealing that novel ST products are targeted to an urban, professional, and female audience rather than the traditional ST market of outdoors-oriented, blue-collar males in rural areas.[4] During the time of data collection, dissolvable tobacco products were not heavily marketed in the study region, potentially explaining low levels of familiarity among participants.[18]

There are several limitations to this study. This study used purposive sampling of adolescents and adults in four rural Ohio counties. Participants were recruited using flyers posted in schools and a variety of county agencies. Although locations were geographically distributed throughout each county, findings may be unique to the study sample and not generalizable to non-rural areas. This study was limited to males. Since prevalence of ST use among Ohio Appalachian females is low, female users were not able to be recruited.

Furthermore, only a small selection of ST products was shown. Perceptions may not generalize to other ST products. Because of low attendance at focus groups, interviews were also held for adults. Despite using the same questions as focus groups, the interview format may have resulted in more detailed and higher quality responses among adults. Given the qualitative design of this study, conclusions about a causal relationship between packaging characteristics and consumer behavior cannot be established.

Despite these limitations, this qualitative study provides insight about consumer responses to ST products and their packaging. Perceptions about various ST products were shaped by product taste and packaging characteristics. Plain packaging has the potential to reduce the appeal of ST and discourage initiation. Research on the effects of plain packaging, which has primarily concerned cigarette packs, suggest that cigarette brands in plain packaging are considered lower quality tobacco, less attractive, and less satisfying by smokers.[19] Studies also suggest that plain packaging increases effectiveness of health warnings on cigarette packs and reduces false beliefs about safety.[20] In November 2011, Australia became the first country to pass cigarette plain packaging legislation, which was later extended to all tobacco products.[21, 22] As of December 1, 2012, tobacco industry trademark, logos, brand imagery, color schemes, and promotional text other than brand name in a standardized print will be prohibited on all tobacco products sold in Australia. Similar plain packaging legislation for all tobacco products is under consideration in the United Kingdom.[23]

Large health warning labels on tobacco packaging, including graphic warning labels, are also effective in reducing tobacco consumption, increasing motivation to quit, and decreasing likelihood of relapse after a quit attempt.[24] In the U.S., ST packages are required to display warning labels that cover 30% of each principal side.[25] Although 44 countries and jurisdictions worldwide passed legislation to require graphic warning labels on cigarette packs as of June 2011, they have been legally challenged by tobacco companies in several countries, including the U.S.[26] Rulings on these cases will establish a precedent for packaging regulations for other tobacco products such as ST.

Acknowledgments

The authors would like to thank Melanie Wakefield, Ph.D. for her contribution as a consultant on this project.

Funding: This research was supported by a grant from the National Institutes of Health R21 CA129907.

REFERENCES

1. Federal Trade Commission. Smokeless tobacco report for the year 2006. Available at: <http://www.ftc.gov/os/2009/08/090812smokelesstobaccoreport.pdf>. Accessed July 13, 2011
2. Nelson DE, Mowery P, Tomar S, et al. Trends in smokeless tobacco use among adults and adolescents in the United States. *Am J Public Health*. 2006; 96:897–905. doi:10.2105/AJPH.2004.061580. [PubMed: 16571699]
3. Centers for Disease Control and Prevention. Economic facts about U.S. tobacco production and use. Available at: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/economics/. Accessed June 5, 2012
4. Mejia AB, Ling PM. Tobacco industry consumer research on smokeless tobacco users and product development. *Am J Public Health*. 2010; 100:78–87. doi:10.2105/AJPH.2008.152603. [PubMed: 19910355]

5. Biener L, Bogen K. Receptivity to Taboka and Camel Snus in a U.S. test market. *Nicotine Tob Res.* 2009; 11:1154–1159. doi:10.1093/ntr/ntp113. [PubMed: 19564175]
6. Rogers JD, Biener L, Clark PI. Test marketing of new smokeless tobacco products in four U.S. cities. *Nicotine Tob Res.* 2010; 12:69–72. doi:10.1093/ntr/ntp166. [PubMed: 19917598]
7. Romito LM, Saxton MK, Coan LL, et al. Retail promotions and perceptions of R.J. Reynolds' novel dissolvable tobacco in a US test market. *Harm Reduct J.* 2011; 8:10. <http://www.harmreductionjournal.com/content/8/1/10> (accessed 13 July 2011). [PubMed: 21569637]
8. Moodie C, Hastings GB. Making the pack the hero, tobacco industry response to marketing restrictions in the UK: findings from a long-term audit. *Int J Ment Health Addict.* 2011; 9:24–38. doi: 10.1007/s11469-009-9247-8.
9. Wakefield MA, Germain D, Durkin SJ. How does increasingly plainer cigarette packaging influence adult smokers' perceptions about brand image? An experimental study. *Tob Control.* 2008; 17:416–421. doi:10.1136/tc.2008.026732. [PubMed: 18827035]
10. Bansal-Travers M, O'Connor R, Fix BV, et al. What do cigarette pack colors communicate to smokers in the U.S.? *Am J Prev Med.* 2011; 40:683–689. doi:10.1016/j.amepre.2011.01.019. [PubMed: 21565662]
11. Moodie C, Ford A, Mackintosh AM, et al. Young people's perceptions of cigarette packaging and plain packaging: an online survey. *Nicotine Tob Res.* 2011; 14:98–105. doi: 10.1093/ntr/ntp136. [PubMed: 22025540]
12. Vander WMW, Cunningham CL, Bryant Howren M, et al. Tobacco use and exposure in rural areas: findings from the Behavioral Risk Factor Surveillance System. *Addict Behav.* 2011; 36:231–236. doi: 10.1016/j.addbeh.2010.11.005. [PubMed: 21146318]
13. Ohio Department of Development. Ohio county profiles. Available at: <http://www.development.ohio.gov/Appalachia/Documents/AppalachiaCountyProfile.pdf>. Accessed July 13, 2011
14. Ohio Department of Health. Ohio's Smoke-free Workplace Act. Available at: <http://www.odh.ohio.gov/smokefree/sflaw/sflaw1.aspx>. Accessed June 5, 2012
15. Ohio Department of Health. Designee list. Available at: <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/behsmoke%20free%20enforcement/designeeList.ashx>. Accessed June 20, 2012
16. Orzechowski and Walker. The tax burden on tobacco. Available at: http://nocigtax.com/upload/file/158/Tax_Burden_on_Tobacco_vol_46_FY2011.pdf. Accessed June 5, 2012
17. Stepanov I, Jensen J, Hatsukami D, et al. New and traditional smokeless tobacco: comparison of toxicant and carcinogen levels. *Nicotine Tob Res.* 2008; 10:1773–1782. doi: 10.1080/14622200802443544. [PubMed: 19023828]
18. Klein EG, Ferketich AK, Abdel-Rasoul M, et al. Smokeless tobacco marketing and sales practices in Appalachian Ohio following federal regulations. *Nicotine Tob Res.* Published Online First: 7 February 2012. doi: 10.1093/ntr/ntp243.
19. Wakefield MA, Germain D, Durkin SJ. How does increasingly plainer cigarette packaging influence adult smokers' perceptions about brand image? An experimental study. *Tob Control.* 2008; 17:416–421. doi:10.1136/tc.2008.026732. [PubMed: 18827035]
20. Hammond D. Health warning messages on tobacco products: a review. *Tob Control.* 2011; 20:327–337. doi:10.1136/tc.2010.037630. [PubMed: 21606180]
21. Australian Government Department of Health and Ageing. Parliament passes world first plain packaging of tobacco legislation. Available at: <http://www.health.gov.au/internet/ministers/publishing.nsf/Content/mr-yr11-nr-nr243.htm>. Accessed June 5, 2012
22. Kirby T. Australia to be first country to use plain cigarette packaging. *Lancet Oncol.* 2011; 12(5): 427. doi:10.1016/S1470-2045(11)70114-0. [PubMed: 21688410]
23. Conway. Plain packaging of tobacco products. Available at: <http://www.parliament.uk/briefing-papers/SN06175>. Accessed June 5, 2012
24. Campaign for Tobacco-free Kids. Tobacco warning labels: Evidence of effectiveness. Available at: <http://staging.tobaccofreekids.org/research/factsheets/pdf/0325.pdf>. Accessed June 5, 2012
25. Food and Drug Administration. Labeling (Tobacco). Available at: <http://www.fda.gov/TobaccoProducts/Labeling/default.htm>. Accessed July 13, 2011

26. Pickler, N. Judge blocks graphic images on cigarette packages. Available at: <http://www.kaiserhealthnews.org/Daily-Reports/2011/November/08/judge-ruling-on-cigarette-package.aspx>. Accessed November 15, 2011

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Figure 1.

- A. “Lower-cost” traditional smokeless tobacco products
- B. “More expensive” traditional smokeless tobacco products
- C. Novel smokeless tobacco products

Table 1

Sample characteristics of adolescent and adult male smokeless tobacco users (n=61)

Characteristic	Adolescents (n=23) % (n) ^a	Adults (n=38) % (n) ^a	p-value
Age in years, mean $\pm$ SD	17.2 $\pm$ 0.8	28.9 $\pm$ 12.9	<0.001
Missing ^b	26.1 (6)	0.0	
Race			
White	73.9 (17)	100.0 (38)	0.002
African American	4.4 (1)	0.0	
Other	17.4 (4)	0.0	
Missing	4.4 (1)	0.0	
Ethnicity			0.019
Non-Hispanic	78.3 (18)	97.4 (37)	
Hispanic	17.4 (4)	2.6 (1)	
Missing	4.4 (1)	0.0	
Marital status			---
Single	---	55.3 (21)	
Married/Partnered	---	36.8 (14)	
Separated/Divorced	---	5.3 (2)	
Other	---	2.6 (1)	
Level of education			<0.001
< High school	65.2 (15)	0.0	
High school or GED	0.0	26.3 (10)	
Some college	0.0	68.4 (26)	
College	0.0	5.3 (2)	
Missing	34.8 (8)	0.0	
Work for pay			0.001
Yes, Full-time	4.4 (1)	36.8 (14)	
Yes, Part-time	43.5 (10)	50.0 (19)	
No	47.8 (11)	13.2 (5)	
Missing	4.4 (1)	0.0	
Place of residence			---
Live with both parents	21.7 (5)	---	
Live with one parent	13.0 (3)	---	
Live with others	30.4 (7)	---	
Missing	34.8 (8)	---	
Household income			---
< \$15,000	---	15.8 (6)	
\$15,000-\$24,999	---	15.8 (6)	
\$25,000-\$34,999	---	21.1 (8)	
\$35,000-\$49,999	---	5.3 (2)	
\$50,000	---	31.6 (12)	

Characteristic	Adolescents (n=23)	Adults (n=38)	p-value
	% (n) ^a	% (n) ^a	
Missing	---	10.5 (4)	

ST = smokeless tobacco.

^aPercent and frequency reported unless otherwise specified.

^bMissing information on questionnaire, although participants met eligibility criteria.

Table 2

Tobacco use and related characteristics of adolescent and adult male smokeless tobacco users (n=61)

Characteristic	Adolescents (n=23) % (n) ^a	Adults (n=38) % (n) ^a	p-value
Duration of tobacco use in years, mean ± SD	5.1 ± 3.0	13.0 ± 13.7	0.002
Age at tobacco initiation in years, mean ± SD	11.7 ± 2.9	15.0 ± 4.0	0.001
Current ST product used			0.005
Snuff only	17.4 (4)	60.5 (23)	
Chew only	34.8 (8)	15.8 (6)	
Both snuff and chew	47.8 (11)	23.7 (9)	
Tins/pouches per week			0.184
1	13.0 (3)	18.4 (7)	
2-4	47.8 (11)	50.0 (19)	
5	26.1 (6)	31.6 (12)	
Missing	13.0 (3)	0.0	
Frequency of ST use			0.038
5 days/week	43.5 (10)	34.2 (13)	
6-7 days/week	43.5 (10)	65.8 (25)	
Missing	13.0 (3)	0.0	
Time to first ST use in morning			0.241
After 30 minutes	73.9 (17)	65.8 (25)	
Within 30 minutes	21.7 (5)	34.2 (13)	
Missing	4.4 (1)	0.0	
Used cigarettes in the past	65.2 (15)	60.5 (23)	0.714
Self-reported cigarette smoker ^b			0.040
No	39.1 (9)	68.4 (26)	
Yes	56.5 (13)	31.6 (12)	
Missing	4.4 (1)	0.0	
Live with other people who use tobacco	82.6 (19)	50.0 (19)	0.011
People in daily contact with that use tobacco			0.004
All	8.7 (2)	5.3 (2)	
Most	69.6 (16)	26.3 (2)	
About half	17.4 (4)	39.5 (15)	
Few	4.4 (1)	26.3 (10)	
None	0.0	2.6 (1)	

ST = smokeless tobacco.

^aPercent and frequency reported unless otherwise specified.^bSelf-reported smoking status was determined by asking participants if they currently use tobacco and the type(s) of tobacco product(s) (e.g., cigarette, snuff, chew) currently used.